Chapter 10

The Year in Review and the Years Ahead

In 2020, the U.S. economy experienced the single largest adverse economic shock since the Great Depression due to COVID-19. The Business Cycle Dating Committee of the National Bureau of Economic Research determined that the economy peaked in February 2020, bringing to an end the economic expansion that began in June 2009—the longest such expansion in U.S. history. There were record declines in real gross domestic product (GDP) and payroll employment in the second quarter of 2020. Despite the sharpest rebound in real GDP and payroll employment since the Great Depression during third quarter, the U.S. economy has only partially recovered from its April 2020 nadir.

Declines in payroll employment were concentrated among low-wage workers. Overall, inflation in 2020 was similar to that in previous years, given that several months of substantial deflation early in the year were offset by higher-than-average inflation in later months. Housing markets and interest rates were affected by the pandemic, but not to the same extent as real GDP or employment.

As of the writing of this *Report*, fourth-quarter data for most indicators are not yet available. Blue Chip forecasts anticipate strong compensatory growth in 2021. However, GDP forecasts and the slowing pace of the recovery of labor force participation show that many of these issues will persist through at least 2021.

The first three chapters of this *Report* provide deep analysis of the major macroeconomic developments in the U.S. economy during 2020. It is the purpose of this chapter to provide a more succinct and summary review of the main

macroeconomic indicators for the U.S. economy during 2020. The chapter then discusses the U.S. economy's future outlook, including potential economic gains in the event of full implementation of the President's complete economic policy agenda, as well as potential downside risks, particularly near-term risks from the ongoing COVID-19 pandemic.

The Year in Review

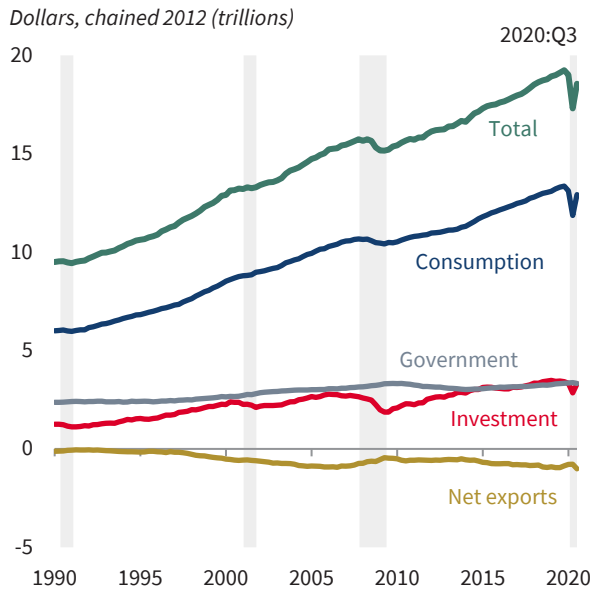
This section summarizes the main U.S. macroeconomic indicators during 2020, with a focus on total economic output, the labor market, inflation, the housing market, financial markets, and oil markets.

Components of Economic Output

Real GDP fell by 4.6 percent at an annualized rate during the first three quarters of 2020 (3.5 percent nonannualized). This decline was driven by an unprecedented contraction as a result of COVID-19 and measures taken to control the virus in the second quarter, which saw real GDP fall at an annualized rate of 31.4 percent (9.0 percent nonannualized)—the largest quarterly decline since the series began in 1947. The second quarter's record decline followed a 5.0 percent annualized contraction in the first quarter of 2020. In the third quarter, real GDP grew 33.1 percent at an annualized rate (7.4 percent nonannualized), the largest single quarter of economic growth on record and roughly twice the prior record of 16.7 percent at an annualized rate (3.9 percent nonannualized) set in the first quarter of 1950. With growth in the third quarter, the United States has recovered two-thirds of the economic output lost in the first half of the year due to the pandemic.

The decline in real GDP was widespread, touching nearly every facet of the economy and component of output (figure 10-1). Consumer spending, which accounts for roughly 70 percent of the U.S. economy, contributed most to the decline, accounting for 2.2 percentage points of the 3.5 percent (nonannualized) decline. Third quarter consumption recovered 71 percent of its decline during the first half of 2020. Investment contributed 0.5 percentage point to the 3.5 percent (nonannualized) decline in real GDP, as increased residential investment and inventories were more than offset by a drop-off in nonresidential investment during the first three quarters. In the third quarter, the level of investment recovered 82 percent of its decline from the first half of 2020. Net exports made up 0.5 percentage point (nonannualized) of the 3.5 percent decline in real GDP, and government spending made up 0.06 percentage point (nonannualized) of this decline. Government spending (which rose in the second quarter) and net exports both fell in the third quarter of 2020.

Figure 10-1. Components of Real GDP, 1990–2020

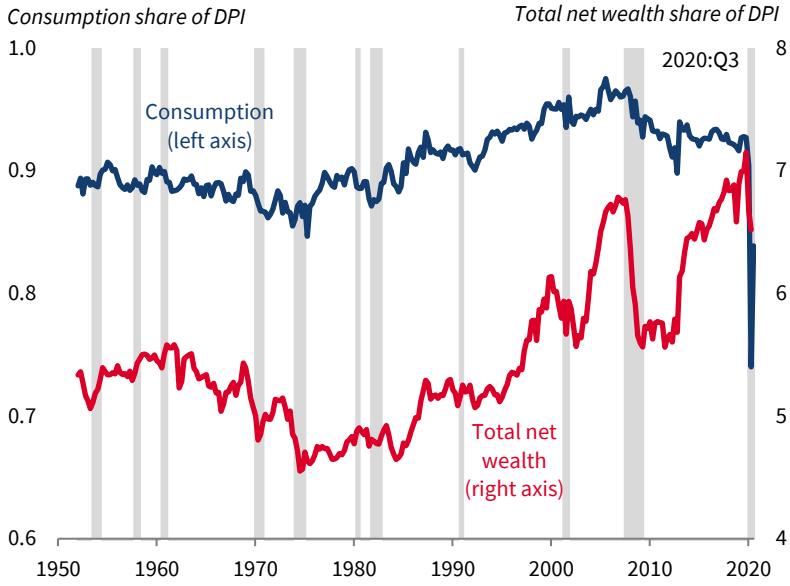


Source: Bureau of Economic Analysis; CEA calculations.
Note: Shading denotes a recession.

Consumer spending. Consumer spending fell markedly during 2020. Over the course of the first three quarters, personal consumption expenditures fell by 3.3 percent (nonannualized). Throughout the last 50 years, personal consumption expenditures have remained between 80 to 95 percent of disposable personal income, but fell to 74 percent of disposable personal income in the second quarter—its lowest level on record (figure 10-2). As a result, the personal saving rate—personal saving as a percentage of disposable personal income—surged from 7.3 percent in the fourth quarter of 2019 to 26.0 percent in the second quarter of 2020, before declining to 16.1 percent in the third quarter. On a monthly basis, the personal saving rate peaked in April 2020, setting a record high of 33.7 percent. Total net wealth (consisting of stock market wealth, housing wealth, and other wealth, less liabilities) also fell in the second quarter. Wealth data for the third quarter were not available as of the writing of this *Report*.

Consumer spending, which as noted above accounts for roughly 70 percent of GDP, provided the largest contribution to the GDP decline in the first two quarters of 2020 as well as to the GDP expansion in the third quarter. The patterns in consumption reveal the uneven way that COVID-19 and measures taken to control the virus affected economic activity. Declines in some components of services were particularly affected: travel industries, physician, and dental services. In addition, motor vehicle purchases also fell drastically. Real

Figure 10-2. Consumption and Wealth Relative Share of Disposable Personal Income (DPI), 1952–2020



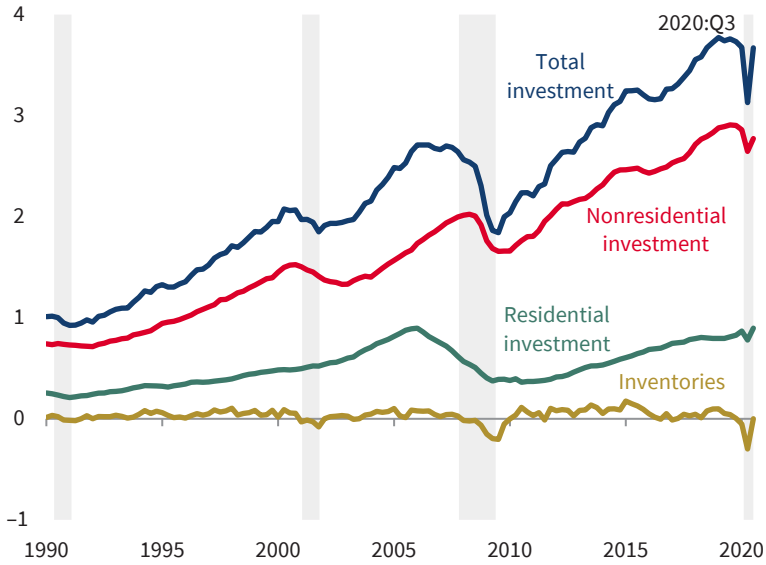
Sources: Federal Reserve Board; Bureau of Economic Analysis; CEA Calculations.
Note: Shading denotes a recession.

personal consumption expenditures accounted for 76.5 percent of the decline in real GDP during the second quarter, having declined by 9.0 percent (nonannualized). While consumer spending on goods contracted 2.8 percent (nonannualized) in the second quarter, spending on services plummeted 12.7 percent (nonannualized). A resurgence in personal consumption expenditures in the third quarter of 2020 reflected the partial reopening of businesses impacted by closures in the first and second quarters. Real personal consumption expenditures increased 7.4 percent (nonannualized) in the third quarter, accounting for 76.2 percent of real GDP growth in that quarter. Consumer spending in the services sector alone accounted for 47.5 percent of GDP growth in the third quarter.

Investment. During the first three quarters of 2020, private investment fell by 2.9 percent (nonannualized). The declines in the first and second quarters of 2.3 and 14.7 percent (nonannualized), respectively, were followed by a strong rebound (16.6 percent, nonannualized) in the third. The drop in total investment was mirrored across each of the three main types of investment: nonresidential, residential, and inventories (figure 10-3). Notably, the decline in investment was not as steep as during the Great Recession, and investment rebounded more quickly, though generally remained below prepandemic levels as of the third quarter.

Figure 10-3. Components of Investment, 1990–2020

Dollars (trillions)



Sources: Bureau of Economic Analysis; CEA calculations.
Note: Shading denotes a recession.

Nonresidential investment contracted 1.7 and 7.6 percent (nonannualized) in the first and second quarters, respectively, and then rebounded 5.1 percent (nonannualized) in the third quarter so that the third quarter was 4.6 percent below the 2019:Q4 level. Within nonresidential investment, investment in structures declined in the first three quarters of 2020, and as of the third quarter was 14.3 percent below its 2019 year-end level. Declining investment in oil and gas exploration and production weighed heavily on investment in structures, with investment in mining exploration, shafts, and wells declining 49.7 percent (nonannualized) in the first three quarters of 2020.

Nonresidential investment in equipment contracted by 14.1 percent (nonannualized) in the first two quarters of 2020, though unlike investment in structures, it began to rebound in the third quarter, increasing 13.6 percent (nonannualized). As of the third quarter, nonresidential investment in equipment was 2.5 percent below its 2019:Q4 level with investment in information processing equipment surging to 13.4 percent above the 2019:Q4 level, though industrial and transportation equipment investment were 3.8 and 22.8 percent, respectively, below their 2019:Q4 level as of the third quarter of 2020. After edging up in the first quarter and declining in the second quarter, nonresidential investment in intellectual property products increased in the third quarter and was 1.0 percent below its 2019:Q4 level in the third quarter.

In the first quarter of 2020, residential investment increased 4.4 percent (nonannualized), the largest single-quarter increase since 2012:Q4. After contracting by 10.4 percent (nonannualized) in the second quarter, residential investment surged by 12.9 percent (nonannualized) in the third quarter to a level 5.6 percent above its 2019:Q4 level.

Inventory investment, or the change between goods produced (or imported) and goods sold (or exported), contributed negatively to real GDP growth in the first and second quarters of 2020. As firms invested to rebuild inventories, private inventory investment accounted for 6.6 percentage points, or 19.8 percent, of annualized real GDP growth in the third quarter.

Government purchases. Compared with other components of GDP, there was very little change in government purchases in 2020. During the first three quarters of 2020, government purchases fell by 0.2 percent (nonannualized). As a share of GDP, government purchases grew by 3 percent over this period, with all three categories of government purchases experiencing increases as a share of GDP (figure 10-4). Federal Government purchases increased substantially in the second quarter, supported by the Coronavirus Aid, Relief, and Economic Security (CARES) Act and other types of emergency coronavirus funding (see chapters 1 through 3 of this *Report*).

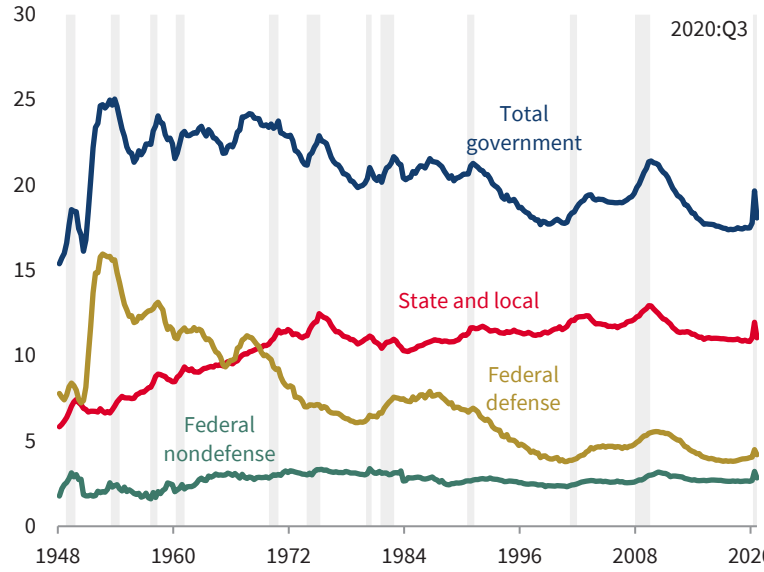
Although Federal spending rose during the first three quarters of 2020, State and local spending fell. Quarterly Federal Government nondefense consumption rose by $49 billion (in chained 2012 dollars) (13 percent, nonannualized) from the fourth quarter of 2019 to a peak in the second quarter of 2020. Similarly, during the first three quarters of 2020, quarterly Federal Government nondefense gross investment rose by $2.9 billion (in chained 2012 dollars) (2 percent, nonannualized). By comparison, during the first three quarters of 2020, quarterly state and local government consumption fell by $47 billion (in chained 2012 dollars) (3 percent, nonannualized), which outweighed the increase of $4 billion (in chained 2012 dollars) (1 percent, nonannualized) in quarterly State and local government gross investment.

Net exports. The first three quarters of 2020 saw a large drop in imports and an even larger drop in exports. Real net exports (exports minus imports) increased in the second quarter but fell in the third quarter. Overall, net exports fell for the first three quarters because the decline in exports was larger than the decline in imports. During the first three quarters of 2020, real exports of goods and services fell by $391 billion (in chained 2012 dollars) (15 percent, nonannualized), while imports fell by $242 billion (7 percent, nonannualized). As a result, net exports fell by $149 billion over this period.

Trade in goods recovered faster than trade in services. During the first three quarters of 2020, real exports of goods fell by $176 billion (in chained 2012 dollars) (25 percent, nonannualized) and real imports of goods fell by $46 billion (in chained 2012 dollars) (18 percent, nonannualized). During the same period, real exports of services fell by $191 billion (in chained 2012 dollars) (25

Figure 10-4. Government Purchases as a Share of GDP, 1948–2020

Percentage of GDP



Sources: Bureau of Economic Analysis; CEA calculations.
Note: Shading denotes a recession.

percent, nonannualized) and real imports of services fell by $152 billion (in chained 2012 dollars) (32 percent, nonannualized). By the third quarter of 2020, real exports and imports of goods had both rebounded by about 20 percent from their pandemic lows. By comparison, during the same period, real exports of services had rebounded by less than 1 percent of pandemic lows, and real imports of services had rebounded by roughly six percent.

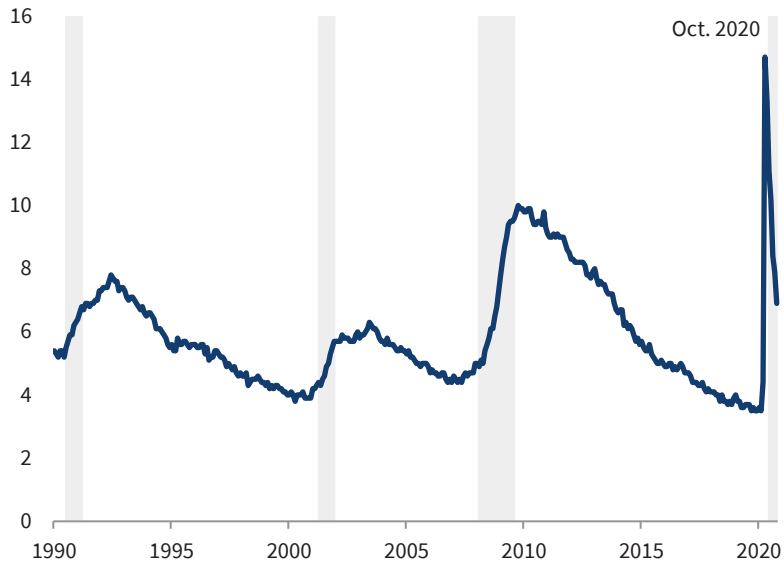
The Labor Market

The U.S. labor market experienced historically unprecedented declines in employment in March and April before posting a strong but partial recovery in the months immediately thereafter, accentuated by record employment gains in May and June. The labor force participation rate also fell dramatically before retracing part of its earlier decline.

Unemployment. The scale and speed of the increase and decrease in unemployment in 2020 were unprecedented. In February 2020, before the COVID-19 pandemic struck, the unemployment rate stood at 3.5 percent. It surged to 14.7 percent in April 2020 before falling sharply in the following months. As of November 2020, the unemployment rate (U-3) had fallen to 6.7 percent (figure 10-5). During the Great Recession, the unemployment rate peaked at 10.0 percent in October 2009, but it took more than four years to fall to 6.7 percent (December 2013). The data for unemployment insurance

Figure 10-5. Unemployment Rate, 1990–2020

Percentage of labor force



Source: Bureau of Labor Statistics.
Note: Shading denotes a recession.

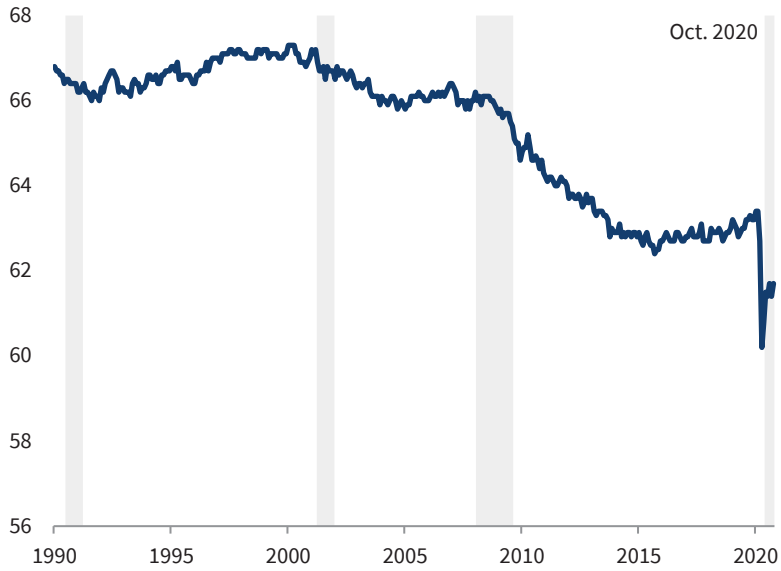
claims during 2020 are also historic: the week of March 21, 2020, saw a tenfold increase in unemployment claims, from 282,000 to 3,307,000, the largest increase on record.

The Bureau of Labor Statistics publishes several measures of the unemployment rate. U-3, the official unemployment rate, measures the share of people in the labor force actively looking for a job who are unable to find one. U-6 includes all these people, but also those who (1) want a job and are available for work and have looked for a job in the prior 12 months but not in the past 4 weeks, or (2) have given up looking for a job in the past 4 weeks because they are discouraged by job prospects, or (3) want a full-time job but are forced to work part time for economic reasons. As a result, U-6 is a much broader measure of unemployment and labor underutilization. In February 2020, before the pandemic struck, the U-6 rate stood at 7 percent. It rocketed to 22.8 percent in April 2020 before falling sharply in the immediately subsequent months. As of November 2020, U-6 had fallen to 12.0 percent, almost half its pandemic high but still higher than at any prepandemic point since August 2014—more than five years into the preceding expansion. Whereas the gap between U-3 and U-6 was small in February 2020, at 3.5 percentage points, it has widened over the course of the pandemic and stood at 5.2 percentage points in October.

Labor force participation. The labor force participation rate—the fraction of people who are either working or actively looking for work—fell in 2020,

Figure 10-6. Labor Force Participation Rate, 1990–2020

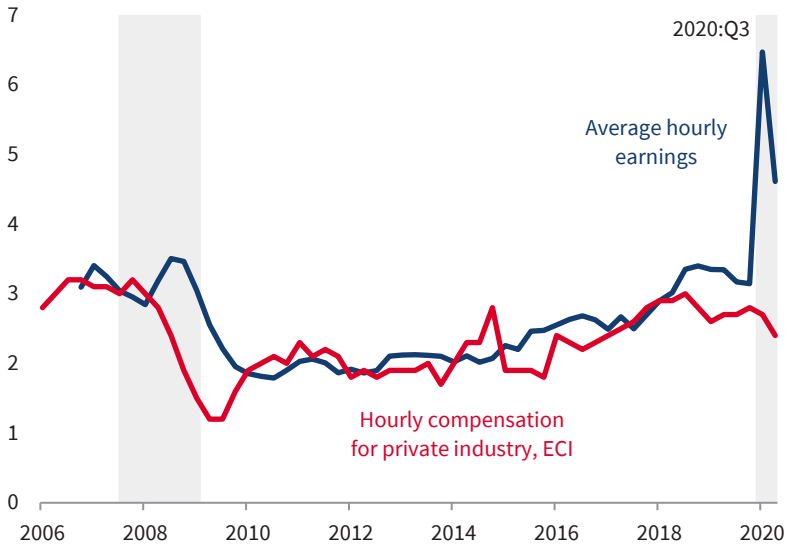
Percent



Source: Bureau of Labor Statistics.
Note: Shading denotes a recession.

Figure 10-7. Nominal Compensation and Earnings for Private Industry Workers, 2006–20

Percent change (12-month)



Source: Bureau of Labor Statistics.
Note: Shading denotes a recession. ECI = Employment Cost Index.

after rising in 2018 and 2019 and during the first two months of 2020, reversing a previous downward trend. From February to October 2020, the rate fell by 1.7 percentage points. It fell to 60.2 percent in April 2020, but had recovered 1.5 percentage points by October (figure 10-6). Notably, most of the recovery occurred in June. The rate did not recover much further between June and October 2020. This suggests the possibility that the 1.7-percentage-point drop in participation may be persistent. Consistent with this hypothesis, Coibion, Gorodnichenko, and Weber (2020) find that a wave of early retirements explains much of the drop in participation.

Wages. Average hourly real wages rose by 3 percent during the first three quarters of 2020, primarily because layoffs were concentrated among low-wage workers (Crust, Daly, and Hobijn 2020) (figure 10-7). While this pattern is not unique to the current recession, the change in average hourly real wages is more pronounced now than in previous recessions given the magnitude of the employment losses in March and April. That the rise in average hourly earnings is due to the composition of the workforce can be seen in the contrast with the measure of wages from the Employment Cost Index, which measures wages directly for a fixed sample of job categories. This fixed-weighted measure, increased only 2.7 percent during the 12 months through September.

Inflation

Overall, inflation in 2020 was below the average for 2019. The Federal Reserve has a target of 2 percent inflation for the Personal Consumption Expenditures Chain-Type Price Index (the PCE Price Index). But this index rose by only 1.4 percent during the 12 months through October, which was little changed from the year-earlier rate (figure 10-8). The total PCE Price Index includes volatile food and energy components, and if these are excluded (yielding the "core" PCE Price Index), inflation rose by only 1.5 percent during those 12 months, also little changed from the year earlier rate.

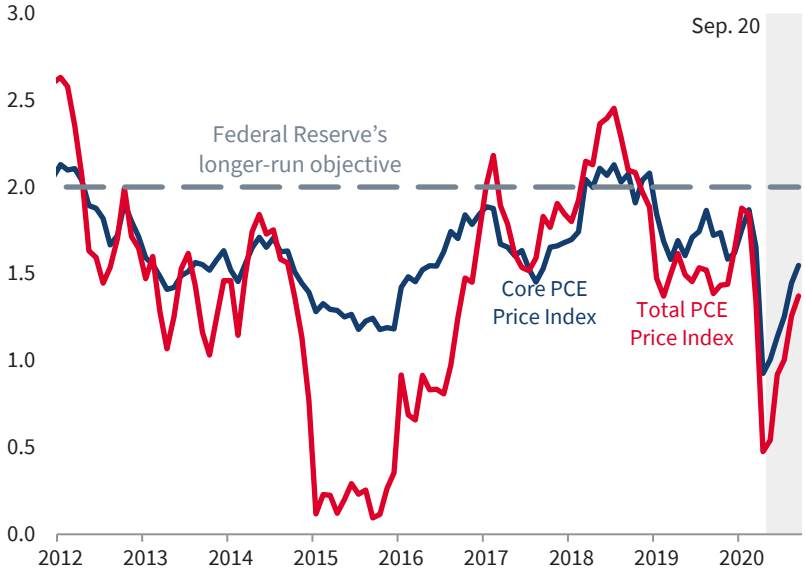
Looking at 2020 in detail, some months had negative inflation. In particular, month-over-month inflation was negative in March (–0.1 percent) and April (–0.4 percent). This deflation was driven primarily by changes in nondurable prices, which fell 1.1 percent in March and April. However, inflation rose at above-trend rates in June, July, and August, leading the overall 12-month change to rise back to the year-earlier rate of about 1.4 percent.

The Housing Market

Home construction and sales were substantially disrupted during the early part of the year as a result of COVID-19. This disruption did not translate into a decline in house prices, however, because tight housing supply—partly a consequence of the pandemic—and strong demand from low mortgage rates stabilized market conditions in the spring (Gascon and Haas 2020). Indeed, house prices have actually risen 6.8 percent through the first nine months of

Figure 10-8. Consumer Price Inflation (PCE Price Index), 2012–20

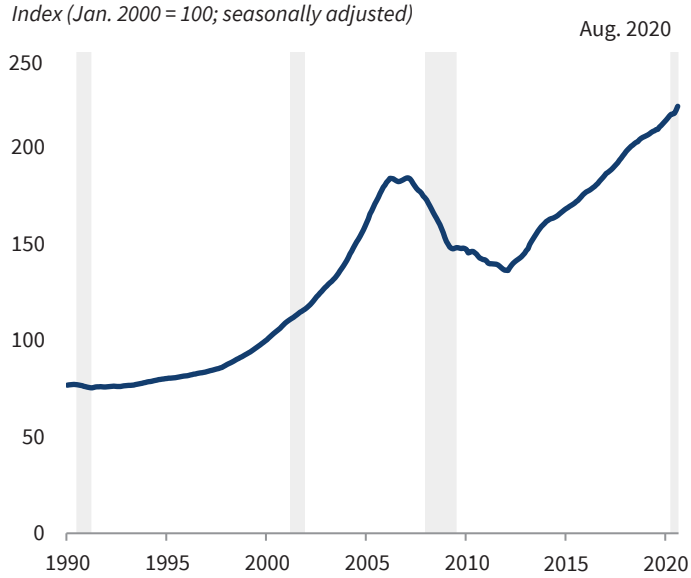
Percent change (12-month)



Sources: Bureau of Economic Analysis; CEA calculations.
Note: Shading denotes a recession. PCE = Personal Consumption Expenditures.

Figure 10-9. U.S. Housing Price Index, 1990–2020

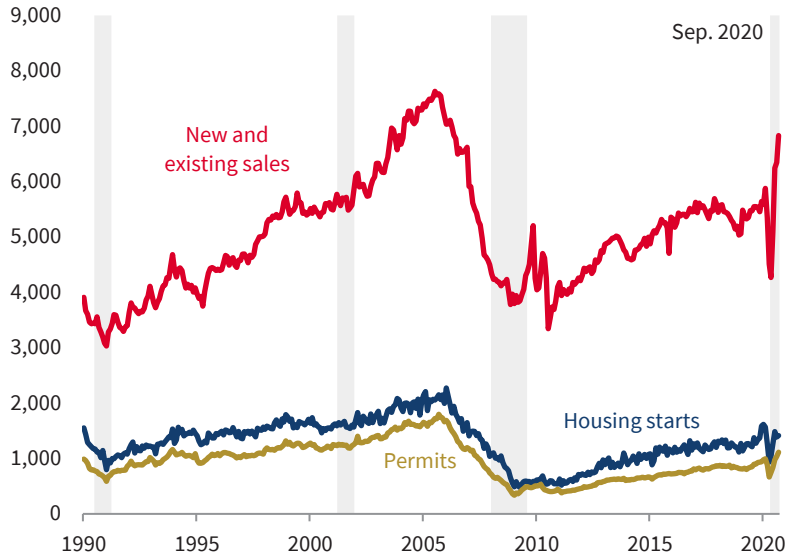
Index (Jan. 2000 = 100; seasonally adjusted)



Source: Standard & Poor's—S&P CoreLogic Case-Shiller National Home Price Index.
Note: Shading denotes a recession.

Figure 10-10. U.S. New Housing Formation and Single-Family Home Sales, 1990–2020

Thousands of units (seasonally adjusted)



Sources: Census Bureau; National Association of Realtors; CEA calculations.

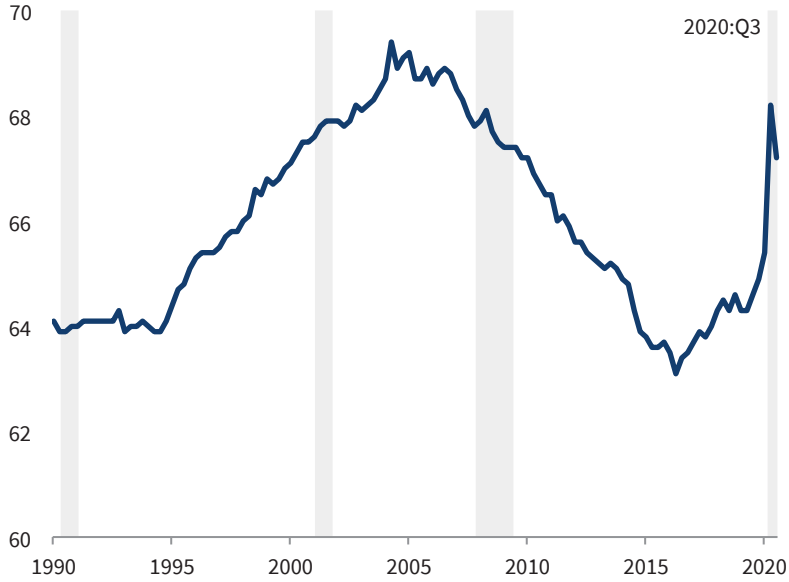
the year, according to the S&P Corelogic Case-Shiller Home Price Index (figure 10-9). The disruption caused a severe but short-lived drop in housing sales, housing starts, and permits, followed by a complete recovery (figure 10-10).

New housing starts peaked in January 2020 at 1.617 million units (seasonally adjusted, annualized) and fell by 683,000 units (seasonally adjusted, annualized) or 42 percent by April before recovering 87 percent of its loss to 1.530 million units (seasonally adjusted, annualized) by October. New housing permits reached a prepandemic peak in January 2020 at 1.536 million units (seasonally adjusted, annualized) and fell by 470,000 units (seasonally adjusted, annualized) or about 30 percent by April before recovering to 1.545 million units (seasonally adjusted, annualized) by October, slightly above the prepandemic peak. Total housing starts reached a prepandemic peak in January 2020 at 1.305 million units (seasonally adjusted, annualized) and fell by 125,000 units (seasonally adjusted, annualized) or about 10 percent by May before recovering to 1.343 million units (seasonally adjusted, annualized) by October, roughly 3 percent above the prepandemic peak.

Existing home sales reached a prepandemic peak in February 2020 at 5.760 million units (seasonally adjusted, annualized) and fell by 1.850 million units (seasonally adjusted, annualized) or about 32 percent by May before recovering to 6.850 million units (seasonally adjusted, annualized) by October, roughly 19 percent above the prepandemic peak. New home sales reached

Figure 10-11. U.S. Homeownership Rate, 1990–2020

Percent (seasonally adjusted)

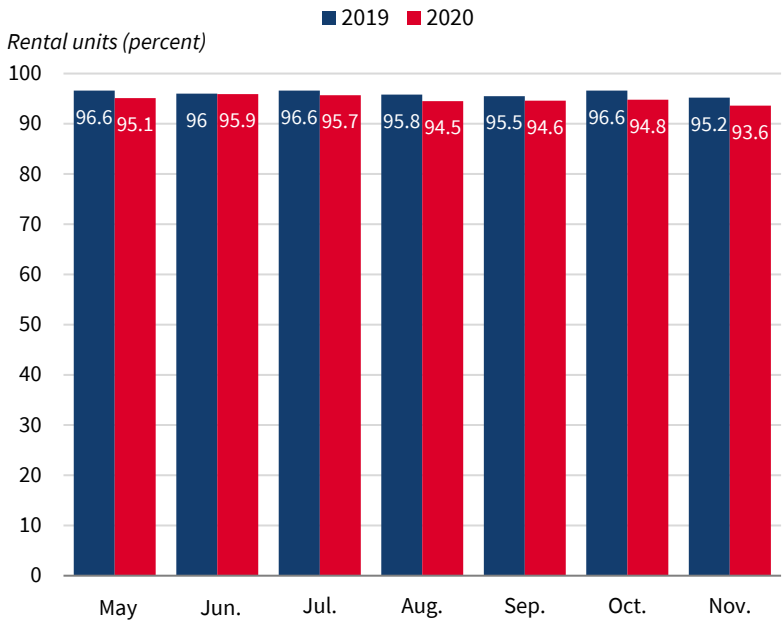


Source: Census Bureau.
Note: Shading denotes a recession.

a prepandemic peak in January 2020 at 774,000 units (seasonally adjusted, annualized) and fell by 204,000 units (seasonally adjusted, annualized) or about 26 percent by April before recovering to and stabilizing at about 1 million units (seasonally adjusted, annualized) by August, roughly 30 percent above the prepandemic peak. Brokers' commissions and other ownership transfer costs for real residential investment contracted 22.7 percent in the second quarter of 2020, the largest single quarter contraction on record. However, in the third quarter commissions jumped up 45.3 percent, boosting commissions above prepandemic levels. The third quarter jump was the largest single-quarter expansion on record. Brokers' commissions for real nonresidential investment fell 6.8 percent in the first three quarters of 2020. This drop is in the same range as other three-quarter declines experienced during the past three years.

Evictions fell during the 2020 pandemic (see figure 2-6 in chapter 2 of this *Report*), due to the CARES Act and the President's Executive Order 13945 (August 8, 2020), which placed a moratorium on evictions until the end of 2020. The homeownership rate appears to have increased dramatically (figure 10-11), though there have been questions about data reliability because the U.S. Census Bureau temporarily suspended (though June) personal visits for the survey, which reduced response rates. The percentage of rental units making rent payments in 2020 remained relatively stable compared with the same

Figure 10-12. Percentage of Rent Payments Made, 2019–20



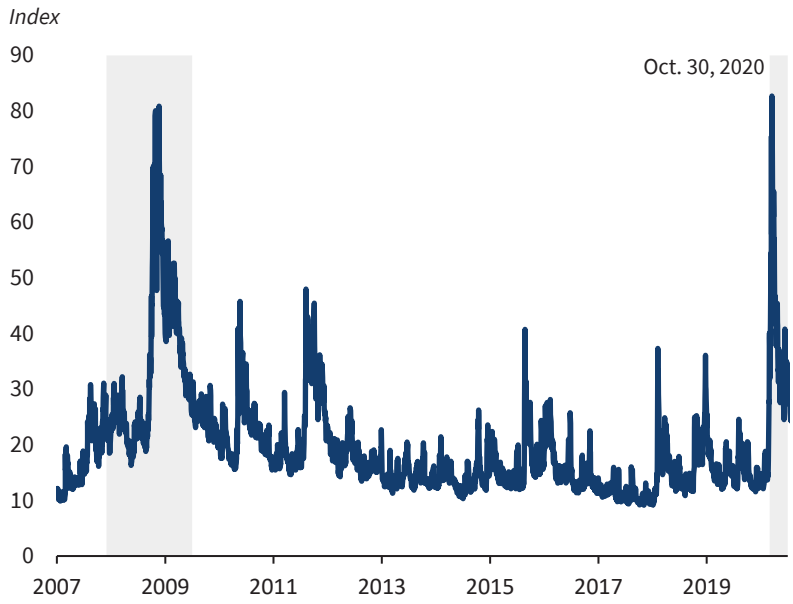
Sources: National Multifamily Housing Council; CEA calculations.

month in 2019, ranging from a drop of 0.1 to 1.8 percentage points (figure 10-12).

Financial Markets

In 2020, U.S. equity markets experienced substantial volatility but ultimately recovered from losses experienced during the pandemic. On February 19, the Standard & Poor's 500 index closed at 3,386, a prepandemic peak in 2020. However, by March 23, 2020, the S&P 500 index had fallen by 31 percent for the year. Yet, by August 18, it closed at a higher level than on February 19 and, following brief downswings in September and October, achieved several all-time highs starting in mid-November and continuing into at least early December. The Dow Jones Industrial Average index, which measures performance of shares of the 30 largest U.S. corporations, followed a similar trend, closing at a prepandemic peak of 29,551 on February 12, falling 37 percent by March 23, and achieving all-time highs starting in mid-November and continuing through at least early December. The NASDAQ index, which is heavily weighted with shares of technology firms, experienced shallower losses and a larger recovery, closing at a prepandemic peak of 9,817 on February 19, falling roughly 30 percent by March 20, and achieving an all-time high of 12,056 on September 2, roughly 23 percent above the prepandemic high.

Figure 10-13. Market Volatility Index (VIX), 2007–20



Source: *Wall Street Journal*.
Note: Shading denotes a recession; VIX = Chicago Board Options Exchange's Volatility Index.

Stock market volatility increased during the pandemic and remained elevated through at least October 30. The Chicago Board Options Exchange's Market Volatility Index measures the market's assessment of the volatility of the stock market (derived from options prices). This measure of volatility rose from 12.5 on January 2, to reach a peak of 82.7 on March 16, before dropping to 38.0 by October 30 (figure 10-13). As concerns over COVID-19 escalated in February and March, enormous selling pressures led to a precipitous deterioration in corporate bond market liquidity conditions. In the two weeks prior to the Federal Reserve's announcement of numerous credit and liquidity facilities on 23 March, bond transaction costs soared in both high-yield and investment grade bonds. Over those two weeks, the average cost for investment-grade bond transactions tripled, jumping from 30 basis points in February to a peak of almost 90 basis points in mid-March. Similarly, transaction costs among high-yield bonds jumped up from around 50 basis points in February to nearly 110 basis points in mid-March (Sharpe and Zhou 2020).

The spread between corporate bond yields and comparable Treasury yields took a similar path. High-yield corporate bond spreads rose from just below 4 percentage points in early February to just below 11 percentage points in Mid-march. Investment grade spreads quadrupled to 4 percent in mid-March from 1 percent in February. After the announcement and implementation

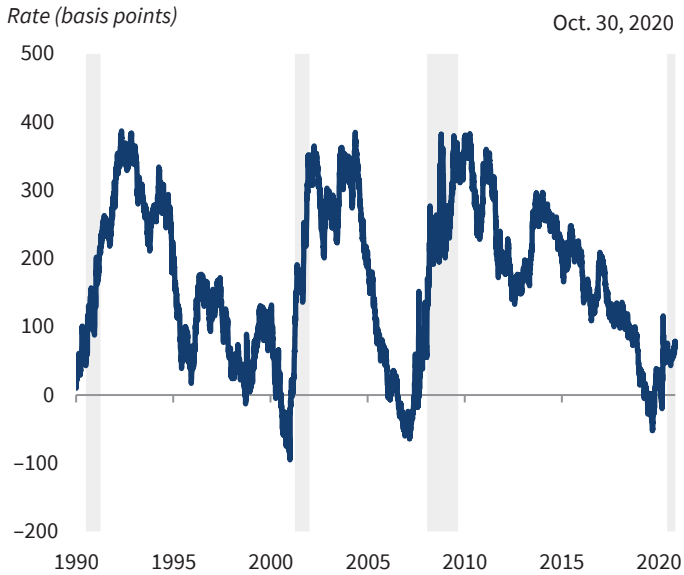
of several credit facilities, corporate bond spreads substantially eased and transaction costs saw initial declines. As the Federal Reserve's lending facilities continued to offer relief, corporate bond yield spreads generally continued to fall throughout the rest of the year, reaching pre-pandemic levels in both investment-grade and high-yield bonds. Chapter 3 of this report discusses the specific Federal Reserve lending facilities implemented to address the corporate bond market crises.

Interest Rates

U.S. Treasury notes are the main form of debt issued by the Federal Government, and their interest rates are relevant to Federal interest expenses. Because corporate debt usually move roughly in parallel with government debt, these rates affect the cost of business borrowing as well.

The Federal Reserve's Open Market Committee (FOMC) lowered its target for the Federal funds rate by 150 basis points to 0.125 percent at unscheduled meetings on March 3 and March 15. Most short-term rates dropped by similar amounts. For example, the yield on 3-month Treasury bills fell by 145 basis points during March. The yield on 10-year Treasury notes (which averages the expected value of short-term rates during the next 10 years), fell by 48 basis points in March and another 20 basis points in April.

Figure 10-14. Ten-Year Minus Three-Month Treasury Constant Maturity Rate, 1990–2020



Sources: Federal Reserve Board; CEA calculations.
Note: Shading denotes a recession.

The spread between yields on long- and short-term Treasury notes is useful as a forecasting tool. The yield spread between 10-year and 3-month Treasury notes began 2020 at low positive levels. Negative yield spreads have often preceded recessions, so they are generally thought of as a leading indicator of recessions. In February the spread narrowed to zero (foreshadowing a recession), but has since rebounded to 80 basis points, a positive signal (figure 10-14).

Interest rates are also important because the Federal Reserve often adjusts interest rates as one of its main methods to support its dual mandate of price stability and maximum sustainable employment. However, short-term nominal interest rates in 2020 were near zero. The Federal Reserve may not be able to lower nominal interest rates below this "zero lower bound." If it cannot, then interest rates near zero could take away one of its primary tools for stimulating economic growth. See chapter 3 of this *Report* for a discussion of methods used by the Federal Reserve to combat the current recession at the zero lower bound.

Oil Markets

Worldwide oil consumption fell 8 percent during the first three quarters of 2020, following the typical pattern of energy demand falling during recessions (EIA 2020). As a result, Brent crude oil prices fell from $66 per barrel on January 1, 2020, to a low of $19 per barrel on April 21, before recovering to $38 as of October 30. The price of West Texas Intermediate, an important U.S. oil benchmark, actually went negative for the first time in history on April 20, driven by fears of insufficient storage capacity (BBC 2020). In response, world production of crude oil and liquid fuels fell by 10 percent between 2019 Q4 and 2020 Q3 (EIA 2020).

The Global Macroeconomic Situation

The global economy contracted in 2020 as a consequence of the COVID-19 pandemic. In its October 2020 *World Economic Outlook*, the International Monetary Fund forecast that global output would contract at a 4.4 percent rate (year-over-year) (IMF 2020a). Due in part to China's rapid return to growth and faster than expected growth among developed countries in the third quarter, the outlook improved slightly from June when the IMF expected global output to fall 4.9 percent (IMF 2020b). A separate forecast published by the Organization for Economic Cooperation and Development (OECD 2020) in December expects the global economy to contract 4.2 percent in 2020. With this economic contraction, the World Bank (2020) anticipates an additional 88 to 115 million people worldwide will fall into extreme poverty. These forecasts are highly uncertain and depend critically on any resurgence of the virus, intensity of social distancing policies, and the efficiency and efficacy of vaccination programs.

Unprecedented fiscal and monetary policy undertaken by governments and central banks helped to avoid or dampen the adverse financial transmission mechanisms of the Great Recession. Fiscal measures in advanced economies were equivalent to 9 percent of output, while liquidity supports alone were equivalent to 11 percent (IMF 2020a). Though smaller as a share of output, fiscal and monetary support among emerging and developing economies was sizeable as well, with fiscal measures equaling 3.5 percent of output and liquidity measures equaling 2 percent.

Despite the vast spread of COVID-19, there were notable differences in the timing and size of economic contractions. China, which experienced the first outbreak of the virus, experienced a 10.7 percent (nonannualized) contraction in the first quarter of 2020 before officially rebounding to its 2019 level in the second quarter of 2020. Other countries, including the United States, experienced their largest contractions in the second quarter as the virus spread from China. Differences in output in the second quarter among these countries can be explained, in part, by changes in the stringency of measures undertaken to contain the virus and subsequent changes in mobility (OECD 2020).

To consider the cumulative loss in real GDP across countries, the CEA calculated the percent of one year's real GDP lost during 2020 assuming a baseline with no growth during the first three quarters (table 10-1). This calculation represents the integral of real GDP losses during the first, second, and third quarters, as proposed by Fernández-Villaverde and Jones (2020). Using this approach, a country that experiences a 9 percent decline in output during the first quarter, and then experiences no growth in subsequent quarters, has suffered a loss three times greater than a country that experiences no decline in real GDP during the first two quarters but a 9 percent decline during the third quarter. This measure applies greater weight to contractions in growth at the beginning, as this results in a longer period of lower economic activity. By this measure, the United States has lost 3.7 percent of a year's real GDP through the first three quarters of 2020. China lost the lowest share of a year's GDP (1.7 percent), while Spain lost the largest share (9.1 percent), among countries for which data are available.

Advanced economies. Economic growth in advanced economies—such as Germany, France, Japan, the United Kingdom, and other European Union countries—are expected to contract by 5.8 percent in 2020, reflecting an upward revision of 2.3 percentage points from June to October. This change reflects less severe than expected contractions in the second quarter and growth that exceeded expectations in the third quarter. In 2021, economic growth among advanced economies is expected to reach 3.9 percent, leaving the group 2 percent below 2019 levels. However, there is substantial heterogeneity within the advanced economies. Asian countries that were better at containing the spread of COVID-19 are expected to see smaller declines in growth. Japan, for example, is forecast to contract 5.3 percent before rebounding with 7.2 percent

Table 10-1. Cumulative Losses of Real Gross Domestic Product, Selected Countries, through 2020:Q3

Country (or Group)	Decline (percentage of annual GDP)
China	–1.7
South Korea	–2.0
Norway	–2.3
Sweden	–2.6
Japan	–3.4
Israel	–3.6
United States	–3.7
Germany	–4.4
European Union (27 members)	–5.5
Mexico	–6.8
Italy	–6.9
France	–7.1
India	–8.4
United Kingdom	–8.5
Iceland	–8.5
Spain	–9.1

Source: CEA calculations.
Note: Countries are shown for which data are available.

growth in 2021. Euro area countries that were comparatively worse at containing the virus, like Spain, are expected to see growth contract by 9.8 percent in 2020 before growing at 5.9 percent in 2021, according to the IMF (2020a).

Emerging markets and developing economies. The IMF anticipates that emerging markets and developing economies will contract 3.3 percent in 2020 before growing at 6 percent in 2021. However, this forecast is buoyed by China, which experienced a strong rebound in the second quarter, according to official statistics. The IMF forecasts that China will grow at 1.9 percent in 2020. When China is excluded from emerging markets and developing countries, the forecast contraction in 2020 is 5.7 percent while the forecast growth in 2021 is 5.5 percent.

India experienced a high volume of COVID-19 cases and undertook severe measures to control the spread of the virus. Subsequent real GDP growth was worse than expected in the second quarter of 2020, leading the IMF to revise downward its forecast for 2020. India's economy is expected to contract 10.3 percent in 2020, before returning to positive growth in 2021 at an 8.8 percent pace (IMF 2020a).

The Future Economic Outlook

The United States is in the midst of a recovery from what has been a very severe recession triggered by the exogenous shock of the COVID-19 pandemic. Strong compensating growth is anticipated in 2021, buoyed by complementary fiscal

and monetary policy, as well as reductions in the disease burden as vaccine candidates become more widely available through Operation Warp Speed. This section reviews several economic forecasts, as detailed in table 10-2, and discusses upside and downside risks to the economic outlook.

Table 10–2. Economic Forecasts, 2019–31

Year	Percent Change (Q4-over-Q4)											Level (calendar year)								
	Real GDP (chain-type)					Nominal GDP		GDP Price Index (chain-type)		Consumer Price Index		Unemployment Rate (percent)					Interest Rate, 91-Day Treasury Bills (percent)		Interest Rate, 10-Year Treasury Notes (percent)	
		Blue Chip*											Blue Chip							
	CBO	Top	Consensus	Bottom	FOMC	CBO	BC*	CBO	BC*	CBO	BC*	CBO	Top	Consensus	Bottom	FOMC**	CBO	BC	CBO	BC
2019 (actual)	2.3	2.3	2.3	2.3	2.3	4.0	4.0	1.6	1.6	2.0	2.0	3.7	3.7	3.7	3.7	3.5	2.1	2.1	2.1	2.1
2020	–5.9	–2.0	–2.6	–3.3	–3.7	–5.7	–1.4	0.2	1.2	0.4	1.2	10.6	8.2	8.1	8.0	7.6	0.4	0.3	0.9	0.9
2021	4.8	6.0	3.6	1.5	4.0	6.2	5.5	1.3	1.8	1.6	2.0	8.4	6.7	6.1	5.5	5.5	0.2	0.1	0.9	1.1
2022	2.2	3.8	2.9	2.1	3.0	4.1	4.8	1.8	2.0	2.0	2.2	7.1	6.4	5.5	4.6	4.6	0.2	0.4	1.1	1.4
2023	2.1	2.9	2.3	1.9	2.5	4.1	4.4	1.9	2.1	2.2	2.2	6.5	5.5	4.8	4.1	4	0.2	0.6	1.4	1.7
2024	2.3	2.4	2.1	1.7	1.9	4.4	4.2	2.1	2.1	2.3	2.2	6.0	5.1	4.5	3.9	4.1	0.2	0.9	1.6	2.0
2025	2.4	2.3	2.0	1.6	1.9	4.5	4.1	2.1	2.1	2.2	2.2	5.6	4.9	4.3	3.8	4.1	0.2	1.1	1.9	2.2
2026	2.3	2.2	2.0	1.7	1.9	4.4	4.0	2.1	2.1	2.2	2.2	5.2	4.9	4.4	3.8	4.1	0.3	1.3	2.2	2.3
2027	2.3	2.2	1.9	1.7	1.9	4.4	4.1	2.0	2.1	2.2	2.2	4.8	4.7	4.3	3.9	4.1	0.6	1.7	2.6	2.5
2028	2.0	2.2	1.9	1.7	1.9	4.1	4.1	2.0	2.1	2.2	2.2	4.5	4.7	4.3	3.9	4.1	1.1	1.7	2.8	2.5
2029	1.8	2.2	1.9	1.7	1.9	3.9	4.1	2.0	2.1	2.2	2.2	4.4	4.7	4.3	3.9	4.1	1.6	1.7	3.0	2.5
2030	1.8	2.2	1.9	1.7	1.9	3.8	4.1	2.0	2.1	2.2	2.2	4.4	4.7	4.3	3.9	4.1	2.1	1.7	3.2	2.5
2031		2.2	1.9	1.7	1.9		4.1		2.1		2.2		4.7	4.3	3.9	4.1		1.7		2.5

Note: CBO = the Congressional Budget Office's July 2020 forecast; BC = Blue Chip Economic Indicators' December 2020 forecast, combined with its October 2020 forecast for long-term projections; FOMC = the Federal Open Market Committee's September 2020 forecast; Top = the average forecast of the 10 highest forecasters; Bottom = the average forecast for the 10 lowest forecasters.*The Blue Chip Forecasts for 2022 and beyond use October's 2020 year-over-year projections; **the FOMC's forecasted unemployment rate for the fourth quarter of that year.
Sources: Congressional Budget Office; Blue Chip Economic Indicators; Federal Reserve Board.

Forecasts from the Blue Chip Consensus, the Congressional Budget Office, and the Federal Reserve Open Market Committee

Private and official forecasts anticipate GDP to bounce back strongly from the 2020 recession, with 4 percent or higher growth expected during the four quarters of 2021 by the July 2020 Congressional Budget Office's projection, the November Blue Chip consensus, and the September FOMC projection. The Blue Chip forecasters range from 1.7 percent, projected by the bottom 10 forecasters, to 5.3 percent, projected by the top 10, potentially indicating different assessments regarding the upside and downside risks discussed below, and the magnitude and composition of additional support from fiscal and monetary policy. After a strong short-term recovery, all forecasters predict that long-term growth rates will gradually fall back to averages of about 2 percent per year, although the Congressional Budget Office predicts a second growth rate peak in 2025, with a gradual decline to a long run average afterward.

The Federal Reserve expects increases in the Consumer Price Index to remain near target, though interest rates are projected to remain below their long-term levels until the second half of the decade. In August 2020, the FOMC announced that it would target an inflation rate that averages 2 percent, thereby allowing periods of higher than 2 percent inflation to compensate for periods when inflation fails to reach 2 percent. As a result, the FOMC may aim for inflation moderately above 2 percent if prior rates of inflation have persisted below 2 percent. This policy change means it will likely not preempt projected inflationary pressures with interest rate hikes, as was done between 2015 and 2019. This shift will give greater space for the labor market to strengthen before the FOMC considers raising interest rates relative to the FOMC's previous policy stance.

The unemployment rate is expected to continue to fall throughout the upcoming years, before settling at a long-run rate. There are substantial differences in estimates of what this long-run rate will be, with the top 10 Blue Chip estimates averaging 4.7 percent and the bottom 10 averaging 3.7 percent. These estimates are above the February 2020 observed unemployment rate of 3.5 percent, which was associated with a 12-month change in the Personal Consumption Expenditures Price Index of just 1.8 percent, below the Federal Reserve's target. As discussed below, the interaction between labor force participation and labor market slack will have large effects on the unemployment rate, wages, and inflationary pressures.

Economic Objectives and Policy

Economic prospects in the coming years depend critically on the Nation's economic policies. The Employment Act of 1946 called for the Federal Government to pursue the goal of maximum employment, production, and purchasing

Table 10-3. Policy-Inclusive Economic Projections, 2019-31

Year	Percent Change (Q4-to-Q4)				Level (calendar year)		
	Nominal GDP	Real GDP (chain-type)	GDP Price Index (chain-type)	Consumer Price Index	Unemployment Rate (percent)	Interest Rate, 91-Day Treasury Bills (percent)	Interest Rate, 10-Year Treasury Notes (percent)
2019 (actual)	4.0	2.3	1.6	2.0	3.7	2.1	2.1
2020	–1.0	–2.2	1.3	1.1	8.1	0.4	0.9
2021	7.4	5.3	2.0	2.3	5.2	0.1	0.8
2022	6.0	3.9	2.0	2.3	4.3	0.1	1.0
2023	5.4	3.3	2.0	2.3	4.1	0.1	1.2
2024	5.1	3.0	2.0	2.3	4.0	0.1	1.5
2025	5.0	2.9	2.0	2.3	4.0	0.1	1.7
2026	4.9	2.8	2.0	2.3	4.0	0.2	2.0
2027	4.9	2.8	2.0	2.3	4.0	0.5	2.2
2028	4.9	2.8	2.0	2.3	4.0	0.9	2.4
2029	4.9	2.8	2.0	2.3	4.0	1.3	2.6
2030	4.9	2.8	2.0	2.3	4.0	1.7	2.7
2031	4.9	2.8	2.0	2.3	4.0	2.1	2.8

Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; Department of the Treasury; Office of Management and Budget; Council of Economic Advisers.

Note: Forecast was based on data available as of November 6, 2020. The interest rate on 91-day T-bills is measured on a secondary-market discount basis. GDP = gross domestic product.

power, and it established the Council of Economic Advisers to support the President in meeting this goal. Building on this, the Full Employment and Balanced Growth Act of 1978 called for the President to set forth annual numerical goals for several key economic indicators over a multiyear period, as well as a program of policies for achieving the prescribed objectives, regardless of the probability of that program being administratively or legislatively implemented.

The projections reported in table 10-3 reflect the Trump Administration's goal of achieving maximum employment, production, and purchasing power

within the Federal budget window of ten years, consistent with the objectives of the 1946 and 1978 employment acts, and accordingly include the estimated impacts of the Administration's full economic policy agenda. Considering the economic challenges discussed in this *Report* and recent editions of the *Economic Report of the President*, these are very ambitious economic projections. Achieving these targets will require full implementation of the Administration's complete economic policy agenda, most of which requires Congressional legislation.

As discussed in the chapters of this *Report*—as well as in the 2018, 2019, and 2020 editions of the *Economic Report of the President*—the ambitious economic projections reflect the fact that the Administration's economic policy agenda has been similarly ambitious. In the very near-term, the agenda includes full implementation of further legislation to support economic recovery from the COVID-19 pandemic. Specifically, the projections reported in table 10-3 assume passage of additional legislation to provide for reauthorization and expansion of the Paycheck Protection Program to support small business employment, an expanded employee retention tax credit, a reemployment bonus, and a temporary extension of targeted fiscal support to State and local governments, schools, and low- and middle-income households and households with unemployed workers.

In the near term, the economic targets reported here also assume enactment of the President's $1.5 trillion infrastructure proposal, as analyzed in the 2018 *Economic Report of the President*. They also assume that all provisions of the 2017 Tax Cuts and Jobs Act that are currently scheduled to sunset or expire are instead made permanent. These include, but are not limited to, full expensing of new equipment investment, the near-doubling of the standard deduction, reductions of personal income tax rates across multiple brackets, doubling of and expanded eligibility for the Child Tax Credit, and a 20 percent small business tax deduction. In addition, the numeric targets assume enactment of a new middle-class tax cut, as discussed in chapter 11 of this *Report*, including elimination of the second-earner penalty, further raising the standard deduction, and reducing income tax liability in the lowest personal income tax rate brackets, offset at higher incomes by rate and threshold adjustments to ensure targeted tax cuts with no net tax increases. Such a design would target tax relief to lower- and middle-income taxpayers, who face some of the highest effective marginal personal income tax rates, thereby substantially raising labor force participation rates, particularly among women and low-income workers. This is reflected in the supply-side components reported in table 10-4.

The economic targets also assume enactment of skills-based immigration reform, a continuation of the Administration's comprehensive deregulatory agenda, improved bilateral trade agreements with major trading partners, and longer-run fiscal consolidation, as discussed in the 2020 *Economic Report of the President*. They further assume additional labor market policies to incentivize

Table 10-4. Supply-Side Components of Actual and Potential Real Output Growth, 1953–2031

	Component	Growth Rate (percentage points)				
		1953:Q2 to 2019:Q4	1990:Q3 to 2001:Q1	2001:Q1 to 2007:Q4	2007:Q4 to 2019:Q4	2019:Q4 to 2031:Q4
1	Civilian noninstitutional population age 16+	1.3	1.2	1.1	1.0	0.7
2	Labor force participation rate	0.1	0.1	–0.3	–0.4	–0.2
3	Employed share of the labor force	0.0	0.1	0.1	0.1	–0.0
4	Ratio of nonfarm business employment to household employment	0.0	0.3	0.4	0.1	0.1
5	Average weekly hours (nonfarm business)	–0.2	–0.1	–0.2	–0.1	0.0
6	Output per hour (productivity, nonfarm business)	2.0	2.4	2.5	1.4	2.7
7	Ratio of real GDO to nonfarm business output	–0.3	–0.6	–0.2	–0.2	–0.5
8	Sum: actual real GDO[a]	3.0	3.5	2.4	1.7	2.7
	Memo:					
9	Output per worker differential: GDO vs. nonfarm**	–0.3	–0.3	–0.6	–0.3	–0.4

Sources: Bureau of Labor Statistics; Bureau of Economic Analysis; Department of the Treasury; Office of Management and Budget; CEA calculations.

[a] Real GDO and real nonfarm business output are measured as the average of income- and product-side measures.

**The output-per-worker differential (row 9) is the difference between output-per-worker growth in the economy as a whole and output-per-worker growth in the nonfarm business sector, and is also equal to row 4 + row 7.

Note: All contributions are in percentage points at an annual rate. The forecast is based on data available on November 9, 2020. The total may not add up due to rounding; 1953:Q2, 1990:Q3, 2001:Q1, 2007:Q4, and 2019:Q4 are all quarterly business-cycle peaks. Gross domestic output (GDO) is the average of GDP and gross domestic income. Population, labor force, and household employment have been adjusted for discontinuities in the population series.

higher labor force participation, including expanding work requirements for nondisabled, working-age recipients in noncash welfare programs; increasing childcare assistance for low-income families; and enhancing assistance for reskilling programs through the National Council for the American Worker.

By any measure, this is a very ambitious economic policy agenda. However, it reflects the bold requirements of the 1946 and 1978 acts: to set forth a program for achieving, as rapidly as possible, the goals of full employment,

full production, and rising real incomes. Achieving these projected outcomes is therefore contingent on full implementation of the complete range of economic policies articulated here and in the 2018, 2019, and 2020 editions of the *Economic Report of the President*. In the absence of full implementation, not only does the CEA anticipate that economic growth in the coming years will be lower than the numeric targets reported in table 10-3, but also perhaps substantially lower, in line with the economic projections summarized in table 10-2.

Near-Term Upside and Downside Risks

As discussed throughout this *Report*, the emergence of COVID-19 in late 2019 has burdened the economic outlook and continues to present near-term downside risks. The burden of the virus is heaviest for elderly people and for individuals suffering from-co-morbidities, but extends to all segments of the population. The outlook is complicated further by the long-term health effects of COVID-19, which are not fully understood.

The COVID-19 pandemic dominated economic developments during 2020 and will continue to do so in 2021. In the near term, the biggest downside risk to the economic outlook is that policy and behavioral responses to a resurgence of COVID-19 disrupt the considerable recovery in output and labor markets observed to date. For this reason, in late 2020 the Administration continued to articulate support for additional fiscal measures, discussed above, to provide a bridge to the widespread availability of vaccine candidates developed under Operation Warp Speed (Goodspeed and Navarro 2020).

Upside risk to economic activity includes the possibility that an effective vaccine or vaccines will be rapidly distributed and administered to a high percentage of the population, which, thanks in part to Operation Warp Speed, looks highly probable. Indeed, multiple candidates have had successful trials, evincing high effectiveness. Preliminary results have exceeded expectations, and an Emergency Use Authorization (EUA) from the Food and Drug Administration has been issued for the Pfizer/BioNTech vaccine, with an EUA for the Moderna vaccine expected by the end of the year. In addition, treatment for COVID-19 has improved throughout 2020 and will likely continue to improve, thanks in part to EUAs of advanced therapeutics that reduce the illness severity and fatality rate for those affected. However, there remains the possibility of viral mutation, especially if the virus recrosses transspecies borders, removing the resistance afforded by immune system responses built by infection or vaccination. For example, Denmark has been forced to cull its mink populations to avoid such a result, and other animal populations may follow.

Substantial challenges to distributing vaccines remain. Several of the promising candidates require cold temperatures during transportation and storage to maintain effectiveness, an issue that will create challenges in many developing countries and some areas of the developed world. The distinct

threat posed by misinformation regarding the safety and effectiveness of vaccination will also need to be addressed. Creating a vaccine is only useful if a high enough percentage of individuals use it to protect themselves and others.

Dramatic pandemic-related shocks were felt in the labor market during early 2020. The U.S. employment level fell from a record-high of 158.8 million in February 2020 to 133.4 million in April, a decline of over 25 million in 2 months. For comparison, during the Great Recession employment fell by 8.6 million in 25 months. However, since April many temporary layoffs and furloughed workers have been recalled. American entrepreneurship has met the challenge, as new high-propensity business applications (i.e., applications with a high probability of turning into businesses with a payroll) were 29,000 by week 47 of 2020 (a 23 percent increase from 2019) according to the Business Formation Statistics from the Census Bureau. These positive developments increased employment by 16.3 million from April to November and reduced the official unemployment rate from 14.7 to 6.7 percent.

In the near term, there is a risk that these trends temporarily reverse. Rising cases have prompted the reimposition of lockdown restrictions and endogenous individual social distancing, leading to a curtailment of expenditures on in-person consumer services. Even if case levels fall, further recovery may still be characterized by a slower pace. Many temporary employment separations have now been restored, increasing the proportion of the unemployed who will not be returning to their previous employment. Permanent separations require new search and matching as well as more structural adjustments, which become more difficult the longer they are without employment. For example, some workers may need to retrain for new industries that develop in response to permanent changes in consumer preferences.

Hall and Kudlyak (2020) observe that the labor market's recoveries from recessions have consistently been measured as roughly a reduction of 0.55 percentage point a year in the unemployment rate. As the labor market regains the temporary layoffs and begins to reallocate permanent layoffs, the rate of recovery will likely converge toward this rate. However, looking at output, Bordo and Haubrich (2017) find that typically the amplitude of a recovery is strongly correlated with the amplitude of the preceding contraction, with the recovery following the Great Recession constituting a notable exception of the past 140 years. As the long-term unemployed experience skill deterioration and potentially permanent income losses (Hamermesh 1989; Ruhm 1991), rapid action to reemploy the most people possible is needed to minimize lasting harm to the labor market. One area where layoffs may continue is State and local governments, which have seen reduced revenue in 2020.

Another variable that has shown partial recovery is labor force participation. The 12-month moving average of participation had risen to 63.1 percent in February 2020 from a nadir of 62.6 percent in January 2016. In recent years, the U.S. labor force participation has faced demographic headwinds from the

retirement of the baby boom population, with rising participation on the eve of the pandemic driven by a 1.9-percentage-point increase in prime-age labor force participation. Even in February, participation remained well below (4.2 percentage points) its early 2000 peak of 67.3 percent, though it was only 1 percentage point lower for prime-age workers.

During the pandemic, participation fell 3.2 percentage points, and subsequently rose 1.5 percentage points during the recovery. Further recovery could be imperiled if the pandemic continues to encourage individuals near the age of retirement to retire early or encourages individuals to delay school or labor force entry. However, there could be greater gains in participation if individuals choose to work later in life due to a desire to accumulate more savings for retirement, if higher female participation rises during prime-age relative to previous cohorts, and if workplaces offer greater availability of physically accommodating occupations, including remote work. An additional upside risk is that some pandemic-induced investment in teleworking facilitates greater labor force participation from individuals who otherwise might face binding childcare constraints. Similarly, the decentralization of work could cause individuals to move to more affordable and less restrictive areas, which might increase economic activity in areas with lower costs of living, such as rural areas, and thereby improve family finances.

A tight labor market benefits workers by leading to higher wages and shorter spells of unemployment. A slack labor market does the opposite, leading to substantial downside risks for the American worker from a slower recovery and to upside risks from a faster recovery. The lack of consensus in the U.S. Congress to implement the President's economic policy objectives for additional fiscal support in response to the pandemic, particularly in the form of an additional round of the Paycheck Protection Program to help maintain employer-employee matches and organizational capital, is therefore a substantial downside risk in the near term.

Relatedly, in the absence of Congressional support for the Administration's near-term legislative priorities, there is a risk of mounting business insolvencies, particularly among small- and medium-sized firms adversely affected by the reimposition of lockdown restrictions. As losses incurred as a result of the pandemic and associated lockdowns are realized, there is a nontrivial risk that defaults and insolvencies may impair collateral assets in commercial credit markets, and therefore trigger downgrades of securities collateralized by those assets, which would elevate the risk of broader credit disintermediation, of the type discussed by Bernanke (1983). Tax code changes introduced by the CARES Act were designed to mitigate this risk by modifying the treatment of business tax assets, specifically by introducing a five-year carryback for net operating losses (NOLs) in 2018, 2019, and 2020; suspending the NOL limit of 80 percent of taxable income; and allowing pass-through business owners to use NOLs to offset non-business income above the prior limit in 2018, 2019, and 2020. These

modifications were designed to mitigate the adverse shock to business cash flow in 2020 by allowing firms to spread losses over time.

Internationally, however, there is the risk that insolvency issues generated by severe and protracted lockdown restrictions abroad introduce new strains on fiscally weak sovereign governments, most notably in emerging markets and Europe. Such strains would elevate the risk of a replay of the sovereign debt concerns that emerged in the aftermath of the Great Recession.

Long-Term Upside and Downside Risks

A crucial variable for the long-run outlook for growth is the productivity of the workforce. This area has substantial upside risk for growth to outperform what would otherwise be forecasted based on the experiences of the post–Great Recession economy.

Productivity measures how much economic output is generated from a given amount of inputs. As shown in table 10-4, output per hour averaged annual growth of 2 percent between 1953:Q2 and 2019:Q4. By contrast, productivity growth averaged only 1.32 percent between 2007:Q4 and 2019:Q4. After the passage of the 2017 Tax Cuts and Jobs Act (TCJA), productivity growth averaged 1.52 percent annually between 2017:Q4 and 2019:Q4. Improving this rate of increase is of paramount importance for meeting goals of raising real incomes across the income distribution, as was observed in 2018-19. Chapter 11 of this *Report* discusses several possible prescriptions for achieving this result, such as incentivizing higher education institutions to better prepare students for the workforce, immigration reform, and infrastructure investment, as well as making permanent some of the provisions of TCJA that are currently legislated to phase out.

As mentioned above, demographic shifts continue to constitute a challenge to the supply-side potential of the U.S. labor market. The 65-and-older population grew by over a third (34.2 percent, or 13,787,044) during the past decade. The first cohort of the baby boom generation turned 65 in 2011, and the last cohort will turn 65 in 2029. These demographic shifts have generated downward pressure on the aggregate participation rate over the past decade, and will continue to generate downward pressure over the next decade. Whether these individuals retire early or continue to actively participate in the labor market will have a major impact on the economic trajectory over the next decade. Policies such as those described in chapter 11 of this *Report* can have a positive effect on participation, alleviating the demographic drag. As discussed in the 2019 and 2020 editions of the *Economic Report of the President*, making permanent the marginal personal income tax rate reductions in the TCJA can also incentivize continued participation among retirement and near-retirement age workers, who theoretical and empirical research indicate are more responsive to changes in marginal personal income tax rates.

The COVID-19 pandemic has highlighted shortcomings in the healthcare system in the United States that lead to both upside and downside risks for long-term growth. As the pandemic has dramatically illustrated, individuals with poor health are much more likely to suffer serious illness in the event of contracting the disease, and consequently face a higher mortality rate. Life expectancy among particular segments of the population in the United States was falling even before the pandemic, a trend that is the result in large part of drug overdoses (particularly from opioids), suicides, and liver diseases, which recent research suggests may be related to displacement effects of increased exposure to import competition from China following the establishment of permanent normal trade relations in 2000 (Pierce and Schott 2020). Addressing the underlying reasons for these disturbing trends provides an upside risk that the loss of social cohesion, mental health deterioration, and poor diet and exercise can be successfully reversed. However, there is also a downside risk that the situation gets worse, with losses in productivity and participation resulting from more sickness and death.

There is also an upside potential that pandemic-induced investments in healthcare research and the rapid deployment of new therapies and vaccines, as well as deregulatory actions to increase choice and access in the medical system, can lead to better health in the future. Examples of deregulatory actions include expanded access to telehealth services, increased scope of practice, and further mRNA-based interventions. Observations by individuals may also result in greater precautionary personal measures in future influenza seasons, reducing the annual burden of endemic disease.

An additional long-run risk is that the pandemic and associated lockdowns generate long-term economic scarring and amplify issues of economic inequality. Whereas—in a stark reversal of trends under way during the 2009–16 expansion—wage, income, and wealth inequality, including among races, were declining in the three years immediately preceding the pandemic, the extreme regressivity of lockdown restrictions and consequent loss of employment and disruption to human capital acquisition may exacerbate economic inequality for years to come. Although the CARES Act attenuated income inequality in the near term, over the long run, school closures, disparate access to remote learning, and losses of on-the-job training and skills acquisition may introduce human capital deficits that compound over time and have a particularly adverse impact on the lower end of the skills and income distributions. Long-term scarring that depresses future supply-side potential could also complicate the task of monetary policy if inflation expectations become unanchored (Kozlowski, Veldkamp, and Venkateswaran 2020).

Finally, to ensure robust long-term growth, the United States must also address its rising debt burden. Structural and taxation incentives for debt-financing investments have created a large increase in nonfinancial corporate debt, growing from $6.1 trillion at the end of 2010 to $11 trillion in 2020. The

TCJA codified several improvements in capital allocation mechanisms, including limiting the tax deductibility of interest payments on debt, precipitating upside risk that this will lead to improved productivity growth. Lower interest rates due to the pandemic are unlikely to substantially increase during much of the budget window, which may continue to incentivize debt-financing of business activity. The debt burden on individuals is also a cause of concern, especially loans used to finance higher education. Since 2003, inflation-adjusted student debt balances have more than doubled in nearly every State, and in parts of the Southeast they have nearly quadrupled, with the student loan delinquency rate rising commensurately (Hedlund 2019). This debt burden has been found to constrain occupational choice, reduce marriage prospects and homeownership, and increase the risk of bankruptcy (Rothstein and Rouse 2011; Gicheva 2016; Mezza et al. 2020; Gicheva and Thompson 2015). As students who have put off entry into higher education decide whether to return, the question of whether higher education will act as an expensive signaling device or as a skill-formulating institution has substantial upside and downside risks.

Conclusion

The events of the past 12 months have created a historically unprecedented year for the U.S. economy. Record declines in GDP and employment in the second quarter were followed by record increases in both of these economic indicators in the third quarter. Inflation, housing markets, and financial and energy markets were also affected, although to a lesser extent than output and labor markets. Strong compensatory growth is anticipated in 2021. However, GDP forecasts and the slowing pace of the recovery of labor force participation show that many of these issues will persist through at least 2021.

Despite the historic pace of the economic recovery observed to date, there remain risks to both the near- and long-term outlooks. In the near term, particularly in the face of viral resurgence, the Administration recognizes the need for further fiscal support to maintain attachments between employees and employers until the widespread availability of vaccines through Operation Warp Speed allows the resumption of normal levels of economic activity. Over the longer term, building on the historic economic gains observed in 2017, 2018, and especially 2019, a program of economic policies that continues to incentivize domestic capital formation and increased labor force participation will be essential for ensuring a rapid return to the economic conditions prevailing on the eve of the pandemic. As discussed throughout this *Report*, this program includes but is not limited to extending the provisions of the TCJA, investing in infrastructure, lowering high effective marginal income tax rates on lower-income workers, further regulatory reform, and continuing to upgrade bilateral trading arrangements. Such a program was instrumental in

generating a historically tight labor market and broad-based real income gains in 2017-19, following what had been the weakest economic recovery in postwar U.S. history between 2009 and 2016.