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Chapter 2: The Economic Outlook

Overview

If current laws governing federal taxes and spending generally remained in place, the economy would expand at an average annual rate of 1.7 percent over the next decade, the Congressional Budget Office projects. By comparison, that rate was 1.8 percent over the past 15 years and 2.3 percent over the past 5 years. The agency's latest economic forecast includes the following projections of real (inflation-adjusted) gross domestic product (GDP) and other key variables for 2020 through 2030:

- **In 2020, real GDP is projected to grow by 2.2 percent on a fourth-quarter-to-fourth-quarter basis.** Consumer spending and business fixed investment will largely drive growth this year, CBO projects. Growth in consumer spending is expected to remain solid in 2020, buoyed by recent gains in household wealth and by momentum in the growth of wages and salaries. Growth of business fixed investment rebounds this year, CBO projects, because many of the factors that weighed on investment during 2019—including lower oil prices, rising business uncertainty about future trade policies, and a decline in aircraft purchases—are expected to reverse or to have a smaller impact on growth. In subsequent years, economic growth is projected to slow as the growth of consumer spending and private investment moderates because of rising interest rates, slowing growth in labor compensation, and diminishing fiscal stimulus (see Table 2-1).

- **GDP is expected to be higher than potential GDP in 2020 to a greater degree than in recent years, leading to increases in inflation and interest rates after years in which both remained low.** Potential GDP is an estimate of the maximum sustainable output of the economy. When GDP is above potential GDP, the overall demand for goods and services exceeds the economy's maximum sustainable level of production, which leads to upward pressure on inflation and interest rates. In CBO's projections, solid economic growth in 2020 increases the output gap—the difference between GDP and potential GDP, expressed as a percentage of potential GDP—so that it reaches a cyclical peak of 0.8 percent. In later years, as economic growth moderates, the output gap narrows steadily and real GDP eventually falls below its potential level (see Figure 2-1).

- **Solid economic growth and continued strength in labor demand are projected to keep the unemployment rate low and drive employment and wages higher in 2020.** In CBO's estimation, strong growth in labor demand this year will move employment further above potential employment.[1] When employment exceeds its potential, employers bid up the price of labor to recruit and retain workers, putting upward pressure on wages and salaries and other forms of labor compensation. In later years, moderating economic growth and rising wages are projected to restrain growth in the demand for labor, reducing job growth. Although economic and job growth are projected to slow, employment, which tends to lag behind movements in output, is expected to remain above its maximum sustainable level over the next five years, supporting relatively robust wage growth during that time.

- **In the second half of the projection period, real GDP is projected to grow at an average annual rate of 1.7 percent, the same as its potential.** CBO's projections of GDP, unemployment, inflation, and interest rates for 2025 through 2030 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

1. 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.

Table 2-1.

CBO's Economic Projections for Calendar Years 2020 to 2030

					Annual Average	
	Estimated, 2019[a]	2020	2021	2022	2023–2024	2025–2030
	Percentage Change From Fourth Quarter to Fourth Quarter					
Gross Domestic Product						
Real[b]	2.4	2.2	1.8	1.6	1.6	1.7
Nominal	4.2	4.2	3.9	3.8	3.7	3.7
Inflation						
PCE price index	1.5	2.0	2.1	2.1	2.0	1.9
Core PCE price index[c]	1.7	2.2	2.1	2.0	2.0	1.9
Consumer price index[d]	2.0[e]	2.5	2.6	2.6	2.4	2.2
Core consumer price index[c]	2.3[e]	2.8	2.6	2.5	2.4	2.2
GDP price index	1.8	1.9	2.1	2.1	2.1	2.0
Employment Cost Index[f]	3.1	3.6	3.6	3.6	3.4	3.1
	Fourth-Quarter Level (Percent)					
Unemployment Rate	3.5[e]	3.5	3.6	4.0	4.4[g]	4.4[h]
	Percentage Change From Year to Year					
Gross Domestic Product						
Real[b]	2.3	2.2	1.9	1.7	1.6	1.7
Nominal	4.2	4.2	4.1	3.8	3.7	3.7
Inflation						
PCE price index	1.4	1.9	2.1	2.1	2.0	1.9
Core PCE price index[c]	1.6	2.0	2.2	2.1	2.0	1.9
Consumer price index[d]	1.8[e]	2.4	2.5	2.6	2.4	2.3
Core consumer price index[c]	2.2[e]	2.7	2.6	2.5	2.4	2.2
GDP price index	1.8	1.9	2.1	2.1	2.1	2.0
Employment Cost Index[f]	3.0	3.5	3.6	3.6	3.5	3.1
	Annual Average					
Unemployment Rate (Percent)	3.7[e]	3.5	3.5	3.8	4.3	4.5
Payroll Employment (Monthly change, in thousands)[i]	181[e]	135	59	17	17	51
Interest Rates (Percent)						
Three-month Treasury bills	2.1[e]	1.6	1.7	1.8	2.1	2.3
Ten-year Treasury notes	2.1[e]	1.9	2.2	2.6	2.7	3.0
Tax Bases (Percentage of GDP)						
Wages and salaries	43.5	43.7	43.8	43.9	43.9	43.8
Domestic corporate profits[j]	7.2	7.6	7.7	7.7	7.8	7.8

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

For economic projections for each year from 2020 to 2030, see Appendix B.

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

a. Values for 2019 do not reflect the values for GDP and related series that the Bureau of Economic Analysis has released since early January 2020.

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

c. Excludes prices for food and energy.

d. The consumer price index for all urban consumers.

e. Actual value for 2019.

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

g. Value for the fourth quarter of 2024.

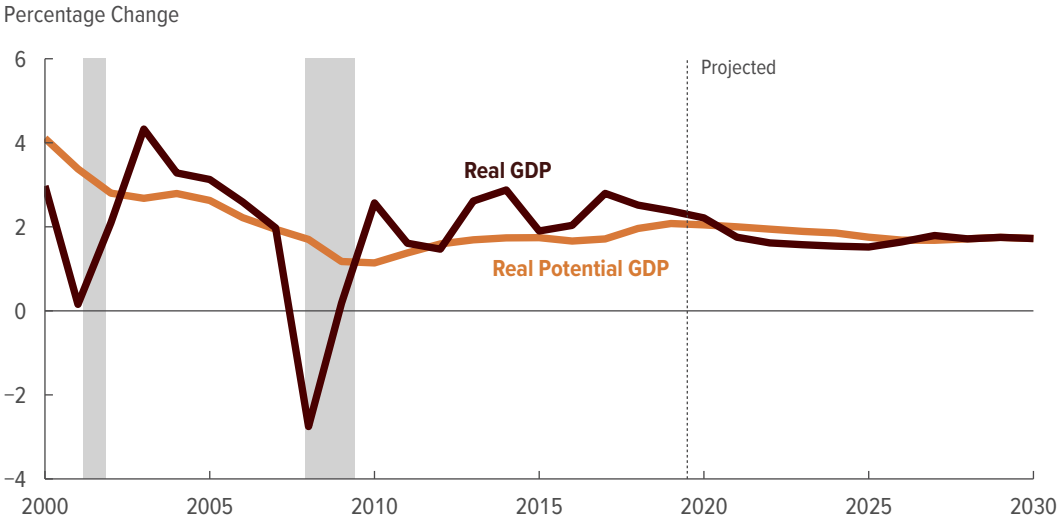
h. Value for the fourth quarter of 2030.

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

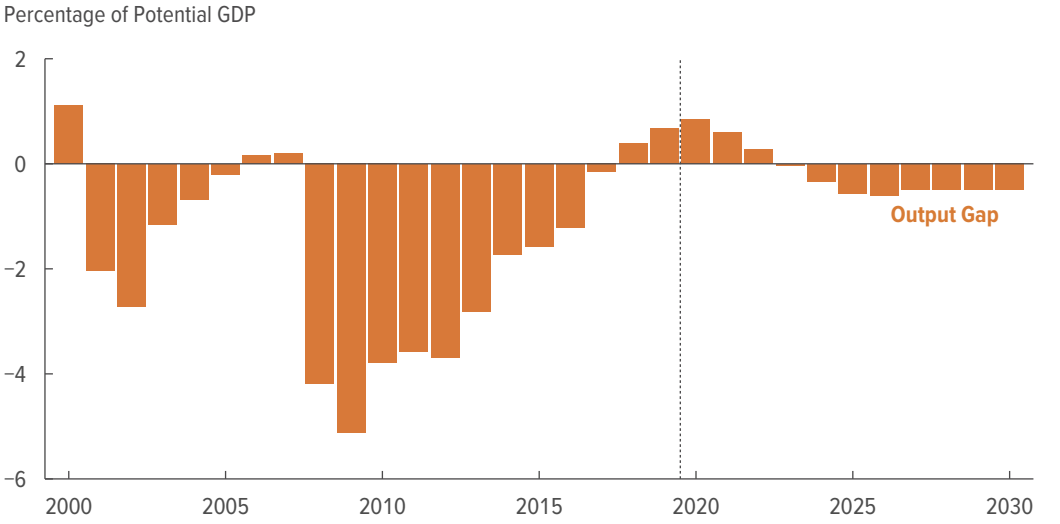
j. Adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of changes in prices on the value of inventories.

Figure 2-1.

The Relationship Between GDP and Potential GDP



In CBO's projections, output grows faster than the economy's maximum sustainable output in 2020, largely because of increased consumer spending and a rebound in business fixed investment. In later years, economic growth slows as growth in consumer spending and private investment moderates.



Strong demand for labor and products pushes the output gap to a cyclical peak in 2020. Over the next few years, the output gap narrows, reducing the upward pressure on inflation and interest rates.

Sources: Congressional Budget Office; Bureau of Economic Analysis.

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

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

Values for 2019 are CBO's estimates.

GDP = gross domestic product.

grow at the same rate as real 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 growth. CBO's analysis of those factors accounts for 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 those policies would not only affect potential output but also influence the overall demand for goods and services.

Significant uncertainty surrounds CBO's economic forecast, which the agency constructed to be the average of the distribution of possible outcomes if, through 2030, 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, trade policies, or other policies (such as federal regulations) changed, then economic outcomes would probably differ from CBO's economic projections. Even if no changes were made to those policies, economic outcomes would still probably differ from CBO's projections because of other factors, such as unexpected changes in the underlying trends in productivity and labor force growth, international developments, and perhaps a recession.

CBO's current economic forecast is similar to the forecast the agency published in August 2019, but it differs in some ways. In particular, CBO's current projections of interest rates and inflation are lower. CBO also lowered its estimates of potential output growth and its projections of the unemployment rate in the latter part of the projection period.

CBO's economic projections in this forecast are similar to those of other forecasters. They are within the full range of forecasts for 2020 and 2021 by the private-sector economists who contributed to the January 2020 *Blue Chip Economic Indicators*, as well as the latest forecasts for 2020 through 2022 contained in the Federal Reserve's *Summary of Economic Projections*.

Fiscal and Trade Policies

CBO's economic projections reflect the federal fiscal policies specified in current law. They also incorporate the assumption that the tariffs on U.S. imports and exports in effect as of January 7, 2020—the day the agency completed its economic projections—will remain in place through 2030.[2] Changes in federal fiscal policies affect the economy not only through changes in the federal government's purchases of goods and services but also through changes in the federal tax code and federal transfer programs (such as Social Security and Medicare), which affect households' spending, saving, and labor supply decisions as well as businesses' investment and hiring decisions. Changes to trade policies—such as increases in tariffs on certain imported and exported goods—can 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.

Federal fiscal policies and tariffs directly affect 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

According to CBO's estimates, recent changes in federal fiscal policies will increase the level of real GDP over the next few years as a result of greater government spending and lower taxes. In particular, legislation enacted since the agency published its previous economic projections in August 2019 will boost the level of real GDP (on a calendar year basis) by about 0.1 percent in 2020 and by less than that amount in 2021 and 2022.

The most significant legislation affecting CBO's economic projections—the Consolidated Appropriations Act, 2020 (Public Law 116-93), and the Further Consolidated Appropriations Act, 2020 (P.L. 116-94), both enacted in December 2019—provided annual appropriations for the entire federal government and adopted various tax provisions, including the extension of certain individual and business tax provisions and the repeal of three excise taxes related to health care. As a consequence, CBO modestly increased projected federal spending and lowered projected federal revenues over the next few years. The effect of those appropriation acts and other recently enacted legislation increased CBO's projections of the primary deficit—that is, deficits excluding net outlays for interest—by $48 billion in fiscal year 2020 and $451 billion over the 2020–2029 period (see Appendix A). Almost all of that increase was driven by a reduction in revenues stemming largely from the repeal of three excise taxes related to health care.

2. In particular, the agency's economic projections incorporate the assumption that, when the Administration exercises its broad authority to impose tariffs without legislative action, the tariffs in effect when the analysis was completed continue permanently without planned or unplanned changes. On December 2, 2019, the President announced new tariffs on steel and aluminum products imported from Argentina and Brazil. Those tariffs have not yet been implemented and are not included in CBO's current economic projections. CBO's current projections also do not include the effects of changes to tariffs since January 7, 2020; the trade agreement with China on January 15, 2020; or the new United States–Mexico–Canada Agreement.

CBO projects that those larger primary deficits would eventually cause the level of real GDP to be 0.1 percent lower by the end of the projection period than it otherwise would have been. When the government borrows, it borrows from people and businesses whose savings would otherwise be financing private investment. Although an increase in government borrowing strengthens the incentive to save, the resulting rise in saving is not as large as the increase in government borrowing; national saving, or the amount of domestic resources available for private investment, therefore falls. However, private investment falls less than national saving does in response to government deficits, because the higher interest rates that are likely to result from increased federal borrowing tend to attract more foreign capital to the United States. In CBO's assessment, the crowding out of private investment occurs gradually, as interest rates and the funds available for private investment adjust in response to increased federal deficits.

Another element affecting CBO's current-law projections in later years is the expiration of certain provisions of the tax code. The expiration of some provisions affecting individual income taxes at the end of 2025 and the phaseout of bonus depreciation by the end of 2026 are projected to temporarily push down the level of real GDP relative to its potential. Real GDP then recovers until the relationship between the levels of GDP and potential GDP reaches its long-run average in the final years of the projection period.

Trade Policies

In CBO's estimation, the trade barriers put in place by the United States and its trading partners between January 2018 and January 2020 would reduce real GDP over the projection period. The effects of those barriers on trade flows, prices, and output are projected to peak during the first half of 2020 and then begin to subside. Tariffs are expected to reduce the level of real GDP by roughly 0.5 percent and raise consumer prices by 0.5 percent in 2020. As a result, tariffs are also projected to reduce average real household income by $1,277 (in 2019 dollars) in 2020. CBO expects the effect of trade barriers on output and prices to diminish over time as businesses continue to adjust their supply chains in response to the changes in the international trading environment. By 2030, in CBO's projections, the tariffs lower the level of real GDP by 0.1 percent.

In January 2018, the United States started imposing new trade barriers. As of January 7, 2020, the United States had imposed tariffs on 16.8 percent of goods imported into the country, measured as a share of the value of all U.S. imports in 2017 (see Table 2-2).[3] 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. 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 affected only imports from China, covering about half of U.S. imports from China and targeting intermediate goods (items used for the production of other goods and services), capital goods (such as computers and other equipment), and some consumer goods (such as apparel and footwear).

In response to the tariffs, U.S. trading partners have retaliated by imposing their own trade barriers. As of January 7, 2020, retaliatory tariffs had been imposed on 9.3 percent of all goods exported by the United States—primarily industrial supplies and materials as well as agricultural products (see Table 2-3).

In CBO's projections, increases in 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.[4] 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. U.S. consumers and businesses replace certain imported goods with goods produced in the United States, which offsets some of that decline. In addition, tariff revenues, by reducing the deficit, increase the resources available for private investment in later years.

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

4. For further discussion on how tariffs affect the U.S. economy, see Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), Box 2-2, www.cbo.gov/publication/55551.

Table 2-2.

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	Tariffs on EU Goods	All Recent Tariffs	Share of Category Affected by Tariffs (Percent)
Food, Feed, and Beverages	138	0	0	0	0	8	5	11	7.9
Industrial Supplies and Materials	507	0	0	14	9	59	0	72	14.2
Capital Goods, Except Automotive	641	6	*	2	*	179	5	181	28.3
Automotive Vehicles, Parts, and Engines	359	1	0	0	0	24	0	25	6.9
Consumer Goods	602	0	2	0	*	104	*	105	17.5
Other Goods	95	0	0	0	0	*	0	*	**
Total	**2,342**	**7**	**2**	**16**	**9**	**374**	**10**	**395**	16.8
Share of Total Imports (Percent)	100.0	0.3	0.1	0.7	0.4	16.0	0.4	16.8	n.a.

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

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

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

The Economic Outlook for 2020 to 2024

In CBO's projections for 2020 to 2024, economic growth initially exceeds and then falls below its maximum sustainable pace. CBO expects real GDP to grow by 2.2 percent this year, by 1.8 percent in 2021, and by 1.6 percent in 2022, all measured on a fourth-quarter-to-fourth-quarter basis (see Table 2-4).

Strong economic growth in 2020 is projected to push output further above its potential level this year, putting upward pressure on inflation and interest rates. CBO expects rising inflation this year and next, along with continued strength in labor and product markets, to prompt the Federal Reserve to start tightening monetary policy by increasing the range of the federal funds rate by the end of 2021. (The federal funds rate is the interest rate that financial institutions charge each other for overnight loans of their monetary reserves.) In the agency's projection, those factors and diminishing fiscal stimulus slow the economy and dampen the labor market's current momentum, narrowing the output gap and the gap between employment and potential employment in 2021 and 2022.

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, near-term fluctuations in economic activity are determined 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 upward pressure on inflation and interest rates would be expected. If the increase in demand was matched by an equivalent boost to potential output, however, then GDP would not exceed its maximum sustainable level, and no additional upward pressure on inflation or interest rates would occur.

Output

CBO expects output to grow 2.2 percent in 2020. In the agency's projections, that growth is supported by continued strength in consumer spending and a marked pickup in real business investment, with investment in aircraft and in oil wells rebounding and a restraint on investment growth loosening as adverse effects on growth from uncertainty about future trade policies are reduced. Some of the factors that are expected to support output growth this year would taper off in later years, CBO projects.

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.

Table 2-3.

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	35	2	37	28.0
Industrial Supplies and Materials	465	48	2	51	10.9
Capital Goods, Except Automotive	533	24	0	24	4.6
Automotive Vehicles, Parts, and Engines	158	22	*	22	14.0
Consumer Goods	198	7	2	9	4.5
Other Goods	60	*	*	*	**
Total	**1,546**	**137**	**6**	**143**	9.3
Share of Total Exports (Percent)	100.0	8.9	0.4	9.3	n.a.

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

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

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

The growth of real GDP is expected to average 1.6 percent per year from 2021 through 2024, slower than real potential GDP's pace of 1.9 percent over the same period. In CBO's projections, that difference arises because government purchases and residential investment grow at rates that are slower than the growth rate of real potential GDP.

Consumer Spending. In the agency's projections, real consumer spending on goods and services remains robust in 2020, increasing by 2.5 percent compared with 2.7 percent in 2019 (see Table 2-4). Faster gains in wages and salaries over the past few years have helped drive the recent increases in consumer spending. In addition, CBO estimates that the 2017 tax act helped support spending growth, largely because the reduction in individual income taxes led to an increase in disposable personal income.[6] Solid increases in housing wealth, sharp increases in equity wealth, and continued increases in the availability of consumer credit last year also boosted consumer spending. In 2020, CBO expects recent gains in household wealth and the momentum in the growth of wages and salaries to support strong consumer spending throughout the year.

Over the 2021–2024 period, in CBO's projections, average annual growth in consumer spending slows to 1.9 percent, similar to the rate of growth of real disposable income. The growth of consumer spending moderates as the boost from the 2017 tax act diminishes and as rising interest rates and a slowing aggregate economy moderate the growth of asset prices and wages and salaries.

Business Investment. In CBO's projections, real growth in business fixed investment picks up this year to 4.2 percent, after slowing to 0.2 percent in 2019 from 5.9 percent in 2018. That slowdown was due, in part, to the suspension of deliveries of the Boeing 737 MAX aircraft, rising business uncertainty about future trade policies, and reduced drilling activity (see Table 2-4). CBO expects many factors that weighed on the growth of investment in 2019 to reverse or to have a smaller impact in 2020. Less investment in aircraft due to fewer deliveries of Boeing's 737 MAX subtracted about a half percentage point from growth of business fixed investment in 2019; a resumption of deliveries, including inventoried aircraft, will add at least that much to growth of business fixed investment in 2020, CBO projects. Increased tariff rates and rising business uncertainty about future

6. For a discussion of the 2017 tax act's effects on CBO's macroeconomic projections, see Congressional Budget Office, *The Budget and Economic Outlook: 2018 to 2028* (April 2018), Appendix B, www.cbo.gov/publication/53651.

Table 2-4.

Projected Growth of Real GDP and Its Components

Percent

	Estimated, 2019	2020	2021	2022	Annual Average 2023–2024	Annual Average 2025–2030
	Projected Growth of Real GDP and Its Components (Percent)					
Real GDP	2.4	2.2	1.8	1.6	1.6	1.7
Components of Real GDP						
Consumer spending[a]	2.7	2.5	2.0	1.9	1.7	1.9
Business investment[b]	-1.6	3.6	3.1	1.9	2.1	2.7
Business fixed investment[c]	0.2	4.2	2.7	1.9	2.1	2.7
Residential investment[d]	0.9	5.7	1.5	1.4	1.2	0.1
Purchases by federal, state, and local governments[e]	2.6	0.9	0.6	0.5	0.6	0.5
Federal	3.3	1.4	0.6	0.4	0.4	0.4
State and local	2.2	0.7	0.5	0.6	0.6	0.6
Exports	-0.7	3.1	1.8	2.4	2.5	2.5
Imports	-2.3	4.8	2.7	2.2	2.2	2.4
	Contributions to the Growth of Real GDP (Percentage points)					
Components of Real GDP						
Consumer spending[a]	1.9	1.7	1.4	1.3	1.2	1.3
Business investment[b]	-0.2	0.5	0.4	0.2	0.3	0.3
Business fixed investment[c]	*	0.5	0.4	0.3	0.3	0.3
Residential investment[d]	*	0.2	0.1	0.1	*	*
Purchases by federal, state, and local governments[e]	0.5	0.2	0.1	0.1	0.1	0.1
Federal	0.2	0.1	*	*	*	*
State and local	0.2	0.1	0.1	0.1	0.1	0.1
Exports	-0.1	0.3	0.2	0.3	0.3	0.3
Imports	0.3	-0.7	-0.4	-0.3	-0.3	-0.3

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. Consists of personal consumption expenditures.

b. Comprises business fixed investment and investment in inventories.

c. Consists of purchases of equipment, nonresidential structures, and intellectual property products.

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

e. Based on the national income and product accounts.

trade policies reduced investment in 2019. Although increased uncertainty associated with trade policies is likely to remain in 2020, it is unlikely to restrain growth of investment as much as it did in 2019. CBO expects oil prices to rise in 2020, causing oil exploration and development to increase. The agency estimates that the 2017 tax act boosted the growth of business fixed investment during 2018 and 2019 and will continue to do so in 2020.

From 2021 through 2024, in CBO's projections, the growth of real business fixed investment slows to an average of 2.2 percent per year. One reason is that slower economic growth reduces businesses' desire to expand capacity. CBO also expects rising interest rates to increase the cost of new investment. In addition, the tax code's treatment of research and development expenditures becomes less favorable beginning in 2022, and the treatment of equipment investment under

bonus depreciation becomes progressively less favorable beginning in 2023. However, CBO expects businesses' uncertainty about future trade policies to gradually fade, which would remove one factor restraining investment.

Residential Investment. In CBO's projections, real residential investment, which declined in 2018 and grew moderately in 2019, grows considerably faster than overall GDP in 2020 but at more moderate rates thereafter. Specifically, after declining by 4.4 percent in 2018 and growing by 0.9 percent in 2019, real residential investment increases by 5.7 percent in 2020 and by an average of 1.3 percent per year from 2021 through 2024 (see Table 2-4). In CBO's assessment, the decline in residential investment in 2018 resulted in part from provisions of the 2017 tax act that reduced incentives to own homes and also from higher mortgage interest rates. The rise in 2019 and the anticipated pickup in growth in 2020, by contrast, mainly reflect lower mortgage interest rates than in 2018, continued strength in household formation, and further easing of mortgage lending standards. CBO expects growth of residential investment to slow after 2020 as mortgage rates gradually rise.

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 0.9 percent in 2020—down from 2.6 percent in 2019—and then grow by an average of 0.5 percent per year from 2021 through 2024, CBO estimates (see Table 2-4).

In CBO's projections, the growth in real purchases by the federal government slows from 3.3 percent in 2019 (on a fourth-quarter-to-fourth-quarter basis), which reflected a significant increase in discretionary outlays in fiscal year 2019, to 1.4 percent in 2020 (on a fourth-quarter-to-fourth-quarter basis). CBO's baseline projections for federal purchases incorporate recently enacted legislation, which boosted discretionary spending in fiscal year 2020 relative to 2019. Those projections also incorporate the assumption that discretionary funding will comply with the caps on discretionary appropriations that were established by the Budget Control Act of 2011 (P.L. 112-25, as amended) through fiscal year 2021 and then will grow at the rate of inflation.[7] Taken together, those assumptions generate the projected slowdown in the growth of real federal purchases by the end of calendar year 2020.[8] From 2021 through 2024, real purchases by the federal government are projected to grow by an average of 0.5 percent per year.

After growing 2.2 percent in 2019, real purchases by state and local governments are projected to increase by 0.7 percent in 2020 because of a drop-off in state and local investment. That drop-off is partly driven by a slowdown in the growth of real personal income and, as a result, a slowdown in the growth of real state and local tax receipts. From 2021 through 2024, real purchases by state and local governments are expected to grow by an average of 0.6 percent per year, roughly keeping pace with the growth of the population.

Net Exports. After declining since 2014, real net exports rose in 2019 but are projected to decline slightly from 2020 through 2024. Real import and export growth were unusually weak in 2019, as imports fell by 2.3 percent and exports fell by 0.7 percent (see Table 2-4). In 2020 and 2021, CBO expects that the growth of real exports and real imports will rebound from those historically slow growth rates, resulting in declining real net exports due to a stronger rise in imports. Beyond 2021, CBO projects growth in imports and exports to be mostly offsetting, as weaker growth in U.S. domestic demand (which is the sum of consumption, private investment, and government purchases) limits the growth of U.S. imports and the continued strength of the dollar suppresses U.S export growth.

Growth of real imports is expected to increase in 2020 as the negative effects of import tariffs continue to wane. In 2019, real imports fell as the higher trade barriers imposed since January 2018 increased the cost of imports, especially imports of capital goods. In 2020, CBO expects a small rebound in U.S. import growth, as businesses continue adjusting their global supply chains in response to tariffs and increase imports from countries not subject to the tariffs imposed between January 2018 and January 2020. However, projected weaker growth

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.

8. Because fiscal year 2021 begins in the fourth quarter of calendar year 2020, the caps on discretionary funding in fiscal year 2021 start affecting CBO's economic projections in the fourth quarter of 2020.

of U.S. domestic demand in 2020 is expected to reduce U.S. purchases of imported goods and services, partially offsetting that positive effect.

Growth of real exports in 2020 is expected to rebound modestly for three reasons. First, in CBO's projections, stronger growth of U.S. exports is driven mostly by increases in exports of aircraft. In 2019, the suspension of deliveries of the Boeing 737 MAX aircraft sharply reduced U.S. real exports of capital goods and created a backlog of unfulfilled foreign aircraft orders. CBO projects that Boeing will resume its deliveries in 2020, leading to a surge in exports of aircraft that had been held in inventory. The second reason for the rebound in export growth is the diminishing effect of trade barriers imposed since 2018, as U.S. businesses adjust their supply chains and find new destinations for their exports. The last reason for stronger export growth is a projected increase in the pace of economic activity among the United States' leading trading partners, which will increase demand for U.S. exports.

Partially offsetting the factors that increase U.S. exports in 2020 is the continued strength of the dollar, which reduces the competitiveness of U.S. exports in foreign markets. The exchange value of the dollar rose substantially during the past two years. The recent strength of the dollar reflects relatively tighter monetary policy and relative strength in the U.S. economy compared with those of its major trading partners. In CBO's projections, the divergence in monetary policies is expected to persist, keeping the dollar strong through 2024. CBO expects that strength to reduce the growth of real exports by making U.S. goods more costly for foreign purchasers.

After 2020, in CBO's projections, U.S. imports and exports continue to grow slowly and at similar rates. As growth of U.S. consumer spending and investment slows in those years, growth of U.S. imports remains weak, averaging 2.3 percent. Growth of U.S. exports is also modest, because of continued slow growth in the economies of major U.S. trading partners and the persistent strength of the dollar. From 2021 to 2024, U.S. real exports are expected to grow by an average of only 2.3 percent.

The Labor Market

Labor market conditions continued to improve in 2019 and are projected to remain strong over the next few years (see Figure 2-2). Job growth in 2019 maintained a solid pace, on average, particularly in several service-providing industries. The unemployment rate reached its lowest point since the 1960s, and the overall labor force participation rate rose. In addition, wage growth has been increasingly broad-based in recent years, with low-wage earners seeing particularly robust growth in their hourly wages since 2016 and middle-wage earners seeing a moderate acceleration in their hourly wages last year.

Despite the overall strength, some indicators signal that growth of demand for labor is leveling off. The number of job openings has been moderating since early 2019. In addition, after picking up materially in 2018, growth in two key measures of labor compensation—the employment cost index and the average hourly earnings for production and nonsupervisory workers in private industries—has slowed more recently.

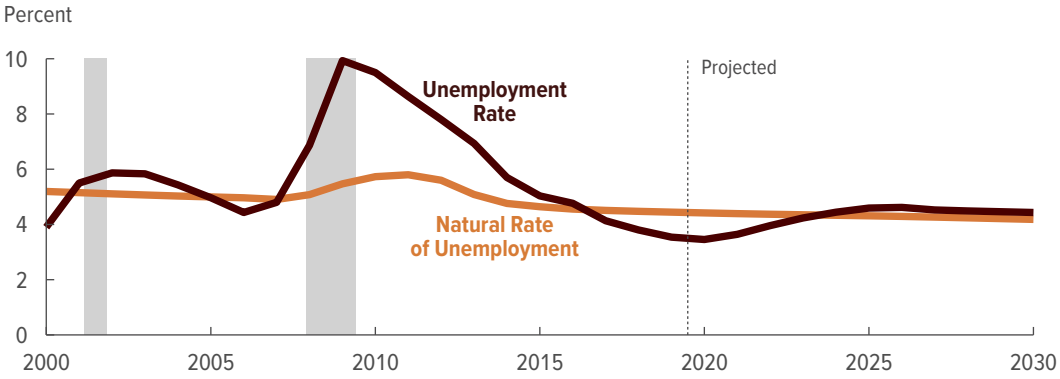
Employment. Job growth slowed somewhat in the middle of 2019 but picked up again in recent months. Growth in nonfarm payroll employment averaged 176,000 jobs per month in 2019, compared with an average monthly gain of 223,000 jobs in 2018. Job growth slowed in the manufacturing sector but remained fairly robust in several service-providing industries, including health care and social services and professional and business services.

In CBO's projections, the current momentum of strong job growth continues in the first half of 2020, aided by the temporary hiring of federal workers for the decennial census. Those workers are expected to be discharged in subsequent quarters, which, combined with a projected slowdown in private-sector job growth, is expected to give rise to sharp declines in monthly employment statistics in the second half of 2020. All told, nonfarm payroll growth is projected to average 215,000 jobs per month in the first half of 2020, 55,000 jobs per month in the second half, and 135,000 jobs per month over the whole year.

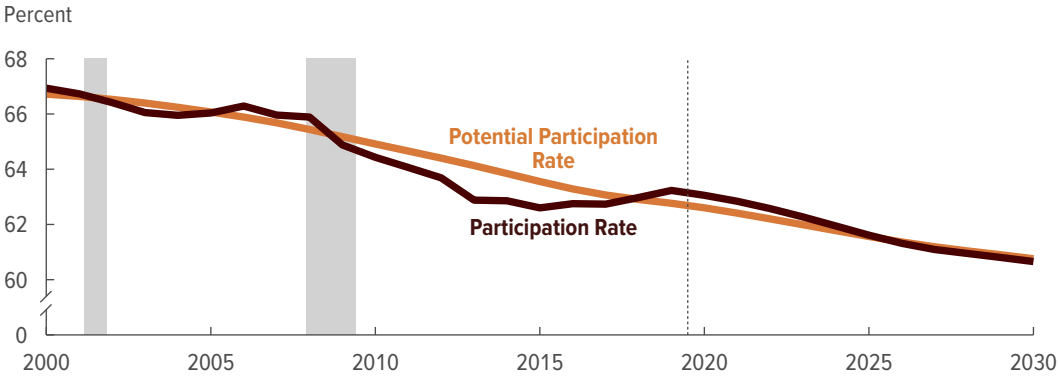
CBO projects that the average pace of job growth will remain subdued after 2020. As labor compensation rises further and output growth falls below its potential, job growth is expected to slow, causing the gap between employment and its potential to narrow. Specifically, in CBO's projections, nonfarm payroll growth averages 28,000 jobs per month between 2021 and 2024, below the agency's estimate of potential job growth of 81,000 jobs per month. Although economic and job

Figure 2-2.

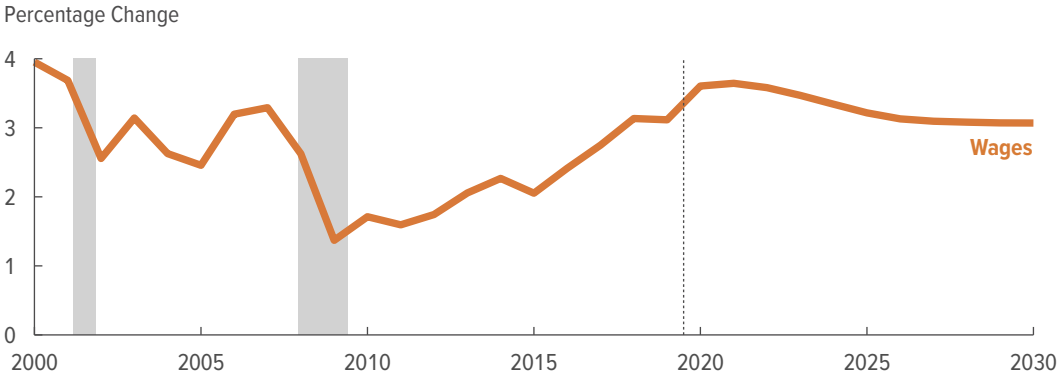
The Labor Market



In CBO's projections, the unemployment rate remains near historic lows throughout 2020. It then rises steadily, mostly because of slower economic growth, and surpasses the natural rate of unemployment in 2024.



The strong labor market keeps the labor force participation rate elevated for much of 2020. Starting in 2021, as economic and job growth slows, participation falls toward its potential rate, which also decreases, largely because of the aging of the population.



Wage growth remains strong over the next several years as employers continue to bid up the price of labor to recruit and retain workers.

Sources: Congressional Budget Office; Bureau of Labor Statistics.

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 rate of unemployment is the rate that results from all sources except fluctuations in aggregate demand, including normal turnover of jobs and mismatches between the skills of available workers and the skills necessary to fill vacant positions.

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 CBO's estimate of the rate that would occur if economic output and other key variables were at their maximum sustainable amounts.

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.

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

Values for wages in 2019 are CBO's estimates.

growth slow, employment, which tends to lag behind movements in output, is expected to remain above its maximum sustainable level over the entire 2020–2024 period, supporting relatively robust wage growth during those years.

Unemployment. The unemployment rate, which continued to edge downward in 2019, stood at 3.5 percent at the end of the year, its lowest point since the 1960s and about 0.9 percentage points below CBO's estimate of the natural rate of unemployment. (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.)

In CBO's projections, solid economic growth is expected to keep the unemployment rate at about 3.5 percent in 2020. After 2020, as economic growth moderates, the unemployment rate is expected to rise steadily, reaching and surpassing its natural rate of 4.3 percent in 2024 before settling into its long-term path (roughly a quarter of a percentage point higher than the natural rate) in later years.

Labor Force Participation. The labor force participation rate (LFPR) among the civilian noninstitutionalized population (age 16 or older), which has hovered at about 62.8 percent since 2014, showed considerable cyclical strength and edged up over the past year. It stood at 63.2 percent at the end of 2019, roughly 0.5 percentage points higher than CBO's estimate of its current potential rate—that is, the rate that would occur if the economy's output and other key inputs were at their maximum sustainable amounts. In CBO's estimation, the potential LFPR fell from 64.0 percent in 2014 to 62.8 percent in 2019. That decline was driven largely by the aging of the population (because older people tend to participate less in the labor force than younger people do) and, in particular, by the retirement of baby boomers.[9]

The LFPR of people ages 25 to 54, which excludes much of the effect of the aging of the population, has risen in recent years, from 80.9 percent in 2015 to 82.0 percent in 2018 and 82.5 percent in 2019 (see Figure 2-3). Such near-term strength in labor force participation reflects the cumulative benefits of sustained economic growth, which encourages additional workers to enter and existing workers to stay in the labor force.

Cyclical strength in the economy keeps the overall LFPR above 63.0 percent throughout 2020, CBO projects; starting in 2021, as economic and job growth slows, the overall LFPR falls toward its potential. In CBO's projections, the overall LFPR falls from 63.0 percent in early 2021 to 61.9 percent by late 2024, whereas its potential rate falls from 62.6 percent to 61.8 percent during that period. By contrast, the LFPR of people ages 25 to 54 is projected to stay stable, hovering just above 82.8 percent during the 2020–2024 period; that stability is the result, among other things, of the increasing average education level of the workforce offsetting the downward pressure of slowing economic activity.

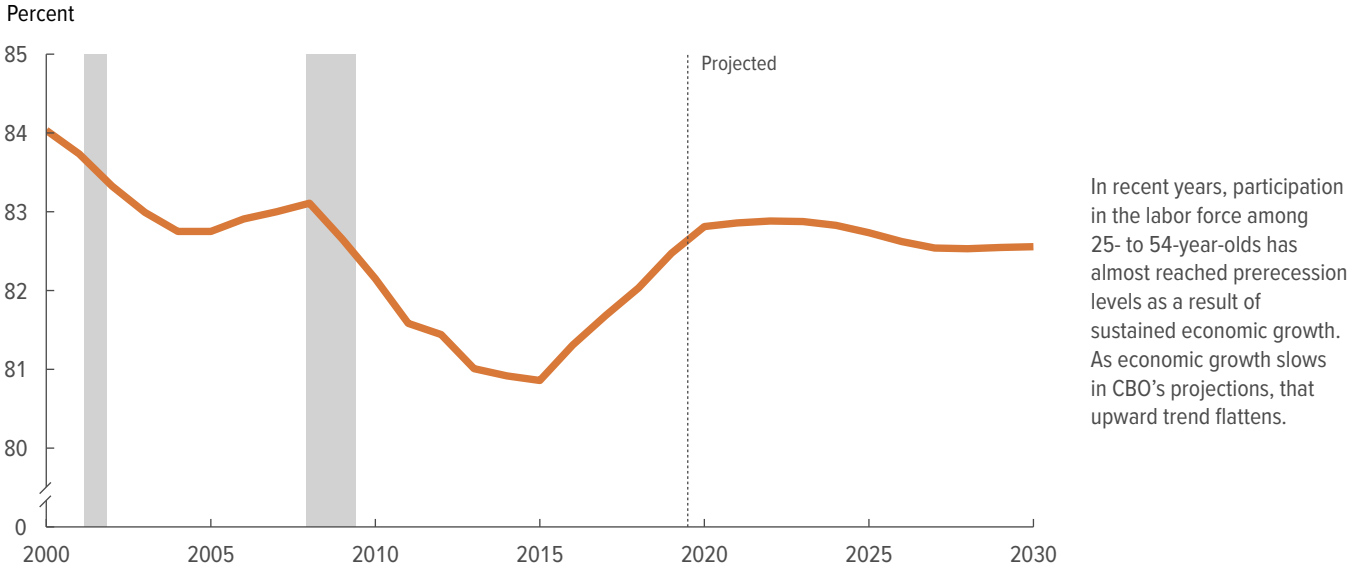
Labor Compensation. After accelerating in 2018, wage growth by a couple of key aggregate measures—namely, the employment cost index and the average hourly earnings of private-sector workers—stalled during 2019. That development partly reflects a slowdown in wage growth in service-providing industries, particularly the health care and social services industries. Economywide, data from household surveys show that gains in hourly wages have become increasingly broad-based in recent years: They have been especially strong for low-wage earners since late 2016. In 2019, wage growth also picked up notably for middle-wage earners.

As the labor market remains relatively strong, CBO expects employers to continue 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 rises from 3.1 percent in 2019 to 3.6 percent in 2020, its highest rate since the early 2000s, and then averages 3.5 percent from 2021 to 2024. Other measures of labor compensation, such as the average hourly earnings of production and nonsupervisory workers in private industry, are also expected to pick up further in the next few years. The faster pace of wage growth is expected to restrain the growth in the demand for labor,

9. Baby boomers are people who were born between 1946 and 1964. The retirement of baby boomers is projected to put large downward pressure on the labor force participation rate over the next 10 years. In CBO's projections, the potential labor force participation rate falls from 62.8 percent in 2019 to 60.8 percent in 2030.

Figure 2-3.

The Labor Force Participation Rate of People Ages 25 to 54



Sources: Congressional Budget Office; Bureau of Labor Statistics.

The labor force participation rate is the percentage of people in the civilian noninstitutionalized population who are either working or seeking work.

Data are annual average values.

gradually slowing the pace of job and wage growth in later years.

Inflation and Interest Rates

CBO expects strong labor and product market conditions to apply upward pressure on inflation and interest rates over the next few years. That upward pressure is projected to dissipate in later years as the current strength in labor and product markets subsides.

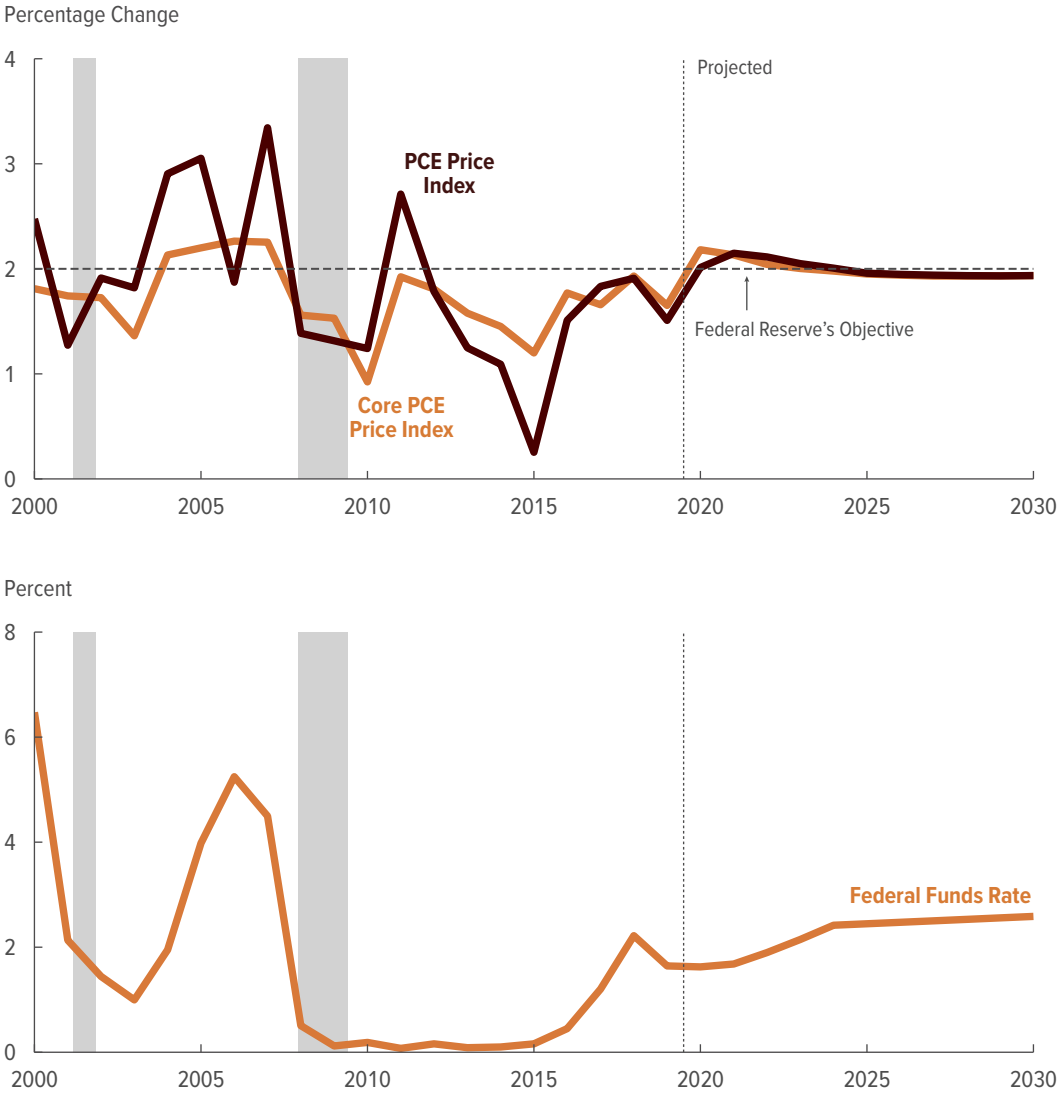
Inflation. The growth rate of the price index for personal consumption expenditures (PCE)—the measure that the Federal Reserve uses to define its 2 percent long-run objective for inflation—was below that objective in 2019. The traditional measure of core PCE price inflation, which excludes food and energy prices because they tend to be volatile, was also below 2 percent in 2019. However, that low inflation was largely driven by declines in particular components, such as financial services prices, that CBO does not expect to occur again in 2020. Alternative measures of core inflation that are designed to eliminate the effects of such short-lived factors (not only food and energy prices) remain close to 2 percent.[10] The evidence as a whole suggests that the current shortfall from the Federal Reserve's long-run objective is probably the result of temporary factors.

In CBO's projections, the effects of those temporary factors wear off, and the core PCE price index increases by 2.2 percent in 2020 and by 2.1 percent in 2021 (see Figure 2-4). Several factors support that increase in the rate of inflation, including strong labor and product market conditions. Growth in the overall PCE price index will also rise, CBO projects, meeting the Federal Reserve's long-run objective in 2020 and then slightly overshooting it in 2021. After 2021, the agency expects growth in both the core and the overall PCE price index to fall gradually to 2.0 percent by 2024 as the strength in labor and product markets subsides. Growth in the consumer price index for urban households (CPI-U), which tends to be faster than growth in the PCE price index, rises to 2.4 percent in 2020 and 2.6 percent in

10. 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 the Federal Funds Rate



In CBO's projections, a number of factors cause inflation to accelerate in 2020, including strong labor and product markets. After 2021, diminishing strength in those markets slows the rate of inflation.

At the end of 2021, the Federal Reserve begins raising the target range for the federal funds rate—which helps reduce inflationary pressures, in line with the Federal Reserve's long-run objectives.

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

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

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

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

Values for inflation in 2019 are CBO's estimates.

For the federal funds rate, the data are fourth-quarter values.

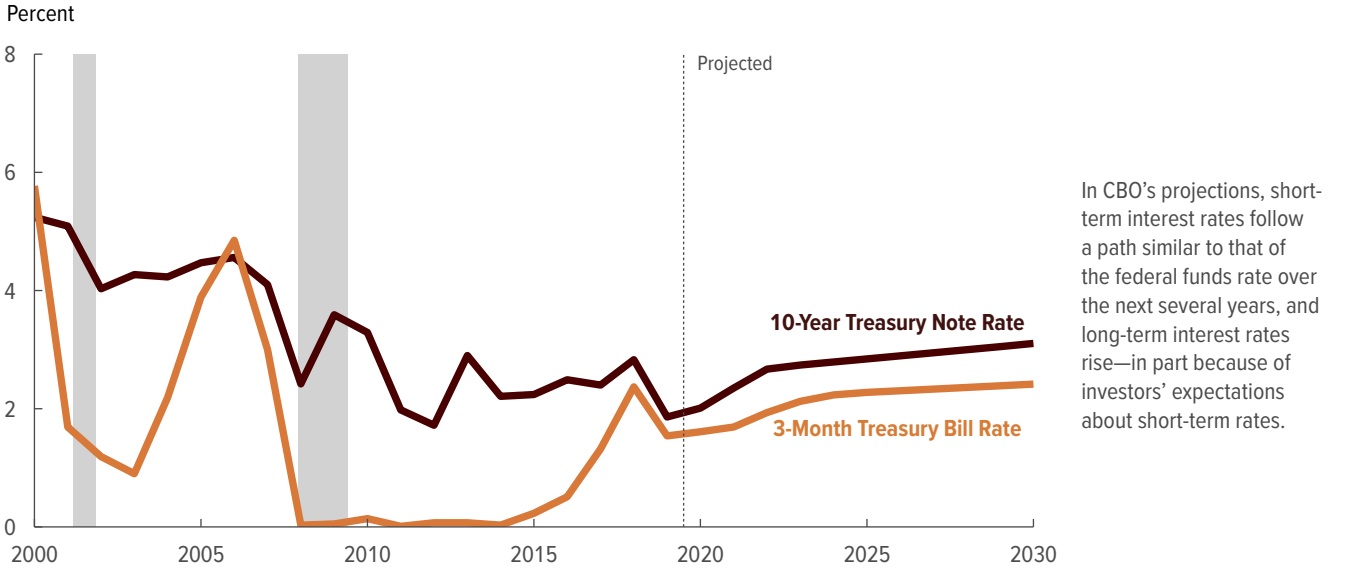
PCE = personal consumption expenditures.

2021 before falling gradually to 2.3 percent in 2024, in CBO's projections.

Interest Rates. CBO expects the Federal Reserve to keep its current target range for the federal funds rate unchanged through late 2021. The agency expects rising inflation and tighter labor and product markets to prompt the Federal Reserve to begin gradually raising interest rates at the end of 2021. In CBO's projections, the Federal Reserve continues to increase the federal

Figure 2-5.

Interest Rates



Sources: Congressional Budget Office; Federal Reserve.

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

Data are fourth-quarter values.

funds target range, reaching an average of 2.4 percent by the end of 2024. CBO expects those rate hikes to slow economic growth, putting downward pressure on inflation in later years.

The interest rate on 3-month Treasury bills is expected to remain near its current rate of 1.6 percent through the first half of 2021 and then begin to rise, partly in response to higher U.S. inflation, improvements in the outlook for the global economy in 2020 and early 2021, and market participants' expectations of future rate hikes by the Federal Reserve. In CBO's projections, the interest rate on 3-month Treasury bills rises from 1.6 percent in the first half of 2021 to 2.2 percent by the end of 2024 (see Figure 2-5).

CBO expects long-term interest rates to rise over the entire 2020–2024 period for two reasons. First, long-term interest rates reflect investors' expectations that short-term interest rates will rise. 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 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 long-run objective of 2 percent, 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 for much 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 2.8 percent by the end of 2024.

The Economic Outlook for 2025 to 2030

CBO's projections of the economy for 2025 through 2030 are based mainly on its projections of underlying trends in key variables, such as the size of the labor force, the average number of labor hours per worker, capital

investment, and productivity.[11] In addition, CBO considers how the federal tax and spending policies—as well as trade and other public policies—embodied in current law would affect those variables.

In CBO's projections, some policies not only affect potential output but also influence overall demand for goods and services, causing the gap between actual output and potential output to change. For example, the scheduled expiration of certain 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 slow real GDP growth and to lower real GDP in relation to its potential in those years. Changes in law that prevented certain provisions of the 2017 tax act from expiring would affect CBO's forecast and cause the agency's economic projections to change.

Output

In CBO's projections, potential output grows at an average rate of 1.7 percent per year over the 2025–2030 period, driven by average annual growth of about 0.3 percent in the potential labor force and about 1.4 percent in potential labor force productivity (see Table 2-5 and see Box 2-1). That annual 1.7 percent growth of potential output is nearly one-quarter of a percentage point slower than its projected growth of 2.0 percent per year over the earlier 2020–2024 period (see Figure 2-6 on page 47). That slowdown is attributable in approximately equal parts to slower growth of the potential labor force and slower growth in potential labor force productivity.

The slowdown in potential output 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 nearly 2.3 percent over the 2020–2024 period to about 2.0 percent over the 2025–2030 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 0.8 percentage points per year to about 0.6 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 in nonfarm business reflects underlying long-run trends—such as the aging of the population and other demographic shifts—as well as the scheduled increase in taxes under current law. Changes in trade policies and legislation enacted since August 2019 are also expected to have a small negative effect on potential output in the sector, although considerable uncertainty surrounds that assessment.

Unlike the growth of potential hours worked and capital services, the annual growth of potential total factor productivity (TFP)—that is, 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 1.1 percent in the first half of the projection period to nearly 1.2 percent in the second half. That acceleration somewhat offsets the slowdown in the growth of other inputs to production. The increase in potential TFP growth in the nonfarm business sector also plays a key role in making economywide potential output grow faster than its estimated average rate of about 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 reflects the agency's consideration of the average effect of recessions from a historical perspective.[12] However, that convergence is interrupted in the current forecast because the expiration of certain 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

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

12. 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.

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	2008–2019	Total, 1950–2019	2020–2024	2025–2030	2020–2030
Overall Economy										
Real Potential GDP	4.0	3.1	3.4	3.2	2.6	1.6	3.2	2.0	1.7	1.8
Potential Labor Force	1.6	2.5	1.6	1.2	1.0	0.5	1.4	0.5	0.3	0.4
Potential Labor Force Productivity[a]	2.4	0.6	1.7	2.0	1.6	1.1	1.7	1.5	1.4	1.4
Nonfarm Business Sector										
Real Potential Output	4.1	3.5	3.6	3.6	2.9	1.9	3.4	2.3	2.0	2.1
Potential Hours Worked	1.4	2.3	1.8	1.2	0.4	0.5	1.3	0.5	0.3	0.4
Capital Services[b]	3.8	3.8	3.6	3.9	2.8	2.4	3.4	2.4	2.0	2.2
Potential Total Factor Productivity[c]	1.9	0.7	1.3	1.5	1.7	0.7	1.4	1.1	1.2	1.1
Contributions to the Growth of Real Potential Output (Percentage points)										
Potential hours worked	1.0	1.5	1.2	0.8	0.3	0.4	0.9	0.4	0.2	0.3
Capital input	1.2	1.2	1.1	1.2	0.9	0.7	1.1	0.7	0.6	0.7
Potential total factor productivity	1.9	0.7	1.3	1.5	1.7	0.7	1.4	1.1	1.2	1.1
Total Contributions	4.1	3.5	3.5	3.6	2.9	1.8	3.4	2.2	2.0	2.1
Potential Labor Productivity[d]	2.7	1.2	1.8	2.4	2.5	1.3	2.1	1.7	1.7	1.7

Source: Congressional Budget Office.

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

The table shows compound annual growth rates over the specified periods. Those rates were 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.

demand. As a consequence, actual output temporarily falls relative to potential output. It then rises until the relationship between the levels of 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 2025–2030 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 4.5 percent in 2019 to 4.2 percent by 2030. 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 4.5 percent by 2025, and the difference between the unemployment rate and the natural rate reaches its long-term average of about 0.25 percentage points.[13] Over time, as the natural rate of unemployment declines, the unemployment rate also falls, except in 2025 and 2026,

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

Box 2-1.

CBO's Estimates of Potential Output

Although changes in the overall demand for goods and services strongly influence the Congressional Budget Office's economic projections during the first half of the period covered in this outlook, the agency's projections over the entire period are fundamentally determined by its assessment of the prospects for growth of a few key inputs: the potential number of workers in the labor force, capital services (that is, the flow of productive services provided by the available stock of capital), and the potential productivity of those factors. In CBO's assessment, growth of potential output over the entire 2020–2030 period is projected to average 1.8 percent per year, a rate roughly equal to the average over the past 15 years.

In CBO's assessment, growth in potential output continues at its recent trend because the growth of potential total factor productivity (TFP) in nonfarm business is quickly returning to a rate more consistent with longer-term averages than with recent experience. In CBO's projection, potential TFP growth increases from an annual average of 0.7 percent since the beginning of the last recession to an average of 1.1 percent during the forecast period. That projected increase directly adds 0.3 percentage points to the growth of potential output and also indirectly adds to growth by encouraging more investment than would otherwise occur. In addition, the relatively strong projected growth of residential investment yields more rapid growth of capital services from owner-occupied housing than has been typical of the current business cycle. A further contribution comes from a modest acceleration in growth in potential labor productivity outside of nonfarm business.

The projected acceleration of growth in potential TFP more than offsets adverse trends in other fundamental determinants of potential output over the projection period, compared with recent history. In particular, CBO projects an ongoing decline in the growth of the potential labor force from 0.5 percent per year in recent years to 0.3 percent by 2030, a decline that reflects underlying trends, such as the aging of the population and other demographic shifts. Similarly, investment trends in nonfarm business (which accounts for about three-quarters of economic activity and nearly all of the growth in productivity) are expected to yield slightly slower growth in that sector's capital services than has occurred during the current business cycle.

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 growth in the demand for labor. The projected unemployment rate is 4.4 percent in 2030, slightly below its level of 4.5 percent in 2025.

CBO expects the labor force participation rate to fall below its potential during the second half of the 11-year projection period. Specifically, the overall labor force participation rate is projected to fall from 61.9 percent at the beginning of 2025 to 60.7 percent by the end of 2030. CBO attributes most of that decline to the aging of the population and, in particular, the continued retirement of baby boomers.[14] That rate in 2030 is 0.1 percentage point below the agency's estimate of the potential labor force participation rate, an amount reflecting the average difference over business cycles between the 1950s and the 2000s.

The growth in employment and wages is projected to be moderate over the 2025–2030 period. Nonfarm payroll employment increases by an average of about 50,000 jobs per month during those years, in CBO's projections. 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 1.7 percent from 2025 to 2030—close to the projected average growth in labor productivity in that sector.

Inflation and Interest Rates

Between 2025 and 2030, in CBO's forecast, the overall and core PCE price indexes increase by an average of 1.9 percent per year, which is slightly below the Federal Reserve's long-run objective for inflation. That reflects the likelihood of a business cycle occurring during the projection period. Inflation in the overall and core CPI-U measures averages 2.2 percent annually in those years. Those projections reflect the historical difference between the growth rates of the PCE price index and the CPI-U.

The interest rates on 3-month Treasury bills and 10-year Treasury notes are projected to average 2.3 percent and

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

Figure 2-6.

Composition of the Growth of Real Potential GDP

Over the next decade, real potential GDP is projected to grow faster than it has since the last recession because of faster growth in potential labor force productivity. However, growth in the potential labor force is projected to be slower than in previous periods, largely because of the aging of the population.

Source: Congressional Budget Office.

Real values are nominal values that have been adjusted to remove the effects of changes in prices. Growth in real potential GDP is the sum of growth in the potential labor force and growth in potential labor force productivity. The potential labor force is CBO's estimate of the size of the labor force that would occur if economic output and other key variables were at their maximum sustainable amounts. 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.

GDP = gross domestic product.

3.0 percent, respectively, over the 2025–2030 period. Those projected rates are below the securities' average rates from 1990 through 2007, a period that CBO uses for comparison because expectations about inflation during that time were fairly stable and because there were no significant financial crises or severe economic downturns.

In CBO's analysis, a number of factors push interest rates on Treasury securities below that historical average: lower average expected inflation, slower growth of the labor force (which tends to raise the amount of equipment and other capital per worker, reducing both the return on capital and the return on competing investments, such as Treasury securities), slightly slower growth of productivity (which 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 reflects increased relative demand for risk-free Treasury securities—including the Federal Reserve's holdings—and boosts their prices, 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 U.S. GDP (which reduce the supply of funds available for borrowing), and a larger 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).

Nevertheless, interest rates are projected to rise over the 2025–2030 period. In particular, rising federal debt in relation to GDP and a gradual decline in the premium paid on risky assets are both expected to exert slight upward pressure on short- and long-term interest rates. CBO expects the average federal funds rate to rise from 2.4 percent in 2025 to 2.6 percent in 2030. Similarly, the rates for 3-month Treasury bills and 10-year Treasury notes are expected to rise from 2.3 percent and 2.8 percent to 2.4 percent and 3.1 percent, respectively, over that period.

Projections of Income

Economic activity and federal tax revenues depend not only on the amount of total income in the economy but also on how that income is divided among 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 in 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 a recent low of 57.1 percent in 2010 but partially rebounded to 57.9 percent at the end of 2019. Compared with historical fluctuations in labor income as a share of GDP, little change is expected in the labor share over the projection period. The share reflects CBO's forecasts for employment and compensation as well as a projected fraction of proprietors' income. Labor's share rises slightly, reaching 58.6 percent in 2028, and then remains close to 58.5 percent through the end of 2030. Wages and salaries are expected to grow more quickly than the rest of national income over the next five years as wage growth picks up, but their growth rates are projected to fall slightly in the latter half of the projection period. The wage and salary share of total income rises from 43.4 percent of GDP in 2019 to 43.9 percent in 2024 before falling to 43.7 percent by the end of 2030, in CBO's projections.

Economists have identified some factors that have reduced labor's share of income, especially since 2000, but the relative importance and persistence of those factors remains unclear.[15] In CBO's projections, that combination of long-term factors continues to operate, so that labor's share of GDP does not reach 60.4 percent—its long-run average from 1947 through 2000.

Domestic corporate profits as a share of GDP fell from 2014 through 2019 as the shares of compensation and interest income rose. In CBO's projections, the domestic profit share rebounds in 2020 and then rises only slightly over the remainder of the projection period. Domestic corporate profits as a share of GDP rise from 7.2 percent in 2019 to 7.8 percent by the end of 2020, reaching 7.9 percent by the end of 2030; they average 7.8 percent over the entire projection period.

Some Uncertainties in the Economic Outlook

Even if no changes were made to federal fiscal policies or trade policies, economic outcomes would still probably differ from CBO's projections. For example, a great deal of uncertainty surrounds CBO's estimates of 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. If federal fiscal policies or trade policies differed from those underlying CBO's baseline projections, then economic outcomes would probably differ from CBO's economic projections.

Fiscal and Trade Policies

Recent and prospective policy changes add to the uncertainty in CBO's economic outlook. The scheduled expiration of certain 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 in the latter years of the projection period than the agency forecasts. In addition, it is difficult to estimate how households and businesses will respond to changes that they expect to occur in federal tax and spending policies.

Recent actions related to trade policies are another source of uncertainty in CBO's projections. A great deal of uncertainty surrounds households' and businesses'

15. Technological change 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 (February 2014), pp. 61–103, https://tinyurl.com/y9uj2yv5. On the role of globalization, see 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. The returns on intangible assets may have claimed an increasing share of income; see Congressional Budget Office, *How Taxes Affect the Incentive to Invest in New Intangible Assets* (November 2018), www.cbo.gov/publication/54648. Labor income could have been reduced by increases 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. But apparent market power could reflect the growth of highly productive 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.

responses to such policies under current law. For example, CBO's estimates of the economic effects of those policy changes may prove too pessimistic. If the foreign demand for U.S. goods was less sensitive to higher tariff rates than CBO projects, then U.S. exports would be higher, and economic growth would be faster than projected.

Conversely, CBO's projections of the economic effects of changes in trade policies may be too optimistic. If domestic businesses were less able to absorb the higher cost of imported products and therefore had to pass a greater share of those costs on to consumers, then U.S. import growth would be slower, domestic inflation would be higher, and economic growth would be slower than CBO currently projects.

Output and Employment

Many developments—such as unexpected changes in the labor market, business confidence, the housing market, and international conditions—could cause output and employment 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, so that outcomes could differ from the forecast in either direction.

On the one hand, the agency's current forecast of output and employment may be too pessimistic. For example, recent data on employment 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. At the same time, inflation has not exceeded the Federal Reserve's 2 percent long-run objective. If the combination of strong hiring, robust wage growth, and subdued inflation continued longer than CBO projects, real income, consumer spending, and output would increase by more than the agency expects.

On the other hand, CBO's forecast may be too optimistic. Some international factors pose significant risks to CBO's economic outlook over the next several years. For instance, a government debt crisis in Europe could weaken the U.S. economic outlook by disrupting the international financial system, interfering with international trade, and reducing domestic business and consumer confidence. In addition, slower-than-expected growth among the United States' leading trading partners could lower export growth and, in turn, U.S. output growth below CBO's forecast.

Since CBO's long-run projections are fundamentally linked to the underlying trends in key variables, such as the size of the potential labor force, the average number of labor hours per worker, capital investment, and productivity, the uncertainty in later years largely reflects the uncertainty surrounding the estimates of those underlying trends. If, for example, the potential 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.[16] 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.

Furthermore, substantial uncertainty exists about the growth of overall total factor productivity and related implications for long-run growth. If the growth of TFP remained close to its estimated trend since the end of the last recession, about 0.7 percent per year, annual growth of economywide output would be about 0.3 percentage points slower than CBO projects. Conversely, if it returned to its more rapid long-run average rate of growth, annual growth of economywide output would be about 0.2 percentage points faster.

Inflation and Interest Rates

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

16. 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.

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

In the event of an economic downturn, the Federal Reserve could boost the overall demand for goods and services by lowering short-term interest rates and by using unconventional monetary policies, which work in part by lowering long-term interest rates. In CBO's assessment, those policies would be sufficient to restore overall demand following a typical economic downturn. It is unclear how much scope those policies would have to restore demand in a severe downturn.

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.

Risk of a Recession

In CBO's baseline projections, the output gap narrows over the next few years, with slower but still positive economic growth. Although a recession is not the agency's baseline projection, a risk of recession nonetheless exists.

The current economic expansion is now the longest in the post–World War II period (see Figure 2-7). In CBO's view, economic expansions do not end simply because of their long duration; however, as an expansion lengthens, the economy may become more vulnerable to the prospect of a recession because various risk factors can develop and compound over time. Historically, such risk factors (broadly defined) have included unintended adverse effects of economic policies; economic and financial imbalances; and external shocks, such as unfavorable international events or sudden, large increases in oil prices. Some of those risk factors currently exist or could develop in the next few years.

For example, potential increases in trade barriers contribute to the risk that economic growth could be slower than that in CBO's baseline projections. Meanwhile, high and volatile valuations of financial assets, large federal budget deficits and debt, large U.S. current account deficits (that is, large net inflows of capital from abroad), and corporate debt positions that could be more difficult to finance as interest rates increase are a few examples of economic and financial imbalances that could lead to a recession. Finally, although unexpected shocks are by definition impossible to predict in advance, the economy could be more vulnerable to such shocks in periods when it is growing more slowly.

CBO's current baseline projections incorporate the agency's consideration of the risks and effects of possible recessions in both the near and the long term. In particular, in CBO's assessment, there is a significant chance that output growth will be slower in the near term than the agency currently projects, and that assessment includes a moderate probability of a recession over the next few years. But there is also a significant chance that output growth will be faster than CBO currently projects. As a result, the agency has constructed its baseline projection of economic growth in the near term to reflect the average of those possible outcomes.

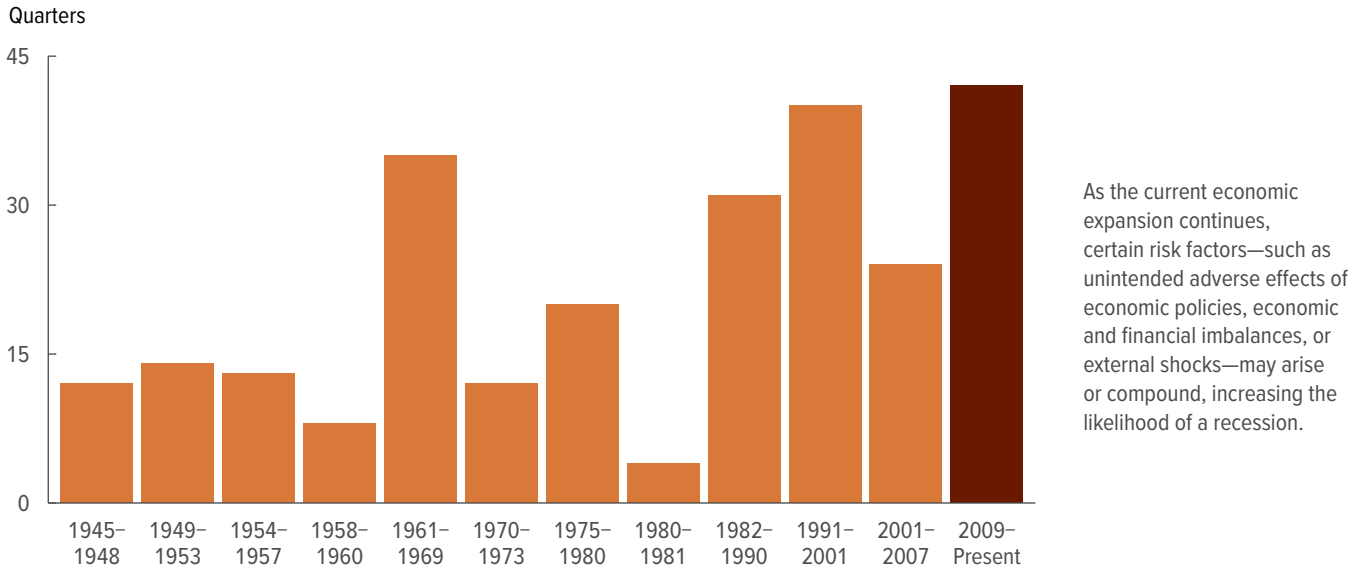
In addition, CBO's projection of a persistent, negative output gap in the long run reflects the agency's consideration of the average effect of recessions from a historical perspective. That is, CBO projects that output will be, on average, half a percent below its potential level, roughly consistent with the average gap over business cycles (measured from trough to trough) that occurred between the 1950s and the 2000s.

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 several key macroeconomic variables (see Box 2-2). 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 0.5 percent and 3.1 percent over the next five years (see Figure 2-8 on page 54). That range encompasses cumulative growth over the five-year

Figure 2-7.

Duration of Economic Expansions Since 1945



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

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

period ranging between 2.4 percent and 16.5 percent.[17] Similarly, errors in CBO's past forecasts of inflation (as measured with the CPI-U) suggest that there is roughly a two-thirds chance that the average annual rate of inflation will fall between 1.9 percent and 3.0 percent over the next five years.

Comparison With CBO's August 2019 Projections

CBO's current economic forecast is similar to the forecast the agency published in August 2019, but it differs in some ways (see Table 2-6 on page 56).[18] In particular, CBO's current projections of interest rates, inflation, and the unemployment rate over the 2019–2029 period are lower. CBO also reduced its estimates of potential output growth in the latter part of the projection period.

Interest Rates and Inflation

The agency now expects both short- and long-term interest rates over the coming decade to be lower, on average, by 0.3 percentage points per year. CBO lowered its forecast of interest rates over the next few years in response to unexpectedly weak inflation and the continued economic effects associated with uncertainty about trade barriers. CBO's revisions to interest rates were also informed by statements of Federal Reserve officials, as well as changes in financial markets and outside forecasts.

CBO lowered its forecast of both short- and long-term interest rates over the latter years of the projection period, in part because of its forecast of a lower inflation rate. CBO also reassessed some of the factors that affect real interest rates in the long run. In particular, the agency 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

17. CBO's range for real GDP growth reflects some of the uncertainty inherent in its 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 real potential GDP growth.

18. See Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2019 to 2029* (August 2019), www.cbo.gov/publication/55551.

Box 2-2.

CBO's Forecasting Record and the Range of Uncertainty

One of the ways that the Congressional Budget Office quantifies the uncertainty surrounding its economic forecasts is to use past forecast errors. Forecast errors result from developments in the economy that were not anticipated at the time of the forecast and from the enactment of legislation (because CBO's forecast is based on current law). If the size and frequency of such changes in the future are roughly the same as in the past, then it is reasonable to use past errors to assess uncertainty about the future paths of some key macroeconomic variables.

CBO periodically reevaluates its past forecasting record. The agency's most recent reassessment, published in October 2019, analyzed two- and five-year economic forecasts of a number of economic series.[1] The report also compared CBO's forecasts with forecasts made by the Administration and with those of the *Blue Chip* consensus, an average of private-sector forecasts. The main findings of that report are as follows.

Measures of Forecast Quality

CBO focuses on three measures of forecast quality—mean error, root mean square error, and two-thirds spread of errors—that help the agency identify the centeredness (that is, the opposite of statistical bias), accuracy, and dispersion of its forecast errors. CBO's forecasts of most economic variables are, on average, too high by small amounts. As measured by the root mean square error, its two-year forecasts of most variables are not appreciably more accurate than its five-year forecasts.[2] CBO is least accurate in forecasting growth of wages and salaries.

Comparison With Other Forecasts

CBO, the Administration, and the *Blue Chip* consensus all failed to anticipate certain key economic developments, resulting in significant forecast errors. In general, the forecasts display similar error patterns over time. Because all forecasters faced the same challenges, periods in which CBO made large overestimates typically coincide with periods in which other forecasters made similarly large overestimates. For example, the forecast errors for real GDP growth (see the figure) are highly correlated over time (that is, they move up and down together). In addition, all forecasters tended to overestimate growth in gross domestic product during periods when there were economic downturns.

For the 10 variables analyzed, CBO found some similarities and some differences in forecast quality among forecasters. For the most part, CBO's and the Administration's forecasts exhibit similar degrees of centeredness (which indicates how close the average forecast value is to the average actual value over time), but CBO's forecasts are slightly more accurate and have smaller two-thirds spreads. For all three measures of forecast quality that CBO examined—the mean error, the root mean square error, and the two-thirds spread—the agency's forecasts are roughly comparable to those of the *Blue Chip* consensus.

Sources of Forecast Errors

The main sources of those errors are turning points in the business cycle, changes in labor productivity trends and crude oil prices, persistently low interest rates, the decline in labor income as a share of gross domestic product, and data revisions.

1. See Congressional Budget Office, *CBO's Economic Forecasting Record: 2019 Update* (October 2019), www.cbo.gov/publication/55505.

2. The root mean square error is calculated by squaring the forecast errors, averaging those squares, and taking the square root of that average.

Continued

return on Treasury securities. CBO has also lowered its estimate of growth in the labor force over the 2024–2029 period, which tends to reduce both the return on capital and the return on competing investments, such as Treasury securities.

In addition, CBO revised its forecast of long-term interest rates downward by more than it revised its forecast of short-term interest rates downward over that period. The larger revision to long-term interest rates reflects CBO's reassessment of the term premium. The agency expects the factors that have pushed the term premium to historic lows in recent years—investors' heightened concerns about relatively weak global economic growth and the increased demand for long-term bonds as a hedge against unexpectedly low inflation—to dissipate more slowly over the next decade than it previously estimated.

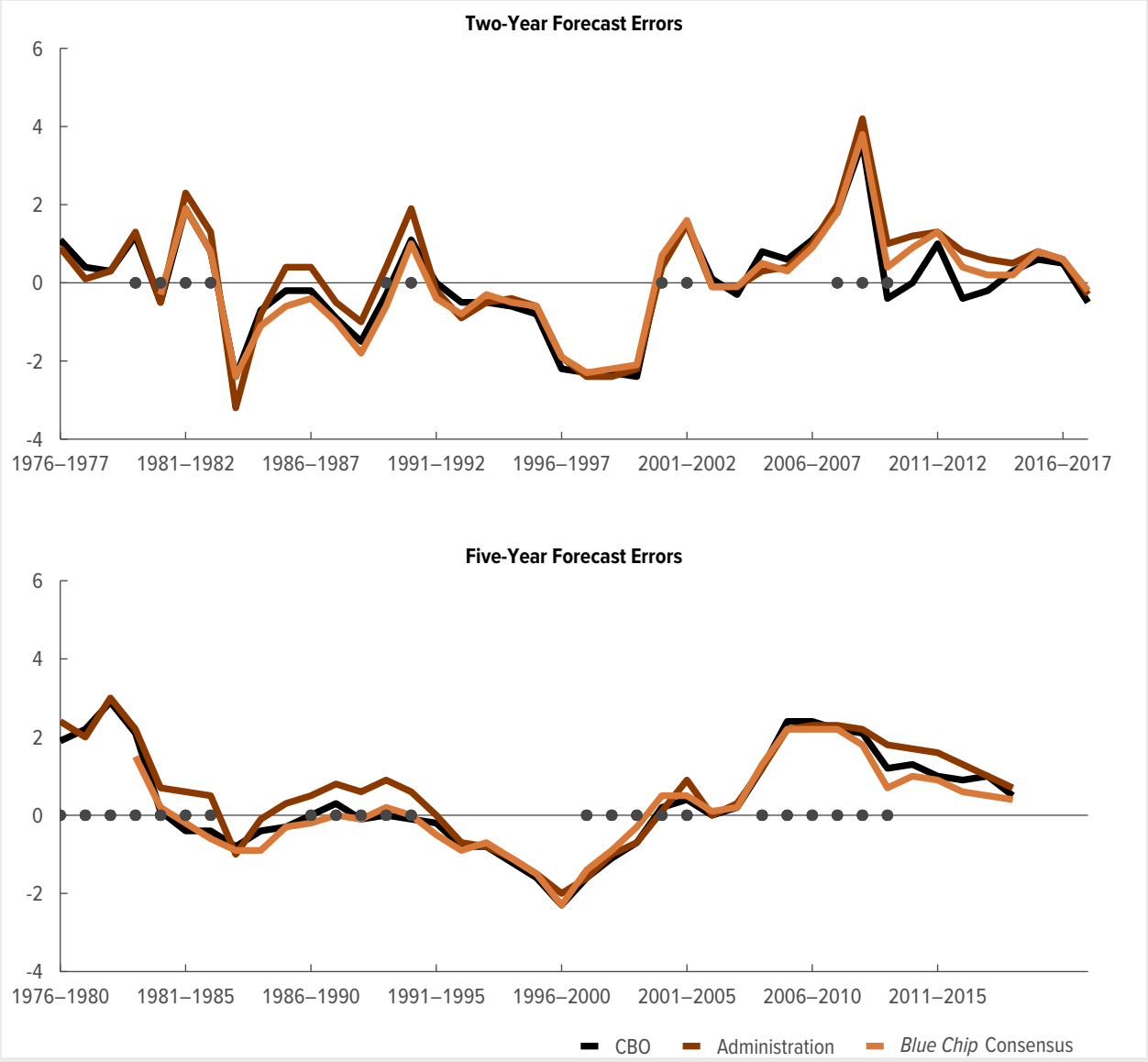
CBO reduced its projection of average PCE price inflation and core PCE price inflation over the latter years of the projection period by slightly less than 0.1 percentage point. Between 2024 and 2029, in CBO's forecast,

Box 2-2. Continued

CBO's Forecasting Record and the Range of Uncertainty

Errors in Forecasts of Real Output Growth

Percentage Points

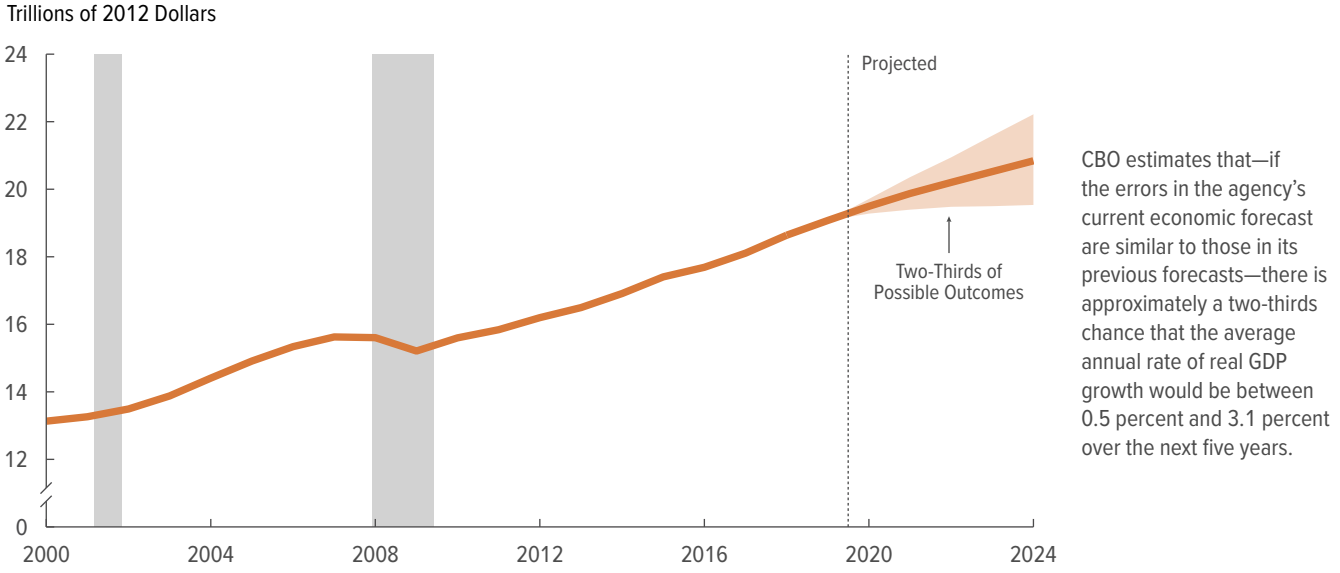


Sources: Congressional Budget Office; Office of Management and Budget; Wolters Kluwer, *Blue Chip Economic Indicators*; Bureau of Economic Analysis.

The measure of real output is gross national product in years before 1992 and gross domestic product in 1992 and later years. Positive errors represent overestimates. The dots shown on the horizontal axis indicate that the forecast period overlapped a recession by six months or more. The years indicate the time span covered by each of the forecast errors shown in the figure.

Figure 2-8.

The Uncertainty of CBO's Projections of Real GDP



Sources: Congressional Budget Office; Bureau of Economic Analysis.

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

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.

The value of real GDP for 2019 is CBO's estimate.

GDP = gross domestic product.

the core PCE price index now increases by an average of 1.9 percent per year, which is below the Federal Reserve's 2 percent long-run objective for inflation. The agency's forecast reflects the probability of a business cycle occurring during the 11-year projection period. In CBO's forecast, that probability lowers the average rate of inflation. That is consistent with the projection that the level of actual output stays about 0.5 percent below that of potential output in CBO's forecasts.

The Labor Market

Compared with its previous projections, CBO's current projection of the size of the labor force is slightly larger over the 2019–2023 period and slightly smaller over the 2024–2029 period. In the near term, the projected size of the labor force is larger because the agency raised the labor force participation rate in response to unexpectedly strong incoming data. After 2024, the projected labor force is smaller because the agency lowered the projected size of the civilian noninstitutionalized population (age 16 or older) as a result of higher-than-expected incoming data on mortality rates for the working-age population and lower net flows of immigration. More specifically, recent data show higher mortality rates than CBO expected last year for the working-age population, particularly for people under 45 years of age. Those data led CBO to increase its projection of mortality rates for the working-age population. The agency has also reduced its estimates of net inflows of foreign-born legal permanent residents and of foreign-born people without legal status. CBO revised its estimates of the net inflows of legal permanent residents in response to updated data that show lower net immigration for that group. Estimates of the number of foreign-born people without legal status in recent years have been declining since their peak in 2007 (that is, net inflows have been negative).[19] CBO projects that the net inflow of foreign-born people without legal status will slowly rise and that those net inflows will eventually turn positive in later years.

19. For the most recent estimates, see "Number of Unauthorized Immigrants in the U.S. Declined Over the Past Decade" (Pew Research Center, June 2019), https://tinyurl.com/r5u8vzv.

CBO's downward revision to the unemployment rate over the next decade is largely attributable to the agency's reassessment of the natural rate of unemployment, which reflects updated projections of the labor force. Because the demographic composition of the labor force was revised toward a higher percentage of older workers (largely because the mortality rates for people under the age of 65 are improving more slowly than CBO previously expected), as well as toward a higher percentage of more educated workers, CBO lowered its estimate of the natural rate of unemployment.

Output and Income

CBO now expects average growth in potential output over the 2019–2029 period to be about 0.1 percentage point slower than in the August forecast. About one-third of the decline in projected growth is attributable to slower growth in the potential labor force. The remainder is due to slower projected growth in potential labor force productivity, mainly resulting from weaker investment in response to slower labor force growth and from weaker residential investment in response to slower population growth. Those downward revisions to projected growth in potential labor productivity are partly offset by an upward revision to projected growth in potential TFP, itself a result of revisions to CBO's assessment of potential TFP growth in recent decades.

Projections of national income over the 2019–2029 period are largely unchanged since CBO's August projection, but various components of that income have been revised in offsetting ways. For example, projections for labor compensation and business interest payments were revised upward as shares of national income, but corporate profits were revised substantially downward. Revised national income and product accounts data indicate that labor compensation and interest payments were higher and corporate profits lower than previously reported for the years 2016 through 2018. Because labor compensation was revised upward and is now near the share of income that is consistent with CBO's long-run projections of potential output and potential employment—a share that CBO previously expected to be attained in 2026—labor compensation as a share of income is expected to rise by less over the projection period than it was in the August forecast. Since labor compensation is now closer to that long-run share of income than was previously estimated, the projected growth rates of compensation are lower and compensation as a share of income is higher through 2026 in the agency's new projections than it was in the August forecast. Within labor compensation, the share of compensation paid as nontaxable health benefits is boosted relative to the August forecast as a result of the repeal of the excise tax on high-premium insurance plans (see Appendix A). Interest payments by businesses account for a larger share of income in all years through 2029 than in the agency's previous projections. With higher shares of income going to labor compensation and to interest payments, the estimated share of income flowing into corporate profits is smaller than it was in the agency's August forecast.

Comparison With Other Economic Projections

CBO's projections of the economy for the next two years are generally stronger than the average of about 50 private-sector economists whose forecasts were published in the January 2020 *Blue Chip Economic Indicators* (see Figure 2-9 on page 58).

In particular:

- CBO's projections of real GDP growth are above the middle two-thirds of the range of *Blue Chip* forecasts for 2020 and but are within the middle two-thirds for 2021. CBO's projections of the unemployment rate are within the middle two-thirds of the range of private-sector economists for both 2020 and 2021.

- CBO's projections of GDP price inflation, consumer price inflation (as measured with the CPI-U), and interest rates for 2020 are within the middle two-thirds of the range of the *Blue Chip* forecasts. All of those projections are also within the middle two-thirds for 2021 except for consumer price inflation, which is slightly above the middle two-thirds but within the full range of forecasts.

Compared with the middle two-thirds of the range of forecasts made by Federal Reserve officials and reported at the December 2019 meeting of the Federal Open Market Committee, CBO's projections suggest a slightly stronger outlook for 2020 but a slightly weaker outlook for 2021, 2022, and the longer term (see Figure 2-10 on page 59).[20] 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

20. See Board of Governors of the Federal Reserve System, "Economic Projections of Federal Reserve Board Members and Federal Reserve Bank Presidents, Under Their Individual Assumptions of Projected Appropriate Monetary Policy, December 2019" (December 11, 2019), Table 1, https://go.usa.gov/xpH6Q.

Table 2-6.

CBO's Current and Previous Economic Projections for Calendar Years 2019 to 2029

				Annual Average		
	2019[a]	2020	2021	2019–2023	2024–2029	Total, 2019–2029
	Percentage Change From Fourth Quarter to Fourth Quarter					
Real GDP[b]						
January 2020	2.4	2.2	1.8	1.9	1.7	1.8
August 2019	2.3	2.1	1.8	1.9	1.8	1.8
Nominal GDP						
January 2020	4.2	4.2	3.9	4.0	3.7	3.8
August 2019	3.9	4.0	3.8	3.8	3.9	3.8
PCE Price Index						
January 2020	1.5	2.0	2.1	2.0	2.0	2.0
August 2019	1.8	2.1	2.0	2.0	2.0	2.0
Core PCE Price Index[c]						
January 2020	1.7	2.2	2.1	2.0	1.9	2.0
August 2019	1.9	2.2	2.1	2.0	2.0	2.0
Consumer Price Index[d]						
January 2020	2.0[e]	2.5	2.6	2.4	2.3	2.3
August 2019	2.2	2.4	2.4	2.4	2.3	2.4
Core Consumer Price Index[c]						
January 2020	2.3[e]	2.8	2.6	2.5	2.3	2.4
August 2019	2.3	2.6	2.6	2.5	2.3	2.4
GDP Price Index						
January 2020	1.8	1.9	2.1	2.0	2.0	2.0
August 2019	1.7	1.9	2.0	1.9	2.0	2.0
Employment Cost Index[f]						
January 2020	3.1	3.6	3.6	3.5	3.2	3.3
August 2019	3.3	3.6	3.5	3.4	3.2	3.3
Real Potential GDP[b]						
January 2020	2.1	2.0	2.0	2.0	1.7	1.9
August 2019	2.1	2.1	2.1	2.1	1.8	1.9

Continued

Reserve Banks. CBO's projections of real GDP growth, the unemployment rate, and the federal funds rate are within the full range of the forecasts by Federal Reserve officials for 2020, 2021, 2022, and the longer term. The agency's projections of PCE price inflation are also within the full range for 2020, 2021, and 2022, but the agency's projection for the longer term is lower than the Federal Reserve's 2 percent long-run objective because the agency's forecast reflects the probability of a business cycle occurring during the 11-year projection period. CBO's projection of core PCE price inflation is above the full range of forecasts for 2020 but within the full range for 2021 and 2022. (The Federal Reserve's survey does not collect projections for core PCE inflation for the longer term.)

At least part of the variation between CBO's projections and those of other forecasters is 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 economic projections will remain in place through 2030.

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 his or her individual assessment of appropriate monetary policy.

Table 2-6. Continued

CBO's Current and Previous Economic Projections for Calendar Years 2019 to 2029

				Annual Average		
	2019[a]	2020	2021	2019–2023	2024–2029	Total, 2019–2029
				Annual Average		
Unemployment Rate (Percent)						
January 2020	3.7[e]	3.5	3.5	3.7	4.5	4.2
August 2019	3.7	3.7	3.9	4.0	4.7	4.4
Interest Rates (Percent)						
Three-month Treasury bills						
January 2020	2.1[e]	1.6	1.7	1.8	2.3	2.1
August 2019	2.2	2.1	2.3	2.3	2.5	2.4
Ten-year Treasury notes						
January 2020	2.1[e]	1.9	2.2	2.3	2.9	2.6
August 2019	2.3	2.2	2.5	2.6	3.1	2.9
Tax Bases (Percentage of GDP)						
Wages and salaries						
January 2020	43.5	43.7	43.8	43.8	43.8	43.8
August 2019	42.7	42.9	43.1	43.1	43.6	43.4
Domestic corporate profits[g]						
January 2020	7.2	7.6	7.7	7.6	7.8	7.7
August 2019	8.4	8.5	8.4	8.3	8.1	8.2

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

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

a. Values for 2019 do not reflect the values for GDP and related series released by the Bureau of Economic Analysis since early January 2020.

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

c. Excludes prices for food and energy.

d. The consumer price index for all urban consumers.

e. Actual value for 2019.

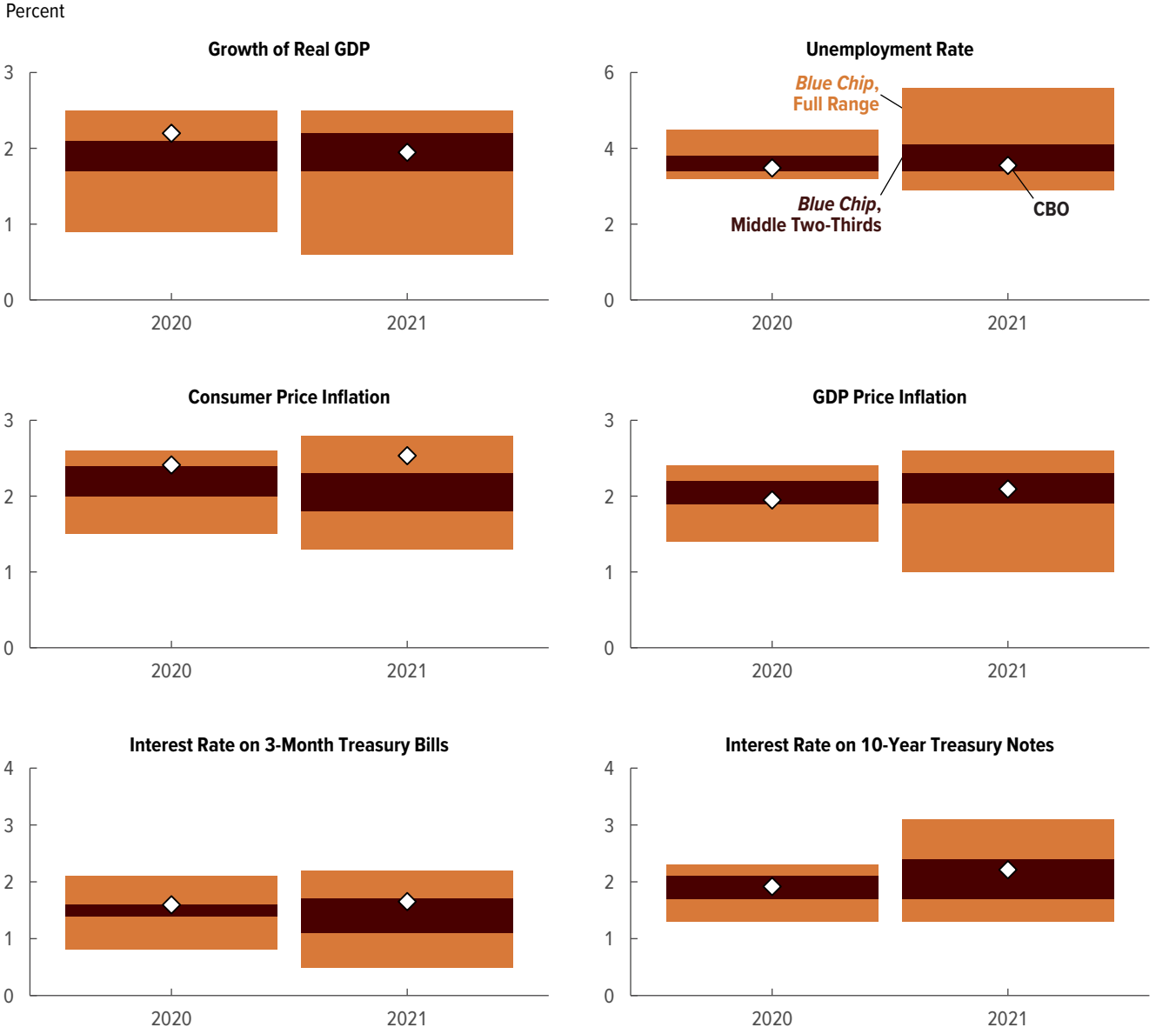
f. The employment cost index for wages and salaries of workers in private industry.

g. Adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of changes in prices on the value of inventories.

Figure 2-9.

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

CBO's projections of the economy for the next two years are generally stronger than those in the *Blue Chip* survey.



Sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators,* vol. 45, no. 1 (January 10, 2020).

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

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

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

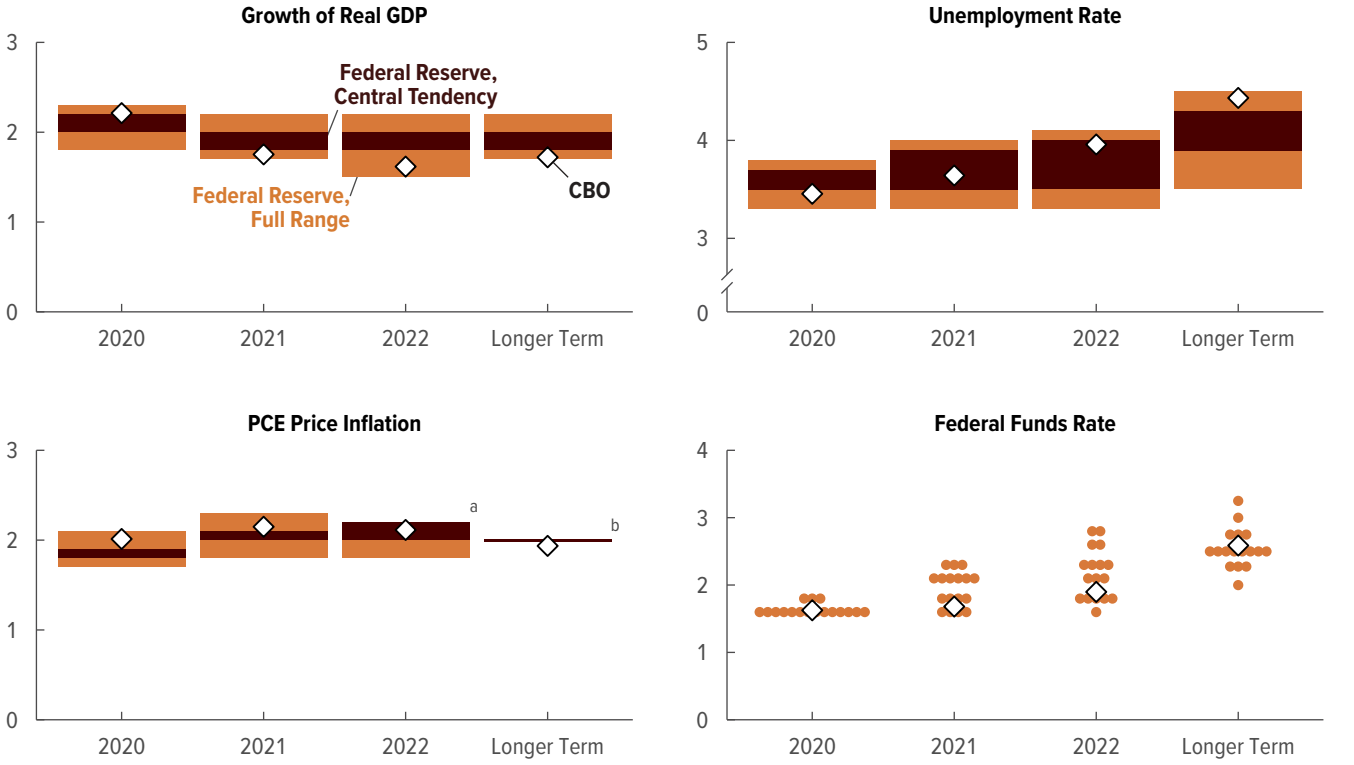
GDP = gross domestic product.

Figure 2-10.

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 outlook for 2020 but a slightly weaker outlook for 2021, 2022, 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 Assumptions of Projected Appropriate Monetary Policy, December 2019" (December 11, 2019), https://go.usa.gov/xptgY (PDF, 249 KB).

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

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

Each of the data points for the federal funds rate represents a forecast made by one of the members of the Federal Reserve Board or one of the presidents of the Federal Reserve Banks in December 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 2030. 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 future shocks to the economy.

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

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

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

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

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

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