CHAPTER

2

The Economic Outlook

Overview

If current laws governing federal taxes and spending generally remained in place, the economy would expand by 2.3 percent this year and then grow at an average annual rate of 1.8 percent over the next decade, the Congressional Budget Office projects. The current pace of job gains remains solid, the unemployment rate is near its lowest point in five decades, and wage growth has been strong. In CBO's projections, from 2019 to 2023, economic growth gradually slows as the growth of consumer spending subsides; as growth in purchases by federal, state, and local governments ebbs; and as trade policies weigh on economic activity, particularly business investment. From 2024 to 2029, economic growth is largely determined by underlying trends in the growth of the labor force and productivity.

The agency's 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 2019 through 2029. Considerable uncertainty stemming from recent and prospective policy changes and non-policy-related factors surrounds those projections. (CBO's economic projections were completed in late July and do not reflect subsequently released economic data; see Box 2-1.)

Fiscal and Trade Policies

Federal fiscal and trade policies under current law affect CBO's economic outlook in a variety of ways. CBO's economic projections incorporate the assumptions that new limits on discretionary funding contained in the Bipartisan Budget Act of 2019 (Public Law 116-37) will boost federal discretionary outlays and that many temporary provisions of the 2017 tax act (P.L. 115-97, originally called the Tax Cuts and Jobs Act) will phase out or expire. The increase in federal spending is projected to boost economic growth by providing fiscal stimulus over the next few years. In later years, the agency projects that high and rising levels of federal borrowing would reduce private investment activity. In addition, the expiration of the temporary provisions of the 2017 tax act—including the expiration of most of the provisions affecting individual income taxes at the end of 2025 and the phaseout of bonus depreciation by the end of 2026—is projected to temporarily slow economic growth.

CBO's economic projections also incorporate the assumption that U.S. tariffs imposed by the Administration and in effect as of July 25, 2019 (the day the agency completed its economic projections), and tariff increases on U.S. exports implemented by other countries will remain in place through 2029. Those tariffs affect CBO's projections of trade flows, prices, and U.S. output over the next decade. On balance, tariffs are projected to lower economic output, primarily by making consumer goods and investment goods (such as structures and equipment) more expensive. Uncertainty about future trade policies also reduces business investment. Those economic effects wane after 2020 as businesses make adjustments to their supply chains to mitigate the costs associated with the tariffs.

Projections for 2019 to 2023

In CBO's projections for the next five years, real GDP initially exceeds its maximum sustainable level and then falls below that level because of slower but still positive economic growth. That sustained economic growth continues to support the demand for labor, driving up employment and wages. After falling in 2019, interest rates are expected to increase in 2020 as wage growth, inflation, and foreign economic growth pick up.

Output. Compared with the 2.5 percent pace of growth in 2018, output growth under current law is expected to slow. Real GDP is projected to grow by 2.3 percent in 2019 and then by 1.8 percent per year, on average, over the 2020–2023 period (see Figure 2-1 on page 32).

The slowdown in growth this year largely results from slower growth of business fixed investment as the positive effects of the 2017 tax act on investment growth wane, lower oil prices than in 2018 reduce drilling activity,

Box 2-1.

Revisions to the National Income and Product Accounts

In late July, the Bureau of Economic Analysis (BEA) released its annual revision of the national income and product accounts (NIPAs), as well as new data about economic growth during the first half of 2019. The revision incorporated new data from various sources, as well as some changes in statistical methodology.

BEA revised its estimates of the annual growth of real gross domestic product (GDP) from 2014 to 2018, although the average annual growth rate over that entire period was unchanged. In addition, BEA increased its estimates of personal income in recent years and decreased its estimates of corporate income. The Congressional Budget Office completed its forecast before BEA released that new information, but an initial review does not suggest a substantial change to CBO's projections of economic growth.

Revisions to Historical Data

The largest change to GDP growth for an individual year (measured on a fourth-quarter-to-fourth-quarter basis) was a downward revision to the rate of growth in 2018 to 2.5 percent from the previously published 3.0 percent. Because BEA increased its estimates of GDP growth in 2014, 2016, and 2017, there was no net reduction in the average annual growth rate for the 2014–2018 period.

BEA's estimates of total national income were little changed, but significant revisions occurred for domestic corporate profits and for wages and salaries, which together make up the bulk of taxable income. In particular, domestic corporate profits were revised downward by $99 billion for 2017 and by $205 billion for 2018; wages and salaries were revised upward by $67 billion for 2018. In addition, BEA increased its estimate of disposable personal income for 2018 by $220 billion, in part because of the revision to wages and salaries and also because of an upward revision of $86 billion to personal interest receipts. As a result of the higher estimates of disposable personal income, the personal saving rate was also revised upward.

Key price indexes in the NIPAs—including for GDP, personal consumption expenditures (PCE), and core PCE (which excludes changes in food and energy prices)—were largely unchanged.

Growth in 2019

BEA also revised its estimate of GDP for the first quarter of 2019 and released its initial estimate of growth for the second quarter. The new data indicate that real GDP grew at an annual rate of 2.6 percent in the first half of 2019—higher than the 2.4 percent CBO incorporated into its economic forecast. That difference reflects more consumer spending and fixed investment, partly offset by lower net exports. An initial review of that new data indicates that CBO's projection of economic growth of 2.3 percent between the fourth quarter of 2018 and the fourth quarter of 2019, although made before the publication of the new data, remains a reasonable prospect.

Consistent with the revisions to income for 2017 and 2018, the new data show an upward revision of $199 billion to wages and salaries in the first quarter of 2019 and a downward revision of $252 billion to domestic corporate profits in that quarter. For 2019 as a whole, wages and salaries are now likely to be stronger and corporate profits weaker than in CBO's projection.

slower growth in demand reduces businesses' incentive to expand their capacity, tariffs make new structures and equipment more expensive, and uncertainty about trade policies leads some businesses to delay investments or forgo them entirely.

From 2020 to 2023, in CBO's projections, the growth of output slows further because of slower growth in consumer spending and in the purchases of goods and services by federal, state, and local governments. Increased tariffs on certain imported and exported goods, on balance, are expected to have a small negative effect on output over the next few years. Additionally, businesses' uncertainty about trade policies is expected to continue to weigh on private investment and, thus, output.

Output Gap. CBO estimates that GDP has exceeded potential GDP since early 2018. (Potential GDP is an estimate of the maximum sustainable output of the economy.) As a result of robust economic growth throughout 2018 and early 2019, the output gap—the difference between actual and potential GDP, expressed as a percentage of potential GDP—peaked earlier this year. When GDP is above its potential (as it is now), it indicates that the demand for goods and services exceeds the economy's maximum sustainable level of production, which leads to heightened demand for labor as well as

upward pressure on inflation and interest rates. Real GDP is expected to grow more slowly than its potential over the next few years, falling below the level of real potential GDP by the end of 2022. That development would reduce the upward pressure on inflation and interest rates.

Labor Market. The labor market carried momentum from 2018 into the first half of 2019 and is expected to continue to grow at a healthy, albeit slower, pace over the next several years. In CBO's projections, the unemployment rate averages 3.7 percent in 2019 and 2020 and then steadily rises to 4.6 percent by the end of 2023 as output growth slows. Employment rose above its potential, or maximum sustainable, level in 2018 and is expected to remain above its potential level over the entire 2019–2023 period. The labor force participation rate is projected to remain stable through 2020 before falling gradually toward its long-run trend. Wage growth has accelerated and become increasingly broad-based in recent years, with low-wage earners experiencing particularly robust gains in their hourly wages. In CBO's projections, wage growth picks up further before slowing in 2021.

Inflation and Interest Rates. Inflation, as measured by the growth rate of the price index for personal consumption expenditures (PCE), remained below the Federal Reserve's 2 percent long-run objective in early 2019. The Federal Reserve reduced its target range for the federal funds rate (the interest rate that financial institutions charge each other for overnight loans of their monetary reserves) in late July—at least in part because of low inflation and increased risks to U.S. economic growth stemming from international trade tensions and slower foreign economic growth.

After 2019, CBO expects a number of factors to temporarily push inflation above the Federal Reserve's 2 percent long-run objective. CBO expects the Federal Reserve to maintain its current target range for the federal funds rate through most of 2020 and then increase that range at the end of next year, which would put upward pressure on other interest rates.

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 underlying trends in the factors that determine those variables. Over most of that period, in CBO's forecast, 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, the agency expects that policies would change the output gap not only by affecting potential output but also by influencing the overall demand for goods and services.

In CBO's projections, potential output grows more quickly over the next decade than it has since the 2007–2009 recession, mainly because potential labor force productivity grows more quickly than it has since then. Nevertheless, the growth of potential output is projected to be slower than its long-term historical average since 1950 because the working-age population (and hence the potential lab or force) and productivity are expected to grow more slowly than they did, on average, in the past. From 2024 to 2029, growth of potential output is about 1.8 percent per year.

The agency expects inflation, as measured by the growth rate of the PCE price index, to average 2.0 percent from 2024 to 2029. Over that period, in CBO's projections, interest rates gradually rise in response to increases in federal debt as a percentage of GDP, as well as continued improvements in the global economy.

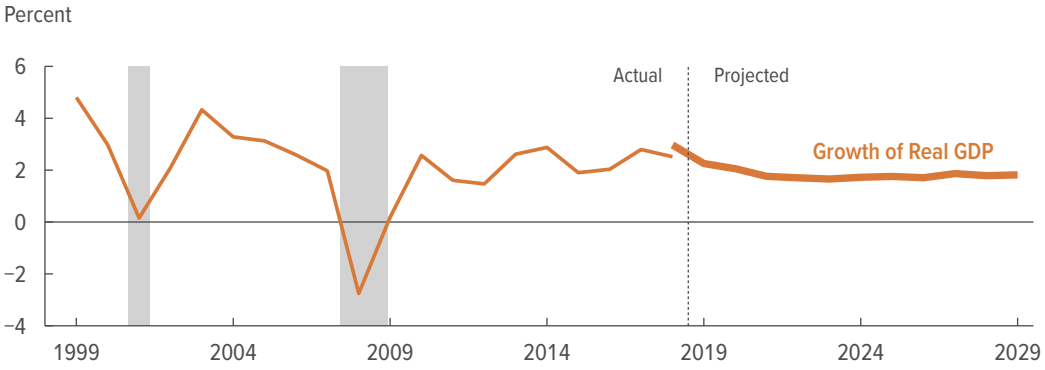
Uncertainty

A range of developments, such as unexpected changes in international conditions, business confidence, or productivity growth, could make economic outcomes differ significantly from CBO's projections. Prospective changes in U.S. trade policies and possible retaliatory actions by U.S. trading partners add to that uncertainty. If trade disputes were resolved such that trade barriers were lowered or removed, economic growth would be faster than CBO projects. Conversely, if trade barriers increased, economic growth would be slower than CBO projects.

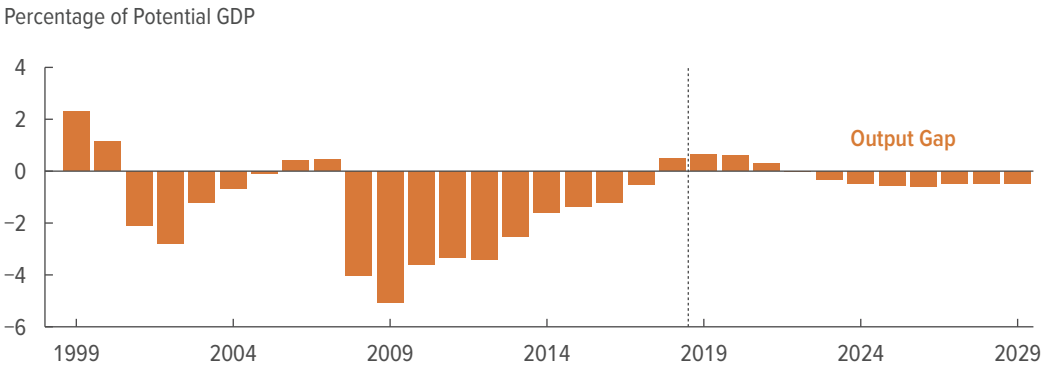
The agency constructs its projections so that they represent the average of a distribution of possible outcomes under current law. For example, CBO projects that real GDP will grow at an average annual rate of 2.0 percent (on a calendar year basis) over the 2019–2023 period. However, CBO also estimates that—if the errors in the agency's current economic forecast are similar to those in its previous forecasts—there is approximately a

Figure 2-1.

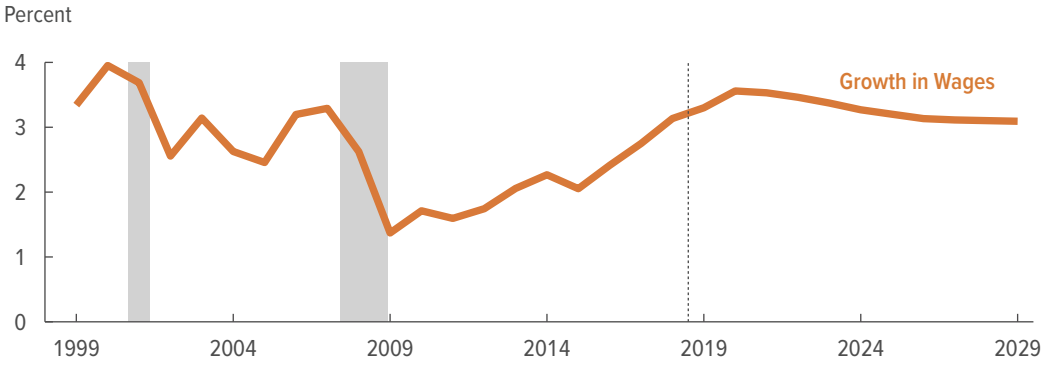
CBO's Economic Forecast in Brief



In CBO's forecast, the growth of output slows over the next few years as growth in consumer spending subsides; as growth in purchases by federal, state, and local governments ebbs; and as trade policies weigh on economic activity.



As the growth of output slows, the gap between GDP and its potential narrows, easing the upward pressure on wages and prices, and GDP ultimately falls below its potential in 2022.



Wage growth, which tends to lag movements in output growth, is expected to pick up further in the next few years before slowing.

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. The growth of real GDP 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.

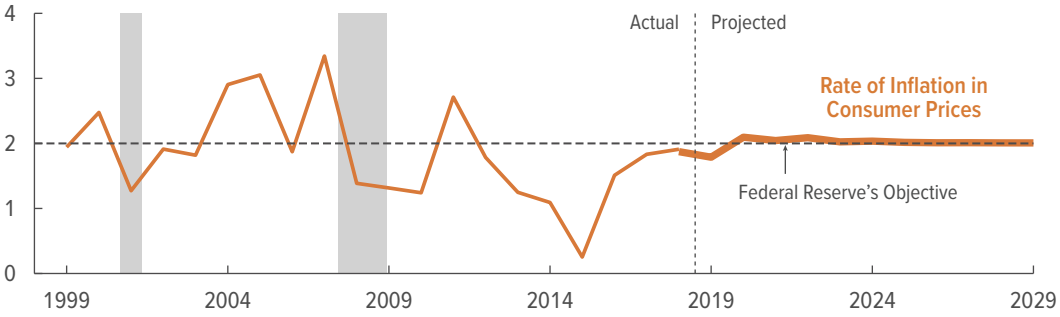
Wages are measured using the employment cost index for wages and salaries of workers in private industry. Growth in wages is measured from the fourth quarter of one calendar year to the fourth quarter of the next.

Continued

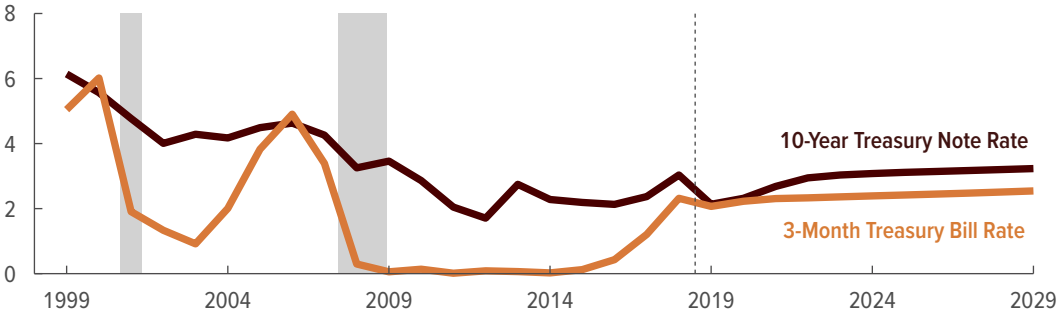
Figure 2-1. Continued

CBO's Economic Forecast in Brief

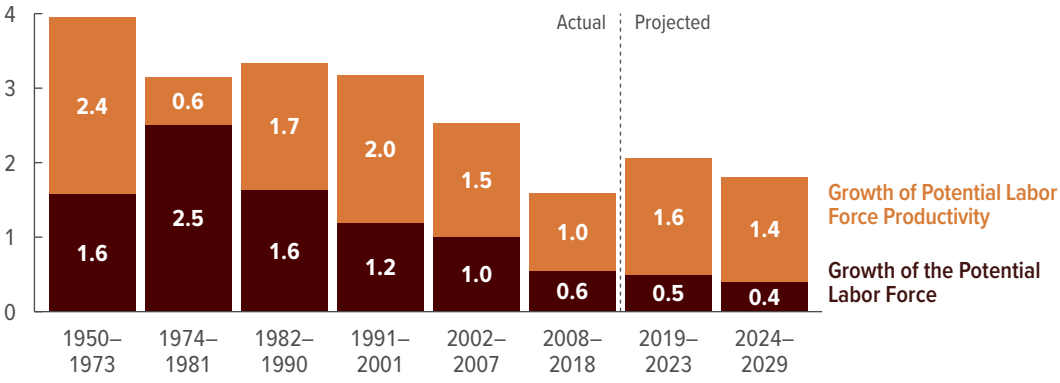
Percent



After 2019, CBO expects a number of factors, including strong demand for labor, to temporarily push inflation above the Federal Reserve's 2 percent long-run objective.



CBO expects the Federal Reserve to keep the target range for the federal funds rate at its current level through most of 2020 and then increase it at the end of that year, putting upward pressure on short-term and long-term interest rates.



In the coming decade, real potential GDP—the sum of the growth of the potential labor force and the growth of potential labor force productivity—is projected to grow faster than it has since the 2007–2009 recession but slower than it has in previous periods.

Consumer price inflation 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 an estimate of the size of the labor force that has been adjusted to exclude the effects of business-cycle fluctuations. Potential labor force productivity is the ratio of real potential GDP to the potential labor force. The bars show average annual growth rates over the specified periods, calculated using calendar year data.

Values for real GDP growth and inflation in consumer prices from 1999 to 2018 (the thin line in the top panel on each page) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 26, 2019. Values from 2018 to 2029 (the thick lines) reflect the data available when the projections were made earlier in July.

GDP = gross domestic product.

two-thirds chance that the average annual growth rate will be between 0.7 percent and 3.3 percent.

Comparison With CBO's Previous Projections and Other Economic Projections

CBO's current economic forecast has some notable differences from the forecast the agency published in January. In particular, CBO has lowered its projections of interest rates in response to new data and recent guidance from the Federal Reserve regarding its outlook for monetary policy. Projected average annual economic growth over the 2020–2023 period was revised upward because of the Bipartisan Budget Act of 2019 (which led CBO to increase its projections of federal discretionary spending over the next decade) and recent economic developments.

CBO's economic projections in this forecast do not differ significantly from those of other forecasters. In particular, they are generally within the range of the forecasts for 2019 and 2020 by the private-sector economists who contributed to the August 2019 *Blue Chip Economic Indicators*, as well as the latest forecasts for 2019 through 2021 contained in the Federal Reserve's *Summary of Economic Projections*.

Fiscal and Trade Policies

CBO's economic projections reflect federal fiscal and trade policies under current law. Federal fiscal policies affect the economy not only through government purchases, which contribute directly to the overall demand for goods and services, but also through the federal tax code and federal transfer programs (such as Social Security and Medicare), which affect both overall demand and the supply of resources. Changes to trade policies—such as increases in tariffs on certain imported and exported goods—can also affect economic activity through changes to domestic prices and through uncertainty about future changes in trade policies, which, in turn, influence trade flows, business investment, and real output and income. (See Box 2-2 for a discussion of the effects of changes in trade policies.)

In addition, fiscal policy and tariffs both have important implications for federal deficits and debt. Changes in deficits and debt affect CBO's long-run projections of potential GDP by altering national saving (the total amount of saving by households, businesses, and governments) and, in turn, the funds that are available for private investment in productive capital (such as office buildings, factories, and equipment).

Fiscal Policies

The fiscal stimulus created by the 2017 tax act and by the increase in federal discretionary spending now projected as a result of recent legislation is estimated to diminish over the next several years. CBO expects that the positive effects of the tax act on investment growth will moderate over time and that the projected increase in discretionary spending will boost economic growth over the next few years but that the resulting increase in federal deficits will lower growth in later years.

As noted in its April 2018 report, CBO expects the 2017 tax act to have a positive net effect on investment, employment, and output over the next decade.[1] The act lowered marginal income tax rates and increased incentives for business investment, which boosted growth in both consumption and business fixed investment in 2018 and 2019. Those positive effects are projected to diminish as households and firms adjust to the increase in their after-tax income and the incentive effects on investment growth wane. In later years, as temporary provisions of the tax act phase out or expire, growth of actual GDP is projected to temporarily fall below the growth of potential output.

The Bipartisan Budget Act of 2019 led CBO to increase its projections of federal discretionary spending over the next decade by $1.5 trillion (see Appendix A). That law raised the caps on discretionary appropriations in fiscal years 2020 (which starts in the final quarter of calendar year 2019) and 2021 (which starts in the final quarter of calendar year 2020) by $171 billion and $153 billion, respectively. As a result, federal purchases of goods and services are projected to be higher than CBO previously estimated. In CBO's forecast, those additional purchases boost economic activity over the next few years. Under the assumptions that govern CBO's baseline projections, the increased spending persists over the entire projection period. Greater federal borrowing as a result of the larger deficits reduces the resources available for private investment in later years.

1. See Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), www.cbo.gov/publication/53651.

Table 2-1.

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

Billions of Dollars

		Value of Imports Affected by Tariffs						
Category of Goods	Value of Imports in 2017	Tariff on Solar Panels	Tariff on Washing Machines	Tariff on Steel	Tariff on Aluminum	Tariffs on Chinese Goods	All Recent Tariffs	Share of Category Affected by Tariffs (Percent)
Food, Feed, and Beverages	138	0	0	0	0	5	5	3.6
Industrial Supplies and Materials	507	0	0	14	9	34	57	11.2
Capital Goods, Except Automotive	641	6	*	2	*	116	125	19.5
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	0	*	**
Total	**2,342**	**7**	**2**	**16**	**9**	**229**	**263**	11.2
Share of Total Imports (Percent)	100.0	0.3	0.1	0.7	0.4	9.8	11.2	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.

Trade Policies

Since January 2018, the United States has imposed tariffs on 11 percent of goods imported into the country, measured as a share of the value of all U.S. imports in 2017.[2] Some of those tariffs apply to imports from nearly all U.S. trading partners, including tariffs on washing machines, solar panels, and steel and aluminum products (see Table 2-1). A few countries are exempted from certain tariffs. For example, Canadian and Mexican imports were granted exemptions from the tariffs on steel and aluminum products. Other tariffs affect only imports from China, covering about half of U.S. imports from China and targeting mostly intermediate goods (items used for the production of other goods and services) and capital goods (such as computers and other equipment).

In response to the tariffs, U.S. trading partners have retaliated with their own tariffs. As of July 25, 2019, retaliatory tariffs had been imposed on 7 percent of all goods exported by the United States—primarily industrial supplies and materials as well as agricultural products (see Table 2-2 on page 38).

CBO's analysis incorporates the assumption that the tariffs on U.S. imports and exports in effect as of July 25, 2019—the day the agency completed its economic projections—will remain in place through 2029.[3]

In CBO's projections, those tariffs reduce U.S. economic activity in three ways. First, they make consumer goods and capital goods more expensive, thereby reducing the purchasing power of U.S. consumers and businesses. Second, they increase businesses' uncertainty about future barriers to trade. Such uncertainty leads some U.S. businesses to delay or forgo new investments or make costly adjustments to their supply chains. Third, they prompt retaliatory tariffs by U.S. trading partners, which reduce U.S. exports by making them more expensive for foreign purchasers. All of those effects lower U.S. output. However, U.S. consumers and businesses are expected

2. The values and shares of affected goods are measured relative to their values and shares in 2017—the year before those tariffs were imposed.

3. The agency's economic projections incorporate the assumption that, in cases in which the Administration exercises its broad authority to impose tariffs without legislative action, the tariffs in effect when the analysis was completed would continue permanently without planned or unplanned changes. On August 1, 2019, the President announced that tariffs would be imposed on an additional $300 billion of Chinese imports beginning on September 1, 2019; on August 13, the U.S. Trade Representative announced that those tariffs would be delayed on certain products. Those scheduled changes to tariffs are not included in CBO's current economic projections.

Box 2-2.

The Economic Effects of Changes in Trade Policies

In early 2018, the United States and its trading partners began imposing higher trade barriers—in particular, increases in tariff rates (see Table 2-1 and Table 2-2). In May 2019, the United States increased the tariff rate from 10 percent to 25 percent on a $183 billion tranche of Chinese imports that were first targeted in September 2018. In that same month, the United States exempted Canadian and Mexican steel and aluminum products from tariffs affecting those imports. In response to those changes, China raised its tariff rates on roughly $51 billion of imported U.S. products, whereas Canada and Mexico eliminated retaliatory tariffs they had imposed on U.S. products.[1]

On balance, in the Congressional Budget Office's projections, the trade barriers imposed since January 2018 reduce the level of real (inflation-adjusted) U.S. gross domestic product (GDP) by about 0.1 percent and the level of real household income by 0.2 percent by 2029. (CBO's analysis reflects the assumption that the tariffs remain in place through 2029.) Those estimated economic effects are small because the value of imports subject to the tariffs is less than 2 percent of the value of all goods and services purchased by U.S. consumers and businesses. However, CBO's estimates of the economic effects of the trade barriers are subject to considerable uncertainty.

Evidence of the Effects of Changes in Trade Policies Since January 2018

The tariffs implemented since January 2018 have altered the pattern of U.S. trade flows. For example, between the first quarter of 2017 and the first quarter of 2019, the value of all categories of imported Chinese goods targeted by the tariffs has declined by $46 billion, or about 22 percent. At the same time, the value of U.S. imports of those goods from other trading partners has increased by $116 billion, or 10 percent. The increased value of imports from other trading partners is partly attributable to the replacement of imports that would have come from China. It also reflects an increase in the prices paid for those products.

Retaliatory tariffs imposed by U.S. trading partners have also affected U.S. export flows. For example, since the imposition of Chinese retaliatory tariffs, U.S. exports of targeted products to China have fallen by $21 billion, or about 24 percent, and U.S. exports of those same products to other trading partners have risen by $93 billion, or 9 percent. That increase in exports to unaffected countries partly reflects the diversion of exports that would have gone to China, in addition to other economic factors that have boosted U.S. exports.

Although the tariffs imposed since January 2018 have increased domestic prices paid for targeted goods, their effect on overall prices is less apparent. Since the tariffs have been implemented, the prices of some of the targeted products, such as washing machines and electrical equipment, have risen. However, for other targeted products and for products indirectly affected by the tariffs (such as those made with steel and aluminum), the effects on domestic prices are harder to observe.[2] That is because the targeted products represent a small share of all investment goods (such as computers and other equipment) and consumer goods. Moreover, in CBO's assessment, tariffs on U.S. imports strengthen the U.S. dollar, which should dampen their effect on the prices of imports.

The tariffs have probably weakened business investment in the United States. Changes in trade policies have increased businesses' uncertainty about future barriers to trade and thus their perceptions of risks associated with investment

1. The U.S. Department of Commerce also approved tariff exemption requests for a number of U.S. firms, mostly for imports of steel and aluminum products.

2. See Aaron B. Flaaen, Ali Hortaçsu, and Felix Tintelnot, *The Production Relocation and Price Effects of U.S. Trade Policy: The Case of Washing Machines,* Working Paper 25767 (National Bureau of Economic Research, April 2019), www.nber.org/papers/w25767; and Mary Amiti, Stephen J. Redding, and David Weinstein, *The Impact of the 2018 Trade War on U.S. Prices and Welfare,* Working Paper 25672 (National Bureau of Economic Research, March 2019), www.nber.org/papers/w25672.

Continued

Box 2-2. Continued

The Economic Effects of Changes in Trade Policies

in the United States and abroad.[3] Uncertainty about future barriers to trade reduces the incentive for businesses to make long-term adjustments to their supply chains because changes in trade policies might affect the costs of their operations. The increased risk of such changes has probably led some businesses to delay investments or forgo them entirely. In addition, CBO estimates that the tariffs have suppressed investment growth by raising the prices of investment goods.

CBO's Estimates of the Tariffs' Effects on the U.S. Economy

CBO expects the changes in U.S. and foreign trade policies since January 2018 to reduce the level of real U.S. GDP by about 0.3 percent by 2020. Tariffs reduce domestic GDP chiefly by raising domestic prices, which reduces the purchasing power of U.S. consumers and increases the cost of business investment. In CBO's projections, the tariffs also reduce real income for the average U.S. household by 0.4 percent by 2020.

That projected reduction in U.S. output is partly explained by changes to U.S. trade flows. By 2020, in CBO's projections, the changes to tariffs since early 2018 lower real U.S. exports by 1.7 percent and lower real imports by 2.6 percent. The negative effect on output from reduced exports is partly offset by an expected boost in the production of domestic goods to replace a small portion of the forgone imports.

The remainder of the reduction in U.S. output can be explained by declines in real consumption and investment. CBO expects that higher prices for investment and consumer goods and greater business uncertainty will reduce real consumption by 0.3 percent and real private investment by 1.3 percent by 2020. Beyond 2020, CBO expects those effects to wane as businesses adjust their supply chains.

In CBO's projections, real investment continues to be dampened over the decade, which lowers potential (maximum sustainable) output. The reduction in investment is partly offset because the increase in revenues from the tariffs reduces government deficits, boosting the resources available for private investment. It is also partly offset because CBO expects the production of some goods targeted by tariffs to be relocated from other countries to the United States. On balance, in CBO's projections, tariffs reduce the level of potential output by 0.1 percent in 2029.

Revisions to CBO's Estimates

CBO has increased its estimates of the effects of the changes in trade policies since January 2018 on the U.S. economy. CBO now expects those changes to reduce real U.S. GDP by 0.3 percent by 2020—0.1 percentage point more than the agency expected earlier this year. The revisions to the long-run effects are more modest.

The revision to the projection for 2020 is mostly attributable to a larger projected decrease in real investment. In particular, real investment is now expected to be 1.3 percent lower by 2020 in response to the tariffs, compared with 0.4 percent lower in CBO's January projections. That change in CBO's projection is the net effect of the higher tariff rates on certain Chinese imports as of May 2019, an increase in the expected size of the effects of businesses' uncertainty about future barriers to trade, and the increase in the value of imports that have been exempted from tariffs. The larger projected reduction in investment also reflects recent studies showing that a larger share of the cost of the tariffs than previously estimated is passed along to U.S. importers.

Uncertainty in CBO's Estimates

CBO's estimates of the economic effects of the tariffs implemented since January 2018 are uncertain for many reasons. The estimated short-run effects on trade flows are uncertain because it is difficult to predict how foreign exporters might adjust their prices in response to the tariffs and associated changes in the value of the dollar. Similarly, it is difficult to predict the extent to which domestic importers will pass along the increase in costs to their domestic customers. The magnitude of the long-run effects on investment is also uncertain because it is difficult to project how changes to tariffs and businesses' concerns about further changes to trade policies will affect long-run investment by companies that rely on global supply chains.

3. See David Altig and others, "Tariff Worries and U.S. Business Investment, Take Two," *Macroblog* (Federal Reserve Bank of Atlanta, February 25, 2019), https://tinyurl.com/y36oacs6; and Federal Reserve Bank of Dallas, "Texas Business Outlook Surveys" (June 24, 2019), https://tinyurl.com/yxbnn5vs.

Table 2-2.

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

Billions of Dollars

Category of Goods	Value of Exports in 2017	Value of Exports Affected by Tariffs: Tariffs Imposed by China	Value of Exports Affected by Tariffs: Tariffs Imposed by Rest of World	Value of Exports Affected by Tariffs: All Recent Tariffs	Share of Category Affected by Tariffs (Percent)
Food, Feed, and Beverages	133	20	1	21	15.9
Industrial Supplies and Materials	465	35	2	37	8.0
Capital Goods, Except Automotive	533	23	*	23	4.3
Automotive Vehicles, Parts, and Engines	158	22	*	22	14.2
Consumer Goods	198	5	2	7	3.5
Other Goods	60	*	0	0	**
Total	**1,546**	**104**	**6**	**110**	7.1
Share of Total Exports (Percent)	100.0	6.7	0.4	7.1	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.

to replace certain imported goods with goods produced in the United States, which would offset some of that decline. In addition, tariff revenues, by reducing the deficit, increase the resources available for private investment in later years.

On balance, CBO expects trade barriers to reduce U.S. output. The effects of the tariffs on trade flows, prices, and output are projected to rise over the next year. By 2020, in CBO's projections, those tariffs reduce the level of real U.S. GDP by roughly 0.3 percent and reduce average real household income by $580 (in 2019 dollars). Beyond 2020, CBO expects those effects to wane as businesses adjust their supply chains. By 2029, in CBO's projections, the tariffs lower the level of real U.S. GDP by 0.1 percent.

The Economic Outlook for 2019 to 2023

CBO expects real GDP to grow by 2.3 percent in 2019 and by an average of 1.8 percent per year between 2020 and 2023 (see Table 2-3). Economic growth in CBO's forecast over the next five years is largely driven by consumer spending and, to a lesser extent, by business and residential investment.

In CBO's projections, the gap between actual GDP and potential GDP and the gap between employment and potential employment narrow over the next few years.[4] (Both output and employment started to exceed their potential levels in early 2018, in CBO's assessment.) Economic growth slows after this year, but actual GDP remains above potential GDP until the end of 2022, and employment, which tends to lag behind movements in output, remains above its potential level over the entire 2019–2023 period. When GDP and employment are above their potential levels, over time there is upward pressure on inflation, interest rates, and wages.

CBO's projections of the economy over the next five years reflect anticipated fluctuations in the components of final demand (such as consumption and investment), projected changes in supply-side factors (such as growth in productivity and the labor supply), and the interactions between them.[5] In CBO's forecast, short-run fluctuations in economic activity are determined

4. Potential employment is CBO's estimate of the maximum sustainable level of employment. It is 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.

5. 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.

primarily by demand-side developments but are also influenced by supply-side factors. For example, if an increase in demand pushed GDP beyond its maximum sustainable level, then one would expect upward pressure on inflation and interest rates, which would limit the increase in GDP growth. However, if the increase in demand was matched by an equivalent boost to potential output, then GDP would not exceed its maximum sustainable level and there would be no additional upward pressure on inflation or interest rates and, in turn, no additional restraint on economic activity.

Output

CBO expects the growth of real GDP to slow to 2.3 percent in 2019, down from 2.5 percent in 2018, as some of the factors that supported growth in output last year begin to taper off. On the one hand, strong growth in households' real disposable income (reflecting, among other things, rising labor income) is expected to support growth in consumer spending in 2019, and real purchases by federal, state, and local governments are projected to boost real GDP growth. On the other hand, CBO expects slower growth in business fixed investment, which contributed almost one-third of the GDP growth in 2018, as the effects of the 2017 tax act on investment moderate and the growth in demand for goods and services slows.

After 2019, economic growth is expected to slow further, averaging 1.8 percent per year from 2020 through 2023. In CBO's projections, both consumer spending and business fixed investment continue to grow but at rates that are lower, on average, than their respective growth rates since the end of the last recession. Real government purchases are also projected to grow more slowly after 2019.

Consumer Spending. CBO expects modest growth in consumer spending on goods and services to be the primary contributor to the growth of GDP over the remainder of 2019. In the agency's projections, real consumer spending on goods and services grows by 2.3 percent in 2019 (down from 2.6 percent in 2018), contributing 1.6 percentage points to the 2.3 percent growth rate of real GDP this year (see Table 2-4 on page 42). The projected growth in households' real disposable income for the year, at 2.0 percent, is weaker than the growth reported in 2018, when reductions in personal taxes provided a boost.[6]

In CBO's projections, annual growth in consumer spending slows further to an average of 2.0 percent per year from 2020 through 2023. The effects of the 2017 tax act on that growth in consumption are projected to diminish because households will have already increased their spending in response to the step up in their after-tax income. Over that same period, CBO expects higher inflation (resulting in part from an elevated output gap and the increased tariffs on imported goods) to reduce the growth of real household income. That reduction in the growth of real household income, combined with an expected slowdown in the growth of equity and housing wealth, would restrain the growth of household spending. Increases in interest rates after this year are also expected to moderate the expansion of consumer credit.

Business Investment. In CBO's projections, real growth in business fixed investment slows this year, from 5.9 percent in 2018 to 2.2 percent in 2019. Several factors supported strong investment during 2018: increased incentives for investment under the 2017 tax act; accelerated growth of output, stemming in part from the tax act and from legislated increases in federal outlays; greater incentives for oil exploration and development created by higher oil prices; rising stock prices for much of the year, which reduced the cost of capital; and the easing of regulations coupled with a slowdown in new regulatory activity, which boosted businesses' confidence in making investments.

CBO expects many of those factors to diminish or reverse in 2019. Although provisions in the 2017 tax act have continued to increase incentives for investment, that effect is expected to be smaller in 2019 than it was in 2018; as a result, CBO projects growth in investment to drop by more than a percentage point in

6. The revisions to the national income and product accounts published in late July (see Box 2-1 on page 30) showed that growth in real disposable income, including wages and salaries, has been significantly stronger than previously estimated, particularly since 2017. That new evidence, which also includes higher estimates of the personal saving rate, indicates that household finances are healthier than previously thought. Therefore, the risk of weaker consumer spending in the near term is probably smaller than CBO expected when making its projections.

Table 2-3.

CBO's Economic Projections for Calendar Years 2019 to 2029

	Actual, 2018	2019	2020	2021	Annual Average 2022–2023	Annual Average 2024–2029
	Percentage Change From Fourth Quarter to Fourth Quarter					
Gross Domestic Product						
Real[a]	2.5	2.3	2.1	1.8	1.7	1.8
Nominal	4.9	3.9	4.0	3.8	3.7	3.9
Inflation						
PCE price index	1.9	1.8	2.1	2.0	2.1	2.0
Core PCE price index[b]	1.9	1.9	2.2	2.1	2.0	2.0
Consumer price index[c]	2.2	2.2	2.4	2.4	2.5	2.3
Core consumer price index[b]	2.2	2.3	2.6	2.6	2.4	2.3
GDP price index	2.3	1.7	1.9	2.0	2.0	2.0
Employment Cost Index[d]	3.1	3.3	3.6	3.5	3.4	3.2
	Fourth-Quarter Level (Percent)					
Unemployment Rate	3.8	3.7	3.7	4.0	4.6[e]	4.6[f]
	Percentage Change From Year to Year					
Gross Domestic Product						
Real[a]	2.9	2.6	2.1	1.8	1.7	1.8
Nominal	5.4	4.2	4.1	3.8	3.7	3.8
Inflation						
PCE price index	2.1	1.6	2.1	2.1	2.1	2.0
Core PCE price index[b]	1.9	1.7	2.2	2.1	2.0	2.0
Consumer price index[c]	2.4	1.9	2.4	2.5	2.5	2.3
Core consumer price index[b]	2.1	2.2	2.6	2.6	2.4	2.3
GDP price index	2.4	1.7	1.9	2.0	2.0	2.0
Employment Cost Index[d]	3.0	3.2	3.5	3.5	3.4	3.2

Continued

2019 compared with 2018. More moderate GDP growth and a decrease in oil prices, which rose in 2018, both slow the projected growth of business fixed investment in 2019. Higher costs of imported capital goods due to tariffs and businesses' uncertainty about trade policies are also projected to restrain investment this year.

From 2020 through 2023, in CBO's projections, slower GDP growth causes the growth of real business fixed investment to slow further to an average of 2.1 percent per year. In addition, the tax code's treatment of equipment and of research and development becomes less favorable in 2022 and 2023. However, CBO expects tariff rates and businesses' uncertainty about future trade policies to stop increasing by 2020, which would limit one factor restraining the growth of investment in 2019. To the extent that a halt to increases in tariffs reduced businesses' uncertainty about future trade policies, investment growth would no longer be dampened by that factor in later years. In addition, CBO does not expect continued reductions in oil prices after 2021.

Residential Investment. In CBO's projections, real residential investment, which declined in 2018 and is expected to grow moderately in 2019, grows faster than overall GDP in 2020 and 2021. Specifically, real residential investment grows by 1.4 percent in 2019 (after declining by 4.4 percent in 2018) and by an average of 4.7 percent per year in 2020 and 2021 before slowing in 2022 and later years. In CBO's assessment, the decline in residential investment in 2018 resulted in part from provisions in the 2017 tax act that reduced incentives to own homes and from higher mortgage interest rates. The anticipated pickup in growth from 2019 through 2021, by contrast, mainly reflects continued strength

Table 2-3. Continued

CBO's Economic Projections for Calendar Years 2019 to 2029

	Actual, 2018	2019	2020	2021	Annual Average 2022–2023	Annual Average 2024–2029
			Calendar Year Average			
Unemployment Rate (Percent)	3.9	3.7	3.7	3.9	4.4	4.7
Payroll Employment (Monthly change, in thousands)[g]	221	148	100	50	21	46
Interest Rates (Percent)						
Three-month Treasury bills	1.9	2.2	2.1	2.3	2.3	2.5
Ten-year Treasury notes	2.9	2.3	2.2	2.5	2.9	3.1
Tax Bases (Percentage of GDP)						
Wages and salaries	43.0	42.8	43.1	43.4	43.6	43.8
Domestic corporate profits[h]	8.7	8.4	8.5	8.5	8.3	8.1

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

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

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

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

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

e. Value for the fourth quarter of 2023.

f. Value for the fourth quarter of 2029.

g. The average monthly change in the number of employees on nonfarm payrolls, calculated by dividing by 12 the change in payroll employment from the fourth quarter of one calendar year to the fourth quarter of the next.

h. 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.

in household formation, lower mortgage interest rates than in 2018, and further easing of mortgage lending standards.

Government Purchases. If current laws governing federal taxes and spending generally remained in place, real purchases of goods and services by federal, state, and local governments would increase by 2.8 percent in 2019—up from 1.5 percent in 2018—and then by 0.7 percent per year, on average, from 2020 through 2023, CBO estimates.

Those estimates reflect an increase in federal purchases in fiscal years 2020 (which starts in the final quarter of calendar year 2019) and 2021 (which starts in the final quarter of calendar year 2020). Specifically, in CBO's projections, real purchases by the federal government grow by 3.5 percent in 2019 and by 1.8 percent in 2020. CBO's baseline projections for federal purchases beyond fiscal year 2021 incorporate the assumption that discretionary funding will grow at the rate of inflation.[7]

Real purchases by state and local governments are projected to increase by 2.4 percent this year, led by a surge in infrastructure investment. From 2020 through 2023, they are expected to grow by an average of 0.7 percent per year as state and local investment moderates.

Net Exports. Real net exports, which have declined since 2014, are projected to continue falling in 2019 as the growth of both real imports and real exports slows.

7. CBO's projections are made in accordance with provisions set forth in the Balanced Budget and Emergency Deficit Control Act of 1985 (P.L. 99-177) and the Congressional Budget and Impoundment Control Act of 1974 (P.L. 93-344). See Chapter 1 for a discussion of the agency's discretionary funding projections.

Table 2-4.

Projected Growth of Real GDP and Its Components

	Actual, 2018	2019	2020	2021	Annual Average 2022–2023	Annual Average 2024–2029
	Projected Growth of Real GDP and Its Components (Percent)					
Real GDP	2.5	2.3	2.1	1.8	1.7	1.8
Components of Real GDP						
Consumer spending[a]	2.6	2.3	1.9	1.9	2.0	2.0
Business investment[b]	9.8	0.5	3.1	1.9	1.5	2.7
Business fixed investment[c]	5.9	2.2	3.2	2.1	1.5	2.7
Residential investment[d]	-4.4	1.4	5.5	4.0	1.7	0.5
Purchases by federal, state, and local governments[e]	1.5	2.8	1.1	0.5	0.6	0.6
Federal	2.7	3.5	1.8	0.1	0.4	0.5
State and local	0.9	2.4	0.7	0.7	0.7	0.6
Exports	0.4	2.1	3.2	2.9	2.8	2.6
Imports	3.2	1.1	3.2	2.4	2.7	2.7
	Contributions to Growth of Real GDP (Percentage points)					
Components of Real GDP						
Consumer spending[a]	1.8	1.6	1.3	1.3	1.4	1.4
Business investment[b]	1.1	0.1	0.4	0.3	0.2	0.4
Business fixed investment[c]	0.8	0.3	0.4	0.3	0.2	0.4
Residential investment[d]	-0.2	0.1	0.2	0.2	0.1	*
Purchases by federal, state, and local governments[e]	0.3	0.5	0.2	0.1	0.1	0.1
Federal	0.2	0.2	0.1	*	*	*
State and local	0.1	0.3	0.1	0.1	0.1	0.1
Exports	*	0.3	0.4	0.4	0.3	0.3
Imports	-0.5	-0.2	-0.5	-0.4	-0.4	-0.4

Source: Congressional Budget Office.

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

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; * = between zero and 0.05 percentage points.

a. Personal consumption expenditures.

b. Business fixed investment and investment in inventories.

c. Purchases of equipment, nonresidential structures, and intellectual property products.

d. The construction of single-family and multifamily structures, manufactured homes, and dormitories; spending on home improvements; and brokers' commissions and other ownership-transfer costs.

e. Based on data from the national income and product accounts.

In CBO's projections, growth of real imports slows in 2019 for two reasons. The first reason is slower growth of domestic consumption and investment, which reduces the demand for imported consumption goods and investment goods. Because that decline in the growth of imports is a direct result of slower growth in domestic purchases, U.S. output growth is unaffected. (In other circumstances, a slowdown in the growth of imports might contribute to stronger GDP growth.)

The second reason import growth is projected to slow in 2019 is tariffs imposed since January 2018 (see Box 2-2 on page 36). In CBO's assessment, those tariffs raised the prices that consumers and businesses pay for imported goods. CBO expects those higher prices to lead to some

reduction in domestic purchases but also to encourage U.S. consumers and businesses to replace the imports subject to the tariffs with domestically sourced goods, boosting domestic output, all else being equal. That substitution explains a small portion of the projected weakness in import growth.

After 2019, growth of real imports is expected to rebound, albeit only slightly, as businesses begin making adjustments to their global supply chains in response to tariffs, increasing imports from unaffected countries. For example, CBO expects some manufacturing to shift from China to other trading partners.

The growth of real exports in 2019 is also expected to be weak relative to historical rates, reflecting slow growth in the economies of major U.S. trading partners, which reduces the demand for U.S. exports, and the strength of the U.S. dollar, which makes U.S. exports less competitive in foreign markets.[8] Moreover, tariffs imposed by some of the United States' trading partners in 2018 are expected to reduce the growth of real exports in the near term by making certain U.S. goods more costly for foreign purchasers. After 2019, the growth of real exports is expected to rebound slightly as the dollar falls, making U.S. exports more competitive.

CBO's projection of real export growth is based partly on the expected pace of economic activity among the United States' leading trading partners. CBO expects growth in those economies to be lower in 2019 than it was in 2017 and 2018. In 2020 and beyond, growth in the economies of the United States' leading trading partners is expected to rebound but remain slow relative to the (trade-weighted) average rates of growth in those economies over the past 20 years. That slow rate of growth abroad is expected to reduce demand for U.S. goods and services and to contribute to slow growth in real U.S. exports relative to average real U.S. export growth over the past 20 years.

Also contributing to CBO's projection of real export growth, the exchange value of the dollar rose substantially during 2018 and is expected to remain relatively high in 2019 and fall only gradually over the following years. The strength of the dollar in 2018 and 2019 can be attributed to a relatively strong U.S. economy, to tighter monetary policy in the United States than in its major trading partners, and to an increase in the demand for dollars resulting from increases in tariff rates. As U.S. economic growth ebbs after 2019, demand for dollar-denominated assets and the value of the dollar are projected to fall slightly.

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 2.1 percent per year from 2019 through 2023 (see Figure 2-2). That projected growth is still faster than the average rate of growth since the end of 2007, mostly because of a projected acceleration in the growth of total factor productivity in the nonfarm business sector.[9] However, it is slower than the average rate of growth of potential output since 1950, largely because of the aging of the population.

CBO's estimates imply that the output gap reached a cyclical peak of 0.8 percent of potential GDP earlier this year. Starting in 2020, in CBO's projections, the output gap declines steadily, turning negative in 2022 and reaching its long-run average of –0.5 percent of potential GDP after 2023.

The Labor Market

Strong demand for goods and services over the past several years boosted the demand for labor and caused labor market conditions to strengthen steadily. As of mid-2019, many indicators point to a healthy labor market:

- Growth in employment has maintained a healthy pace. In CBO's estimation, employment reached its potential level by early 2018 and has since risen above it (see Figure 2-3).

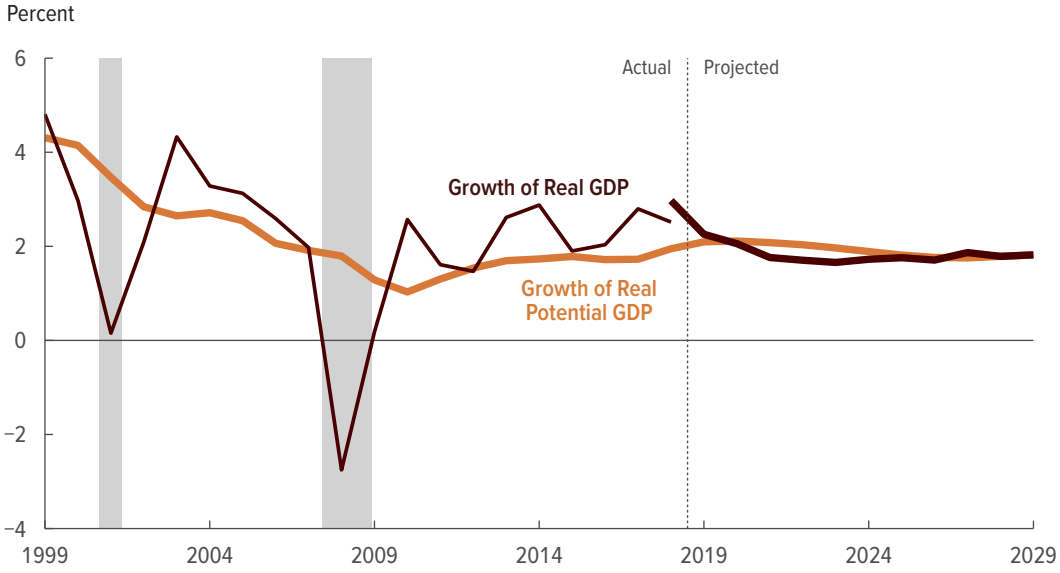
- The labor force participation rate among prime-age workers (those between the ages of 25 and 54) has rebounded since 2015, adding about 1.5 million workers to the labor force and offsetting downward pressure on labor force participation from the retirement of baby boomers (those born between 1945 and 1960).

8. 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.

9. The growth of total factor productivity is the growth of real output that is not explained by the growth of inputs of labor and capital services—the services provided by capital goods that constitute the actual input in the production process.

Figure 2-2.

The Growth of GDP and Potential GDP



In CBO's projections, the growth of real GDP slows over the next few years, largely because of slower growth in consumer spending. The growth of real potential GDP is faster than its average rate since the end of 2007, mostly because of accelerated productivity growth.

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. The 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.

Values for real GDP growth from 1999 to 2018 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 26, 2019. Values from 2018 to 2029 (the thick line) reflect the data available when the projections were made earlier in July.

GDP = gross domestic product.

- The number of initial claims for unemployment insurance benefits is at its lowest level since the 1970s. The U-6 unemployment rate—which includes not only unemployed workers but also marginally attached workers (those who are not looking for work now but have looked for it in the past 12 months) and workers employed part time for economic reasons—is the lowest it has been since late 2000.[10]

- Wage growth has picked up meaningfully over the past few years, and the gains have been increasingly broad-based, with low-wage earners seeing particularly robust growth in their hourly wages.

Some aspects of the labor market still show signs of slack, supporting an outlook of further job gains. For example, the share of the long-term unemployed (workers who have been out of work for 27 weeks or longer) among all unemployed workers remains elevated relative to its prerecession level.

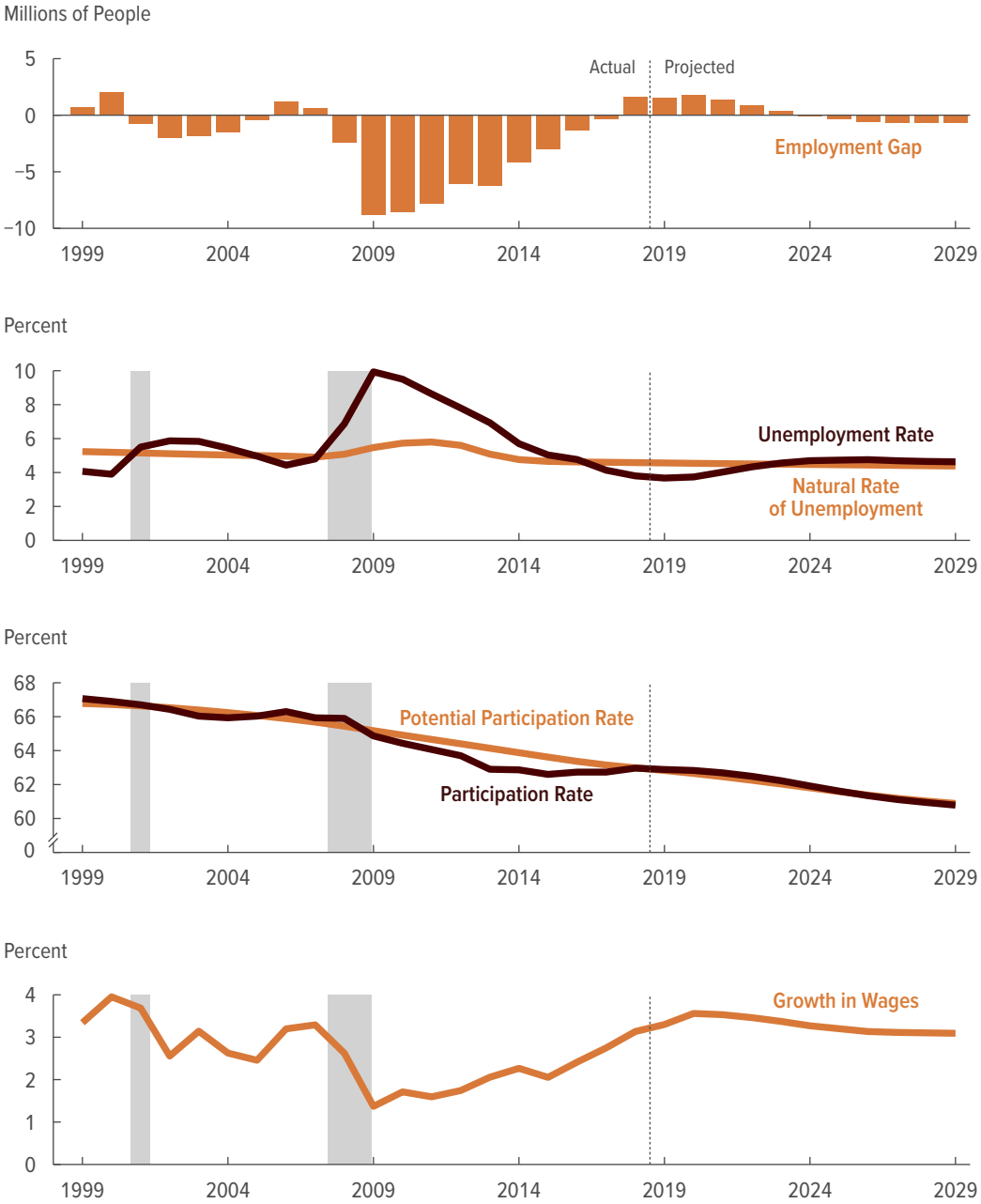
In CBO's projections, the demand for goods and services continues to boost the demand for labor and employment continues to grow, although the pace of that growth slows down, particularly after 2020. As the labor market remains relatively tight (as indicated by employment being above its potential), employers are expected to bid up the price of labor to recruit and retain workers, putting further upward pressure on wages and salaries and other forms of labor compensation in the coming years.

From 2020 to 2023, in CBO's projections, employment remains above its potential level, unemployment remains below its natural rate, and labor force participation

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

Figure 2-3.

The Labor Market



The employment gap is expected to narrow after 2020 as the growth of output slows. By the end of 2024, employment is projected to fall below its maximum sustainable amount.

The unemployment rate is expected to rise steadily, reaching and surpassing its natural rate of 4.5 percent in 2023 before settling into its long-term trend in later years.

The labor force participation rate is expected to respond more slowly to the projected slowdown in output growth, remaining above its potential for the next five years.

Wage growth is expected to peak in 2020 before slowing thereafter.

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 has been adjusted to exclude the effects of business-cycle fluctuations.

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

Wages are measured using 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.

remains above its potential rate. (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 mismatch between the skills that jobs require and those that job seekers possess.) Over that period, employment growth slows as labor compensation rises and the growth of output moderates.

Employment. Job growth in the first half of 2019 was slower than in 2018 but still relatively strong. Specifically, nonfarm payroll employment grew by an average of 165,000 jobs per month in the first half of 2019, an increase that was below the average of 223,000 jobs gained per month in 2018 but well above the growth of potential nonfarm payroll employment, in CBO's estimation. In CBO's projections, nonfarm payroll employment continues to grow by an average of 116,000 jobs per month in the second half of 2019 and by 100,000 jobs per month in 2020.[11] After 2020, job growth is expected to slow sharply, averaging just 31,000 jobs per month between 2021 and 2023, as labor compensation rises further and output growth slows.

CBO expects employment to remain above its long-run potential level over the entire 2019–2023 period. In CBO's projections, the number of people employed exceeds its potential level by an average of 1.4 million in 2019 and 1.7 million in 2020. After 2020, the gap between employment and its long-run potential starts to narrow as higher wages and slower output growth dampen the demand for labor, causing employment to grow more slowly than its potential.

Unemployment. After a temporary uptick in the first quarter of 2019—owing largely to the five-week partial shutdown of the federal government that ended on January 25 and to slightly above-trend labor force participation—the unemployment rate resumed its downward trend in the second quarter of this year. As of July 2019, it stands at 3.7 percent, near its lowest point since the 1960s and about a percentage point below the agency's estimate of the natural rate of unemployment.

One reason for the relatively low unemployment rate is a decline in the natural rate of unemployment. In CBO's estimation, 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. Because the natural rate of unemployment has fallen, the cyclical strength of the current labor market—and the amount of inflationary pressure it implies—is less pronounced than the historically low unemployment rate would otherwise suggest.

In CBO's projections, the unemployment rate remains low—around 3.7 percent—for the rest of this year and next year. After 2020, as economic growth slows further, the unemployment rate is expected to rise steadily, reaching and surpassing its natural rate of 4.5 percent in 2023 before settling into its long-term trend (roughly a quarter of a percentage point higher than the natural rate) in later years.

Labor Force Participation. The labor force participation rate, which has hovered around 62.8 percent since 2014, remains close to that rate through the next year or so, in CBO's projections. That continued stability reflects the balancing of two opposing forces: sustained economic growth, which encourages 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 estimation, the potential labor force participation rate fell 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. In CBO's projections, that gap closes this year and then turns positive in subsequent years because of continued strength in overall demand.

Starting in 2021, as the pace of economic growth drops below the growth of potential output, downward pressure from demographic shifts is expected to dominate, pushing down the labor force participation rate. In CBO's projections, the labor force participation rate falls from 62.9 percent in 2020 to 62.3 percent by 2023, in line with its potential rate, which falls from 62.7 percent to 62.1 percent during that period. Driven by the decline of labor force participation, the share of employed workers in the civilian noninstitutionalized population

11. Part of the strength in nonfarm payroll growth in 2020 is associated with the temporary increase in federal employees needed to conduct the 2020 Census.

also falls, from 60.6 percent in 2019 and 60.5 percent in 2020 to 59.4 percent by the end of 2023.

Labor Compensation. Wage growth has accelerated in the past year or so. As the labor market remains relatively strong, employers are expected to bid up the price of labor to recruit and retain workers, putting further upward pressure on wages and salaries and other forms of labor compensation in the coming years.

In CBO's projections, the annual increase in the employment cost index for wages and salaries of workers in private industry is 3.3 percent in 2019, 3.6 percent in 2020, and 3.5 percent from 2021 to 2023—slightly greater than its 3.1 percent pace in 2018 and considerably greater than the 2.0 percent average from 2009 to 2017. Other measures of labor compensation, such as the average hourly earnings of production and nonsupervisory workers in private industry, are also expected to grow more rapidly than in recent years. The faster pace of wage growth is expected to restrain the demand for labor, slowing the pace of wage growth in later years.

In addition to accelerated growth in overall measures of wages, data from surveys show that recent gains in hourly wages have become increasingly broad-based. For low-wage earners in particular, wage growth has been especially strong since late 2016. That development is consistent with historical experience, which indicates that further strengthening of an already strong labor market tends to confer extra benefits—in terms of higher wages and more opportunities for employment—to people in lower income groups.[12] (Another factor that may have contributed to wage growth among low-wage earners is recent increases in minimum wages at the state and local level.) Strong and more broad-based wage growth supports a healthy outlook for consumption and output growth.

Inflation and Interest Rates

The growth rate of the price index for personal consumption expenditures—the measure that the Federal Reserve uses to define its 2 percent long-run objective for inflation—slipped below that objective in late 2018 and early 2019. The traditional measure of core PCE price inflation, which excludes food and energy prices because they tend to be volatile, also fell below 2 percent.

Many analysts have been surprised that core inflation has remained below the Federal Reserve's long-run objective despite a strong labor market. The strength in the labor market has raised wage growth, but that higher wage growth has not led to higher inflation. However, evidence suggests that the recent decline in the traditional measure of core inflation is probably the result of temporary factors. Alternative measures of core inflation that are designed to eliminate the effects of short-lived factors (other than food and energy prices) remain close to 2 percent.[13] CBO expects the effects of those factors to wear off over the remainder of the year.

In response, at least in part, to muted inflationary pressures and to increased risks to U.S. economic growth stemming from international trade tensions and slower foreign economic growth, the Federal Reserve reduced the target range for the federal funds rate in late July. CBO expects the Federal Reserve to raise the target range late next year as inflationary pressures and foreign growth pick up.

Over the next few years, a number of factors are expected to continue putting upward pressure on prices and wages. Those factors include the recent reduction in the federal funds rate, continued tight labor market conditions, and—particularly in 2019 and 2020—tariffs. On balance, in CBO's estimation, tariffs increase the core PCE price index by 0.3 percent from the beginning of 2018 to the end of 2020. That effect on prices is expected to be somewhat drawn out as businesses respond to recently imposed tariffs only gradually, in part because of uncertainty about future changes in trade policies.

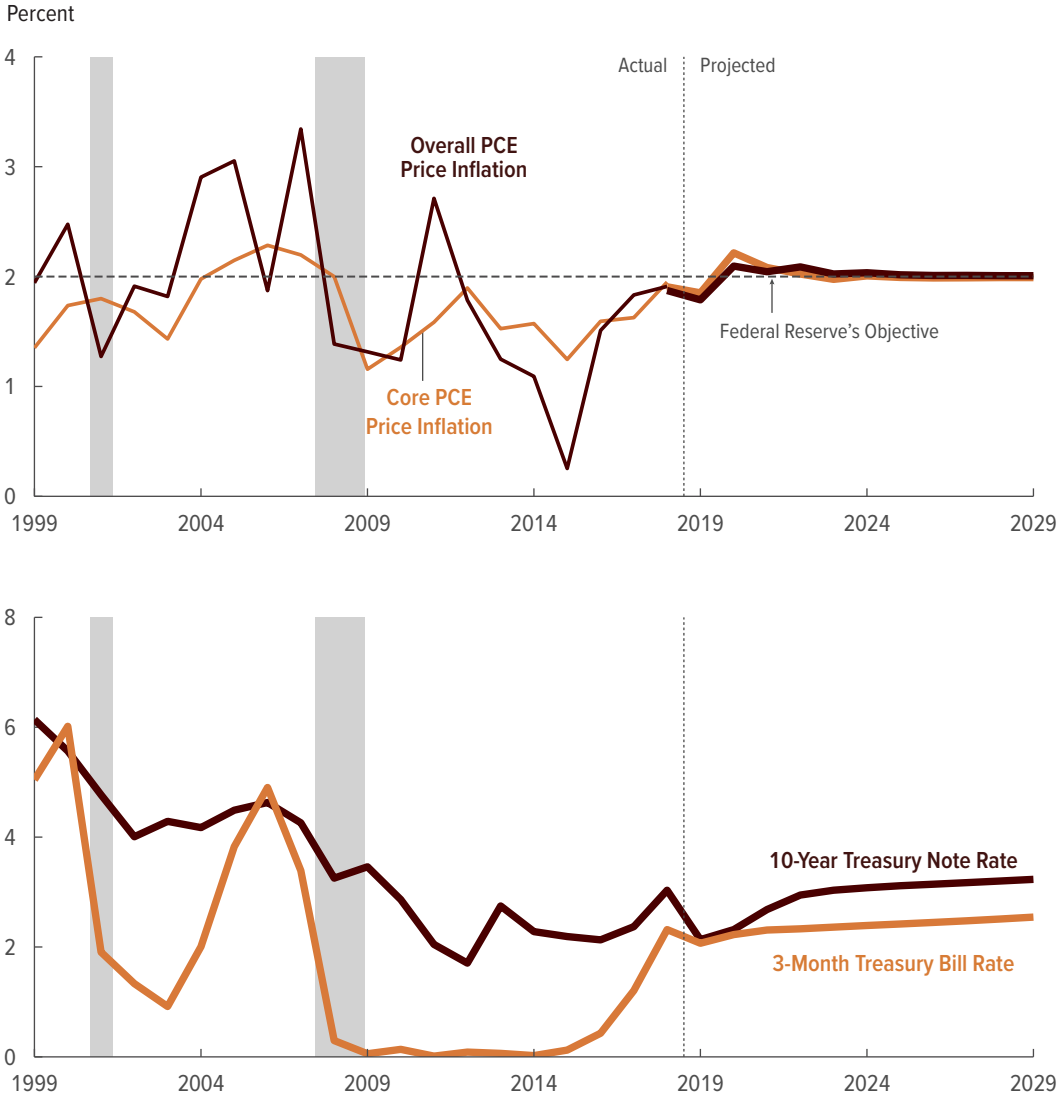
In CBO's projections, growth in the core PCE price index rises from 1.9 percent in 2019 to 2.2 percent in 2020 (see Figure 2-4). The core consumer price index for urban households (CPI-U), which tends to grow faster than the PCE price index, rises by 2.3 percent in 2019 and 2.6 percent in 2020. The agency expects the

12. For example, see Arthur Okun, "Upward Mobility in a High-Pressure Economy," *Brookings Papers on Economic Activity* (Spring 1973), https://tinyurl.com/y4h7fvtz. For a more recent study, see Stephanie Aaronson and others, "Okun Revisited: Who Benefits Most From a Strong Economy?" *Brookings Papers on Economic Activity* (Spring 2019), https://tinyurl.com/yyd6zjn9.

13. For an assessment of the relative strengths of such measures, see Jim Dolmas and Evan F. Koenig, *Two Measures of Core Inflation: A Comparison*, Working Paper 1903 (Federal Reserve Bank of Dallas, February 2019), www.dallasfed.org/research/papers/2019/wp1903.

Figure 2-4.

Inflation and Interest Rates



In CBO's projections, a number of factors, including strong labor market conditions, cause growth in the core PCE price index to rise from 1.9 percent in 2019 to 2.2 percent in 2020.

CBO expects both short-term and long-term interest rates to remain near their current levels through most of 2020 and then to rise gradually as inflation stabilizes at 2 percent—the Federal Reserve's long-run objective.

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

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

Values for inflation from 1999 to 2018 (the thin lines in the top panel) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 26, 2019. Values from 2018 to 2029 (the thick lines) reflect the data available when the projections were made earlier in July.

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

For interest rates, data are fourth-quarter values.

Federal Reserve to increase its target range for the federal funds rate late in 2020 partly in response to a pickup in inflation during that year, thereby putting downward pressure on inflation in later years; for that reason, in CBO's projections, core PCE inflation stabilizes at about 2.0 percent after 2020. CBO expects the average federal funds rate to rise from 2.2 percent in 2020 to 2.5 percent by the end of 2023.

The interest rate on 3-month Treasury bills is expected to fall slightly in the second half of 2019, partly in response to the reduction of the federal funds rate and partly in

response to a deceleration in economic growth. In CBO's projections, the interest rate on 3-month Treasury bills falls from 2.3 percent in the first half of 2019 to 2.1 percent by the end of the year. CBO expects short-term interest rates to remain at their current levels through most of 2020 and then to rise again as foreign economic growth improves and the Federal Reserve raises rates at the end of next year. The interest rate on 3-month Treasury bills is projected to rise to 2.4 percent by the end of 2023.

CBO expects long-term interest rates to remain near their current levels through early 2020 and then to rise for several reasons. First, long-term interest rates reflect investors' expectations about 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 a number of factors that have recently pushed it to historically low levels dissipate. Two such factors are investors' heightened concerns about relatively weak global economic growth and the increased demand for long-term bonds as a hedge against unexpectedly low inflation.

In CBO's projections, as foreign economic growth improves and the rate of inflation reaches the Federal Reserve's 2 percent long-run objective, investors' demand for long-term bonds weakens slightly, putting upward pressure on long-term interest rates. CBO also expects faster foreign growth to put upward pressure on the interest rates on foreign governments' debt. (Many of those interest rates were negative during the first half of 2019.) That would lessen the demand for, and therefore push up the interest rates on, U.S. Treasury securities. The interest rate on 10-year Treasury notes is projected to rise to 3.0 percent by the end of 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.[14] In addition, CBO considers how the federal tax and spending policies—as well as trade and other public policies—embodied in current law would affect those variables.

In some cases, policies might be projected not only to affect potential output but also to influence overall demand for goods and services, causing the gap between actual output and potential output to change. For example, the expiration of temporary provisions in current law—including the expiration of most of the provisions affecting 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 0.4 percent in the potential labor force and about 1.4 percent in potential labor force productivity (see Table 2-5). That annual 1.8 percent growth of potential output is nearly one-quarter of a percentage point slower than the expected growth of more than 2.0 percent per year from 2019 to 2023. About two-fifths of that slowdown results from slower growth of the potential labor force; the remaining three-fifths results from slower growth in potential labor force productivity.

The slowdown in growth is expected to be slightly more pronounced in the nonfarm business sector, which produces roughly three-quarters of domestic output, than in other sectors of the economy. Annual growth of potential output in that sector is projected to slow by about a quarter of a percentage point, from more than 2.3 percent over the 2019–2023 period to about 2.1 percent over the 2024–2029 period. The contribution to potential output growth from potential hours worked falls from nearly 0.4 percentage points per year, on average, in the first half of the projection period to 0.2 percentage points in the second half. The contribution from capital services drops from an average of more than 0.9 percentage points per year to about 0.7 percentage points. (By itself, that reduction would lead to slower growth in labor force productivity.)

The slower growth of potential hours worked and 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. (Changes in trade policies are

14. 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.

Table 2-5.

Key Inputs in CBO's Projections of Real Potential GDP

Percent

	Average Annual Growth							Projected Average Annual Growth		
	1950–1973	1974–1981	1982–1990	1991–2001	2002–2007	2008–2018	Total, 1950–2018	2019–2023	2024–2029	Total, 2019–2029
Overall Economy										
Real Potential GDP	4.0	3.2	3.4	3.2	2.5	1.6	3.2	2.1	1.8	1.9
Potential Labor Force	1.6	2.5	1.6	1.2	1.0	0.6	1.4	0.5	0.4	0.4
Potential Labor Force Productivity[a]	2.4	0.6	1.7	2.0	1.5	1.0	1.7	1.6	1.4	1.5
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[b]	3.7	3.8	3.5	3.8	2.9	2.3	3.4	2.7	2.2	2.4
Potential Total Factor Productivity[c]	1.9	1.0	1.3	1.5	1.6	0.7	1.4	1.0	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	1.0	0.7	0.8
Potential total factor productivity	1.9	1.0	1.3	1.5	1.6	0.7	1.4	1.0	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[d]	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 average 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 services provided by capital goods (such as computers and other equipment) that constitute the actual input in the production process.

c. The average real output per unit of combined labor and capital services, excluding the effects of business cycles.

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

expected to have a small negative effect on potential output in the long run, although considerable uncertainty surrounds that assessment. See Box 2-2 on page 36 for more details.)

Unlike the growth of potential hours worked 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 more than 1.0 percent in the first half of the projection period to over 1.1 percent in the second half. That acceleration somewhat offsets the slowdown in the growth of other inputs to production. The increase in potential total factor productivity growth also plays a key role in making potential output grow faster than its estimated average rate of nearly 1.6 percent per year since 2007, when the last recession began.

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 projection 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.[15] However, that convergence is interrupted in the current forecast because the expiration of temporary provisions of the 2017 tax act not only diminishes the growth of potential output by reducing the supply of labor but also temporarily slows the growth of overall demand.

As a consequence, actual output temporarily falls relative to potential output. It then rises until the relationship between actual and potential output reaches its long-run average in the final years of the projection period. Correspondingly, the average growth of actual output during the 2024–2029 period is close to, but slightly slower than, that of potential output.

The Labor Market

CBO expects the natural rate of unemployment to decline slowly over the next decade, from 4.6 percent in 2019 to 4.4 percent by 2029. That slow decline reflects the continuing 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 reaches 4.7 percent in 2024, and the difference between the unemployment rate and the natural rate reaches its long-term average of about 0.25 percentage points in 2025.[16] As the natural rate of unemployment declines slowly from 2024 to 2029, the unemployment rate also falls, except in 2025 and 2026, when it rises slightly. That temporary increase occurs because the slowdown in the growth of 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. The projected unemployment rate is 4.6 percent in 2029, slightly below its level of 4.7 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 a percentage point below the agency's projection for 2024. CBO attributes most of the decline from 2024 to 2029 to the aging of the population (because older people tend to participate less in the labor force than younger people do).[17]

The growth in employment and wages is projected to be moderate over the 2024–2029 period. In particular, nonfarm payroll employment increases by an average of 46,000 jobs per month during those years, in CBO's projections. The employment-to-population ratio (the share of employed workers as a percentage of the civilian noninstitutionalized population) falls from 59.1 percent in 2024 to 58.0 percent in 2029, primarily reflecting the decline in potential labor force participation. 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 1.9 percent from 2024 to 2029—the same rate as projected growth in labor productivity in that sector.

Inflation and Interest Rates

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

CBO projects that the interest rates on 3-month Treasury bills and 10-year Treasury notes will average 2.5 percent and 3.1 percent, respectively, over the 2024–2029 period. Those projected rates are below the securities' average rates from 1990 to 2007, a period that CBO uses for comparison because expectations about inflation during that time were fairly stable and there were no significant financial crises or severe economic downturns.

In CBO's analysis, a number of factors act to push interest rates on Treasury securities below their averages from 1990 to 2007: lower average inflation, slower growth of the labor force (which reduces the return on capital), slightly slower growth of productivity (which

15. 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, on average, in the latter part of the projection period so that inputs to the budget projections (such as income and interest rates) are consistent with historical averages.

16. That projected gap is consistent with the long-term relationship between actual GDP and potential GDP.

17. 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.

also reduces the return on capital), a greater share of total income among high-income households (which tends to increase saving), and a higher risk premium on risky assets (which increases the relative demand for risk-free Treasury securities, boosting their prices and thereby lowering their interest rates). Other factors offset some of that downward pressure on interest rates: a larger amount of federal debt as a percentage of GDP; smaller net inflows of capital from other countries as a percentage of GDP (which reduce the supply of funds available for borrowing); and a higher share of income going to the owners of capital (which increases the return on capital assets with which Treasury securities compete, reducing the demand for those securities). On balance, interest rates on Treasury securities are projected to be lower, on average, over the 2024–2029 period than they were between 1990 and 2007.

Nevertheless, interest rates are projected to rise over the 2024–2029 period. In particular, rising federal debt in relation to GDP and an improving global economy are projected to exert upward pressure on short- and long-term interest rates. CBO expects the federal funds rate to rise from 2.5 percent in 2024 to 2.7 percent in 2029. Similarly, the rates for 3-month Treasury bills and 10-year Treasury notes are expected to rise from 2.4 percent and 3.1 percent to 2.5 percent and 3.2 percent, respectively, over that period. CBO expects the term premium on long-term bonds to increase slightly over that period as global economic growth continues to improve and the risk of unexpectedly low inflation continues to diminish.

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, income from interest and dividends, and other categories. (Labor income includes wages and salaries as well as other forms of compensation, such as employer-paid benefits and a fraction of proprietors' income.) The shares for wages and salaries and for domestic profits are of particular importance for projecting federal revenues because those types of income are taxed at higher rates than others.

Labor income as a share of GDP fell from 58.6 percent in 2008 to 57.1 percent in 2010 but rebounded to 57.8 percent in 2017. CBO expects labor income as a share of GDP to continue its recovery over the entire projection period, consistent with the agency's forecasts for employment and compensation, and to ultimately reach 58.5 percent by the end of 2029 (see Figure 2-5). In particular, wages and salaries are expected to grow more quickly than other kinds of income throughout the 11-year projection period; their share of total income rises from 43.2 percent of GDP in 2018 to 43.8 percent in 2029 in CBO's projections.

Longer-term factors have depressed labor income as a share of GDP, however, and CBO expects those factors to continue to have an influence. Since the early 2000s, labor income as a share of GDP has fallen below 60.4 percent—its average between 1947 and 2000. In CBO's assessment, factors contributing to that decline include technological change, which may have increased returns to capital more than it has increased returns to labor, and globalization, which has increased international competition in goods-producing industries, putting downward pressure on workers' compensation.[18] Some income has also gone toward the returns on intangible capital, such as brand identity arising from advertising, which may have reduced the share of income that has gone toward labor.[19] Increased market power might also have allowed some firms to raise their prices relative to their labor costs, possibly reflecting the rise in many industries of "superstar" firms with higher efficiency and hence lower costs than their competitors.[20] The relative importance and persistence of the factors that have depressed labor income as a share of GDP remain unclear, but some of them are expected to persist.

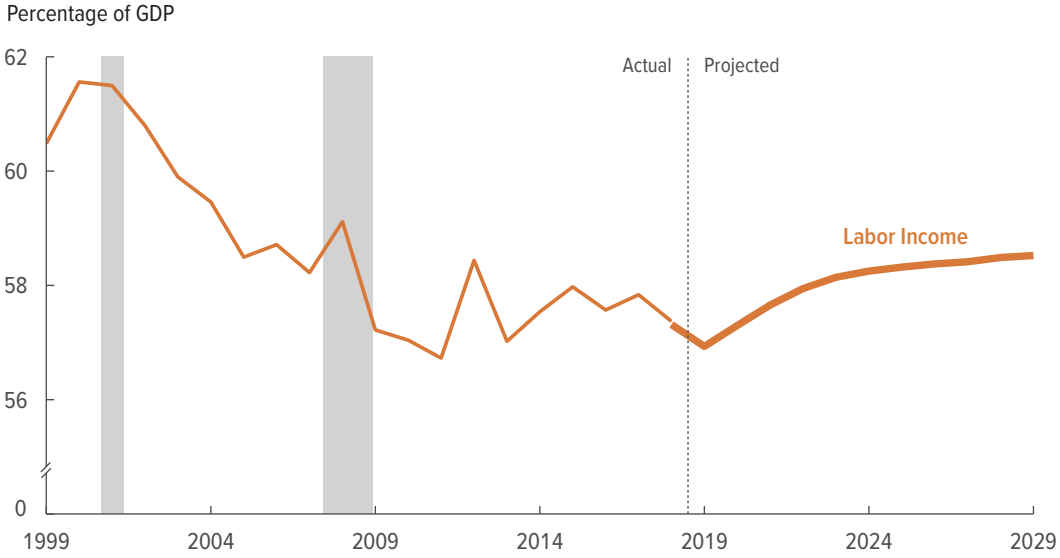
18. The role of technological change has been examined by some economists who investigated the role of information technology in lowering the cost of capital goods, which may have induced firms to shift away from the use of labor toward the use of capital. See, for example, Loukas Karabarbounis and Brent Neiman, "The Global Decline of the Labor Share," *Quarterly Journal of Economics*, vol. 129, no.1 (October 2013), pp. 61–103, https://bit.ly/2SHF5SH. The role of globalization was examined by Michael Elsby, Bart Hobijn, and Aysegul Sahin, "The Decline of the U.S. Labor Share," *Brookings Papers on Economic Activity* (Fall 2013), https://brook.gs/2VCVbyx.

19. 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.

20. On the rise in market power, see Jan De Loecker and Jan Eeckhout, *The Rise of Market Power and the Macroeconomic Implications*, Working Paper 23687 (National Bureau of Economic Research, August 2017), www.nber.org/papers/w23687. On the rise of superstar 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.

Figure 2-5.

Labor Income



CBO expects labor income as a share of GDP to rise over the projection period, consistent with the agency's forecasts for employment and compensation. However, that share is not expected to reach previous historical averages.

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.

Values for labor income from 1999 to 2018 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 26, 2019. Values from 2018 to 2029 (the thick line) reflect the data available when the projections were made earlier in July.

Data are fourth-quarter values.

GDP = gross domestic product.

As a result, CBO does not expect that share to reach its previous historical average.

Domestic corporate profits as a share of GDP average 8.3 percent over the projection period, falling about 0.3 percentage points in the early years to reach 8.1 percent in 2026 and thereafter. That decline mostly reflects the projected rise in wages and salaries, but it also reflects an increase in corporate interest payments stemming from rising interest rates.

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 if, through 2029, the federal policies embodied in current law were generally unchanged and the trade policies in effect when CBO completed its projections remained in place. If federal fiscal policies or trade policies changed, then economic outcomes would probably differ from CBO's economic projections.

Even if no changes were made to federal fiscal policies or trade policies, economic outcomes would still probably differ from CBO's projections because of non-policy-related factors. Some uncertainty surrounds fundamental aspects of the economy (such as underlying trends in productivity and labor force growth), and some uncertainty surrounds households' and businesses' responses to policies under current law. Changes to trade policies since January 2018 and the prospect of further changes compound that uncertainty because it is particularly difficult to project how businesses will alter their investment activity or adjust their global supply chains in response.

Uncertainties for 2019 to 2023

Many developments—such as unexpected changes in the labor market, business confidence, the housing market, and international conditions—could cause economic

growth and other variables to differ considerably from CBO's projections. In the agency's view, CBO's economic forecast balances the risks of those potential developments, on average, over the 2019–2023 period, so that outcomes could differ from the forecast in either direction.

On the one hand, the agency's current forecast of employment and output for the near term may be too pessimistic. For example, data on employment through the first half of 2019 show that hiring remains strong; moreover, many newly hired workers were previously not classified as being in the labor force, so the labor force participation rate has increased without an increase in the unemployment rate. Moreover, although wage growth has accelerated, inflation remains relatively low. If the combination of strong hiring, robust wage growth, and subdued inflation continued longer than in CBO's projections, real income and household consumption would increase by more than CBO expects.

On the other hand, CBO's forecast for 2019 through 2023 may be too optimistic. A number of international factors pose significant risks to CBO's economic outlook over the next five years. For instance, a disorderly exit of the United Kingdom from the European Union or a government debt crisis in Europe could weaken the U.S. economic outlook by disrupting the international financial system, interfering with international trade, and weakening domestic business and consumer confidence. Slower growth in China—relating to the ongoing trade disputes with the United States and other issues within the country—could worsen China's credit markets, sparking even larger declines in the demand for U.S. exports.

Recent actions related to U.S. trade policy, particularly increases in tariffs, create further uncertainty about the current economic outlook. Because broad tariff increases in developed economies have been rare in recent history, existing empirical research sheds little light on how businesses and consumers in the United States and its trading-partner countries might respond.

Changes in trade policies have increased the risks associated with investments made by U.S. exporters and businesses that rely heavily on imported goods. To make investment decisions, businesses need to predict how trade policies might change in the future and how those changes will affect the cost of production and demand for their products in the United States and abroad. Uncertainty stemming from the possibility of additional changes in trade policies makes it difficult for businesses to plan long-term investments and may cause them to postpone or reduce their investments. Because there is little recent evidence on how businesses react to uncertainty about future barriers to trade, CBO's projections of those reactions are inherently uncertain. (See Box 2-2 on page 36 for details on how changes in trade policies affect the economy.)

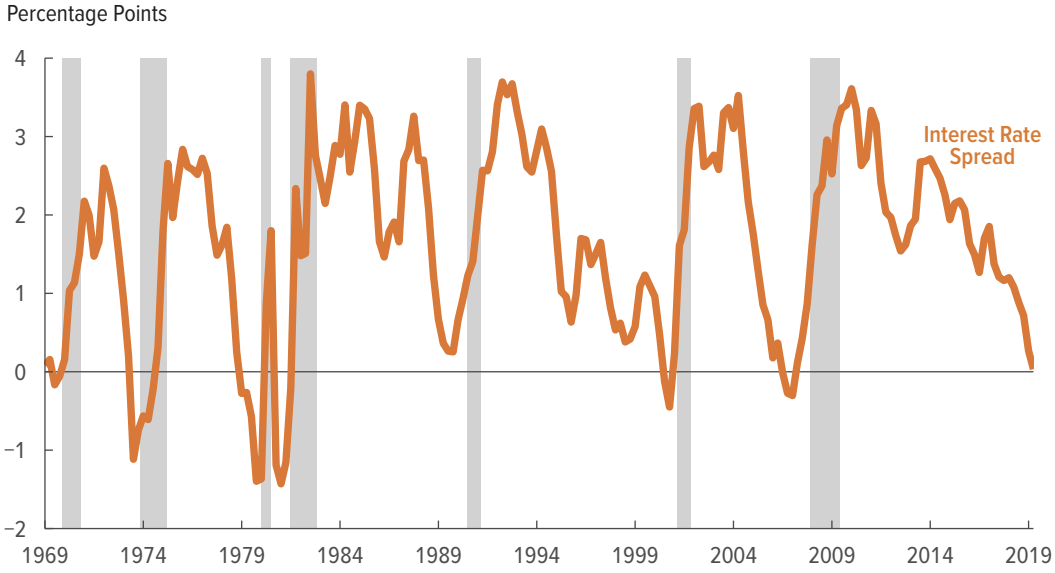
CBO's projections of the economic effects of those trade-policy changes may prove too pessimistic. If the tariffs facilitated new trade agreements that lowered trade barriers between the U.S. and its trading partners, domestic inflation would probably decline, trade flows and investment would rise, and GDP growth would be faster than projected. If those agreements also established stronger protections for intellectual property among U.S. trading partners, U.S. corporate profits and investment in research would probably increase. In addition, if the cost increases associated with the tariffs turned out to be smaller than expected or if trade tensions eased, then domestic inflation would be lower and the tariffs' negative effect on trade and GDP growth would be less than CBO currently projects.

Conversely, CBO's projections of the economic effects of changes in trade policies may be too optimistic. If businesses were less able to absorb the cost increases and therefore had to pass a greater share of them on to consumers, then domestic inflation would be higher and the negative effect on trade and GDP growth would be greater than CBO currently projects. If trade barriers rose further, domestic investment and output would probably be weaker than projected.

The outlook for monetary policy and interest rates is also uncertain, particularly in light of unexpectedly low inflation and interest rates. If the factors holding inflation below the Federal Reserve's 2 percent long-run objective were more persistent than expected, or if expectations about future inflation were to decline, then the Federal Reserve would probably respond by lowering its target range for the federal funds rate further and keeping it lower for longer than expected. Consequently, short- and long-term interest rates would probably be lower than in CBO's projections. Conversely, a sudden jump in inflation would probably prompt the Federal Reserve to increase the target range for the federal funds rate sooner

Figure 2-6.

The Spread Between Long-Term and Short-Term Interest Rates



The spread between long-term and short-term interest rates on Treasury securities is near zero, probably in part because of market participants' concerns about weak future economic growth.

Sources: Congressional Budget Office; Federal Reserve.

The interest rate spread is defined as the 10-year Treasury note rate minus the 3-month Treasury bill rate.

Data are quarterly values.

than CBO currently expects, causing short- and long-term interest rates to be higher than projected.

Over the next few years, in CBO's projections, economic growth moderates but remains positive as actual GDP moves closer to its potential. But there have been some recent signs of elevated short-run risks to the economy. For example, the spread between long-term and short-term interest rates on Treasury securities is near zero, which probably reflects market participants' concerns about weakness in future economic growth, among other factors (see Figure 2-6). The current baseline projections account for such indicators, reflecting 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 than projected in the near term, and that assessment includes the possibility of a recession over the next few years. However, there is also a significant chance that output growth will be faster than projected. The agency has constructed its baseline projection of economic growth in the near term to reflect the average of those possible outcomes.

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 slower (or faster) economic growth after 2024 than the agency forecasts.

If federal debt as a percentage of GDP continued to rise at the pace that CBO projects it would under current law, that debt path would ultimately pose significant risks to the fiscal and economic outlook, although those risks are not currently apparent in financial markets. In particular, that path would increase the risk of a fiscal crisis in which the interest rate on federal debt rose abruptly because investors lost confidence in the U.S. government's fiscal position. It would also increase the likelihood of less abrupt, but still significant, negative economic and financial effects, such as expectations of higher inflation and more difficulty financing public and private activity in international markets.

Other policy-related factors include recent shifts toward deregulation and a looser regulatory environment, which are expected to boost investment in the near term and thus 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, prohibitions against drilling for oil and gas in the Arctic National Wildlife Refuge have been eliminated. If the effects of deregulation are greater (or less) than CBO expects, then economic growth could be stronger (or weaker) than projected.

How businesses respond to changes in trade policies could also affect CBO's longer-term projections through effects on business investment and potential output. If businesses concluded that the recent escalation of trade tensions had subsided or if trade policies otherwise stopped weighing on investment activity, then business investment, and thus potential output, would be higher than CBO projects. If, however, businesses felt that trade tensions were escalating, then their uncertainty about future barriers to trade would probably increase, and investment, and thus potential output, would be lower than projected.

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 or immigration was greater than anticipated—the economy could grow more quickly than projected.[21] By contrast, if the growth of labor productivity did not exceed 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 related prospects for long-run growth. If growth of total factor productivity remained close to its estimated trend since the end of the last recession, about 0.7 percent per year, annual growth of output would be about 0.3 percentage points slower than CBO projects. Conversely, if it returned to its more rapid longer-run average rate of growth, annual growth of output would be about one-quarter of a percentage point faster.

Estimates of the long-run neutral rate of interest—the rate at which inflation is stable and monetary policy is neither boosting nor constraining economic growth—underpin CBO's projection of interest rates in the latter years of the projection period. Those estimates are highly uncertain. A higher or lower rate would imply higher- or lower-than-projected short- and long-term interest rates. Forecasts of the term premium, which affects long-term interest rates, are also highly uncertain. For reasons detailed above, CBO expects the term premium to rise from its current historically low level but to remain lower than its level over the previous three decades. A higher or lower term premium would imply higher or lower long-term interest rates than CBO projects.

CBO expects little change in income inequality over the projection period. However, unexpectedly strong and persistent income gains at the bottom or the top of the income distribution could cause income inequality to increase or decline by more than CBO projects.

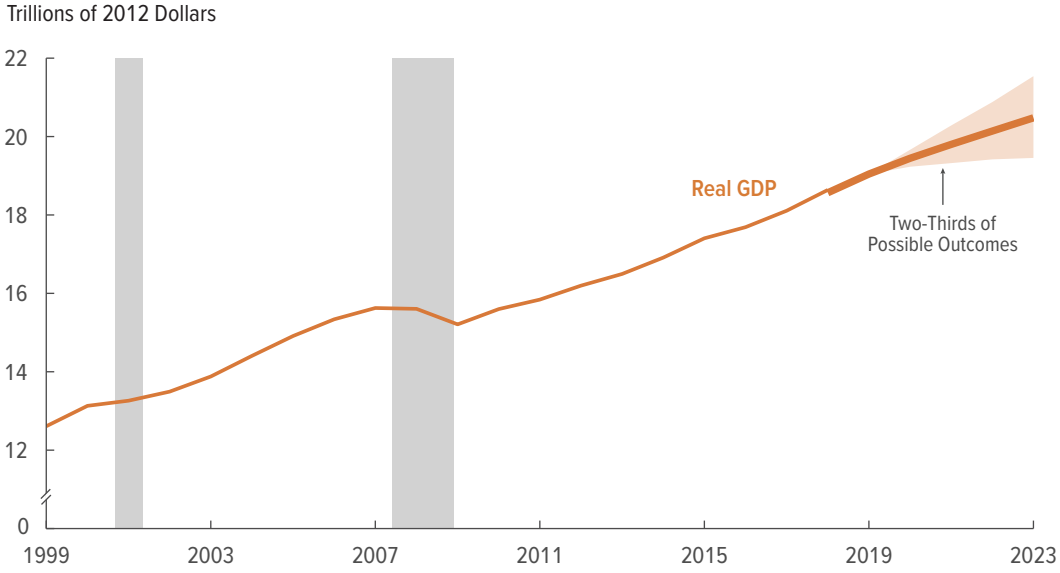
Income inequality's effect on economic growth, an issue on which economists' theories and empirical results have been mixed, is another source of uncertainty in CBO's longer-run projections.[22] Some studies have concluded that income inequality leads to faster growth, others that it slows growth, and still others that it does not affect growth. Moreover, the effect could work in the opposite direction: Economic growth could directly increase or decrease income inequality. When a study concludes

21. As birth rates in the native-born population have declined over time, immigration has become an increasingly important part of growth in the total U.S. population and labor force. In 2018, immigration accounted for over 40 percent of the growth in the U.S. population and labor force. Foreign-born people accounted for 17.4 percent of the U.S. civilian labor force in 2018, compared with 13.3 percent in 2000.

22. 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://bit.ly/2LVeOOc; Jonathan Ostry, Andrew Berg, and Charalambos Tsangarides, *Redistribution, Inequality, and Growth* (International Monetary Fund, 2014), https://bit.ly/13kLuIN (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://bit.ly/2BYP9Q2; 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.

Figure 2-7.

The Uncertainty of CBO's Projections of Real GDP



CBO estimates that—if the errors in the agency's current economic forecast are similar to those in its previous forecasts—there is approximately a two-thirds chance that the average annual rate of real GDP growth will be between 0.7 percent and 3.3 percent over the next five years.

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 illustrates the uncertainty of that projection. The area 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 2018.

Values for real GDP from 1999 to 2018 (the thin line) reflect revisions to the national income and product accounts that the Bureau of Economic Analysis released on July 26, 2019. Values from 2018 to 2029 (the thick line) reflect the data available when the projections were made earlier in July.

GDP = gross domestic product.

that a 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.

Quantifying the Uncertainty in CBO's Projections

To quantify the uncertainty surrounding its projections for the next five years, CBO analyzed its past forecasts of real GDP growth.[23] On the basis of that analysis, CBO estimates that—if the errors in the agency's current economic forecast are similar to those in its previous forecasts—there is approximately a two-thirds chance that the average annual rate of real GDP growth (on a calendar year basis) will be between 0.7 percent and 3.3 percent over the next five years (see Figure 2-7).[24]

That range reflects some of the uncertainty inherent in CBO's estimates of the growth in real potential GDP, given that the errors in CBO's longer-horizon forecasts of real GDP growth are partly due to the agency's past underestimates (for example, during the late 1990s) or overestimates (for example, during the early 2010s) of potential GDP growth. To illustrate how changes in the factors underlying potential GDP might contribute to growth averaging 0.7 percent or 3.3 percent over the next five years, CBO examined scenarios in which the growth rates of total factor productivity and the size of the labor force varied.

For example, CBO estimates that if total factor productivity in the nonfarm business sector grew, on average, 1.1 percentage points slower than projected over the next five years (and thus remained roughly unchanged)

23. See Congressional Budget Office, *CBO's Economic Forecasting Record: 2019 Update* (forthcoming).

24. 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. For more on the inherent uncertainty underlying economic forecasts, see Congressional Budget Office, *CBO's Economic Forecasting Record: 2019 Update* (forthcoming).

and the labor force grew, on average, 0.8 percentage points slower than projected (and thus shrank), then real GDP growth would be 1.3 percentage points lower, on average, than the 2.0 percent growth (on a calendar year basis) in CBO's economic projections.[25] Conversely, if productivity in the nonfarm business sector grew, on average, 1.1 percentage points faster over the next five years and the labor force grew, on average, 0.8 percentage points faster, then real GDP growth would be 1.3 percentage points higher, on average, than CBO projects.

Comparison With CBO's January 2019 Projections

CBO's current economic projections have some notable differences from the set of projections the agency published in January (see Table 2-6).[26] In particular, CBO's current projections of interest rates over the 2019–2029 period are markedly lower. In the near term, those differences are driven by developments in financial markets and guidance from the Federal Reserve regarding its outlook for monetary policy. In the latter years of the projection period, the downward revisions are mainly due to CBO's reassessment of factors that influence the long-run neutral rate of interest and the premium on longer-term Treasury securities. The agency also raised its projection of economic growth in the near term as a result of the recent increases to the caps on federal discretionary funding. In addition, CBO's projections of inflation and wage growth have been lowered as a result of weakness indicated by recent data.

The agency now expects short- and long-term interest rates over the coming decade to be lower, on average, by 0.5 percentage points and 0.8 percentage points, respectively. The downward revision to short-term interest rates partly reflects the agency's expectation that the Federal Reserve will maintain the current target range for the federal funds rate until late 2020 and then gradually increase it in later years. CBO decreased its projections of the federal funds rate in the near term in response to lower inflation in its forecast, lower foreign economic growth, and greater uncertainty about future trade barriers affecting the United States and its trading partners. That revision to the federal funds rate was also informed by statements from Federal Reserve officials, as well as changes in financial markets and outside forecasts.

CBO also lowered its forecast of the federal funds rate over the latter years of the projection period. That revision stemmed from CBO's reassessment of the long-run neutral rate of interest. Since January, CBO has lowered its estimate of that rate because of slower anticipated global growth, which CBO expects to reduce global demand for investment and put downward pressure on interest rates. Downward revisions to projections of the long-run neutral rate by the Federal Reserve and outside forecasters were additional factors in CBO's downward revision.

The downward revision to long-term interest rates in CBO's projections partly reflects the downward revision to short-term interest rates. In addition, CBO now expects the premium on risky assets, which has been elevated since the 2007–2009 recession, to decline more slowly than previously expected, remaining elevated throughout the coming decade. In general, a higher premium on risky assets implies lower rates of return on Treasury securities. The downward revision to long-term interest rates also reflects an updated assessment of the size of the Federal Reserve's holdings of Treasury and other securities. In March of this year, the Federal Reserve announced that it would continue to hold more of those securities than previously expected. That larger balance is expected to push the term premium below previous expectations. For that reason, CBO's downward revision to long-term interest rates is larger than its revision to short-term interest rates and extends throughout the projection period.

CBO also reduced its projection of average CPI and PCE inflation over the early years of the projection period because of data indicating lower-than-expected inflation. However, in CBO's assessment, the weakness in inflation was mainly caused by transitory factors. In CBO's forecast, that downward revision to consumer price inflation was partly offset by an upward revision to the estimated

25. Because the nonfarm business sector produces roughly three-quarters of domestic output, the 1.1 percentage points slower total factor productivity growth in that sector would, on its own, reduce the growth in potential labor force productivity by 0.8 percentage points each year. By contrast, the reduction in the growth of the labor force would, on its own, boost potential labor force productivity. On balance, growth in potential labor force productivity would be roughly 0.5 percentage points lower than in CBO's baseline projection. That reduction, along with the 0.8 percentage-point reduction in labor force growth, underlies the 1.3 percentage-point reduction in real GDP growth.

26. See Congressional Budget Office, *The Budget and Economic Outlook: 2019 to 2029* (January 2019), www.cbo.gov/publication/54918.

effect of tariffs on the prices of consumer goods. The estimate of those effects was increased because a higher tariff rate was imposed on certain Chinese imports in May 2019 and because recent research suggested that a larger share of the cost of the tariffs on U.S. imports are passed along to U.S. consumers and businesses. (See Box 2-2 on page 36 for more details.)

CBO's projection of real GDP growth in 2019 is unchanged but reflects offsetting effects. CBO now expects slower growth of real consumption than it did in January, in part because wages have been rising more slowly than expected given the strength of the labor market; less real business investment, primarily because of increased uncertainty about future trade policies and higher tariffs on imported capital goods; and weaker export growth as a result of slower projected economic growth in major U.S. trading partners. However, those downward revisions are offset by an upward revision to real government purchases, primarily because of an increase in projected federal discretionary spending, and a downward revision to real imports resulting from consumers' and businesses' expected substitution of domestically produced goods for imported consumption and investment goods.

CBO's projection of average annual real GDP growth over the 2020–2023 period has been revised upward for two main reasons. First, CBO projects more purchases by the federal government. Second, the agency anticipates greater growth of business fixed investment as a result of downward revisions to the cost of corporate debt and equity, which more than offsets the negative effects on investment from recent increases in tariffs. The stronger projected output growth led the agency to reduce its projections of the unemployment rate over the 2020–2023 period.

In the current forecast, the size of the potential labor force over the 2019–2029 period is slightly smaller—and its growth rate is slightly slower—than the agency projected in January. In the near term, the projected potential labor force is smaller mainly because the agency lowered the projected size of the population as a result of recent population data. After 2024, the projected potential labor force is smaller mainly because the agency reduced the potential labor force participation rate after reassessing trends in participation rates for each demographic group.

Despite CBO's projection of a smaller potential labor force, the agency now expects overall growth in potential output over the 2019–2029 period to increase slightly faster than in the January forecast. That more rapid growth is due to a number of minor technical adjustments in the projection. Those adjustments resulted in faster projected growth of capital services in nonfarm businesses and in owner-occupied housing, which more than offset slightly slower growth of potential total factor productivity in the nonfarm business sector.

CBO's projections of total national income have been reduced by an average of 0.2 percent per year over the 2019–2029 period, reflecting downward revisions to projections of various types of income, including total labor compensation and proprietors' income—downward revisions that were partly offset by upward revisions to the agency's projections of corporate profits and net income from foreign assets. Because of data showing that hourly compensation growth in the last quarter of 2018 and the first quarter of 2019 was lower than CBO expected, the agency lowered its projections of hourly compensation growth in 2019 without projecting a strong rebound in later years. That revision, along with other factors, led the agency to lower its projections of total labor compensation over the entire 2019–2029 period. Changes to other components of national income result from revised projections of other key economic variables. For example, CBO lowered its estimates of net interest paid by domestic businesses over most of the projection period as a result of downward revisions to interest rates. Higher estimates of corporate profits result from lower projections of interest costs and total labor compensation.

Comparison With Other Economic Projections

CBO's projections of the economy for the next two years are slightly more optimistic than the consensus view of the private-sector economists whose forecasts were published in the August 2019 *Blue Chip Economic Indicators* but are within the range of those forecasts (see Figure 2-8). In particular, CBO's projections of real GDP growth are above the middle two-thirds of the range of *Blue Chip* forecasts for 2019 and at the high end of that range for 2020. CBO's projections of the unemployment rate are in line with the consensus view of private-sector economists, but the agency's projections of GDP price inflation are lower than the consensus for 2019 and at the lower end of the middle two-thirds of

Table 2-6.

Current and Previous Economic Projections for 2019 to 2029

				Annual Average		
	2019	2020	2021	2019–2023	2024–2029	Total, 2019–2029
	Percentage Change From Fourth Quarter to Fourth Quarter					
Real GDP[a]						
August 2019	2.3	2.1	1.8	1.9	1.8	1.8
January 2019	2.3	1.7	1.6	1.8	1.8	1.8
Nominal GDP						
August 2019	3.9	4.0	3.8	3.8	3.9	3.8
January 2019	4.3	3.8	3.6	3.9	3.9	3.9
PCE Price Index						
August 2019	1.8	2.1	2.0	2.0	2.0	2.0
January 2019	2.0	2.2	2.1	2.1	2.0	2.0
Core PCE Price Index[b]						
August 2019	1.9	2.2	2.1	2.0	2.0	2.0
January 2019	2.2	2.2	2.1	2.1	2.0	2.0
Consumer Price Index[c]						
August 2019	2.2	2.4	2.4	2.4	2.3	2.4
January 2019	2.2	2.6	2.5	2.5	2.3	2.4
Core Consumer Price Index[b]						
August 2019	2.3	2.6	2.6	2.5	2.3	2.4
January 2019	2.6	2.7	2.6	2.5	2.3	2.4
GDP Price Index						
August 2019	1.7	1.9	2.0	1.9	2.0	2.0
January 2019	2.0	2.0	2.0	2.0	2.1	2.0
Employment Cost Index[d]						
August 2019	3.3	3.6	3.5	3.4	3.2	3.3
January 2019	3.5	3.7	3.5	3.5	3.1	3.3
Real Potential GDP[a]						
August 2019	2.1	2.1	2.1	2.1	1.8	1.9
January 2019	2.2	2.1	2.0	2.0	1.8	1.9

Continued

the range for 2020. The agency's projections of consumer price inflation and interest rates for both 2019 and 2020 are within the full range of the *Blue Chip* forecasts, although CBO's forecasts for consumer price inflation and the interest rate for 3-month Treasury bills are both above the middle two-thirds of the *Blue Chip* forecasts' range for 2020.

Compared with the middle two-thirds of the range of forecasts made by Federal Reserve officials and reported at the June 2019 meeting of the Federal Open Market Committee, CBO's projections suggest a slightly stronger economic outlook for 2019, a similar outlook for 2020, and a slightly weaker outlook for 2021 and the longer term (see Figure 2-9).[27] The full range of Federal Reserve forecasts 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. CBO's projections of real GDP growth and the federal funds rate are within the range of the forecasts by Federal Reserve officials for 2019, 2020, 2021, and the longer term. However, the agency's projection of PCE price inflation is above the range for 2019, and the agency's projection of the unemployment rate is above the range for the longer term. In addition,

27. 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, June 2019" (June 19, 2019), https://go.usa.gov/xV3Pe.

Table 2-6. Continued

Current and Previous Economic Projections for 2019 to 2029

				Annual Average		
	2019	2020	2021	2019–2023	2024–2029	Total, 2019–2029
			Calendar Year Average			
Unemployment Rate (Percent)						
August 2019	3.7	3.7	3.9	4.0	4.7	4.4
January 2019	3.5	3.7	4.2	4.2	4.8	4.5
Interest Rates (Percent)						
Three-month Treasury bills						
August 2019	2.2	2.1	2.3	2.3	2.5	2.4
January 2019	2.8	3.2	3.2	3.1	2.8	2.9
Ten-year Treasury notes						
August 2019	2.3	2.2	2.5	2.6	3.1	2.9
January 2019	3.4	3.6	3.7	3.6	3.7	3.7
Tax Bases (Percentage of GDP)						
Wages and salaries						
August 2019	42.8	43.1	43.4	43.3	43.8	43.6
January 2019	43.3	43.6	43.7	43.6	44.1	43.9
Domestic corporate profits[e]						
August 2019	8.4	8.5	8.5	8.4	8.1	8.3
January 2019	8.9	8.4	8.1	8.2	8.0	8.1

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

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

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

b. Excludes prices for food and energy.

c. The consumer price index for all urban consumers.

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

e. 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.

CBO's projections of core PCE price inflation are above the range in both 2019 and 2020.

At least part of the discrepancy between CBO's projections and those of other forecasters is probably attributable to differences in the economic data available when the forecasts were completed and to differences in the economic and statistical models used to prepare them. In addition, other forecasters may assume that certain changes in federal policies or trade policies will occur, whereas CBO's projections are based on current law and incorporate the assumption that the trade policies in effect when CBO completed its projections will remain in place through 2029.

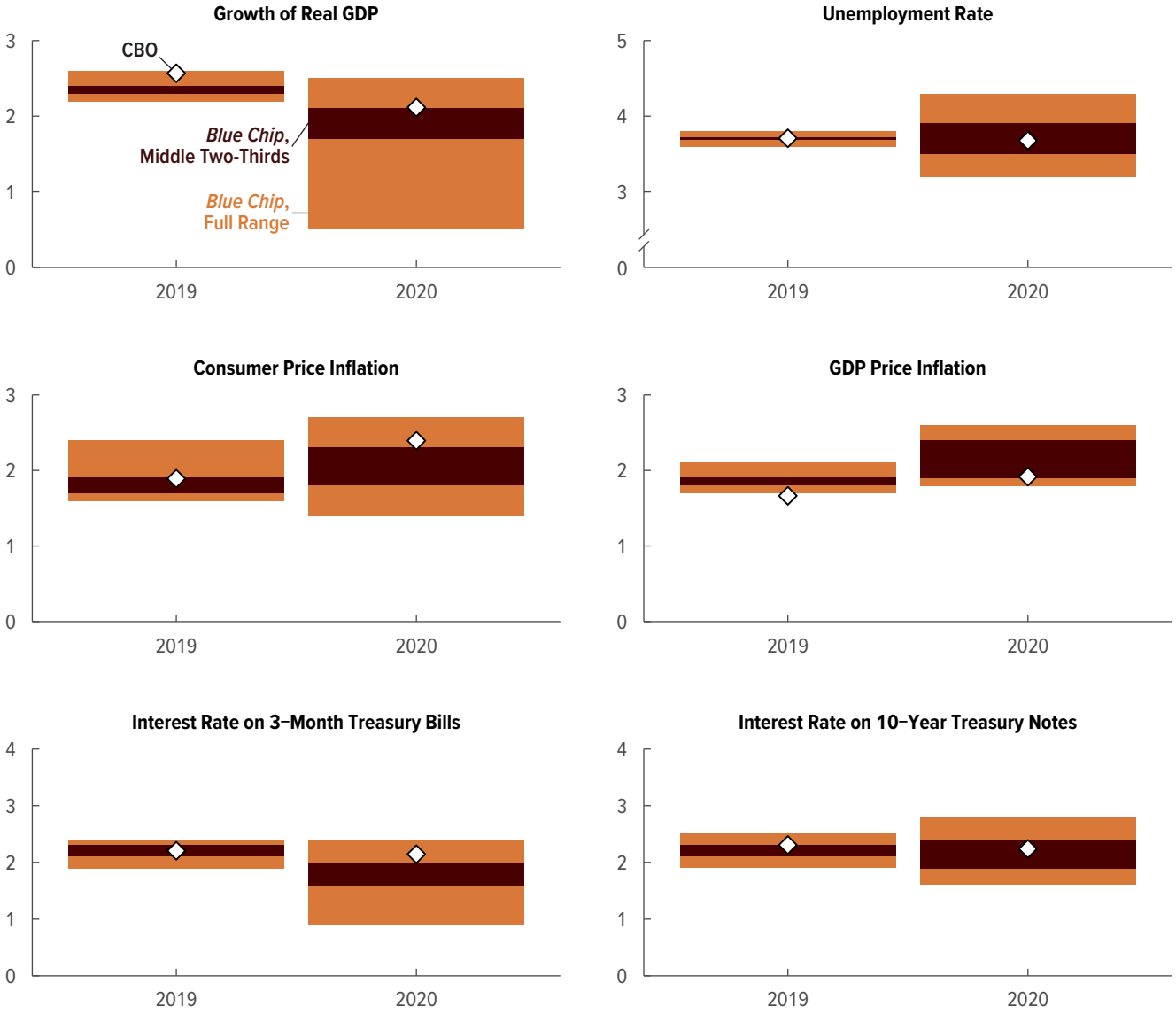
A key difference between CBO's economic projections and those made by Federal Reserve officials is that CBO reports the average of a distribution of possible outcomes under current law. Each individual Federal Reserve official, by contrast, reports the mode—the most likely outcome—of a distribution of possible outcomes under each official's individual assessment of appropriate monetary policy.

Figure 2-8.

Comparison of CBO's Economic Projections With Those From the *Blue Chip* Survey

CBO's projections for the next two years are slightly more optimistic than the consensus view of the private-sector economists in the *Blue Chip* survey.

Percent



Sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators* (August 9, 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 based on the consumer price index for all urban consumers. The growth of real GDP 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.

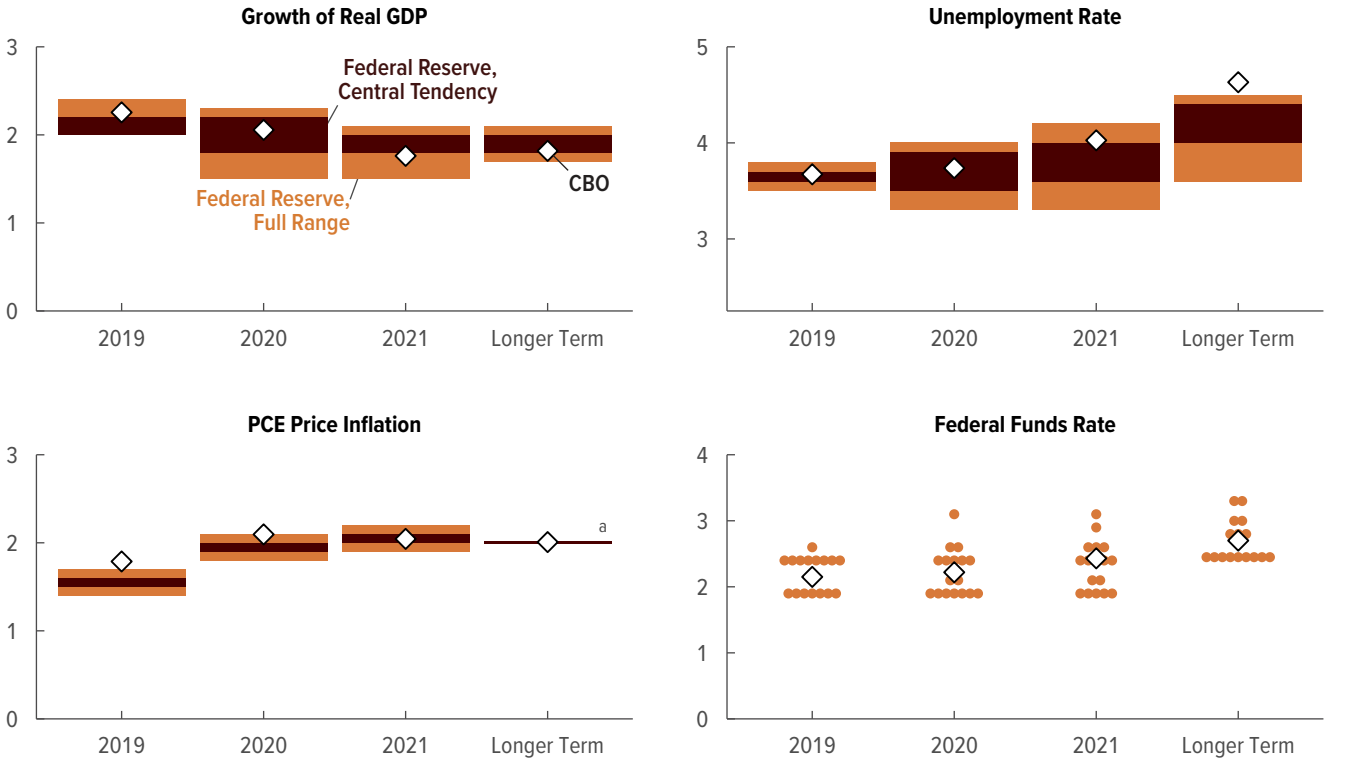
GDP = gross domestic product.

Figure 2-9.

Comparison of CBO's Economic Projections With Those by Federal Reserve Officials

Compared with the forecasts made by Federal Reserve officials, CBO's projections suggest a slightly stronger economic outlook for 2019, a similar outlook for 2020, and a slightly weaker outlook for 2021 and the longer term.

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, June 2019" (June 19, 2019), https://go.usa.gov/xVq34.

The full range of forecasts from the Federal Reserve is based on the highest and lowest of the 15 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, roughly speaking, the middle two-thirds of the full range, formed by removing the 3 highest and 3 lowest projections.

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 June 2019. 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.

The growth of real GDP 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. For PCE price inflation in the longer term, the range and central tendency equal 2 percent.