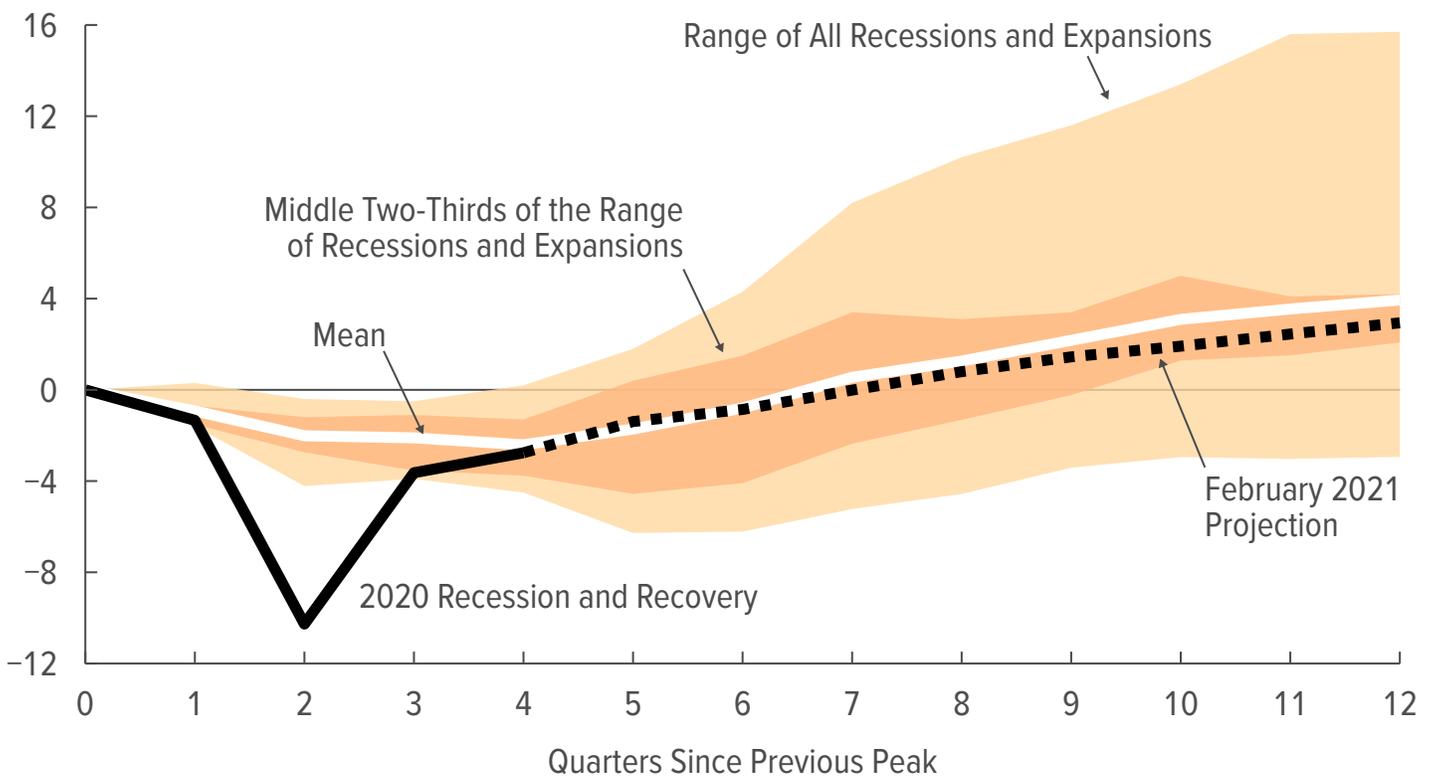


# Additional Information About the Economic Outlook: 2021 to 2031

**Real GDP per Member of the Potential Labor Force Across Business Cycles**  
 Percentage Change From Previous Peak



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# At a Glance

In this report, the Congressional Budget Office provides additional information about the economic projections that the agency released on February 1, 2021.

- As expanded vaccination reduces the spread of COVID-19 (the disease caused by the coronavirus) and the extent of social distancing declines, real (inflation-adjusted) gross domestic product (GDP) is projected to grow by 3.7 percent in 2021, returning to its level from before the 2020–2021 coronavirus pandemic by the middle of the year.
- With growth averaging 2.6 percent over the 2021–2025 period, real GDP surpasses its potential (maximum sustainable) level in early 2025. The unemployment rate gradually declines through 2026, and the number of employed people returns to its prepandemic level in 2024.
- Real GDP growth averages 1.6 percent over the 2026–2031 period. That average growth rate of output is less than its long-term historical average, primarily because the labor force is expected to grow more slowly than it has in the past.
- Over the forecast period, the interest rate on 10-year Treasury notes is projected to rise gradually, reaching 3.4 percent in 2031.

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# Notes

The economic projections in this report reflect economic developments through January 12, 2021, including the estimated effects on the economy of the Consolidated Appropriations Act, 2021 (Public Law 116-260). The projections do not include budgetary or economic effects of subsequent legislation, economic developments, administrative actions, or regulatory changes.

The Congressional Budget Office also published the economic projections separately on February 1, 2021 ([www.cbo.gov/publication/56965](http://www.cbo.gov/publication/56965)) and jointly with the agency's budget projections on February 11, 2021 ([www.cbo.gov/publication/56970](http://www.cbo.gov/publication/56970)), to provide the Congress with information as promptly as possible as it continued to address the consequences of the 2020–2021 coronavirus pandemic.

Unless this report indicates otherwise, all years referred to are calendar years.

Numbers in the text, tables, and figures may not add up to totals because of rounding.

Some of the figures in this report use shaded vertical bars to indicate periods of recession, which extend from the peak of a business cycle to its trough. The National Bureau of Economic Research (NBER) has determined that an expansion ended and a recession began in February 2020. Although the NBER has not yet identified the end of that recession, CBO estimates that it ended in the second quarter of 2020.

Supplemental data for this analysis are available on CBO's website ([www.cbo.gov/publication/56989](http://www.cbo.gov/publication/56989)), as are a glossary of common budgetary and economic terms ([www.cbo.gov/publication/42904](http://www.cbo.gov/publication/42904)), a description of how CBO prepares its economic forecast ([www.cbo.gov/publication/53537](http://www.cbo.gov/publication/53537)), and previous editions of this report (<https://go.usa.gov/xQrzS>).



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# Additional Information About the Economic Outlook: 2021 to 2031

## Overview

The 2020–2021 coronavirus pandemic caused severe economic disruption last year as households, governments, and businesses adopted a variety of mandatory and voluntary measures—collectively referred to here as social distancing—to limit in-person interactions that could spread the virus. The impact was focused on particular sectors of the economy, such as travel and hospitality, and job losses were concentrated among lower-wage workers.

Over the course of the coming year, vaccination is expected to greatly reduce the number of new cases of COVID-19, the disease caused by the coronavirus. As a result, the extent of social distancing is expected to decline. In its new economic forecast, which covers the period from 2021 to 2031, the Congressional Budget Office therefore projects that the economy will continue the recovery that it began in 2020 and then enter a sustained expansion (see Table 1). Specifically, real (inflation-adjusted) gross domestic product (GDP) is projected to return to its prepandemic level in mid-2021 and to surpass its potential (that is, its maximum sustainable) level in early 2025.<sup>1</sup> In CBO’s projections, the unemployment rate gradually declines through 2026, and the number of people employed returns to its prepandemic level in 2024.

## The Economic Outlook for 2021 to 2025

In CBO’s projections, which incorporate the assumptions that current laws (as of January 12) governing federal taxes and spending generally remain in place and that no significant additional emergency funding or aid is provided, the economy continues to strengthen during the next five years.

- Real GDP expands rapidly over the coming year, reaching its previous business-cycle peak (which was

attained in the fourth quarter of 2019) in mid-2021 and surpassing its potential level in early 2025. The annual growth of real GDP averages 2.6 percent during the five-year period, exceeding the 1.9 percent growth rate of real potential GDP (see Figure 1).

- Labor market conditions continue to improve. As the economy expands, many people rejoin the civilian labor force who had left it during the pandemic, restoring it to its prepandemic size in 2022.<sup>2</sup> The unemployment rate gradually declines throughout the period, and the number of people employed returns to its prepandemic level in 2024.
- Inflation, as measured by the price index for personal consumption expenditures (PCE), rises gradually over the next few years and exceeds 2.0 percent after 2023, as the Federal Reserve maintains low interest rates and continues to purchase long-term securities.
- Interest rates on federal borrowing rise. The Federal Reserve maintains the federal funds rate (the rate that financial institutions charge each other for overnight loans of their monetary reserves) near zero through mid-2024 and then starts to raise that rate gradually. The interest rate on 3-month Treasury bills closely follows the federal funds rate. The interest rate on 10-year Treasury notes rises as the Federal Reserve reduces the pace of its asset purchases and investors anticipate rising short-term interest rates later in the decade.

CBO’s projections of economic growth have been boosted by various laws enacted in 2020.<sup>3</sup> Most recently, in late December, the Consolidated Appropriations Act, 2021 (Public Law 116-260), appropriated funds for

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1. As applied to GDP, the term “prepandemic” refers to its level in the fourth quarter of 2019; applied to employment, it refers to its level in February 2020.

2. The labor force is the number of people age 16 or older in the civilian noninstitutionalized population who have jobs or who are available for work and are actively seeking jobs.

3. See Congressional Budget Office, *The Effects of Pandemic-Related Legislation on Output* (September 2020), [www.cbo.gov/publication/56537](http://www.cbo.gov/publication/56537).

Table 1.

**CBO's Economic Projections for Calendar Years 2021 to 2031**

	2020	2021	2022	2023	Annual Average	
					2024–2025	2026–2031
<b>Percentage Change From Fourth Quarter to Fourth Quarter</b>						
Gross Domestic Product						
Real <sup>a</sup>	-2.5	3.7	2.4	2.3	2.2	1.6
Nominal	-1.2	5.6	4.5	4.3	4.4	3.8
Inflation						
PCE price index	1.2	1.7	1.9	1.9	2.1	2.1
Core PCE price index <sup>b</sup>	1.4	1.5	1.9	1.9	2.1	2.1
Consumer price index <sup>c</sup>	1.2	1.9	2.2	2.3	2.4	2.4
Core consumer price index <sup>b</sup>	1.6	1.5	2.2	2.3	2.4	2.4
GDP price index	1.3	1.9	2.0	2.0	2.1	2.1
Employment Cost Index <sup>d</sup>	2.8	2.3	2.8	3.0	3.2	3.3
<b>Fourth-Quarter Level (Percent)</b>						
Unemployment Rate	6.8	5.3	4.9	4.6	4.0 <sup>e</sup>	4.3 <sup>f</sup>
<b>Percentage Change From Year to Year</b>						
Gross Domestic Product						
Real <sup>a</sup>	-3.5	4.6	2.9	2.2	2.3	1.7
Nominal	-2.3	6.3	4.9	4.2	4.4	3.8
Inflation						
PCE price index	1.2	1.6	1.8	1.9	2.0	2.1
Core PCE price index <sup>b</sup>	1.4	1.5	1.8	1.9	2.0	2.1
Consumer price index <sup>c</sup>	1.3	1.9	2.1	2.3	2.3	2.4
Core consumer price index <sup>b</sup>	1.7	1.6	2.1	2.3	2.4	2.4
GDP price index	1.2	1.6	1.9	2.0	2.1	2.1
Employment Cost Index <sup>d</sup>	2.9	2.1	2.6	2.9	3.1	3.3
<b>Annual Average</b>						
Unemployment Rate (Percent)	8.1	5.7	5.0	4.7	4.2	4.1
Labor Force Participation Rate (Percent) <sup>g</sup>	61.7	61.9	62.1	62.0	61.9	61.2
Payroll Employment (Monthly change, in thousands) <sup>h</sup>	-765	521	145	145	135	40
Interest Rates (Percent)						
Three-month Treasury bills	0.4	0.1	0.1	0.2	0.4	1.7
Ten-year Treasury notes	0.9	1.1	1.3	1.5	2.0	3.0
Tax Bases (Percentage of GDP)						
Wages and salaries	44.8	44.0	43.9	43.9	43.9	43.6
Domestic corporate profits <sup>i</sup>	7.6 <sup>j</sup>	7.9	7.5	7.7	8.2	8.0
Current Account Balance (Percentage of GDP) <sup>k</sup>	-2.8 <sup>j</sup>	-2.9	-2.4	-2.0	-2.0	-2.2

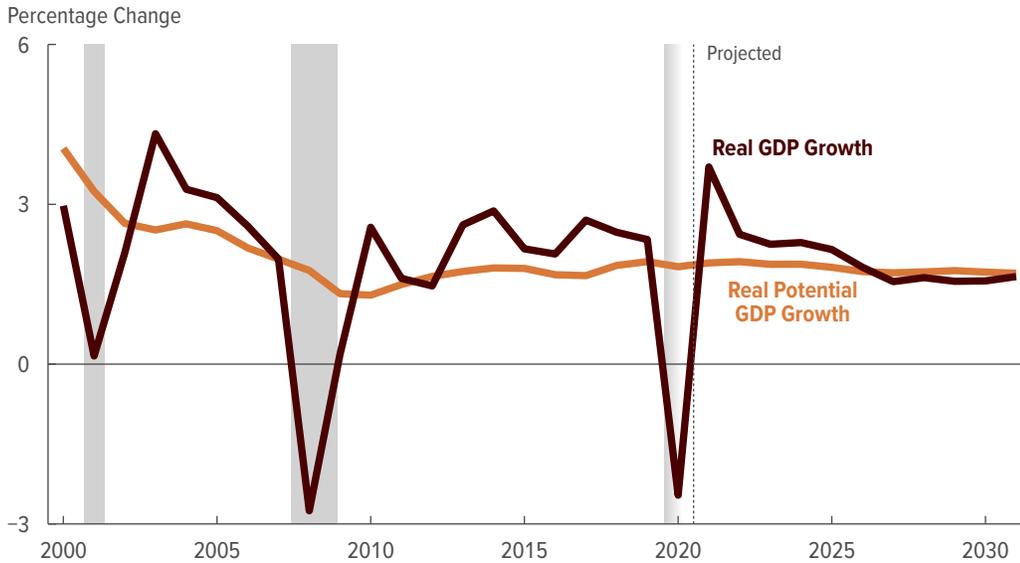
Data sources: Congressional Budget Office; Bureau of Economic Analysis; Bureau of Labor Statistics; Federal Reserve. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

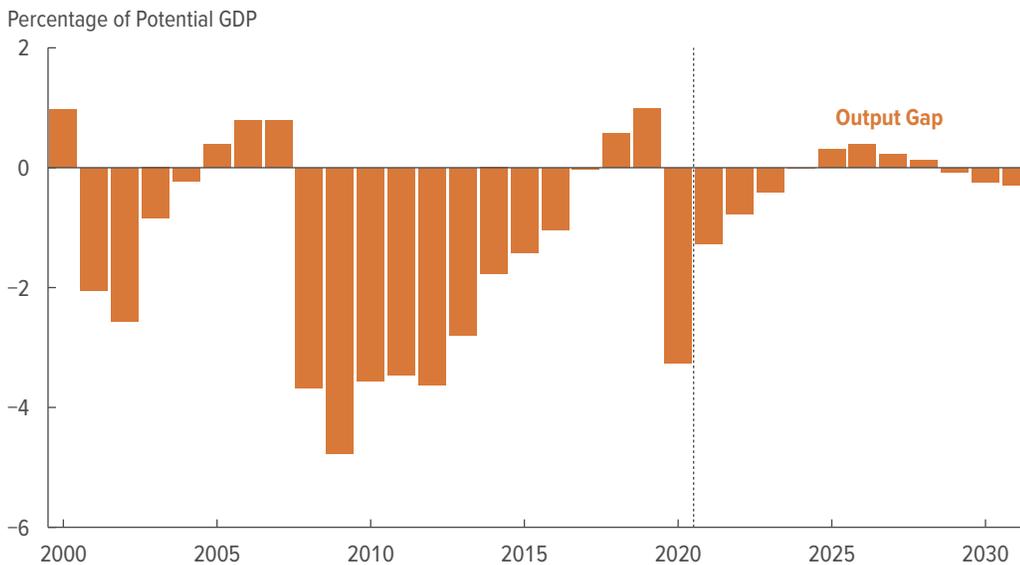
- a. Real values are nominal values that have been adjusted to remove the effects of changes in prices.
- b. Excludes prices for food and energy.
- c. The consumer price index for all urban consumers.
- d. The employment cost index for wages and salaries of workers in private industry.
- e. Value for the fourth quarter of 2025.
- f. Value for the fourth quarter of 2031.
- g. The share of the civilian noninstitutionalized population age 16 or older that has jobs or that is available for and actively seeking work.
- h. 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.
- i. 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.
- j. Estimated value for 2020.
- k. Represents net exports of goods and services, net capital income, and net transfer payments between the United States and the rest of the world.

Figure 1.

## The Relationship Between GDP and Potential GDP



In CBO’s projections, the annual growth of real (inflation-adjusted) GDP exceeds that of real potential GDP until 2027.



The output gap between real GDP and real potential GDP is positive for several years, starting in 2025, before moving back toward its historical average.

Data sources: Congressional Budget Office; Bureau of Economic Analysis. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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.

GDP = gross domestic product.

the remainder of fiscal year 2021, provided additional emergency funding for federal agencies to respond to the public health emergency created by the pandemic, and provided financial support to households, businesses, and nonfederal governments affected by the economic downturn, among other measures. CBO estimates that the pandemic-related provisions in that legislation will add \$774 billion to the deficit in fiscal year 2021 and \$98 billion in 2022.<sup>4</sup> Those provisions will boost the level of real GDP by 1.8 percent in calendar year 2021 and by 1.1 percent in calendar year 2022, CBO estimates.

### The Economic Outlook for 2026 to 2031

In CBO's forecast, the economy continues to expand from 2026 to 2031. Real GDP grows by 1.6 percent per year, on average. Real potential GDP grows slightly more rapidly. For most of the period, the Federal Reserve allows inflation to remain above its long-run objective level; the level of real GDP likewise remains above the level of real potential GDP for several years. Eventually, less accommodative monetary policies help push GDP back toward its historical average relationship with potential GDP.

A mild increase in productivity growth causes potential output in CBO's projections to grow more quickly over the 2021–2031 period than it has grown since the 2007–2009 recession. However, potential output still grows more slowly than it has grown since 1950, mainly because of an ongoing, long-term slowdown in the growth of the labor force.

### Uncertainties in the Economic Outlook

CBO's projections reflect an average of possible outcomes under current law. But these projections are subject to an unusually high degree of uncertainty, and that uncertainty stems from many sources, including the course of the pandemic, the effectiveness of monetary and fiscal policies, and the response of global financial markets to substantial increases in public deficits and debt. As a result, the economy could expand substantially more quickly or more slowly than CBO currently projects. Labor market conditions could likewise improve more quickly or slowly than projected, and inflation and interest rates could rise more rapidly or slowly as well. Also uncertain is the impact of the pandemic on the economy over the longer term, including

effects on productivity, the labor force, and technological innovation.

### Comparison With CBO's Previous Projections and Other Economic Projections

CBO currently projects a stronger economy than it did in July 2020, in large part because the downturn was not as severe as expected and because the first stage of the recovery took place sooner and was stronger than CBO expected.<sup>5</sup> GDP and employment are projected to be higher and to be accompanied by modestly higher inflation and higher interest rates than they were in CBO's July projections. The fact that the downturn was less severe and the recovery stronger than previously projected also changed the projected pattern of growth: CBO's current projections of GDP growth are stronger, on average, for the first half of the projection period than they were in July but weaker for the second half.

CBO made those changes to its economic projections even though it expects social distancing to be more pronounced and to last longer than projected in July. The projected effects of the Consolidated Appropriations Act, 2021, played a part in improving the economic outlook.

The economic projections in CBO's latest forecast for growth of real output in 2021 and 2022 are near the middle of the range of forecasts by private-sector economists who contributed to the January 2021 *Blue Chip Economic Indicators*. Compared with the forecasts in the Federal Reserve's most recent *Summary of Economic Projections*, CBO's projection for growth of real output is consistent with their central tendency in 2021 and within the full range (but suggesting a somewhat weaker economic outlook than is consistent with their central tendency) in 2022.

### Current Conditions: Recovery From the Pandemic-Induced Recession

The pandemic continues to affect economic activity throughout the United States and much of the rest of the world. Although real GDP and employment have substantially improved from their recent low points, both remain well below their prepandemic levels.

4. Those provisions are contained in divisions M, N, and EE of the Consolidated Appropriations Act, 2021.

5. See Congressional Budget Office, *An Update to the Economic Outlook: 2020 to 2030* (July 2020), [www.cbo.gov/publication/56442](http://www.cbo.gov/publication/56442).

## The Coronavirus Pandemic

The pandemic spread widely throughout the United States in the spring and summer of 2020, with varying regional intensity over time. The largest and most widespread wave of infections to date stretched through the fall of 2020 into the winter of 2021. Although vaccines have been successfully tested and have begun to be distributed, the pandemic and behavioral responses to it will probably continue to influence economic activities for at least the next year. In CBO's projections, the pandemic is expected to be gradually brought under control over the course of 2021 as effective vaccines are distributed across the country. As immunity to the virus expands, the intensity of social distancing measures—both voluntary and mandated—will decrease, allowing businesses and households to gradually resume their regular activities.

## Gross Domestic Product

Responses to the spread of the virus resulted in a record 10.1 percent decline in real GDP from the peak of the business cycle in the fourth quarter of 2019 to the second quarter of 2020. As social distancing measures eased, people and businesses adapted to the pandemic, and stimulus payments were distributed, real GDP rebounded by 8.5 percent in the second half of the year. By the fourth quarter of 2020, it was just 2.5 percent below its level in the fourth quarter of 2019. The short-fall in demand was concentrated in services, reflecting the disproportionate impact of social distancing on service activities and underlining the importance of addressing the pandemic in promoting economic recovery.

## The Labor Market

Labor market conditions began improving in May—at a pace that exceeded CBO's expectations at the time—as households, businesses, and governments adapted to the pandemic and resumed economic activities. Over the summer and fall of 2020, the U.S. economy regained more than half of the more than 20 million payroll jobs it lost in the early spring. The unemployment rate fell from close to 15 percent in April to 6.7 percent in November, driven largely by a reduction in the number of unemployed workers on temporary layoff. Participation in the labor force also recovered over the summer, but relatively weakly, and its improvement has stalled since.

As the economy headed into the winter of 2020–2021, the labor market remained relatively weak and

sensitive to the pandemic. Amid a winter surge in COVID-19 cases, layoffs in virus-sensitive sectors (particularly leisure and hospitality but also education services and other services) began rising again, driving up unemployment rates for groups of people who disproportionately work in those industries, such as the youngest workers (ages 16 to 24), Hispanic workers, and workers without a high school diploma. In contrast to the earlier phase of the pandemic, however, job gains tended to persist in other sectors, including manufacturing, construction, and retail trade. Nevertheless, household employment and overall nonfarm payroll employment remain substantially below their respective estimated long-run potential levels as well as prepandemic peak levels. In January 2021, 4.3 million fewer people were in the labor force and 4.4 million more workers were unemployed than in February 2020. The declines in employment differed between women and men and by other demographic characteristics (see Box 1).

**Employment.** The initial rebound in nonfarm payroll employment and household employment during the summer was relatively strong. According to the current official statistics published by the Bureau of Labor Statistics, the U.S. economy lost 22 million nonfarm payroll jobs during March and April of 2020, and close to 25 million workers became unemployed or dropped out of the labor force; in the subsequent six months, the economy regained roughly 60 percent of those lost jobs. In particular, from April to September, nonfarm payroll increased by an average of 2.3 million jobs each month—a pace of recovery that has greatly exceeded economists' initial expectations.

The pace of the rebound in employment differed by industry, however, and some industries continued to see declines. As of late 2020, two sectors—retail trade and construction—had each regained 80 percent of their peak job losses from the spring, considerably outpacing the recovery in the other sectors. The strong employment growth in retail trade reflects, among other things, the strong growth in consumer spending on goods in the second half of 2020, as households shifted their demand from services to goods because of social distancing. Meanwhile, a boom in the residential housing market contributed to the strong employment growth in the construction sector. The leisure and hospitality sector also recovered substantially, recouping 5 million jobs by November, or about 60 percent of its peak loss since the spring.

## Box 1.

## Effects of the Pandemic-Induced Recession on the Employment of Women and Men

Although the 2020–2021 coronavirus pandemic has affected all members of society, its effects on the labor market and its economic toll have varied considerably for workers of different demographic characteristics. In particular, the employment of women has declined more than that of men. Furthermore, employment losses have differed among women and among men: Women and men with less education have tended to experience more job loss, and job loss has differed within each group by race and ethnicity.

### Effects on Women’s and Men’s Employment

Even though both men and women experienced significant job loss in the early spring of 2020, the percentage decline in employment was larger for women. In the second quarter of 2020, 14.5 percent (or 10.9 million) fewer women were employed than in the fourth quarter of 2019; by comparison, 12.1 percent (or 10.1 million) fewer men were employed (see the figure). Over the subsequent months, employment of both men and women rebounded robustly, but the shortfall remained larger for women. By the fourth quarter of 2020, women’s employment was 5.8 percent below its level one year earlier, compared with 5.3 percent for men’s employment.<sup>1</sup>

The relatively large job loss for women during the pandemic-induced recession primarily reflects two factors. First, the industries and occupations most affected by the pandemic were also those that tend to employ large numbers of women. For instance, in 2019, half of workers in the leisure and hospitality sector and three-quarters of those in the education and health services sectors were women. By contrast, almost 70 percent of those employed in the manufacturing sector and 90 percent of those in the construction sector were men.

Second, widespread school closures and child care disruptions probably caused many women to stop working in order to provide care at home. The Congressional Budget Office estimates that, on net, about 1 million mothers (specifically, women with at least one child age 17 or younger at home) left the labor force between the fall of 2019 and the fall of 2020, whereas about a half million fathers, on net, left the labor force over that same time frame. In addition, CBO estimates that between the first two months of 2020 (before any significant effects of the pandemic on employment had occurred) and the fourth quarter of 2020, the labor force participation rate for mothers fell by 2.7 percentage points more than that for women without children at home. By contrast, the labor force participation rate for fathers fell by 0.8 percentage points more than that for men without children at home. Furthermore, the decline in mothers’ labor force participation appears to be concentrated among two-parent families.<sup>2</sup>

The relatively larger decline in the employment of women than of men is one of the most distinct features of this recession compared with previous recessions. In previous recessions, men—particularly those in sectors such as manufacturing and construction—tended to experience larger employment losses than women. In the aftermath of the 2007–2009 recession, for instance, peak employment loss for men was almost double that for women in percentage terms.

### Differences in Effects by Demographic Characteristics

Among women and men, employment losses during the pandemic have differed by education as well as by race and ethnicity. Among both men and women age 25 or older, those with at least a bachelor’s degree were less likely to experience job loss than those without a bachelor’s degree. For workers with similar educational attainment, however, women still experienced greater employment loss than men, on average, in part because women are more likely to work in the sectors that are most affected by the pandemic and related recession.

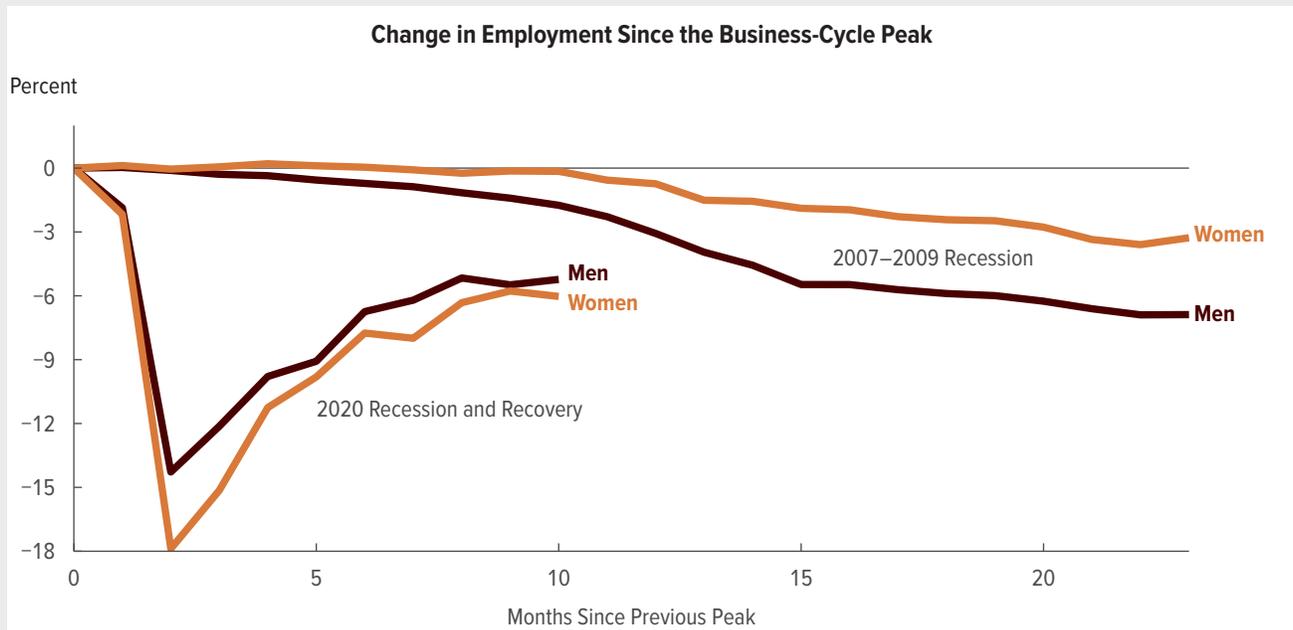
1. CBO’s analysis of employment statistics by workers’ demographic characteristics is based on data from the Current Population Survey (CPS). The Bureau of Labor Statistics, which publishes employment, unemployment, and other labor statistics using the CPS each month, noted that starting in March 2020, many workers who should have been classified as “unemployed on temporary layoff” were probably misclassified as “employed absent from work” in the CPS, causing the employment statistics to understate the magnitude of employment decline during the pandemic-induced recession. An analysis of the underlying data by the Bureau of Labor Statistics suggests that, had that misclassification not occurred, the April 2020 unemployment rate would have been nearly 5 percentage points higher. As of December 2020, the misclassification issue has diminished considerably, though not completely. For more details, see Bureau of Labor Statistics, “Effects of COVID-19 Pandemic on the Employment Situation News Release and Data” (February 5, 2021), <https://go.usa.gov/xscYr>.

2. Other research has found similar changes in the labor force participation of parents during the pandemic. See Kathryn A. Edwards, “Women Are Leaving the Labor Force in Record Numbers” (RAND Corporation, November 2020), <https://tinyurl.com/59nl6xzb>; and Tyler Boesch and others, “Pandemic Pushes Mothers of Young Children Out of the Labor Force” (Minneapolis Federal Reserve, February 2021), <https://tinyurl.com/veyyb817>.

Box 1.

Continued

## Effects of the Pandemic-Induced Recession on the Employment of Women and Men



Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

The change is measured against the employment peak of the previous business cycle, which is December 2007 for the 2007–2009 recession and February 2020 for the 2020 recession.

Among women of all educational backgrounds, Hispanic women, Black women, and other non-White women were more likely to experience employment loss than White women.<sup>3</sup> Between the fourth quarter of 2019 and the second quarter of 2020, employment fell by 20 percent for Hispanic women,

17 percent for Black women, 15 percent for other non-White women, and 14 percent for White women. Even after rebounding somewhat over the course of the year from initial losses, employment in the fourth quarter of 2020 was about 7 percent to 8 percent lower for Hispanic, Black, and other non-White women but 5 percent lower for White women.

3. CBO designated four race and ethnicity categories—Hispanic, Black, White, and other—through the following steps: Respondents who identified their ethnicity as Hispanic were classified as Hispanic, regardless of the race or races they identified. Of respondents not already classified as Hispanic, those who identified their race as African American were classified as Black, regardless of whether they identified other races as well. Of respondents not already classified as Hispanic or Black, those who identified a race other than White were classified as “other.” Finally, respondents not classified as Hispanic, Black, or other were classified as White.

Similarly, Hispanic men, Black men, and other non-White men were more likely to experience initial employment loss than White men. As the recovery unfolded, however, employment for Hispanic men and other non-White men rebounded more robustly than it did for Black men. In the fourth quarter of 2020, employment of Black men was about 6 percent below its prepandemic level, compared with about 5 percent for White men.

By contrast, some sectors saw further job loss rather than recovery. In particular, payroll employment in the education services sector fell further in the early fall and was 1.4 million lower than its prepandemic level as of November; 1 million of those job losses were in the public education sector (from the payrolls of state and local governments). The weakness in education employment

probably reflects many factors, including widespread school closures and fiscal pressures faced by state and local governments.

As the economy headed into winter, the number of COVID-19 cases resurged, and greater social distancing further restrained economic activity. Job gains slowed



substantially and turned negative in December—led by a half million job losses in the leisure and hospitality sector. As of January 2021, nonfarm payroll employment stood at 142.6 million, 9.9 million (or 6.5 percent) below its prepandemic level.

**Unemployment.** After surging from 3.5 percent in February to nearly 15 percent in April, the unemployment rate declined dramatically and stood at about 7 percent in late 2020. That rapid reduction in the unemployment rate reflects a distinct feature of the pandemic-induced recession: Most workers who became unemployed during the early days of the pandemic were on temporary layoff; as businesses and households adapted to the pandemic and resumed economic activities, many furloughed workers were able to return to work quickly. As a result, the number of unemployed workers on temporary layoff declined from a peak of over 18 million in April to about 3 million by late 2020. As time passed, some workers who were not recalled lost their jobs permanently. Consequently, the number of people who permanently lost their job or were unemployed for 27 weeks or longer rose moderately and is expected to rise slightly further in the near term.

**Labor Force Participation.** After an initial rebound over the summer, the recovery in labor force participation stalled. As of January 2021, the overall labor force participation rate among the civilian noninstitutionalized population age 16 or older stood at 61.4 percent, having fallen back to its level in June, which was 1.8 percentage points below its prepandemic peak level. Several factors constrained labor force participation from recovering more fully. First, the health risks posed by the pandemic continued to dampen the labor supply of workers, particularly older workers and those with certain preexisting conditions, as the health risks (including the risk of death) associated with COVID-19 infections increase significantly with age and the presence of certain other medical conditions. Second, widespread school closures and child care disruptions have probably caused many parents, particularly mothers, to drop out or stay out of the labor force to provide care at home.

## Policy Responses to the Pandemic

Policymakers have taken a wide variety of actions in response to the coronavirus pandemic. Several federal laws were enacted, and various administrative actions (including delayed tax-filing deadlines) were taken to address the pandemic and the economic downturn.

Those laws and actions through January 12, 2021, are incorporated into CBO's current-law projections. The Federal Reserve also acted to address the rapid deterioration in economic and labor market conditions. In addition, various levels of government announced stay-at-home orders, business closures, bans on public gatherings, travel restrictions, and other measures.

## Legislative Actions

Many conventional and unconventional fiscal policies were enacted in 2020 to address the public health emergency and economic downturn. By providing financial support to households, businesses, and state and local governments, pandemic-related legislation offset part of the deterioration in economic conditions brought about by the pandemic. CBO's current-law projections incorporate estimates of the economic effects of all the measures enacted last year. In March and April 2020, four major federal laws were enacted in response to the pandemic. Those laws added \$2.3 trillion to the deficit in fiscal year 2020 and \$0.6 trillion in 2021 and boosted the level of real GDP by 4.7 percent in 2020 and 3.1 percent in 2021, according to CBO's estimates.<sup>6</sup> The Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (P.L. 116-123), and the Families First Coronavirus Response Act (P.L. 116-127) increased federal funding for some federal agencies and for state and local governments, required employers to grant paid sick leave to employees, and provided payments and tax credits to employers. The Coronavirus Aid, Relief, and Economic Security (CARES) Act (P.L. 116-136) provided loans to businesses, payments to health care providers, payments and tax credits to individuals, additional funding to state and local governments, and reductions in certain business taxes. Finally, the Paycheck Protection Program (PPP) and Health Care Enhancement Act (P.L. 116-139) increased federal

6. Those estimates do not include the effects of nonlegislative actions, such as those taken by the Federal Reserve (for example, lowering interest rates and purchasing mortgage-backed and Treasury securities) and the Administration (for example, delaying deadlines for filing taxes). The estimates do account for the legislation's funding of lending facilities established by the Federal Reserve to support the flow of credit to businesses, households, and state and local governments. For more information, see Congressional Budget Office, *The Effects of Pandemic-Related Legislation on Output* (September 2020), [www.cbo.gov/publication/56537](http://www.cbo.gov/publication/56537), and *Key Methods That CBO Used to Estimate the Effects of Pandemic-Related Legislation on Output*, Working Paper 2020-07 (October 2020), [www.cbo.gov/publication/56612](http://www.cbo.gov/publication/56612).

funding for the loans to businesses and payments to health care providers supplied in the CARES Act.

Most recently, on December 27, 2020, lawmakers enacted the Consolidated Appropriations Act, 2021. Along with appropriating funds for the remainder of the current fiscal year, the legislation provided additional emergency funding for federal agencies to respond to the public health emergency created by the pandemic and provided financial support to households, businesses, and nonfederal governments affected by the economic downturn. According to CBO's estimate, the pandemic-related provisions in that legislation will add \$774 billion to the deficit in fiscal year 2021 and \$98 billion in 2022.<sup>7</sup> That additional stimulus is expected to be distributed quickly and is projected to stimulate growth for several quarters. The legislation increases the level of real GDP by 1.8 percent in calendar year 2021 and by 1.1 percent in calendar year 2022, CBO estimates.

Pandemic-related legislation will increase federal debt as a percentage of GDP; in the longer term, CBO expects that increase to raise borrowing costs, lower economic output, and reduce the income of U.S. households and businesses. In addition, the higher debt—coming at a time when the longer-term path for debt was already high—could eventually increase the risk of a fiscal crisis or of less-abrupt economic changes, such as higher inflation or the undermining of the U.S. dollar's predominant role in global financial markets. The timing and likelihood of those effects are not possible to estimate with precision.

### Monetary Policy

The Federal Reserve has taken an extraordinary array of steps to support the economy. It lowered its target range for the federal funds rate to near zero, established several facilities similar to those created during the 2007–2009 financial crisis to support certain financial markets (such as those for securitized lending), and purchased large quantities of Treasury and mortgage-backed securities. The Federal Reserve also established new facilities that were partially funded by the Treasury under the CARES Act to increase the flow of credit to businesses and state and local governments. CBO estimates that those new facilities had a modest effect on output in 2020. In addition, the Federal Reserve temporarily adjusted regulations to allow banks to expand

their lending to support their household and business customers.

### The Economic Outlook for 2021 to 2025

Like the precipitous decrease in economic activity during 2020, the pace of economic recovery in 2021 will be largely determined by the severity of the pandemic and the extent of social distancing that people, businesses, and governments take in response. The pandemic's severity and the extent of social distancing, in turn, will be significantly influenced by the effectiveness of recently developed vaccines and the pace at which they are distributed and accepted throughout the country. Successful dissemination and administration of the vaccines would gradually expand immunity to the virus and allow people to safely resume normal activities.

In CBO's assessment, the negative economic effects of social distancing were about half as strong during the second half of 2020 as they were during the second quarter of the year. Those effects are projected to remain about the same through the first quarter of 2021 and then to gradually disappear by the first quarter of 2022. That projection is in the middle of the distribution of possible outcomes, in CBO's view. It allows for regional and seasonal variation, and it accounts for the possibility of multiple local and regional waves of increased transmission of the virus, as well as the appearance and spread of new variants, retightening of the associated social distancing measures, and other ways that people may find to protect their health while engaging in economic activity.

### Gross Domestic Product

The downturn in real GDP was much sharper and more severe than in any recession in the recent historical record, measured by deviations from the previous peak of economic activity (see Figure 2). However, the initial stage of the recovery was unusually strong as well. As a result, the degree of recovery in real GDP four quarters after the business-cycle peak at the end of 2019 was similar to the average degree of recovery at the equivalent point in the business cycles that have occurred over the past 40 years. In CBO's projections, the ongoing recovery and expansion are similar to that average as well.

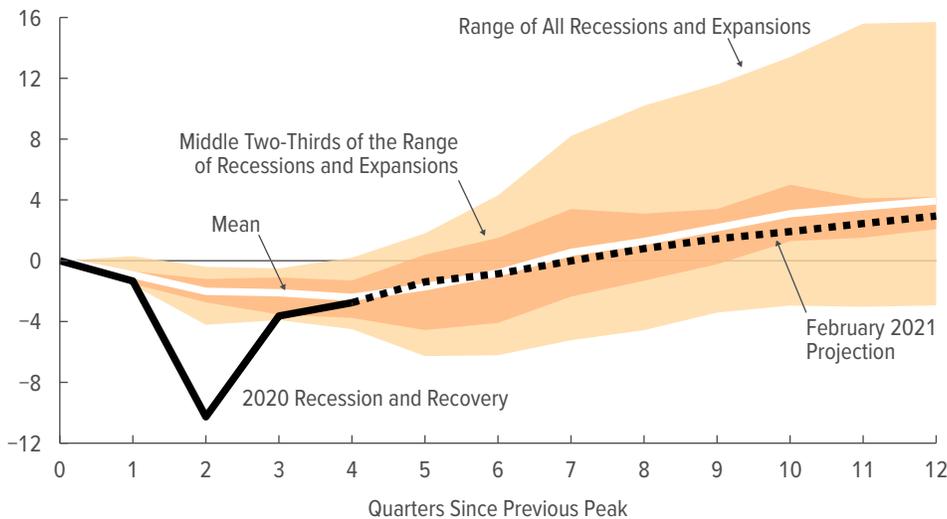
If current laws governing federal taxes and spending generally remain in place and if no significant additional emergency funding is provided, growth of real GDP will

7. Those provisions are contained in divisions M, N, and EE of the Consolidated Appropriations Act, 2021.

Figure 2.

## Real GDP per Member of the Potential Labor Force Across Business Cycles

Percentage Change From Previous Peak



The 2020 recession was much sharper and more severe than any recession in the recent historical record, but the initial stage of the recovery was also unusually strong. In CBO's projections, four quarters after the previous business-cycle peak at the end of 2019, real GDP per member of the potential labor force grows roughly as much as it did, on average, during economic recoveries and expansions since World War II.

Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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.

The full range of business cycles analyzed includes the 10 most recent cycles. The oldest cycle peaked in 1948, and the most recent cycle peaked at the end of 2019. The business cycle that peaked in January 1980 is excluded from the figure because by July 1981 a new cycle had already begun. The middle two-thirds of the full range is formed by removing the two highest and two lowest observations.

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

GDP = gross domestic product.

average 3.7 percent in 2021, CBO projects. The initial recovery and continued expansion are driven by a strong rebound in consumer spending and supported by a marked pickup in real business investment following the large declines that occurred in early 2020 (see Table 2). Real GDP returns to its previous peak level in mid-2021 and continues to expand thereafter at a 2.5 percent annual rate until early 2025, when it surpasses the level of potential GDP.

**Consumer Spending.** Consumer spending, which fell in late 2020, rebounds strongly in 2021, in CBO's projections. The widespread resurgence of the virus late in 2020 prompted increases in social distancing and associated setbacks to employment in service industries. Those developments are projected to keep the growth in spending on consumer services weak during the early months of 2021 and to prolong the shift in household spending that has produced elevated purchases of goods. In CBO's projections, the initial rebound is spurred by provisions of the Consolidated Appropriations Act, 2021: Spending

receives a boost early in 2021 from expanded federal aid to unemployed people and additional federal payments to many households. Although the lapse in policies to support some households contributed to weak consumer spending in December 2020, new assistance began to reach households in January. The additional income will allow households (especially those affected by unemployment) to maintain or increase their spending on goods and to raise their spending on services to the extent that social distancing allows. As a consequence, consumer spending is projected to grow at an annual average of 3.5 percent over the first half of 2021.

From the middle of 2021, in CBO's projections, the recovery and expansion are sustained mainly by the relaxation of social distancing following widespread dissemination of vaccines. Consumer spending grows at a 3.4 percent annual rate over the second half of 2021. Even as federal aid wanes, vaccination facilitates substantial rebounds in demand for some of the most affected services. The falling risk of infection allows

Table 2.

**The Projected Growth of Real GDP and Its Components**

Percent

	2020	2021	2022	2023	Annual Average	
					2024–2025	2026–2031
<b>Percentage Change From Fourth Quarter to Fourth Quarter</b>						
Real GDP	-2.5	3.7	2.4	2.3	2.2	1.6
Components of Real GDP						
Consumer spending <sup>a</sup>	-2.6	3.5	3.0	2.7	2.7	1.9
Business investment <sup>b</sup>	-0.1	6.9	1.2	1.8	3.2	2.4
Business fixed investment <sup>c</sup>	-1.3	5.9	3.0	2.1	3.1	2.5
Residential investment <sup>d</sup>	13.7	4.8	-2.1	-1.7	-0.9	-0.5
Purchases by federal, state, and local governments <sup>e</sup>	-0.6	0.9	0.1	0.7	1.0	0.6
Federal	2.5	1.6	-0.8	-0.5	0.2	0.3
State and local	-2.5	0.5	0.6	1.5	1.4	0.8
Exports	-11.0	12.4	3.1	2.5	2.1	1.6
Imports	-0.6	9.1	0.4	1.2	3.1	2.2
<b>Contributions to the Growth of Real GDP (Percentage points)</b>						
Components of Real GDP						
Consumer spending <sup>a</sup>	-1.8	2.4	2.1	1.8	1.8	1.3
Business investment <sup>b</sup>	*	0.9	0.2	0.3	0.4	0.3
Business fixed investment <sup>c</sup>	-0.2	0.8	0.4	0.3	0.4	0.3
Residential investment <sup>d</sup>	0.5	0.2	-0.1	-0.1	*	*
Purchases by federal, state, and local governments <sup>e</sup>	-0.1	0.2	*	0.1	0.2	0.1
Federal	0.2	0.1	-0.1	*	*	*
State and local	-0.3	0.1	0.1	0.2	0.2	0.1
Exports	-1.2	1.3	0.3	0.3	0.2	0.2
Imports	0.1	-1.2	-0.1	-0.2	-0.4	-0.3

Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

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.

many consumers with income and savings to spend once more on dining, entertainment, travel, and the like. However, some of the changes in patterns of consumption of services may persist after the pandemic subsides, reflecting changes in habits brought about by a period of social distancing. For example, online retail may displace brick-and-mortar retail faster than previously expected. Similarly, some consumers may choose to socialize less than before in public locations such as restaurants and movie theaters.

Beyond 2021, the residual effects of job loss and business failure may still temper the rebound in spending. Consumer spending is projected to continue to grow faster than potential output after 2021, once the direct effects of social distancing have eased, but a complete return to the prepandemic trajectory of spending is delayed by elevated levels of unemployment, reduced labor income, and—for some households—lingering caution. Shuttered businesses in parts of the service sector may also inhibit the pace of the rebound. From 2022

to 2025, consumer spending is projected to grow at an average annual rate of 2.8 percent.

**Business Investment.** CBO expects real business fixed investment—the purchase of new equipment, nonresidential structures, and intellectual property products such as software—to increase by 5.9 percent during 2021, reversing a 1.3 percent decline in 2020. That increase is expected to occur in response to a reversal of the sharp drop in demand during 2020 for the goods and services that businesses produce, as well as higher oil prices. Real investment in equipment and intellectual property products is forecast to grow more rapidly than investment in nonresidential structures. Further improvement in demand for businesses' output is expected to boost real business fixed investment by an average of 2.8 percent per year from 2022 to 2025. The agency also expects businesses to rebuild inventories in 2021 that were drawn down during the first three quarters of 2020.

**Residential Investment.** After increasing by 13.7 percent in 2020 because of low mortgage rates, households' desire for more and updated living space, and a dearth of existing homes for sale, real residential investment will increase by 4.8 percent during 2021, CBO projects. All of the growth in 2021 is expected during the first half of the year, building on the strength in 2020. The agency projects real residential investment to decline by 1.4 percent per year from 2022 to 2025, on average, as mortgage rates rise by more than 1 percentage point over that period.

**Government Purchases.** Real government purchases of goods and services—such as public educational services, highways, and military equipment—fell by 0.6 percent in 2020, as state and local governments reduced their purchases because of school closures and pandemic-related budget pressures. In CBO's projections, if current laws governing federal taxes and spending generally remain in place, real purchases by federal, state, and local governments will increase by 0.9 percent in 2021, boosted by recently enacted legislation. Real government purchases are expected to continue to recover and grow by an average of 0.7 percent per year from 2022 to 2025 as a strengthening economy boosts state and local tax revenues, allowing state and local governments to further increase their purchases of goods and services.

**Exports and Imports.** After exports and imports declined by 12.3 percent and 1.7 percent, respectively, in 2020, both are expected to increase substantially in 2021 as the economic effects of the pandemic continue to wane. CBO expects the rebound in exports in 2021 to be stronger than the rise in imports; as a result, in CBO's projections, the trade balance improves substantially during 2021. From 2022 to 2025, exports continue to grow slightly faster than imports, resulting in a gradually decreasing trade deficit in those years.

**Exports.** Real exports are expected to rise by 12.4 percent in 2021, mostly reflecting a partial recovery in exports of services (mostly travel and transportation services) and capital goods (primarily aircraft). The strong growth of real exports in 2021 will also be supported by a weaker U.S. dollar, which increases the price competitiveness of U.S. goods and services in foreign markets. As the effects of the weaker dollar decline after 2021 and as exports of services return to prepandemic levels, export growth is projected to moderate in 2022 and to slow further in later years.

**Imports.** CBO projects that U.S. real imports will rise by 9.1 percent in 2021 as the continued rebound in domestic demand boosts the demand for imported goods and services, leading to a quick return to prepandemic levels of real imports. Beyond 2021, as the effects of the pandemic continue to wane, real import growth returns to a more moderate pace.

**Value of the Dollar.** Changes in the international exchange value of the dollar affect CBO's projections of U.S. exports and imports.<sup>8</sup> A stronger dollar reduces the competitiveness of U.S. exports in foreign markets and makes imported goods and services less costly for U.S. consumers and businesses. Interest rates in the United States have fallen more than those of most of its trading partners, tending to dampen demand for U.S. dollars and dollar-denominated assets in international markets. As a consequence, the dollar depreciated by 1.6 percent in 2020 and is expected to continue to weaken by an additional 3.1 percent in 2021. Over the 2022–2025 period, the value of the dollar is expected to continue to weaken, although at a much more gradual pace.

8. CBO's measure of the exchange value of the dollar is an export-weighted average of the exchange rates between the dollar and the currencies of leading U.S. trading partners.

## The Labor Market

After a strong rebound over the summer and early fall, the pace of recovery in the labor market slowed substantially in the early winter months as the number of COVID-19 cases resurged and enhanced social distancing once again restrained economic activities (see Figure 3). Countering the effects of the virus, fiscal policies enacted at the end of 2020—including additional unemployment insurance benefits and a renewal of the PPP—are expected to provide direct support for workers and businesses by boosting household and business income and labor demand.

Overall, recovery in the labor market is expected to continue through 2021 and subsequent years as the percentage of the population with immunity (through either infection or vaccination) gradually increases. In CBO's current projections, the civilian labor force regains its prepandemic size in 2023, the unemployment rate continues to decline, and the number of people employed returns to its prepandemic level by 2024. As in the early phase of the pandemic, the projected path to recovery is uneven across sectors, with leisure and hospitality and other virus-sensitive industries recovering considerably later than the rest of the economy. Some changes that occurred during the pandemic, such as the rise of remote work and the digitization of services, are expected to persist indefinitely.

**Employment.** Job growth is projected to be slow and uneven as the pandemic worsens in early 2021, but it is expected to remain positive, on average, in large part because of direct support by the PPP and other federal programs. Jobs gains are expected to pick up further and more sustainably after the winter. Business activity and the demand for workers will increase as the vaccination rate rises and the degree of social distancing diminishes on a more permanent basis. In CBO's current projections, nonfarm payroll employment rises by an average of 521,000 jobs per month in 2021 and by an average of 144,000 jobs per month for 2022 through 2024. At that rate, nonfarm payroll employment is projected to reach its prepandemic level (measured in annual averages) by 2023 and its estimated potential by 2024.

**Unemployment.** The unemployment rate is projected to decline gradually in the coming years, as a result of continued economic growth and fiscal support. In CBO's projections, the overall unemployment rate falls from 6.7 percent at the end of 2020 to 5.3 percent by

late 2021. It is projected to fall below the natural rate of unemployment in 2024 and reach 4.0 percent in 2025.<sup>9</sup> However, the unemployment rates for younger workers, workers without a bachelor's degree, Black workers, and Hispanic workers are expected to improve more slowly than the overall unemployment rate.

**Labor Force Participation.** In the near term, the recovery of the labor force participation rate will continue to be sensitive to the course of the pandemic. In CBO's current projections, the labor force participation rate is not expected to improve from its current level until the second quarter of 2021, when a substantial fraction of the population is projected to have acquired immunity from either infection or vaccination. In CBO's current projections, the labor force participation rate rises from 61.5 percent in early 2021 to 62.1 percent by the end of the year and then remains close to that level for a few years as the effects of continued economic expansion and the aging of the population (which dampens the overall labor force participation rate) offset each other.

**Labor Compensation.** On net, the elevated unemployment rate projected through the next few years puts downward pressure on wage growth. In CBO's projections, the employment cost index for wages and salaries of workers in private industry is 2.8 percent higher in the fourth quarter of 2020 than it was in the fourth quarter of 2019; its annual growth rate in recent years (and before the pandemic began) had been about 3 percent. Wage growth is expected to pick up but to remain relatively weak over the next few years, averaging 2.7 percent per year for the 2021–2023 period.

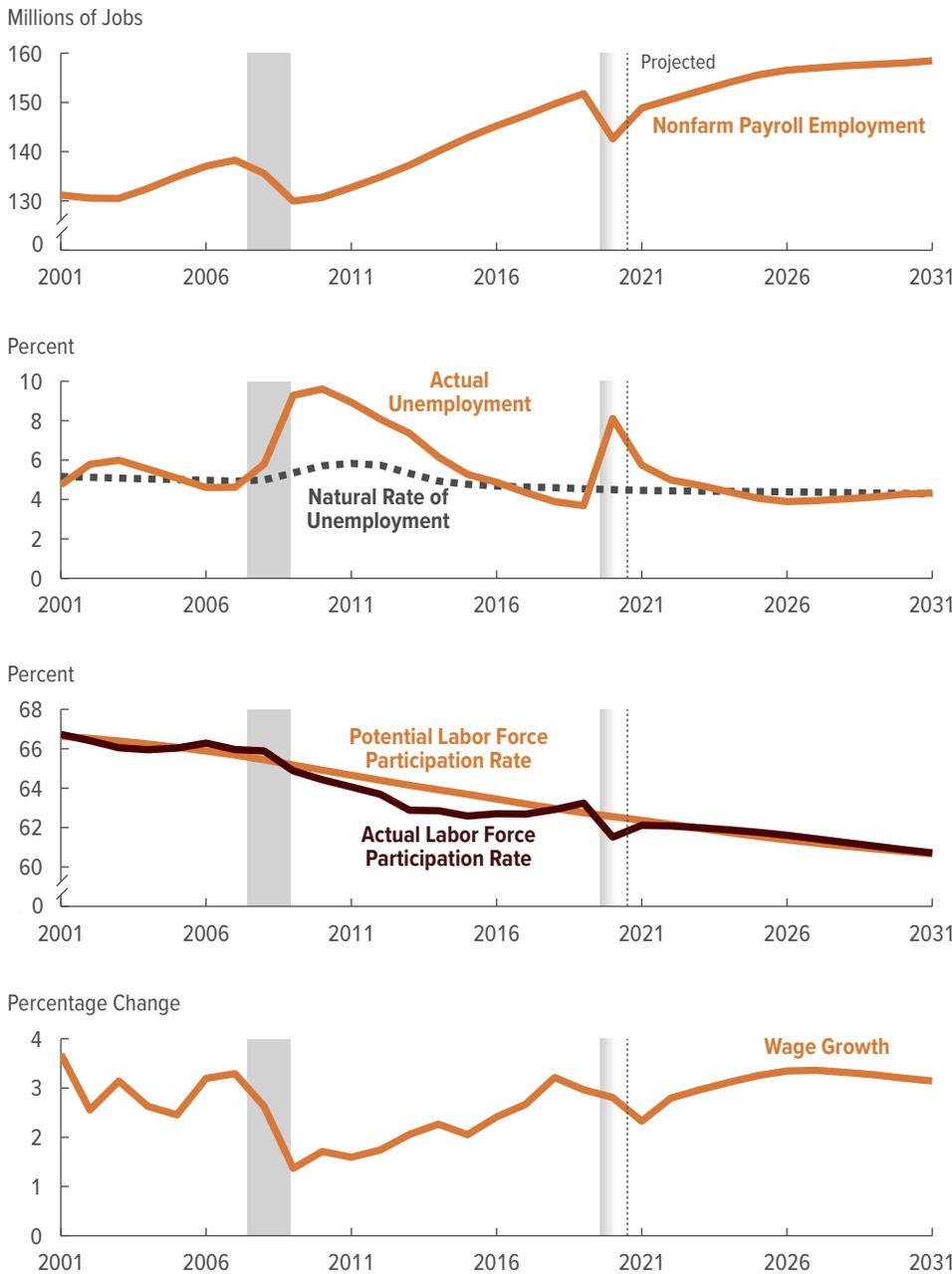
## Potential Output and the Output Gap

CBO's projections of potential output are based on its projections of trends in underlying factors, such as the size of the labor force, the average number of labor hours per worker, capital investment, and productivity—taking into account the effects of federal tax and spending policies embodied in current law. To date, the agency has found little indication that those underlying trends have been substantially affected by the pandemic, but such evidence may take some time to appear. Over the 2021–2025 period, potential output is projected to grow at an average annual rate of 1.9 percent, driven by

9. 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.

Figure 3.

### Employment, Unemployment, Labor Force Participation, and Wage Growth



In CBO’s projections, payroll employment reaches its prepandemic level in late 2023.

The unemployment rate remains above 6 percent—as the result of resurging COVID-19 infections and restrengthened social distancing measures—over the winter of 2020–2021 before starting to gradually fall again for several years.

The labor force participation rate fell during the pandemic-induced recession and is not expected to improve from its current level until the second quarter of 2021, when immunity to COVID-19 is projected to rise substantially. The participation rate then remains close to that level for several years as the effects of continued economic recovery and the aging of the population offset each other.

In CBO projections, elevated unemployment due to the pandemic-induced recession puts downward pressure on wage growth until 2023, when wages grow at rates similar to those before the pandemic.

Data sources: Congressional Budget Office; Bureau of Labor Statistics. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

Nonfarm payroll workers are employed in the private and public sectors, which can include proprietors and nonprofit employees but necessarily excludes farm workers.

The unemployment rate is the number of people not working who are available for work and are either seeking work or expecting to be recalled from a temporary layoff, 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 share of the civilian noninstitutionalized population age 16 or older that has jobs or that is available for and actively 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.



Table 3.

**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	2008–2020	Total, 1950–2020	2021–2025	2026–2031	Total, 2021–2031
<b>Overall Economy</b>										
Real Potential GDP	4.0	3.2	3.2	3.2	2.4	1.7	3.1	1.9	1.7	1.8
Potential Labor Force	1.6	2.5	1.6	1.2	1.0	0.5	1.4	0.4	0.3	0.4
Potential Labor Force Productivity <sup>a</sup>	2.3	0.7	1.6	2.0	1.4	1.2	1.7	1.5	1.4	1.4
<b>Nonfarm Business Sector</b>										
Real Potential Output	4.1	3.5	3.5	3.7	2.7	1.9	3.4	2.1	2.0	2.1
Potential Hours Worked	1.4	2.3	1.7	1.2	0.2	0.5	1.3	0.4	0.3	0.3
Capital Services <sup>b</sup>	3.8	3.7	3.5	3.9	2.8	2.3	3.4	2.3	2.2	2.2
Potential Total Factor Productivity <sup>c</sup>	1.9	0.8	1.1	1.6	1.6	0.8	1.4	1.1	1.1	1.1
Contributions to the Growth of Real Potential Output (Percentage points)										
Potential hours worked	0.9	1.5	1.2	0.8	0.2	0.4	0.8	0.3	0.2	0.2
Capital services <sup>b</sup>	1.2	1.2	1.1	1.3	0.9	0.7	1.1	0.7	0.7	0.7
Potential total factor productivity <sup>c</sup>	1.9	0.8	1.1	1.6	1.6	0.8	1.4	1.1	1.1	1.1
Total Contributions	4.0	3.5	3.4	3.6	2.7	1.9	3.3	2.1	2.0	2.1
Potential Labor Productivity <sup>d</sup>	2.6	1.2	1.7	2.4	2.4	1.4	2.1	1.8	1.7	1.7

Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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 are calculated from the fourth quarter of the year immediately preceding each period to the fourth quarter at the end of that period.

GDP = gross domestic product.

- The ratio of potential GDP to the potential labor force.
- The flow of services, provided by the stock of capital goods (such as computers and other equipment), that constitute the actual input in the production process.
- The average real output per unit of combined labor and capital services, excluding the effects of business cycles.
- The ratio of potential output to potential hours worked in the nonfarm business sector.

0.4 percent annual growth of the potential labor force and 1.5 percent annual growth of potential labor force productivity (see Table 3). That is somewhat stronger than the average rate over the past business cycle, in spite of slowing growth of the potential labor force; the acceleration reflects CBO's assessment that trend growth in potential labor force productivity has accelerated modestly in recent years.

Potential output in the nonfarm business sector, which is responsible for about three-quarters of aggregate economic activity and for nearly all productivity growth,

is projected to grow at an average rate of 2.1 percent, slightly more rapidly than overall potential output. About 0.3 percentage points of that are attributable to growth of potential hours worked in the sector; about 0.7 percentage points are attributable to capital services; and the remaining 1.1 percentage points are attributable to potential total factor productivity, which is the source of the acceleration in overall potential productivity.

In CBO's projections, the output gap—the difference between actual output and potential output—gradually decreases in magnitude from an estimated average of

-4.4 percent in 2020, closes in early 2025, and becomes slightly positive (that is, actual output exceeds potential output) over the course of that year. Over the entire 2021–2025 period, the gap averages somewhat less than -0.7 percent.

### **Inflation and Interest Rates**

CBO expects inflation to remain moderate and interest rates to be low over the next few years but then to rise as the economy continues to expand and actual output approaches and surpasses potential output (see Figure 4, top panel).

**Inflation.** The supply of goods and services and the demand for goods and services, which together determine inflation, have been affected by the pandemic in a variety of ways that were, on net, disinflationary. The demand for many goods and services—particularly those involving person-to-person interaction, such as haircuts and gym memberships, or travel, such as airline fares and hotel accommodations—declined dramatically at the outset of the pandemic, causing their prices to plummet. For example, the consumer price index (CPI) for airline fares has decreased by more than 20 percent from a year ago. The pandemic has also disrupted supply chains for some goods, causing their supply to decrease and their price to rise rapidly. For example, the CPI for meat products has increased by more than 5 percent from a year ago, because the pandemic has disrupted meatpacking facilities. However, declines in demand for many goods and services have outweighed those supply disruptions; as a result, the yearly growth rate of the consumer price index for all urban consumers (CPI-U) fell from 2.3 percent in February 2020 to 1.3 percent in December.

In CBO’s projections, inflation remains low over the next several quarters as the pandemic continues to depress the demand for certain products, and weak labor market conditions further dampen overall demand for goods and services. The price index for personal consumption expenditures—the measure that the Federal Reserve uses to define its 2 percent long-run objective for inflation—is expected to increase by 1.7 percent in 2021, below the Federal Reserve’s objective level. In CBO’s projections, the CPI-U increases by only 1.9 percent in 2021, well below its average historical rate.

CBO expects inflation to rise steadily after 2021 as the overall economy expands. The growth rate of the PCE price index rises to 2 percent, the Federal Reserve’s objective level, by 2024. The growth rate of the CPI rises to 2.3 percent by 2024.

**Interest Rates.** In CBO’s projections, the Federal Reserve keeps its target for the federal funds rate at 0.1 percent through the first half of 2024 (see Figure 4, bottom panel). The Federal Reserve is expected to begin raising the target for the federal funds rate in the second half of 2024 as inflation reaches and then exceeds the Federal Reserve’s long-run 2 percent objective and employment nears its maximum sustainable level. The Federal Reserve gradually raises rates from that point, allowing inflation to remain modestly over 2 percent for some time. The interest rate on 3-month Treasury bills typically follows the same pattern as the federal funds rate. In CBO’s projections, the 3-month Treasury bill rate remains below 0.25 percent through early 2024 and then gradually rises as the Federal Reserve begins raising the federal funds rate target in the second half of 2024 (see Figure 5).

The Federal Reserve is projected to continue purchasing long-term securities through 2023 but at a slower pace. The slowing pace of purchases coupled with the rising level of debt relative to GDP is expected to put upward pressure on long-term interest rates through 2025. Additionally, long-term interest rates, which are partly determined by the average of expected future short-term interest rates, are expected to increase through 2025 in anticipation of rising short-term interest rates. In CBO’s projections, the interest rate on 10-year Treasury notes rises from under 1.0 percent at the end of 2020 to 2.3 percent in 2025.

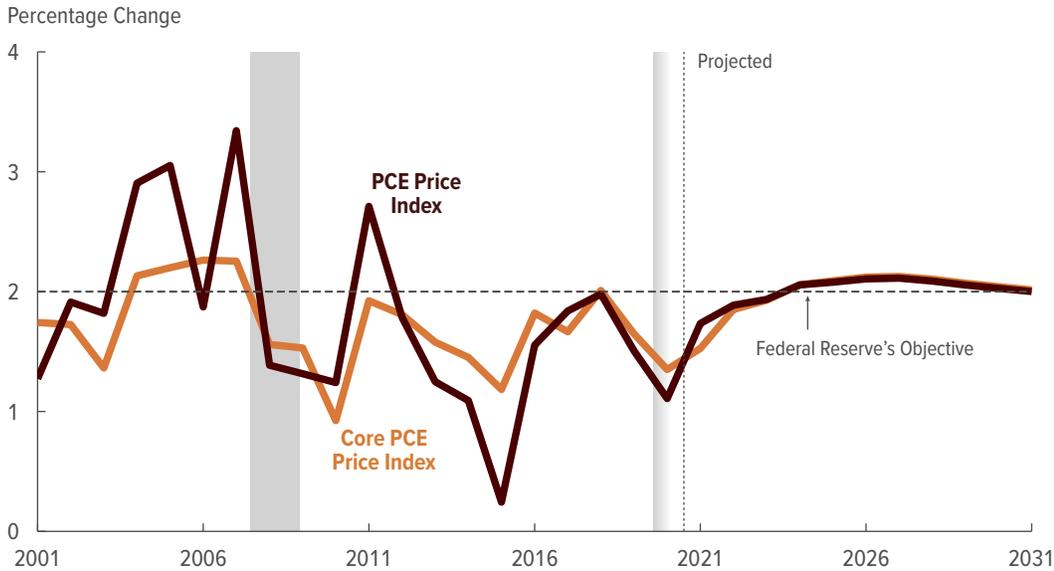
### **The Economic Outlook for 2026 to 2031**

CBO’s projections of GDP, unemployment, inflation, and interest rates for the second half of the coming decade are based mainly on the agency’s projections of the underlying trends in the factors that determine those key variables—the size of the labor force, the average number of labor hours per worker, capital investment, and productivity—and take into account the effects of federal tax and spending policies embodied in current law. In some cases, those policies, as well as monetary policy, might be projected to influence not only the demand for goods and services, and therefore the gap between actual output and potential output, but also potential output itself. In addition, the pandemic might have longer-term effects on potential output that are not yet apparent in current data.

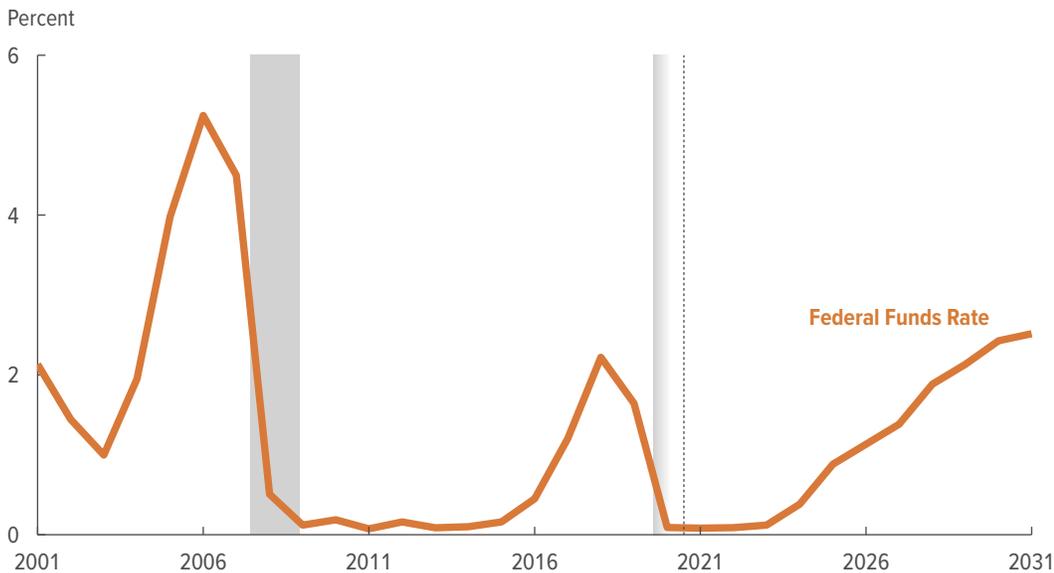
During the 2026–2031 period, in CBO’s projections, the economy continues to expand, and output exceeds potential output for much of the period. The output gap

Figure 4.

### Inflation and the Federal Funds Rate



In CBO’s projections, weak labor market conditions lead to lower inflation in 2021. After 2021, inflation rises until it reaches the Federal Reserve’s objective of 2 percent by 2024.



The Federal Reserve is expected to keep its target for the federal funds rate near zero through mid-2024 and then gradually raise that rate as inflation reaches the Federal Reserve’s long-term objective.

Data sources: Congressional Budget Office; Bureau of Economic Analysis; Federal Reserve. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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.

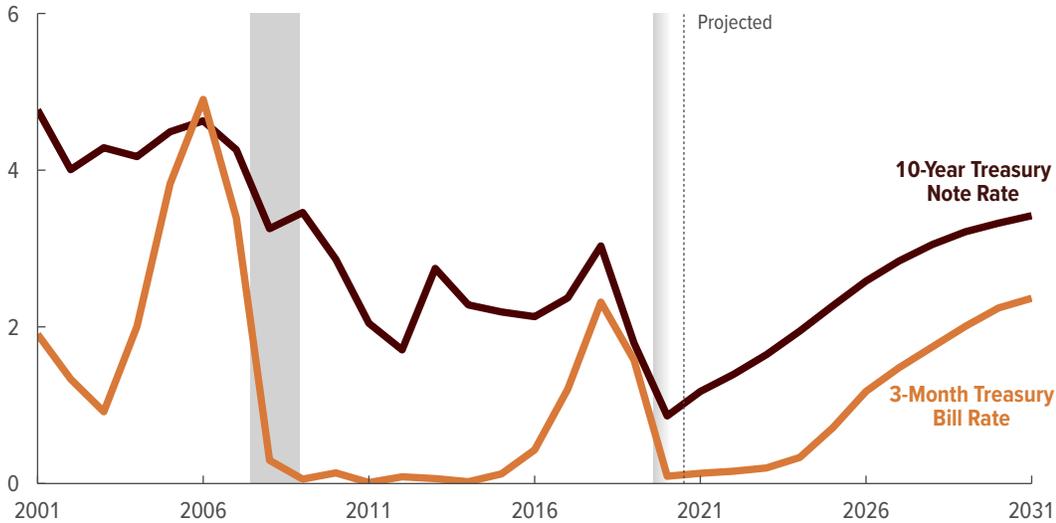
For the federal funds rate, the data are fourth-quarter values.

PCE = personal consumption expenditures.

Figure 5.

## Interest Rates

Percent



In CBO's projections, short-term rates rise as the Federal Reserve raises the federal funds rate. Long-term rates are expected to rise for several reasons, including expectations about short-term rates, decreasing purchases of long-term securities by the Federal Reserve, and rising debt relative to gross domestic product.

Data sources: Congressional Budget Office; Federal Reserve. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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.

widens to an average of 0.4 percent in 2026. The agency expects that in the following years, monetary policy is likely to become increasingly restrictive, moderating the expansion and helping to bring actual output back to its long-term relationship with potential output. With growth of actual output slowing over the period as a consequence, annual growth averages 1.6 percent, slightly less than the 1.7 percent projected for growth of potential output. The unemployment rate briefly drifts down to about 3.9 percent early in the period but moves back up to about 4.3 percent at its close. Growth of consumer spending slows to an average of 1.9 percent over the period. PCE price inflation remains at about 2.1 percent for most of the period before declining to the Federal Reserve's long-run objective of 2.0 percent in 2031. Interest rates continue to gradually rise throughout the 2026–2031 period: The federal funds rate rises from 1.1 percent in 2026 to 2.5 percent in 2031, the 3-month Treasury rate rises from 1.0 percent to 2.3 percent, and the 10-year Treasury note rate rises from 2.5 percent to 3.4 percent.

### Actual Output and Potential Output

Although changes in the overall demand for goods and services strongly influence CBO's economic projections during the first half of the period covered in this outlook,

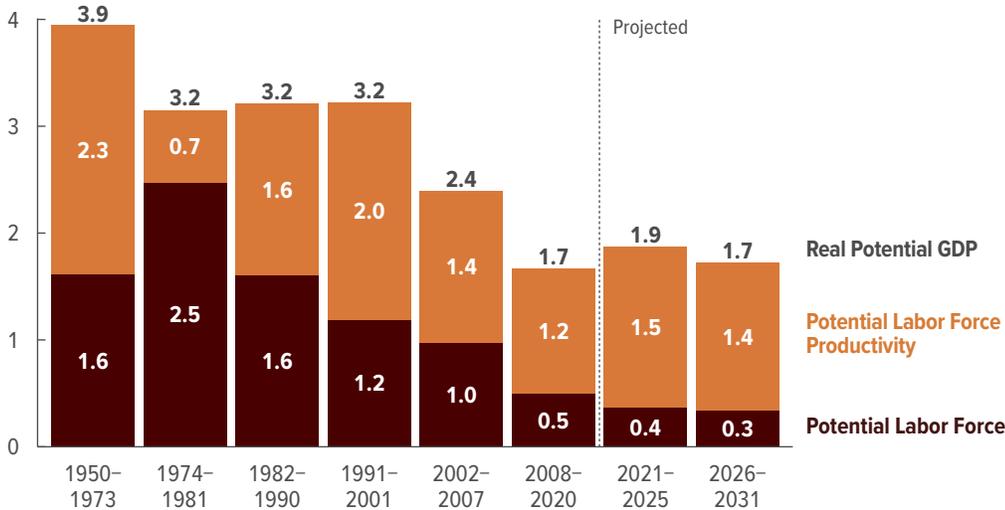
the agency's projections over the second half of the period are fundamentally determined by its assessment of the prospects for growth of a few key inputs: the potential number of workers in the labor force, capital services (that is, the flow of productive services provided by the available stock of capital), and the potential productivity of those factors.

In CBO's projections, growth of potential output over the 2026–2031 period averages 1.7 percent per year, a rate roughly equal to the average over the past 15 years (see Table 3 on page 15). That annual growth is driven by average annual growth of about 0.3 percent in the potential labor force and of about 1.4 percent in potential labor force productivity (see Figure 6). Potential output in the nonfarm business sector grows at an average rate of 2.0 percent. About 0.2 percentage points of that are attributable to growth of potential hours worked in the sector; about 0.7 percentage points are attributable to capital services; and the remaining 1.1 percentage points are attributable to potential total factor productivity. The output gap gradually decreases from about 0.4 percent in 2026 to slightly below zero in 2029 and nearly -0.3 percent in 2031.

Figure 6.

### Composition of the Growth of Real Potential GDP

Percentage Change



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.

Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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.

Although trends in potential employment and hours worked are driven mainly by underlying trends in the potential labor force in CBO’s projections, the growth of potential hours worked is further influenced by certain temporary provisions of the 2017 tax act. The agency estimates that those provisions induced an increase in potential hours worked beginning in 2018 and will also lead to a decrease in potential hours worked after the provisions expire (under current law) at the end of 2025.

A further influence on projected growth is the effect of climate change on economic activity, which, in CBO’s projections, slightly reduces growth of potential total factor productivity in the nonfarm business sector. The effects of climate change on the growth rate are projected to intensify over time and are expected to reduce the level of potential output by about 0.1 percent by 2031.<sup>10</sup>

### The Labor Market

CBO’s projections of employment, unemployment, labor force participation, and wage growth over the 2026–2031 period primarily reflect the agency’s assessment of the effects of long-term demographic trends, which will strongly influence the size and the composition of the workforce in the coming decades. The agency also considers potential effects of other structural changes in the economy and society—such as the continuing process of automation, globalization, digitization of services and remote work, greater inequality, and possible longer-term aftereffects of the pandemic—although the precise size of the effects of those forces may be difficult to quantify.

CBO expects the labor force participation rate to fall during the second half of the projection period. Specifically, the overall labor force participation rate is projected to decline from 61.7 percent at the beginning of 2026 to 60.7 percent by the end of 2031. CBO attributes most of that decrease to the aging of the

10. For additional information, see Congressional Budget Office, *The 2020 Long-Term Budget Outlook* (September 2020), p. 22, [www.cbo.gov/publication/56516](http://www.cbo.gov/publication/56516); and Evan Herrnstadt and Terry Dinan, *CBO’s Projection of the Effect of Climate Change on U.S. Economic Output*, Working Paper 2020-06 (Congressional

Budget Office, September 2020), p. 2, [www.cbo.gov/publication/56505](http://www.cbo.gov/publication/56505).



population and, in particular, the continued retirement of baby boomers. That rate in 2031 is slightly above the agency's estimate of the potential labor force participation rate, which falls from 62.6 percent in 2020 to 61.4 percent in 2026 and to 60.7 percent in 2031.

CBO expects the natural rate of unemployment to decline slowly over the next decade, from 4.5 percent in 2019 to 4.3 percent by 2031. 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.

The growth in employment and wages is projected to be moderate over the 2026–2031 period. Nonfarm payroll employment increases by an average of about 45,000 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 2026 to 2031—close to the projected average growth in labor productivity in that sector.

### Inflation and Interest Rates

CBO expects strong labor and product market conditions to push up inflation and interest rates in the later years of the projection period, but that upward inflationary pressure is expected to dissipate toward the end of the period as monetary policy becomes increasingly restrictive.

**Inflation.** In CBO's projections—as labor market conditions continue to improve—inflation rises above its projected long-run average level before falling back down to meet that level. The agency expects the growth rate of the PCE price index to slightly exceed 2.0 percent, the Federal Reserve's long-run objective for average inflation, for a time before returning to that level. CPI-U inflation is projected to rise to 2.5 percent in 2028 before falling to 2.3 percent thereafter.

**Interest Rates and Federal Reserve Policy.** CBO expects short- and long-term interest rates to rise over the 2026–2031 period. Rising federal debt in relation to GDP, a reduction in the Federal Reserve's holdings of Treasury securities, a decline in the share of Treasury securities held by foreign investors, and a gradual decrease in the premium paid on risky assets are expected to exert upward pressure on short- and long-term interest rates.

The agency expects the Federal Reserve to continue gradually raising the target for the federal funds rate through 2031. In CBO's projections, the Federal Reserve slows the pace of rate hikes in 2026 in response to the expiration of some of the tax reductions that were enacted in the 2017 tax legislation. The 3-month Treasury bill rate is expected to rise along with hikes in the federal funds rate. CBO expects the interest rate on 10-year Treasury notes to rise as the Federal Reserve reduces its holdings of long-term securities and as rising debt relative to GDP begins to put upward pressure on interest rates. In CBO's projections, the average federal funds rate increases from 1.1 percent in 2026 to 2.5 percent in 2031. Similarly, the rates for 3-month Treasury bills and 10-year Treasury notes are expected to rise from 1.0 percent to 2.3 percent and from 2.5 percent to 3.4 percent, respectively, over that period.

Interest rates are nevertheless expected to remain below their historical average for several reasons, including lower average expected inflation, slower growth of the labor force, and slower growth of productivity.<sup>11</sup>

## Projections of Income for 2021 to 2031

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.) The shares for wages and salaries and for domestic profits are particularly important in projecting federal revenues because those types of income are taxed at higher rates than others.

### Labor Income

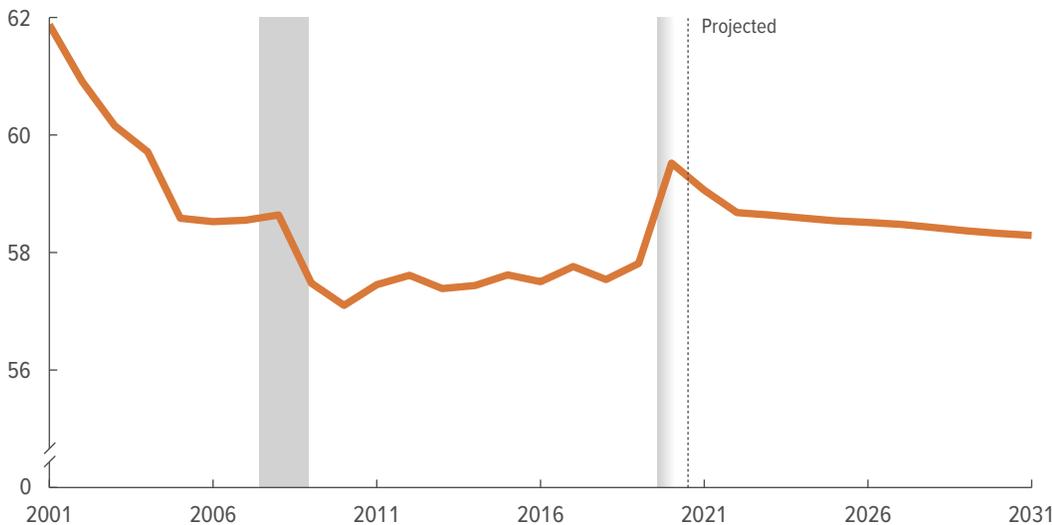
The pandemic has had significant effects on the distribution of income in the near term, causing an immediate upswing in labor's share during 2020, and the economic recovery will influence labor's share going forward. Labor's share of income, which usually rises in recessions, rose a remarkable 2.0 percentage points in the second quarter of 2020 alone to exceed 60 percent for the first time since 2003 (see Figure 7). Some of that effect has since unwound, and CBO projects that labor

11. For further details on the factors affecting CBO's interest rate projections, see Edward N. Gamber, *The Historical Decline in Real Interest Rates and Its Implications for CBO's Projections*, Working Paper 2020-09 (Congressional Budget Office, December 2020), [www.cbo.gov/publication/56891](http://www.cbo.gov/publication/56891).

Figure 7.

**Labor Income**

Percentage of GDP



Labor's share of total income in the economy rose during the pandemic-induced recession. In CBO's projections, labor's share of income begins to decrease in 2021. After 2021, the long-term downward trend in labor's share resumes, and it remains below its average from 1947 to 2000.

Data sources: Congressional Budget Office; Bureau of Economic Analysis. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

Data are fourth-quarter values. The value for 2020 is CBO's estimate.

GDP = gross domestic product.

income as a share of GDP will average 59.1 percent for 2021. Labor's share is projected to gradually fall back to 58.3 percent by the end of 2031, a modest change compared with its historical fluctuations. (CBO's forecasts of labor income as a percentage of GDP reflect its projections of employment and compensation as well as a fraction of proprietors' income; the latter category is responsible for a spike in the first quarter of 2021, when, according to CBO's measurement convention, PPP subsidies boost the labor compensation of proprietors.)

CBO projects that wages and salaries will grow at a 4.9 percent pace in 2021 and then grow at a 4.3 percent annual rate from 2022 through 2026. Those growth rates fall slightly in the latter half of the projection period. With the onset of the pandemic, the wage and salary share of total income rose sharply, from 43.4 percent of GDP in 2019 to 45.6 percent in the second quarter of 2020, before slipping back to 44.4 percent in the third quarter as firms readjusted employment in line with output. In CBO's projections, the wage and salary share of total income gradually falls to 43.8 percent over the 2023–2027 period before falling again to 43.4 percent by the end of 2031.

Economists have identified some factors that have reduced labor's share of income over time, especially since 2000, but the relative importance and persistence of those factors remain unclear.<sup>12</sup> In CBO's projections,

12. 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 (October 2013), pp. 61–103, <https://tinyurl.com/y9uj2yv5>. On the role of globalization, see Michael W.L. Elsby, Bart Hobijn, and Aysegül 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 Mark Lasky, *Complementary Putty-Clay Capital and Its Implications for Modeling Business Investment and Measuring Income From Intangible Capital*, Working Paper 2014-03 (Congressional Budget Office, May 2014), [www.cbo.gov/publication/45317](http://www.cbo.gov/publication/45317). See also Congressional Budget Office, *How Taxes Affect the Incentive to Invest in New Intangible Assets* (November 2018), [www.cbo.gov/publication/54648](http://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](http://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](http://www.nber.org/papers/w23396).

that combination of long-term factors continues to operate, so that labor income as a share of GDP does not reach 60.4 percent—its long-run average from 1947 through 2000. The longer-run impact of the pandemic operates to accelerate various trends, such as automation, that tend to reduce labor's share of income in later years.

### Corporate Profits

The combination of the pandemic's direct economic effects and the policy response to the pandemic explain volatility in corporate profits in the near term. The weakening of the economy as a result of the pandemic caused the share of domestic corporate profits in GDP to fall from 8.1 percent in 2019 to 7.3 percent in the first half of 2020, only to rebound to 8.9 percent in the third quarter, as firms adjusted their labor costs and as some received subsidies. CBO estimates that profits fell sharply again in the fourth quarter of 2020, but with renewed subsidies and various programs stimulating demand under current law, the domestic profit share will rise to 8.4 percent in the first half of 2021 before falling back in the second half. In CBO's projections, domestic corporate profits as a share of GDP then rise to 8.3 percent by the end of 2025 before subsiding to 7.7 percent by the end of 2031; they average 7.9 percent over the entire projection period.

Taken together, the share of GDP flowing to the highly taxed categories of wages and salaries and domestic corporate profits averages 51.7 percent over the projection period. That share is close to the average share recorded for the sum of those categories over the past 10 years.

### Some Uncertainties in the Economic Outlook

An unusually high degree of uncertainty surrounds CBO's latest economic projections. Much uncertainty surrounds the path of the pandemic, the pace of distribution and uptake of vaccines, and domestic and international recovery from the recent downturn. Longer-term uncertainties include the pace of growth of potential output, the extent to which actual activity will exceed potential, and the measures taken by the Federal Reserve to moderate growth in that period.

### The Pandemic and the Recovery

The severity and duration of the pandemic are subject to significant uncertainty, as are their effects on economic activity. In particular, great uncertainty remains about the extent to which governments, businesses, and

individuals will take measures to reduce the spread of the virus, as well as how quickly the vaccines that are rapidly becoming available will be distributed. Although vaccines have become available and are being distributed, uncertainties remain about their efficacy, the pace of distribution, and the extent to which people will accept vaccination.

Further uncertainty surrounds the ongoing effects of the pandemic and social distancing on the pace of economic recovery and the pace at which consumers and businesses regain their financial stability and return to longer-term spending trends. Especially in the near term, there is at least some likelihood that the recovery could stall temporarily, with output declining and unemployment rising before another recovery gets under way. For example, the appearance of particularly virulent variants of the virus could result in greater social distancing and economic disruption than expected. The path of recovery and expansion could also be influenced in unexpected ways by the disparate effects the pandemic has had on different industries and population groups. International conditions could also influence the domestic recovery in unanticipated ways as the pandemic works its way through the rest of the world.

### Fiscal Policy

CBO's analysis of the economic effects of recent legislation is largely informed by evidence about how past legislative actions that are most comparable to the recent legislation have affected economic activity. For example, CBO's estimates of the economic effects of payments to individuals provided by recent legislation, such as the Consolidated Appropriations Act, 2021, enacted in December 2020, are informed by evidence about the effects of payments to tax filers provided by the Economic Stimulus Act of 2008. That evidence may be less informative than usual in this situation, however, given the novel circumstances surrounding the pandemic and the subsequent economic developments.

An additional area of uncertainty is how specific legislative actions will affect the economy—in particular, provisions that provide loans to businesses and reduce certain business taxes, expand eligibility for unemployment compensation and increase weekly benefits, and provide credit assistance to certain businesses and funding for state and local governments. For example, the effects of business loans on economic activity depend on the number of distressed businesses and their financial viability.

## The Labor Market

The uncertainty surrounding the labor market recovery in the near term is particularly great, reflecting the unusually high degree of uncertainty about the course of the pandemic, the pace of economic recovery, and the state of various government policies supporting households, workers, and businesses. If, for example, consumer demand falls to a greater extent and more businesses—particularly small, local businesses—fail to survive the winter of 2020–2021 than CBO currently expects, then more layoffs, less hiring, and a slower overall labor market recovery will occur than in CBO’s current projections. Conversely, if vaccination rates rise more rapidly than CBO currently projects, then the labor force participation rate could rebound sooner and more strongly.

Moreover, the rapid adaptation to remote work by existing businesses and households may be creating many opportunities for new businesses, creating new jobs, and spurring sectoral and geographic reallocations that can help improve both productivity and social and economic welfare. If, for example, business formation and job creation in the “new” part of the economy are greater than CBO currently expects, then labor market recovery could be faster and stronger than in CBO’s current projections.

Furthermore, the severity and the duration of economic weakness in the near term may influence the extent to which various types of workers experience negative effects on their long-term labor market outcomes—including reduced future employment rates and earnings, poorer fit between employers and workers, skill erosion, and diminished career prospects. Those who are particularly vulnerable to experiencing negative labor market outcomes, which could last a decade or more, include workers who experience long spells of unemployment, young people who enter the labor market in a weak economy, and women who have disproportionately dropped out of the labor force to provide child care and other care at home during the pandemic. Students whose schooling has been disrupted during the pandemic, particularly those who lack access to quality remote learning, could face long-term negative consequences, and harms are skewed toward those who have already been most disadvantaged in society. Finally, long-term health risks—including potential long-term effects of COVID-19 infections, exacerbation of the opioid crisis by the pandemic, and the toll on people’s mental health—could influence the prospects of many workers as well as the strength of the overall labor market.

## Inflation and Interest Rates

The effects of policy actions on CBO’s projections of inflation and interest rates are also uncertain, particularly in light of the rapid increase in federal borrowing in response to the pandemic. Monetary and fiscal policymakers have provided an unprecedented amount of support to the economy to curtail the adverse effects of the pandemic. That support might exert more or less pressure on inflation than CBO currently projects. Also unclear are the extent and timing of upward pressure on interest rates caused by greater federal borrowing, as well as the downward pressure from the increased demand for risk-free assets and additional purchases of long-term Treasury securities by the Federal Reserve.

The Federal Reserve’s recent revision to its longer-run goals and policy strategy introduces additional uncertainty into the forecast. In August, the Federal Reserve announced that it would aim to achieve an average inflation rate of 2 percent over time and that periods of shortfall from that objective will be followed by periods during which inflation will be allowed to moderately exceed 2 percent for some time. There is uncertainty about whether the Federal Reserve will be able to accomplish its inflation objectives and how far it will allow inflation to rise above 2 percent. The uncertainty about inflation contributes to the uncertainty about the forecast for interest rates over the coming decade.

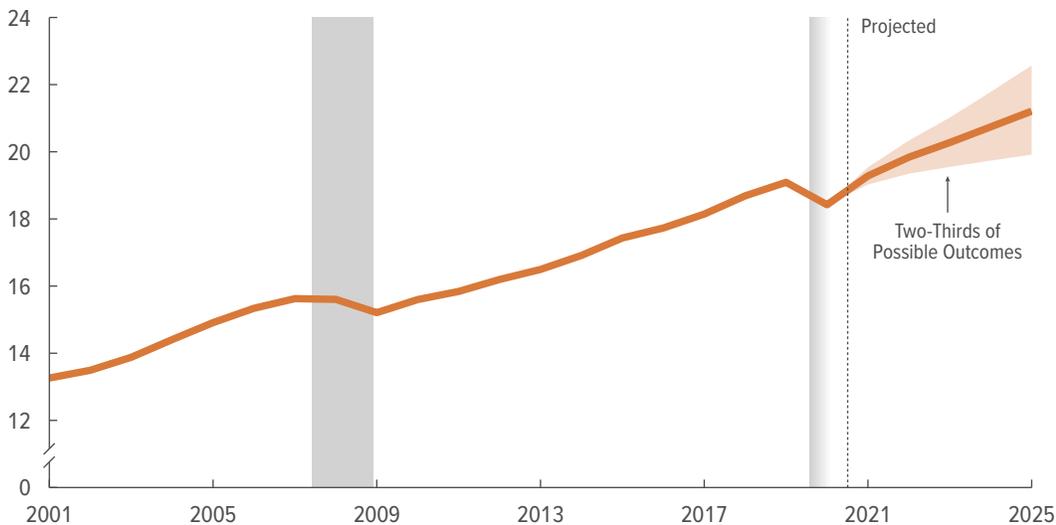
## Long-Term Growth

CBO’s longer-run projections reflect the additional uncertainty of the underlying trends of key variables, such as the size of the potential labor force, the average number of labor hours per worker, capital investment, and productivity. Particularly uncertain for CBO’s analysis are the long-run effects of the pandemic on growth of potential total factor productivity in nonfarm businesses. It is possible that innovations associated with working from home could lead to substantial reductions in costs and improvements in productivity. Conversely, disruptions to the education system could have lasting effects on the future productivity of workers. Long-term growth could also be influenced by the disparate effects the pandemic has had on different industries and population groups. In its current projections, CBO anticipates that the net effects of the pandemic on productivity are likely to be small, but substantial positive or negative effects could influence underlying trends in ways that are as yet unmeasured.

Figure 8.

## Uncertainty in CBO's Projection of Real GDP

Trillions of Dollars



CBO estimates that—if the errors in the agency's current economic forecast are similar to those in its previous forecasts—there is approximately a two-thirds chance that the average annual rate of real GDP growth will be between 1.6 percent and 4.1 percent over the next five years.

Data sources: Congressional Budget Office; Bureau of Economic Analysis. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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 2020.

GDP = gross domestic product.

A further source of long-term uncertainty is the global economy's longer-term response to the substantial increases in public deficits and debt that are occurring as governments spend significant amounts to attempt to mitigate the impact of the pandemic and the economic downturn. The buildup of debt in several different countries increases the risk that financial instability in any one country (or just a few countries) could result in more widespread problems.

### 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. 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 and if the agency's economic forecast balances the risks of such errors, on average, so that outcomes could differ from the forecast in either direction—there is approximately a two-thirds chance that the average annual rate of real GDP growth (on a calendar year basis) will be between 1.6 percent and 4.1 percent over the next five years (see Figure 8). That range encompasses cumulative growth over the five-year period

of between 8.1 percent and 22.5 percent.<sup>13</sup> Similarly, errors in CBO's past forecasts of inflation (as measured by the CPI-U) suggest that there is roughly a two-thirds chance that the average annual rate of inflation will fall between 1.6 percent and 2.8 percent over the next five years. (For discussion about the uncertainty surrounding the unemployment rate, see Box 2.)

### Comparison With CBO's 2020 Economic Projections

CBO's current projections can be usefully compared both with its most recent projections from July 2020 and, in some cases, with its January 2020 projections, which were prepared before the advent of the pandemic (see Table 4). Both sets of comparisons illuminate aspects of the current projections and also serve to highlight the kinds of uncertainty that affect all such projections.

13. 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.

**Box 2.**

**Uncertainty Surrounding the Unemployment Rate**

In the Congressional Budget Office’s economic projections, the unemployment rate falls from 6.8 percent at the end of 2020 to 5.3 percent at the end of 2021 and 4.3 percent at the end of 2031. CBO has quantified the uncertainty surrounding those projections to illustrate its extent and to assist with projections of federal spending that depend on whether the unemployment rate exceeds certain thresholds.

In the fourth quarter of 2021, there is roughly a two-thirds chance that the unemployment rate will be between 4.9 percent and 5.7 percent, CBO estimates. That is the middle two-thirds of the range: There is a one-sixth chance that the rate will be less than 4.9 percent and a one-sixth chance that the rate will be greater than 5.7 percent. In the fourth quarter of 2031, there is approximately a two-thirds chance that the unemployment rate will be between 2.7 percent and 6.1 percent and a 10 percent chance that it will be above 6.7 percent (see the figure).

**The Basis of the Estimates of Uncertainty About the Unemployment Rate**

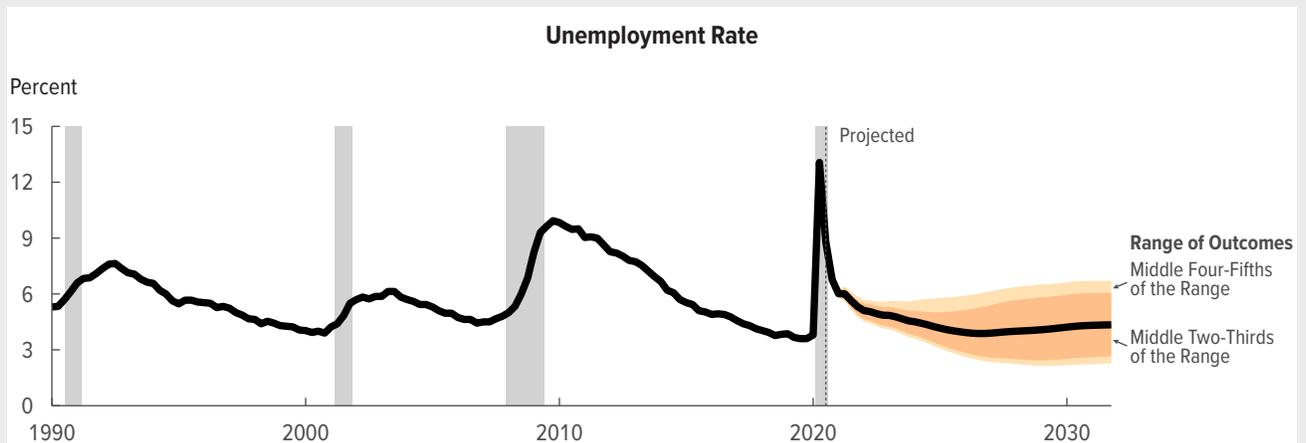
CBO’s estimates of the uncertainty surrounding its projections of the unemployment rate are informed by the historical patterns of rapid increases in that rate followed by more gradual declines. Specifically, CBO developed a Markov-switching model with parameters estimated from historical data to simulate many future paths of the unemployment rate. The parameters were also adjusted slightly so that the averages of the simulated rates most closely matched CBO’s economic projections. The analysis accounted for differences in the unemployment rates of people on temporary layoff expecting to be recalled to work and other unemployed people.

After the declines in the unemployment rate observed in the second half of 2020, that rate continues to decline in most of CBO’s simulations. In some simulations, however, it increases sharply, as suggested by historical patterns in the unemployment rate. The cumulative chance of at least one sharp rise increases over time.

CBO has explored various modeling approaches to quantifying the uncertainty surrounding the unemployment rate. The agency expects to publish a technical description of the methods underlying the analysis presented here later this year.

**How the Unemployment Rate Is Used in CBO’s Budget Projections**

CBO uses projections of the unemployment rate to assist with budget projections for various programs in which the number of people eligible for benefits has historically depended on the strength of the labor market. For instance, spending for unemployment compensation programs is especially sensitive to the unemployment rate. CBO’s projection of \$45 billion in spending for those programs in 2031, for example, uses CBO’s baseline projection of the unemployment rate as one input to form an estimate of the number of people expected to claim unemployment compensation and the duration of those claims, on average. That estimate incorporates the possibility that the economy will be stronger or weaker than CBO projects. For estimates of spending for the part of the unemployment compensation program that provides extended benefits, CBO’s simulations of the national unemployment rate are combined with other information to estimate the probability that states’ unemployment rates will be above certain thresholds that trigger the extended benefits.



Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

The shaded area around CBO’s baseline projection of the unemployment rate illustrates the uncertainty of that projection. The middle two-thirds of the range extends from the 17th to the 83rd percentile of CBO’s estimates. The middle four-fifths extends from the 10th to the 90th percentile.



Table 4.

**CBO's Current and Previous Economic Projections for Calendar Years 2020 to 2030**

	2020	2021	2022	Annual Average		Total, 2020–2030
				2020–2024	2025–2030	
<b>Percentage Change From Fourth Quarter to Fourth Quarter</b>						
Real GDP <sup>a</sup>						
February 2021	-2.5	3.7	2.4	1.7	1.7	1.7
July 2020	-5.9	4.8	2.2	1.0	2.1	1.6
Nominal GDP						
February 2021	-1.2	5.6	4.5	3.5	3.9	3.7
July 2020	-5.7	6.2	4.1	2.5	4.2	3.4
PCE Price Index						
February 2021	1.2	1.7	1.9	1.7	2.1	1.9
July 2020	0.4	1.3	1.7	1.4	1.9	1.7
Core PCE Price Index <sup>b</sup>						
February 2021	1.4	1.5	1.9	1.7	2.1	1.9
July 2020	0.6	1.3	1.7	1.4	1.9	1.7
Consumer Price Index <sup>c</sup>						
February 2021	1.2	1.9	2.2	2.0	2.4	2.2
July 2020	0.4	1.6	2.0	1.7	2.2	2.0
Core Consumer Price Index <sup>b</sup>						
February 2021	1.6	1.5	2.2	2.0	2.4	2.2
July 2020	1.0	1.5	1.9	1.7	2.2	2.0
GDP Price Index						
February 2021	1.3	1.9	2.0	1.8	2.1	2.0
July 2020	0.2	1.3	1.8	1.5	2.0	1.8
Employment Cost Index <sup>d</sup>						
February 2021	2.8	2.3	2.8	2.7	3.3	3.0
July 2020	1.7	2.6	2.3	2.4	3.0	2.7
Real Potential GDP <sup>a</sup>						
February 2021	1.8	1.9	1.9	1.9	1.7	1.8
July 2020	1.6	1.5	1.8	1.7	1.8	1.8

Continued

**Potential Output, Actual Output, and Income**

The agency's projection of real GDP growth for 2021 is much weaker than it was last summer. That revision results from two developments. First, the downturn in early 2020 was not as pronounced as the agency initially estimated, and the recovery in the second half of the year was stronger. Second, the effects of the pandemic are projected to be somewhat stronger overall (that is, the amount of social distancing is projected to be greater) in the near term than CBO expected last summer. Beyond 2021, the agency now expects the growth in spending to be stronger from 2022 through 2024 than it did last summer but to be weaker from 2025 through the end of the projection period. Overall, the net effect of the revisions is that economic activity is stronger throughout the 2020–2030 period than the agency projected in July,

mainly because the economic effects of the pandemic proved to be less negative than expected.

In terms of underlying trends that contribute to growth of potential output, by far the most important revisions to CBO's projections since July are revisions to both business and residential investment. Stronger-than-expected investment of both types leads to more capital services in nonfarm business and in owner-occupied housing, both of which raise potential output compared with the projection in the summer outlook. In addition, the agency has modestly increased its projections of productivity growth in the nonprofit and government sectors of the economy, reflecting recent historical trends.

Table 4.

Continued

**CBO's Current and Previous Economic Projections for Calendar Years 2020 to 2030**

	2020	2021	2022	Annual Average		Total, 2020–2030
				2020–2024	2025–2030	
				Annual Average		
Unemployment Rate (Percent)						
February 2021	8.1	5.7	5.0	5.6	4.1	4.8
July 2020	10.6	8.4	7.1	7.7	4.8	6.1
Interest Rates (Percent)						
Three-month Treasury bills						
February 2021	0.4	0.1	0.1	0.2	1.4	0.9
July 2020	0.4	0.2	0.2	0.2	1.0	0.6
Ten-year Treasury notes						
February 2021	0.9	1.1	1.3	1.3	2.8	2.1
July 2020	0.9	0.9	1.1	1.2	2.6	2.0
Tax Bases (Percentage of GDP)						
Wages and salaries						
February 2021	44.8	44.0	43.9	44.1	43.7	43.9
July 2020	44.3	43.8	43.7	43.8	43.7	43.8
Domestic corporate profits <sup>e</sup>						
February 2021	7.6 <sup>f</sup>	7.9	7.5	7.7	8.1	7.9
July 2020	7.5	7.4	7.7	7.7	8.2	8.0

Data sources: Congressional Budget Office; Bureau of Labor Statistics; Federal Reserve. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

- a. Real values are nominal values that have been adjusted to remove the effects of changes in prices.
- b. Excludes prices for food and energy.
- c. The consumer price index for all urban consumers.
- d. The employment cost index for wages and salaries of workers in private industry.
- e. Adjusted to remove distortions in depreciation allowances caused by tax rules and to exclude the effects of changes in prices on the value of inventories.
- f. Estimated value for 2020.

Compared with CBO's prepandemic projections from January 2020, its projection of actual real GDP is much lower for much of the first half of the projection period, but stronger growth during the projected recovery and expansion brings real GDP to nearly the same level at the end of the period as the agency projected in January 2020 (see Figure 9). The close similarity reflects two features of the projections. First, the agency projects slightly lower potential output throughout the projection period than it did last year because its projections of the population and potential labor force are lower. That difference is offset by the agency's current expectation that actual output will slightly overshoot potential output for much of the second half of the projection period, whereas it expected actual output to undershoot potential output in last year's projection.

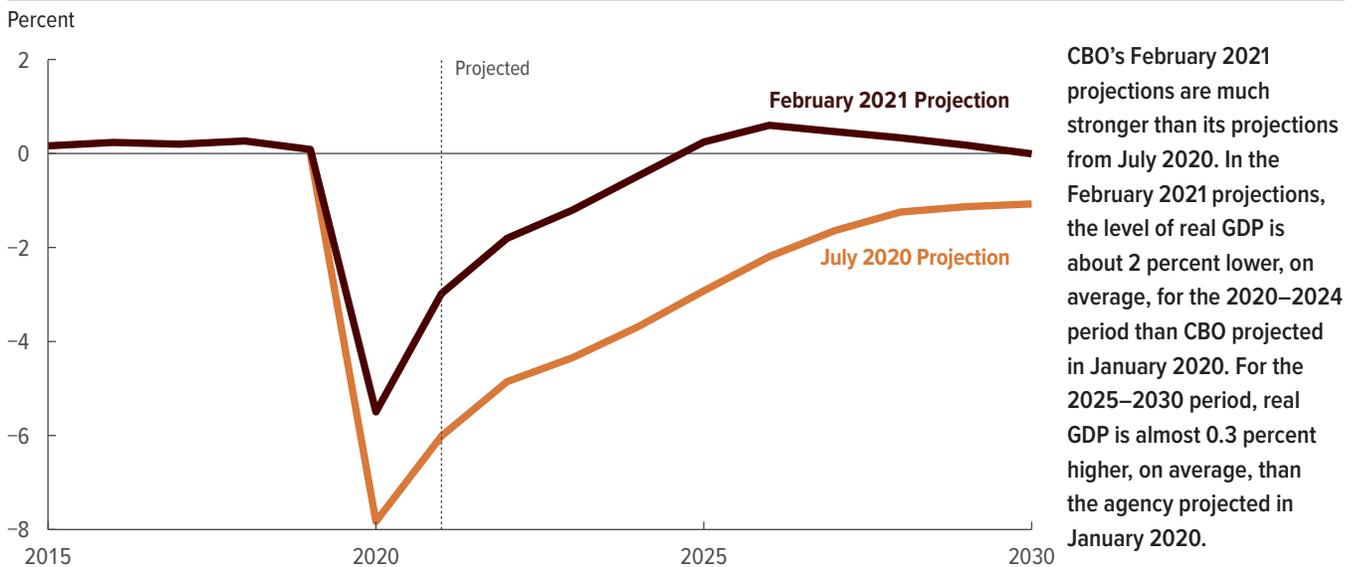
In nominal terms, however, the agency's projections for output and income are substantially lower throughout the projection period because projected price inflation is well below last January's rates through 2023. Although inflation rises above last January's projection after 2023, nominal GDP is still about 0.8 percent lower and nominal income is about 0.6 percent lower at the end of the projection period than what CBO projected last year.

### The Labor Market

CBO's current projections for the labor market are notably stronger throughout the projection period, particularly in the near term, than the projections it released in July. Specifically, over the 2021–2025 period, the unemployment rate is projected to average 4.8 percent, about 2 percentage points lower than the 6.7 percent average projected in July. At 4.1 percent, the average

Figure 9.

## Difference in Real GDP Between CBO's January 2020 and More Recent Projections



Data source: Congressional Budget Office. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

GDP = gross domestic product.

unemployment rate over the 2026–2031 period is about 0.5 percentage points lower than previously projected.

Several factors contributed to those upward revisions: First, incoming data on employment and unemployment over the summer and through early fall indicated a much stronger labor market recovery—driven primarily by more rapid rehiring of workers who were temporarily laid off—than CBO expected in the late spring. Second, projected levels of economic activity, as reflected in the level of GDP and other economic indicators, are higher throughout the projection period in CBO's current projections, in part because of additional fiscal support put in place at the end of 2020. Finally, a more rapid and substantial rebound in employment in the near term than previously expected helps preserve human and institutional capital and boost labor income and businesses' survival, and thus it reduces the risks of long-term damage to the labor market outcomes of many workers.

### Inflation and Interest Rates

Inflation is projected to be somewhat higher in both the 2021–2025 period and the 2026–2031 period than it was in July. In the short run, economic activity rebounded more strongly than anticipated following its precipitous decline in the spring, as many businesses

were able to rapidly adapt to operating with social distancing guidelines in effect. That rebound reduced the degree of downward pressure on inflation over the next several quarters in the agency's projections. In the long run, a change in Federal Reserve policy resulted in a slightly higher projected average rate of inflation. Last fall, the Federal Reserve revised its statement of goals and policies, in which it signaled that after a period when inflation has failed to reach its objective rate, the Federal Reserve would allow inflation to rise above that rate for some period of time, so that inflation averages 2 percent over some horizon.<sup>14</sup> On average, that policy should result in slightly higher inflation in the long run.

CBO now expects both short- and long-term interest rates over the coming decade to be slightly higher, on average, than in its previous forecast. The upward revision in rates over the 2021–2025 period partly reflects the upward revision to inflation and a faster recovery from the pandemic-induced recession. In addition, the agency now expects the Federal Reserve to begin raising

14. See Board of Governors of the Federal Reserve System, "Federal Open Market Committee Announces Approval of Updates to Its Statement on Longer-Run Goals and Monetary Policy Strategy" (press release, August 27, 2020), <https://go.usa.gov/xGXXn>.

rates in the second half of 2024—roughly two years earlier than previously projected.

CBO raised its forecasts of both short- and long-term interest rates, on average, over the later years of the projection period as well. That upward revision to average rates reflects the agency’s revision to the date when the Federal Reserve will begin raising rates. The earlier date for the start of rate hikes means that short-term rates are projected to be higher, on average, over the 2026–2031 period than the agency expected in July. It also means that long-term rates, which partly reflect the expected path of short-term rates, will be higher, on average. The upward revision to long-term interest rates also reflects CBO’s downward revision to estimates of the Federal Reserve’s holdings of Treasury and other securities, which is expected to put upward pressure on the term premium—the extra return paid to bondholders for risk associated with holding long-term Treasury securities.

## Comparison With Other Economic Projections

CBO’s projections of the economy for 2021 and 2022 are similar to those of the average of the forecasts of about 50 private-sector economists that were published in the February 2021 *Blue Chip Economic Indicators* (see Figure 10).<sup>15</sup> In particular, CBO’s projection of real GDP growth for 2021 is within the middle two-thirds of the range of *Blue Chip* forecasts, but its projection for 2022 is slightly lower than the middle two-thirds. The agency’s projections for the unemployment rate are within the middle two-thirds for both years. For inflation both in GDP prices and in consumer prices (as measured by the CPI-U), CBO’s projections are slightly lower than the middle two-thirds for 2021 and within them for 2022. The agency’s projections for the interest rate on 3-month Treasury bills are within the middle two-thirds of the range of *Blue Chip* forecasts in both years, but its projections for the rate on 10-year Treasury notes are slightly lower.

CBO’s projections of real GDP growth are consistent with the central tendency in 2021 and 2023 in the Federal Reserve’s most recent *Summary of Economic*

*Projections* (see Figure 11).<sup>16</sup> For 2022, however, they are slightly below the Federal Reserve’s full range; for the longer run, they are just inside the lower end of the full range. The agency’s projections of the unemployment rate are within the Federal Reserve’s central tendency in 2021 and within the full range (but above the central tendency) in 2022 and 2023 and over the longer term.

CBO’s projections of inflation, as measured by the growth rates of the price index for personal consumption expenditures and the price index for core PCE (which excludes changes in food and energy prices), are all within the Federal Reserve’s central tendency, with the exception of core PCE inflation in 2021, which is well within the full range. (The Federal Reserve’s survey does not collect projections of core PCE inflation for the longer term.) For the federal funds rate, CBO’s projections are consistent with the Federal Reserve’s median forecast in all years and in the longer term.

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. Moreover, the variation may reflect differences in the underlying epidemiological and social distancing projections used by CBO and other forecasters. In addition, other forecasts may reflect an expectation that additional pandemic-related legislation will be enacted, whereas CBO’s projections incorporate the assumption that current laws generally remain unchanged and that no significant additional emergency funding is provided.

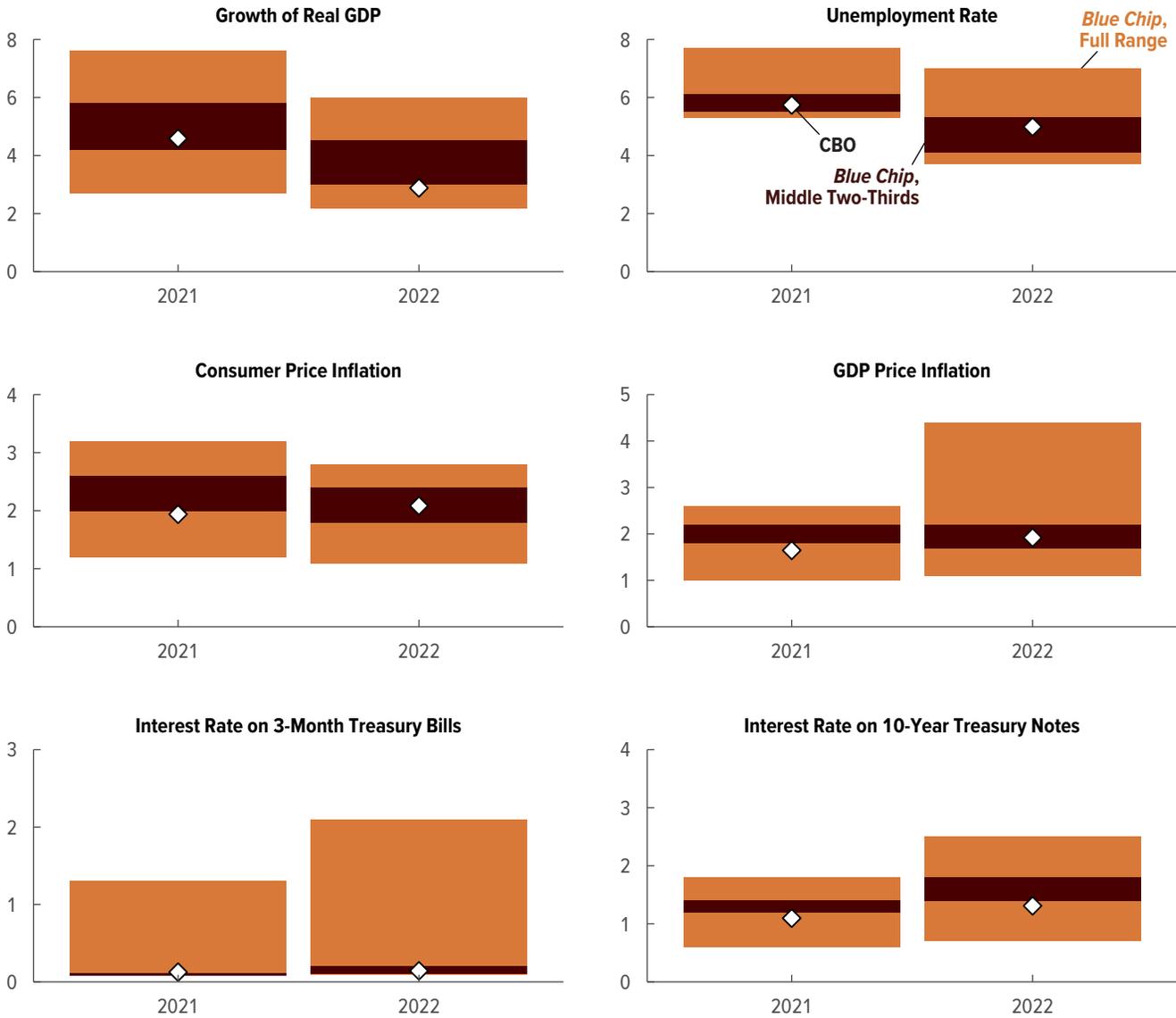
15. See Wolters Kluwer, *Blue Chip Economic Indicators*, vol. 46, no. 2 (February 12, 2021).

16. 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 2020” (December 16, 2020), Table 1, <https://go.usa.gov/xsCtk>. The range of Federal Reserve forecasts is based on the highest and lowest projections made by the members of the Board of Governors of the Federal Reserve System and the presidents of the Federal Reserve Banks; the central tendency is the range formed by removing the three highest and three lowest Federal Reserve forecasts. The median is the middle projection (or, if the number of projections is even, the average of the two middle projections) when the projections are arranged from highest to lowest. For comparison with the Federal Reserve’s longer-term projections, CBO uses its projections for the last quarter of the projection period.

Figure 10.

### Comparing CBO's Forecasts With Those of the *Blue Chip* Forecasters

Percent



Data sources: Congressional Budget Office; Wolters Kluwer, *Blue Chip Economic Indicators*, vol. 46, no. 2 (February 12, 2021). See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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

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

The unemployment rate is the number of people not working who are available for work and are either seeking work or expecting to be recalled from a temporary layoff, expressed as a percentage of the labor force. The unemployment rate and interest rates are calendar year averages.

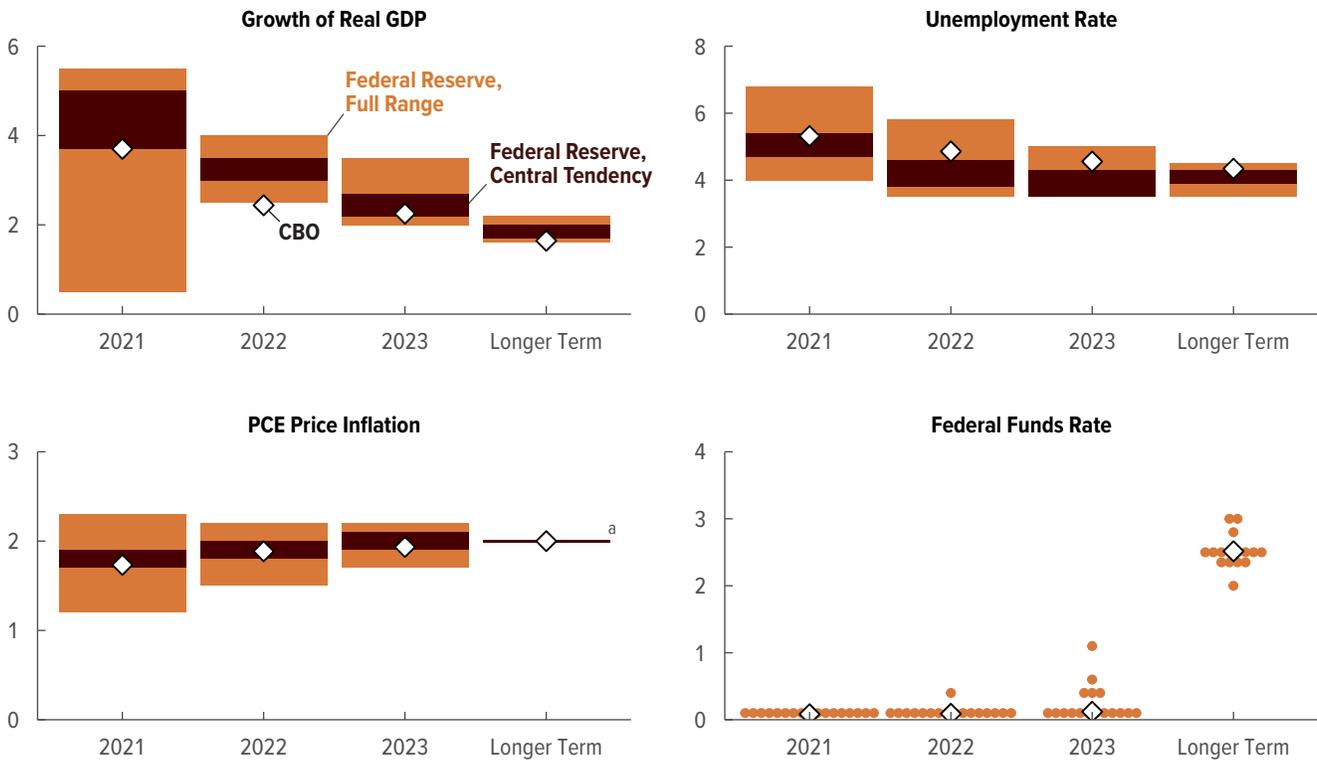
GDP = gross domestic product.



Figure 11.

## Comparing CBO's Forecasts With Those of the Federal Reserve

Percent



Data 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 2020” (December 16, 2020), Table 1, <https://go.usa.gov/xsCtk>. See [www.cbo.gov/publication/56989#data](http://www.cbo.gov/publication/56989#data).

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 2020. 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 the last quarter of 2031. 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 people not working who are available for work and are either seeking work or expecting to be recalled from a temporary layoff, 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 ends of the full range and central tendency are equal.

A key difference between CBO's economic projections and those made by Federal Reserve officials is that CBO attempts to construct its projections so that they fall in the middle of a distribution of possible outcomes under current law. By contrast, the Federal Reserve reports a different concept: Each Federal Reserve official provides a

modal forecast—a forecast of the most likely outcome—reflecting his or her individual assessment of appropriate monetary policy, and the Federal Reserve reports ranges of those modal values. As with other forecasters, officials may assume additional pandemic-related legislation in their individual forecasts.

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# About This Document

This document is one of a series of reports on the state of the budget and the economy that the Congressional Budget Office issues each year. It satisfies the requirement in section 202(e) of the Congressional Budget Act of 1974 for CBO to submit to the Committees on the Budget periodic reports about fiscal policy and to provide baseline projections of the federal budget. In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

The estimates in this report are the work of more than 100 staff members at CBO. Robert Shackleton wrote the report, with contributions from Nabeel Alsalam, Aaron Betz, Yiqun Gloria Chen, Molly Dahl, Erin Deal, Justin Falk, Daniel Fried, Edward Gamber, Ronald Gecan, Julia Heinzl, Mark Lasky, Junghoon Lee, Michael McGrane, Jaeger Nelson, Brooks Pierce, Sarah Robinson, Jeffrey Schafer, John Seliski, and Christopher Williams. Robert Arnold, Devrim Demirel, John Kitchen, and Jeffrey Werling provided guidance.

CBO consulted with members of its Panel of Economic Advisers during the preparation of this report. Although CBO's outside advisers provided considerable assistance, they are not responsible for the contents of this report.

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CBO continually seeks feedback to make its work as useful as possible. Please send any comments to [communications@cbo.gov](mailto:communications@cbo.gov).



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February 2021