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# COVID-19 and the U.S. Economy

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## COVID-19 and the U.S. Economy

On June 8, 2020, the National Bureau of Economic Research (NBER) announced that the United States entered into a recession in March 2020, a result of the Coronavirus Disease 2019 (COVID-19) pandemic. To prevent the spread of COVID-19, lockdown orders were issued in many parts of the country and travel restrictions were put in place. These measures, along with general fears of the coronavirus, caused swift and large aggregate demand and supply shocks that resulted in the deepest economic downturn the United States has seen since the Great Depression.

In the post-World War II era, the peak unemployment rate of 14.7% in April 2020 was the highest recorded monthly rate, and the second quarter annualized decline in gross domestic product (GDP) of 31.4%, driven by decreases in personal consumption expenditures and gross private fixed investment, was the highest recorded single quarterly decline in real GDP. The pandemic caused relatively low inflation in the aggregate, and prices for certain goods, such as gasoline, decreased by double-digits. Although the economy has improved since the second quarter, including the highest single quarterly increase in GDP (33.1% annualized) in the third quarter and the decline in unemployment to 6.9% in October, most economic indicators show that economic activity has still not fully recovered. In some cases recovery appears to be slowing and the recession is not expected to end until the pandemic subsides. When the public health crisis began, many workers were laid off on temporary furloughs, but since then, many of those temporary job losses have become permanent, leading to concerns that unemployment will remain high for several years.

Other indicators are harder to parse. The personal saving rate in the United States increased to a peak of 33.7% in April 2020 and remains elevated from pre-pandemic rates. Although a higher saving rate means lower consumption, which could hamper growth in the short run, it could also translate to higher investment levels, which would contribute to long-run growth. Labor productivity, a measure of labor efficiency, also increased in most major sectors, which would tend to positively affect short-run growth. However, this pattern is consistent with productivity patterns seen during recessions since the 1980s, and therefore is likely caused by employers' ability to furlough or lay off their least efficient workers first and the temporary increase in capital per remaining worker. These effects are therefore likely to reverse themselves once the recession ends and not lead to any change in long-run growth rates. Some longer-lasting changes could be possible for specific groups of individuals, such as those who work for industries that have been hardest hit by the pandemic. Questions of changing consumer preference and the potential for the saving rate to remain high could result in changing landscapes for many businesses and for the nature of work itself.

Between March 2020 and April 2020, Congress approved four major laws—the Coronavirus Preparedness and Response Supplemental Appropriations Act 2020 (P.L. 116-123), the Families First Coronavirus Response Act (P.L. 116-127), the Coronavirus Aid, Relief, and Economic Security (CARES) Act (P.L. 116-136), and the Paycheck Protection Program and Health Care Enhancement Act (P.L. 116-139)—to address the effects of COVID-19 and provide direct assistance to households and businesses. In addition, the Federal Reserve lowered the federal funds rate (the overnight interbank lending rate), increased asset purchases, revived and created new emergency credit facilities, and encouraged the use of the discount window. These policies mitigated the decline in aggregate economic conditions in the short run. Of note, total personal income increased in April and as of September remains at about February levels. The economic impact payments (sometimes referred to as stimulus checks) greatly contributed to personal income in the first few months of the pandemic. In April, the payments made up more than 12% of total personal income and contributed to a 12.2% increase in the level of total personal income. This overall increase in personal income was very large relative to normal fluctuations in personal income, especially given the unprecedented decreases in employment and GDP in the same month.

Several provisions of these laws have since expired. Without additional federal aid, some industries may continue to furlough and permanently lay off significant portions of their workforce. Personal income could decrease, potentially dampening personal consumption expenditures and demand across sectors and industries. However, enacting further stimulus may come with certain drawbacks, such as increasing the already high debt-to-GDP ratio or providing only short-run gains to aggregate growth.

Future fiscal stimulus remains uncertain. Congress has been negotiating another round of stimulus but has yet to reach consensus on a package. The House approved two bills, H.R. 6800 and H.R. 925 on May 15 and October 1, respectively. The Senate has yet to pass a response but has considered proposals in the form of amendments to S. 178.

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## Contents

Introduction .....	1
Economic Indicators .....	2
Employment and Unemployment.....	2
Gross Domestic Product and Its Components.....	4
Saving.....	7
Productivity .....	8
Inflation.....	9
Policy Impact on the Economy.....	11
Enacted Policy.....	11
Fiscal Policy Impact.....	11
Monetary Policy Impact.....	14
Provision Expirations and Future Policy.....	14
Future Economic Outlook .....	15
Economic Uncertainty.....	15
Potential Lasting Impacts.....	16

## Figures

Figure 1. The (Un)employment Situation.....	3
Figure 2. Duration of Unemployment .....	4
Figure 3. Real Gross Domestic Product (GDP).....	5
Figure 4. Personal Consumption Expenditures .....	5
Figure 5. Gross Private Domestic Investment .....	6
Figure 6. Net Exports of Goods and Services .....	7
Figure 7. Government Consumption Expenditures and Gross Investment .....	7
Figure 8. Saving .....	8
Figure 9. Major Sector Labor Productivity .....	9
Figure 10. Consumer Price Index (CPI) Inflation .....	10
Figure 11. Price Changes of Selected Consumer Goods .....	11
Figure 12. Estimated Effects of Pandemic-Related Legislation on Gross Domestic Product .....	12
Figure 13. Effects of Selected Policies on Personal Income .....	13

## Contacts

Author Information.....	18
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## Introduction

On March 13, 2020, President Trump declared the Coronavirus Disease 2019 (COVID-19) pandemic to be a national emergency.<sup>1</sup> As COVID-19 spread across the country, businesses closed, state lockdown orders were put in place, and social distancing measures were adopted in an attempt to slow the spread of the disease. Economic activity skidded to a halt, resulting in a rapid decrease in both employment and gross domestic product (GDP). On June 8, 2020, the National Bureau of Economic Research (NBER) declared that economic activity had peaked in February and a recession began in March 2020.<sup>2</sup>

Most recessions are caused by either an aggregate demand shock (a sudden change in the amount of goods and services desired at a specific price point) or an aggregate supply shock (a sudden change in the amount of goods and services sold at a specific price point), but the pandemic caused problems to both aggregate demand and supply. COVID-19 caused a swift decline in productive capacity and aggregate demand following the implementation of social distancing measures and individual concerns about the spread of the virus.<sup>3</sup> The unemployment rate increased rapidly and consumer spending plummeted as individuals either lost income, ceased patronizing in-person stores and restaurants, or both. As demand for certain goods and services (such as gasoline as people began to telework at unprecedented rates) dropped, demand for others rose quickly and supply chains could not meet that demand. Grocery stores experienced shortages in food, toilet paper, and cleaning supplies and personal protective equipment became scarce.<sup>4</sup> With time, some of these supply chains have corrected but problems continue to arise as the public health crisis evolves. The combination of aggregate demand and aggregate supply problems makes the economic dynamics of this recession unusual and the path of the recession and recovery difficult to predict.

In response to the pandemic and resultant economic downturn, in March and April 2020, Congress passed four laws to provide economic stimulus and assistance to the American people—the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (P.L. 116-123), the Families First Coronavirus Response Act (P.L. 116-127), the Coronavirus Aid, Relief, and Economic Security (CARES) Act (P.L. 116-136), and the Paycheck Protection Program and Health Care Enhancement Act (P.L. 116-139). Many of the provisions in these laws have since expired, and Congress and the Trump Administration have been negotiating another round of stimulus measures. In the meantime, some social distancing measures remain in place and economic activity is not expected to return to normal until the pandemic has subsided.

This report provides a synopsis of the economic conditions caused by the pandemic and the theoretical context for how and why economic conditions deteriorated so rapidly in many cases. The report discusses the following economic indicators: employment and unemployment, GDP and its components, saving, productivity, and inflation. The report then discusses the impacts of

<sup>1</sup> President Donald J. Trump, *Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak*, The White House, March 13, 2020, at <https://www.whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/>.

<sup>2</sup> National Bureau of Economic Research (NBER), “Business Cycle Dating Committee Announcements,” at <https://www.nber.org/cycles/main.html>.

<sup>3</sup> Pedro Brinca, Joao B. Duarte, and Miguel Faria e Castro, *Is the COVID-19 Pandemic a Supply or a Demand Shock?* Federal Reserve Bank of St. Louis, Economic Synopsis no. 31, May 20, 2020, at <https://files.stlouisfed.org/research/publications/economic-synopses/2020/05/20/is-the-covid-19-pandemic-a-supply-or-a-demand-shock.pdf>.

<sup>4</sup> Ana Swanson, “Global Trade Sputters, Leaving Too Much Here, Too Little There,” *The New York Times*, April 10, 2020, at <https://www.nytimes.com/2020/04/10/business/economy/global-trade-shortages-coronavirus.html>.

recent fiscal and monetary policy on the economy, most specifically on GDP and personal income. The policy discussion also includes the expiration of certain provisions from the CARES Act and how these expirations might affect the economy. Finally, the report closes with a conversation of the economic landscape moving forward, what a recovery might look like, and potential lasting impacts to the economy from both the pandemic and the recession.

## Economic Indicators

The recession caused by COVID-19 is unprecedented in many ways. By many measures, this recession is the deepest since the Great Depression. The peak unemployment rate of 14.7% in April was the highest monthly rate recorded by the Bureau of Labor Statistics (BLS)<sup>5</sup> since 1948 when the series started; the second quarter annualized decline in gross domestic product (GDP) of 31.4% was the highest single quarterly decline in real GDP recorded by the Bureau of Economic Analysis (BEA) since that series started in 1947.<sup>6</sup> The rate of decline in economic activity was also very rapid—seemingly overnight states put lockdown orders into effect, trade and travel were disrupted, and commerce screeched to a halt. The economy has improved since the worst months of the second quarter but is still not fully recovered. This section discusses key economic indicators and how the pandemic has affected them.

## Employment and Unemployment

COVID-19 and the subsequent public health crisis led to precipitous increases in unemployment and underemployment since March 2020. **Figure 1** contrasts the official U3 unemployment rate—unemployed workers as a percentage of the labor force—with the U6 rate, which also includes those working part-time for economic reasons and discouraged workers (i.e., workers who dropped out of the labor force for a labor market-related issue). The U3 rate reached a peak of 14.7% in April 2020 before falling to 6.9% in October 2020. The U6 rate followed a similar pattern, rising to a high of 22.8% in April 2020 and falling each subsequent month, reaching 12.1% in October 2020.<sup>7</sup> Both the U3 and U6 rates continue to be elevated as compared with pre-pandemic rates. The August U3 rate is 4-5 percentage points higher than the U3 rate between January 2019 and February 2020. The August U6 rate is 6-8 percentage points higher than the U6 rate between January 2019 and February 2020.<sup>8</sup> Although the U6 is the broadest measure of labor underutilization, in this case it does not capture the full effects of the pandemic on the labor force. While discouraged workers account for a portion of the drop in the labor force, many parents (especially women) have also been exiting the labor force due to childcare needs, especially given many schools are now virtual, or other care needs.<sup>9</sup>

<sup>5</sup> Bureau of Labor Statistics (BLS), “Labor Force Statistics from the Current Population Survey: Access to historical data for the “A” tables of the Employment Situation News Release,” at <https://www.bls.gov/cps/cpsatabs.htm>.

<sup>6</sup> Bureau of Economic Analysis (BEA), “National Data: National Income and Product Accounts,” at <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2#reqid=19&step=2&isuri=1&1921=survey>.

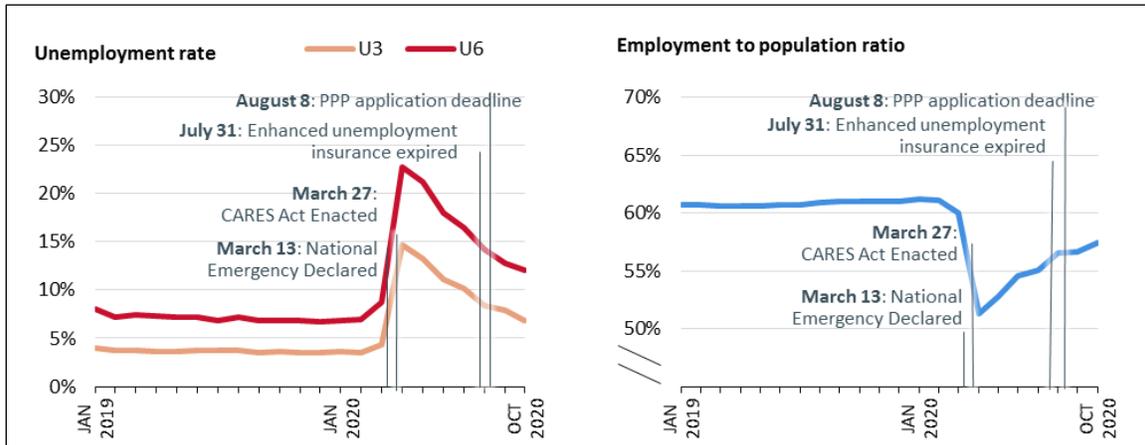
<sup>7</sup> BLS, “Employment Situation Summary—September 2020,” news release, October 2, 2020, at <https://www.bls.gov/news.release/empisit.nr0.htm>.

<sup>8</sup> For further explanation of these rates, see CRS In Focus IF10443, *Introduction to U.S. Economy: Unemployment*, by Lida R. Weinstock.

<sup>9</sup> See, e.g., Nicole Bateman and Martha Ross, “Why Has COVID-19 Been Especially Harmful for Working Women?” Brookings, *19A: The Brookings Gender Equality Series*, October 2020, at <https://www.brookings.edu/essay/why-has-covid-19-been-especially-harmful-for-working-women/>; and Alisha Haridasani Gupta, “Why Did Hundreds of Thousands of Women Drop Out of the Work Force?” *The New York Times*, October 3, 2020, at

Analysis of changes in employed workers may offer additional, and in some situations more stable,<sup>10</sup> insights into the state of the labor force. The number of employed workers as a percentage of the noninstitutionalized population decreased substantially during the pandemic. The employment-population ratio hit a low of 51.3% in April 2020 as compared with rates consistently above 60% in the preceding year, and it has since risen to 57.4% in October 2020. In terms of the number of people employed, as compared with pre-pandemic levels in February, the number of employed persons fell by more than 25 million in April but was down by roughly 9 million by October.<sup>11</sup>

**Figure 1. The (Un)employment Situation**



**Source:** Bureau of Labor Statistics (BLS).

**Note:** Seasonally adjusted.

Although unemployment and employment-population rates have begun to recover from April lows, concerns still exist about significant permanent job loss in the economy. When the public health crisis began, many workers were laid off on temporary furloughs, but since then many of those temporary job losses have become permanent.<sup>12</sup> Assuming jobs return eventually after the pandemic subsides, this increase in permanent layoffs would be considered an increase in cyclical unemployment—unemployment that is a result of the business cycle. However, if the pandemic results in permanent changes to and job losses in some industries, the level of structural unemployment—relatively long-lasting unemployment as a result of shifts in the economy—could increase. **Figure 2** illustrates this phenomenon. In April 2020, due to the sudden closure of many businesses, the percentage of individuals unemployed for less than five weeks increased. Since the shock, the duration of unemployment has been increasing, with those unemployed for more than 14 weeks accounting for over half of all unemployed individuals in October 2020. By September, the percentage of unemployed individuals who had been unemployed for 27 or more

<https://www.nytimes.com/2020/10/03/us/jobs-women-dropping-out-workforce-wage-gap-gender.html>.

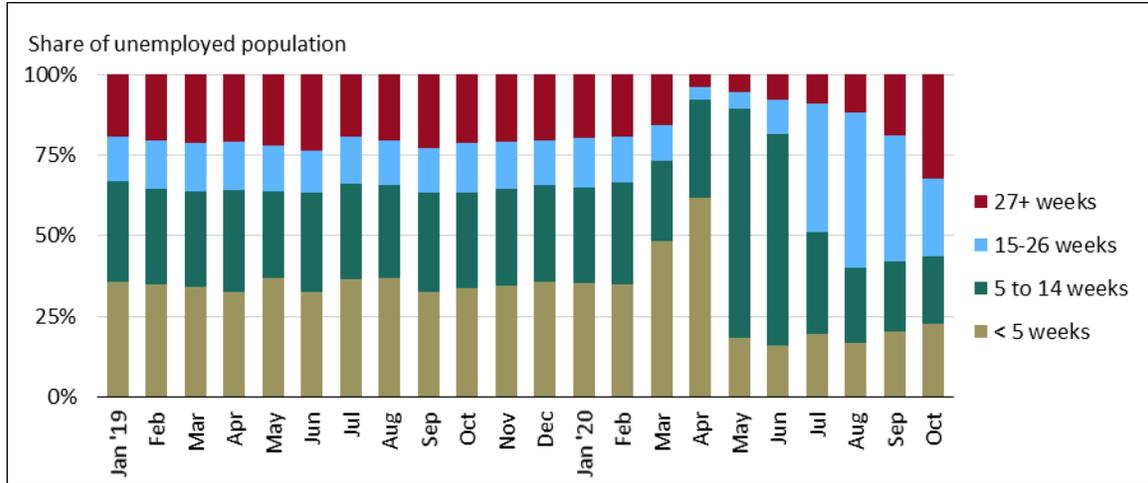
<sup>10</sup> For explanation of why unemployment rates may not be as accurate as normal, see CRS Insight IN11456, *COVID-19: Measuring Unemployment*, by Lida R. Weinstock.

<sup>11</sup> BLS, “Employment Situation Summary—September 2020,” news release, October 2, 2020, at <https://www.bls.gov/news.release/empsit.nr0.htm>.

<sup>12</sup> For example, see Greg Iacurci, “Unemployment Was Supposed To Be Temporary. Now, It’s Permanent for Almost 4 Million,” *CNBC*, October 13, 2020, at <https://www.cnbc.com/2020/10/13/covid-related-unemployment-is-now-permanent-for-almost-4-million.html>.

weeks was a seasonally adjusted 32.5%, up from 19.2% in February, before the pandemic began.<sup>13</sup>

**Figure 2. Duration of Unemployment**



Source: BLS.

## Gross Domestic Product and Its Components

Real gross domestic product (GDP)—economic output adjusted for inflation—fell at an annual rate of 5.0% in the first quarter of 2020 and fell at an annual rate of 31.4% in the second quarter of 2020, the largest quarterly decline on record.<sup>14</sup> The decline was driven largely by decreases in personal consumption expenditures and gross private fixed investment.<sup>15</sup> Gross domestic income—a parallel measure to GDP that measures all income derived from production, including wages, profits, and taxes—fell by an annualized 2.5% in the first quarter and 33.5% in the second quarter.<sup>16</sup> GDP partially recovered in the third quarter. BEA’s advance estimate<sup>17</sup> of third quarter real GDP indicates that it rose at an annual rate of 33.1%, an historic gain, but still a smaller-dollar-magnitude gain than the second quarter dollar loss.<sup>18</sup> However, real GDP remains below pre-pandemic levels—in the third quarter real GDP was 2.9% below its level one year previously (see **Figure 3**).<sup>19</sup>

<sup>13</sup> BLS, “Access to Historical Data for the “A” Tables of the Employment Situation News Release,” October 5, 2020, at <https://www.bls.gov/cps/cpsatabs.htm>.

<sup>14</sup> BEA, “Gross Domestic Product (Third Estimate), Corporate Profits (Revised), and GDP by Industry, Second Quarter 2020,” September 30, 2020, at <https://www.bea.gov/news/2020/gross-domestic-product-third-estimate-corporate-profits-revised-and-gdp-industry-annual>.

<sup>15</sup> For more information on the composition of GDP in the second quarter, see CRS Insight IN11478, *Understanding the Second-Quarter Fall in GDP*, by Mark P. Keightley and Marc Labonte.

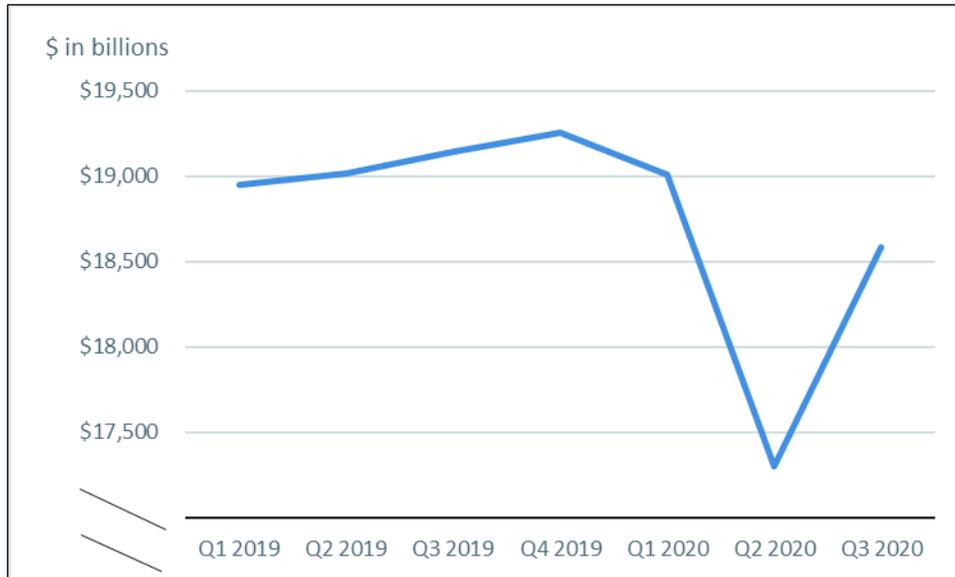
<sup>16</sup> BEA, “Gross Domestic Product (Third Estimate), Corporate Profits (Revised), and GDP by Industry, Second Quarter 2020,” September 30, 2020, at <https://www.bea.gov/news/2020/gross-domestic-product-third-estimate-corporate-profits-revised-and-gdp-industry-annual>.

<sup>17</sup> An advance estimate is based on incomplete data and is subject to revision.

<sup>18</sup> It is important to note that the 33.1% gain in GDP was not larger than the 31.4% fall in GDP in dollar terms. For example, a 31.4% decrease in \$100 would result in a \$31.4 loss, leaving \$68.6. A subsequent 33.1% increase in the remaining \$68.6 would result in a \$22.7 increase, leaving only \$91.3, a lower amount than what was started with.

<sup>19</sup> BEA, “Gross Domestic Product, Third Quarter 2020 (Advance Estimate),” October 29, 2020, at [https://www.bea.gov/sites/default/files/2020-10/gdp3q20\\_adv.pdf](https://www.bea.gov/sites/default/files/2020-10/gdp3q20_adv.pdf).

**Figure 3. Real Gross Domestic Product (GDP)**

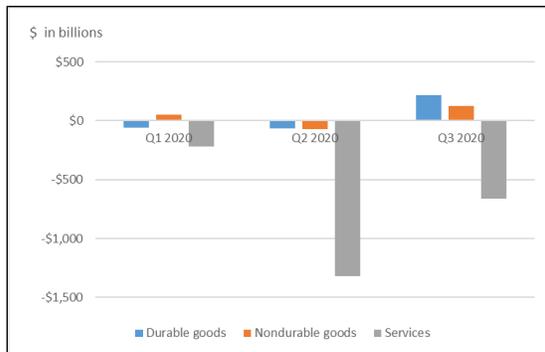


**Source:** Bureau of Economic Analysis (BEA).

**Note:** Data using billions of chained 2012 dollars seasonally adjusted at annual rates.

The below series of figures illustrate the cumulative change in each major component of GDP—personal consumption expenditures, gross private domestic investment, net exports of goods and services, and government consumption expenditures and gross investment—since the fourth quarter of 2019. A sharp decline and then rebound in personal consumption expenditures largely drove both the decline and partial recovery of real GDP in 2020.

**Figure 4. Personal Consumption Expenditures**  
(cumulative change from Q4 2019)



**Source:** CRS calculations based on Bureau of Economic Analysis (BEA) data.

**Note:** Underlying data chained to 2012 dollars and seasonally adjusted at annual rates.

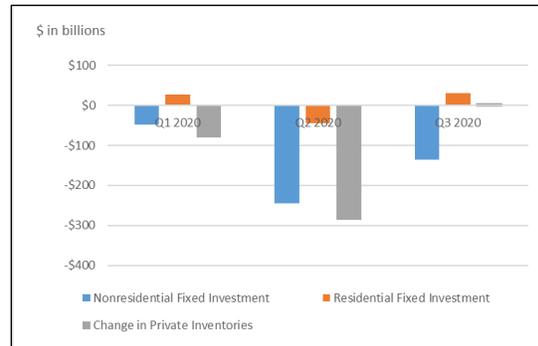
**Figure 4** shows the breakdown of personal consumption expenditures into expenditures on goods—durable and nondurable—and services. The majority of the drop in total personal consumption expenditures was due to a decline in spending on services, which decreased by a relatively small amount in the first quarter and then by a large amount in the second quarter before increasing in the third quarter, though not by enough to reach pre-pandemic levels. The large impact on services was likely a result of business closures, social distancing, and other measures taken to limit the spread of COVID-19. Spending on nondurable goods (goods that are “single use” or are consumed over a short period of time) has behaved more pro-cyclically than durable goods (goods that can be used over a long period of time) in dollar terms during the pandemic. This can be largely explained by

the nature of the public health crisis, which halted spending on certain nondurable goods, such as gasoline for a car or new clothing, to such an extent that nondurable goods as a whole fell by more than durable goods did. Swift action by the Federal Reserve to lower interest rates and the

economic impact payments that went to a sizable portion of the population (160 million payments were delivered as of August 14)<sup>20</sup> also may have helped bolster spending on durable goods, which are typically larger investments than nondurable goods, and may have involved taking out a loan or otherwise paying in installments.

**Figure 5** shows the breakdown of gross private domestic investment by nonresidential and residential fixed investment, and the change in private inventories. Despite its small share, change in private inventories contributed significantly to the overall fall in gross private domestic investment in the second quarter but recovered to fourth quarter 2019 levels in the third quarter. When COVID-19 first emerged, it led to disruptions in supply chains, which were only further exacerbated when the pandemic reached the United States. Supply chain disruptions, along with a sudden decrease in demand, caused many producers to slow production and run down inventories instead. GDP is based on new production, and therefore the large decrease in inventories contributed to the decline in annualized GDP in the second quarter by more than three percentage points.<sup>21</sup> Inventories increased significantly in the third quarter, however, and even surpassed fourth quarter 2019 levels. Decreases in equipment investment, most notably transportation equipment, contributed to the decrease in nonresidential fixed investment and decreases in new single-family housing investment led the decrease in residential fixed investment in the second quarter.<sup>22</sup> However, demand for housing has remained strong during the pandemic and in the third quarter new single-family housing investment increased and residential fixed investment therefore picked up as well.

**Figure 5. Gross Private Domestic Investment**  
(cumulative change from Q4 2019)



**Source:** CRS calculations based on Bureau of Economic Analysis (BEA) data.

**Note:** Underlying data chained to 2012 dollars and seasonally adjusted at annual rates.

Neither net exports of goods and services nor government consumption expenditures and gross investment contributed significantly to the fall in GDP. As shown in **Figure 6**, although both exports and imports did drop significantly in the first and second quarters of 2020, they did so by a fairly proportional amount, resulting in only a small change to net exports (exports minus imports). Both imports and exports picked back up in the third quarter, but not by enough to reach pre-pandemic levels.

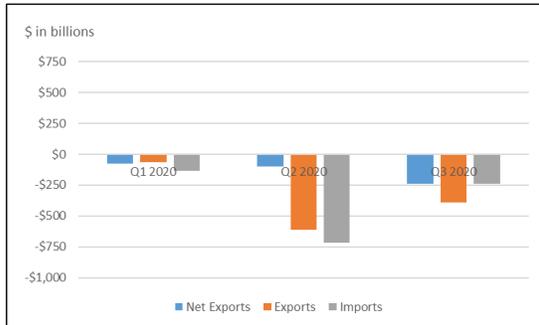
<sup>20</sup> Internal Revenue Service, “IRS Takes New Steps to Ensure People with Children Receive \$500 Economic Impact Payments,” press release, at August 14, 2020, <https://www.irs.gov/newsroom/irs-takes-new-steps-to-ensure-people-with-children-receive-500-economic-impact-payments>.

<sup>21</sup> Justin Lahart, “Bullwhip Effect Could Boost U.S. Economy,” *The Wall Street Journal*, September 23, 2020, at <https://www.wsj.com/articles/bullwhip-effect-could-boost-u-s-economy-11600858980>.

<sup>22</sup> BEA, “Gross Domestic Product (Third Estimate), Corporate Profits (Revised), and GDP by Industry, Second Quarter 2020,” news release, September 30, 2020, at <https://www.bea.gov/news/2020/gross-domestic-product-third-estimate-corporate-profits-revised-and-gdp-industry-annual>.

**Figure 6. Net Exports of Goods and Services**

(cumulative change from Q4 2019)

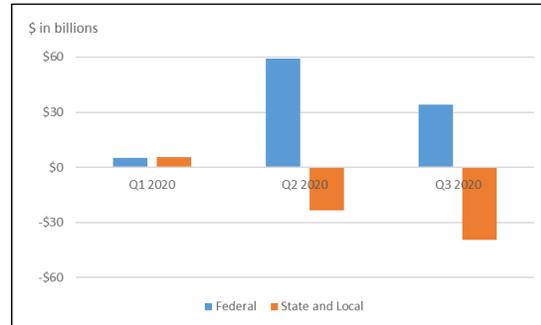


**Source:** CRS calculations based on Bureau of Economic Analysis (BEA) data.

**Note:** Underlying data chained to 2012 dollars and seasonally adjusted at annual rates.

**Figure 7. Government Consumption Expenditures and Gross Investment**

(cumulative change from Q4 2019)



**Source:** CRS calculations based on Bureau of Economic Analysis (BEA) data.

**Note:** Underlying data chained to 2012 dollars and seasonally adjusted at annual rates.

As illustrated in **Figure 7**, government consumption expenditures and gross investment did increase throughout the first half 2020, in part owing to the stimulus measures enacted in March and April that increased federal consumption expenditures, but decreases in state and local expenditures somewhat offset this, resulting in a total 0.82% contribution to the change in real GDP in the second quarter.<sup>23</sup> Federal spending decreased from the second to third quarter, in part because certain stimulus spending was completed. State and local spending fell further in the third quarter of 2020, in part due to decreases in revenue necessitating spending cuts in order to balance budgets.

## Saving

Consumer spending and saving are inversely related. Individuals receive a certain amount of after-tax income that they can spend or save. By definition, what is not spent is saved. For this reason, it follows that when personal consumption expenditures decreased as the coronavirus spread, personal saving as a percentage of disposable income would increase, as evidenced by **Figure 8**. As shown, the personal saving rate in the United States increased rapidly to 33.7% by April 2020, and has since fallen, although it still remains elevated from 8.3% in February, before the pandemic hit. Although personal saving has been on the rise since the financial crisis of 2007-2009,<sup>24</sup> the personal saving rate would increase during the pandemic for several reasons, including cash hoarding, the inability to spend money due to business closures, and increased personal income from various stimulus programs, notably the economic impact payments of up to \$1200 for eligible adults and \$500 for each qualifying child. An NBER working paper, in which the authors used a large-scale survey of consumers, found that 33% of individuals reported

<sup>23</sup> BEA, “National Data: National Income and Product Accounts,” at <https://apps.bea.gov/iTable/iTable.cfm?reqid=19&step=2&isuri=1&categories=survey>.

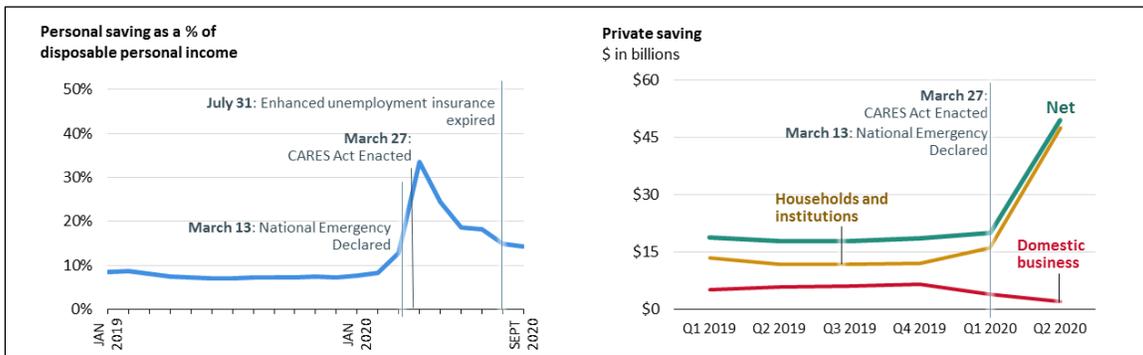
<sup>24</sup> E. Katarina Vermann, “Wait, Is Saving Good or Bad? The Paradox of Thrift,” *Economic Research Federal Reserve Bank of St. Louis*, May 2012, at <https://research.stlouisfed.org/publications/page1-econ/2012/05/01/wait-is-saving-good-or-bad-the-paradox-of-thrift/>.

mostly saving the payment and 52% used it to pay down debt, which would qualify as saving in the context of this report.<sup>25</sup>

The inability to spend money due to business closures may be the primary reason for the spike in the personal saving rate. Notably, most of the increase in saving appears to be due to high-income households. According to an economic tracker based on private-sector data created by economists to record the effects of COVID-19 in real-time, as of June 10, high-income households reduced spending by 17% as compared with low-income households by only 4%.<sup>26</sup>

**Figure 8** illustrates quarterly net private saving, broken down by domestic businesses and households and institutions. Net private saving increased during the pandemic, driven by household saving. Levels of business saving decreased over the same period, reflecting the cash-flow problems that still plague many industries as the coronavirus forces closures and reduces activities, most notably in the retail and travel sectors.<sup>27</sup>

**Figure 8. Saving**



**Source:** BEA.

**Note:** Data seasonally adjusted.

## Productivity

Productivity measures the efficiency of production and is, therefore, an important indicator of how well the economy is running. There are two kinds of production inputs—labor and capital. Productivity is typically measured by labor productivity or total factor productivity (sometimes referred to as multifactor productivity, which is the productivity of all inputs combined). This discussion focuses on the former. **Figure 9** shows labor productivity in four major sectors before and during the COVID-19 pandemic. Labor productivity, measured in output per hour, increased in the business and nonfarm business sectors during the second quarter of 2020. Manufacturing labor productivity decreased, likely a result of supply chain problems as described in previous sections. Labor productivity increased across all three sectors in the third quarter, although the increase was smaller than the second quarter increase for the business and nonfarm business sectors.

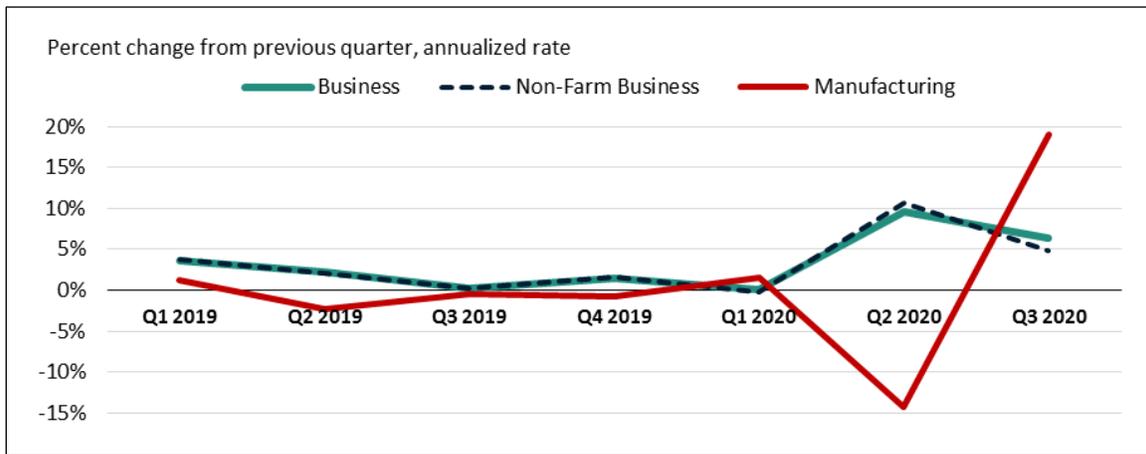
<sup>25</sup> Olivier Coibion, Yuriy Gorodnichenko, and Michael Weber, *How Did U.S. Consumers Use Their Stimulus Payments?* NBER, Working Paper no. 27693, August 2020, pp. 2-3.

<sup>26</sup> Raj Chetty et al., *How Did COVID-19 and Stabilization Policies Affect Spending and Employment? A New Real-Time Economic Tracker Based on Private Sector Data*, NBER, Working Paper no. 27431, June 2020, p. 2.

<sup>27</sup> BEA, “National Income and Product Accounts,” at [https://apps.bea.gov/iTable/index\\_nipa.cfm](https://apps.bea.gov/iTable/index_nipa.cfm).

That productivity would increase at all during a recession may seem counterintuitive, but labor productivity has displayed countercyclical behavior for several decades. The mechanical explanation for this is that, during recessions, output drops but hours worked drops by a greater amount, resulting in an overall increase in output per hour. This can be observed in the current data; in the third quarter output remained 4.0% lower than it was in the fourth quarter of 2019 but hours worked was an even greater 7.5% below the fourth quarter of 2019 level.<sup>28</sup> More generally, in a downturn, management can lay off low-skilled or low-performing workers without reducing output by a large margin. During a recession, as unemployment rises, capital per worker increases, a concept known as capital deepening, and this, in turn, causes a short-term boost in worker productivity.<sup>29</sup> As of yet, there is not enough data to conclude that productivity is increasing for reasons other than those mentioned or that the increase will be permanent. This report discusses the possibility of a more structural change to productivity in a later section.

**Figure 9. Major Sector Labor Productivity**



Source: BLS.

## Inflation

There are a few comparable sources for measuring consumer price inflation in the United States—the personal consumption expenditure (PCE) index, the GDP deflator, and the consumer price index (CPI). All of these indices measure how prices change over time across a series of goods and services. Food and energy prices are typically more volatile than other types of goods and services, and as they often make up a large proportion of total spending, in some circumstances fluctuations in food or energy prices can affect overall inflation in a way that is not indicative of how other goods and services prices are behaving. For this reason, economists calculate a version of inflation that does not include food or energy, known as *core* inflation.<sup>30</sup>

<sup>28</sup> BLS, “Productivity and Costs, Third Quarter 2020, Preliminary,” news release, November 5, 2020, at <https://www.bls.gov/news.release/prod2.nr0.htm>.

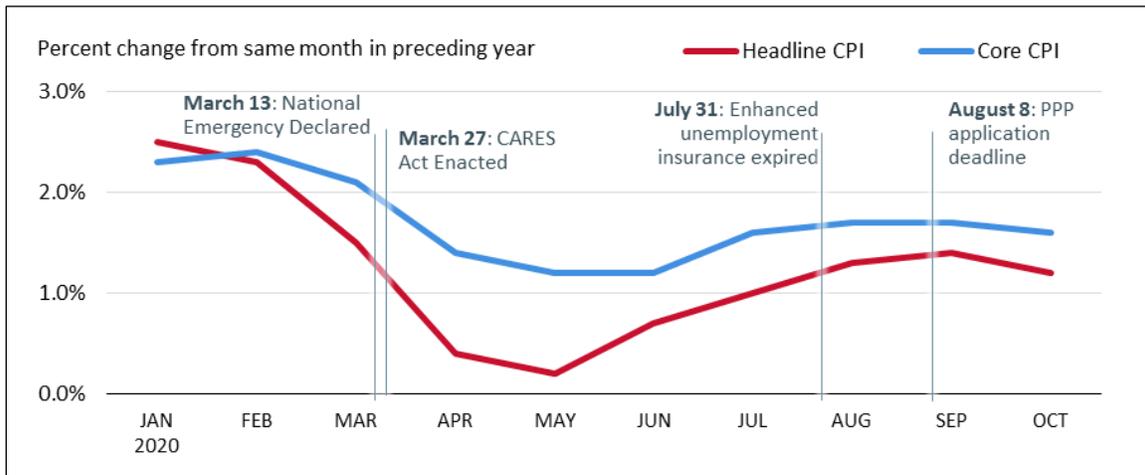
<sup>29</sup> See Robert J. Gordon, “The Evolution of Okun’s Law and of Cyclical Productivity Fluctuations,” EES/IAB Workshop, Labor Market Institutions and the Macroeconomy, June 17-18, 2011, pp. 29-34 at <http://economics.weinberg.northwestern.edu/robert-gordon/files/RescPapers/EvolutionOkunsLaw.pdf>; and John G. Fernald and J. Christina Wang, *Why Has the Cyclical Productivity Changed? What Does It Mean?* Federal Reserve Bank of San Francisco, Working Paper no. 2016-7, April 2016, p. 5, at <https://www.frbsf.org/economic-research/files/wp2016-07.pdf>.

<sup>30</sup> For more information about inflation, see CRS In Focus IF10477, *Introduction to U.S. Economy: Inflation*, by Marc

Measures of inflation that do include food and energy prices in calculations are often referred to as measures of *headline* inflation.

**Figure 10** shows the percentage change from a year ago in CPI headline and core inflation for each month in 2020. PCE and GDP deflator methodologies differ slightly from the CPI methodology but show largely similar patterns. As illustrated below, core inflation was more stable than headline inflation, in part due to the large decreases in fuel prices (see **Figure 11**).<sup>31</sup> The Federal Reserve has targeted an inflation rate of 2% in the past, although with its recent change to its monetary policy strategy, it will be targeting an average rate of 2% moving forward.<sup>32</sup> Given 2% as a guide, inflation during the pandemic would be considered low.

**Figure 10. Consumer Price Index (CPI) Inflation**



Source: BLS.

In the aggregate, inflation has been low throughout the pandemic, but the price level of individual goods has varied greatly. Because of the nature of the public health crisis, demand for certain goods has increased significantly and demand for other goods has decreased significantly. **Figure 11** shows the magnitude of some of these changes on a few selected consumer goods. Patterns of the spread of COVID-19 and social distancing measures have limited the extent to which people have been able to eat in restaurants and thus demand for food at home, a category that includes groceries, has increased. As discussed in the “Introduction,” some supply chains could not meet demand, as was the case for certain food products. Food at-home prices have been consistently around 5% higher than they were in the same month of the previous year. Apparel saw an opposite trend. Given fears of the virus and any potential consumer preference changes given the state of the economy, increased telework, or other employment changes, demand for apparel (clothing) fell, and with it apparel prices. A dramatic example of deflation comes with motor fuel (gasoline) prices. A sudden decrease in travel and commuting caused demand for fuel to drop and prices fell drastically, over 33% lower in May 2020 than in May 2019.<sup>33</sup>

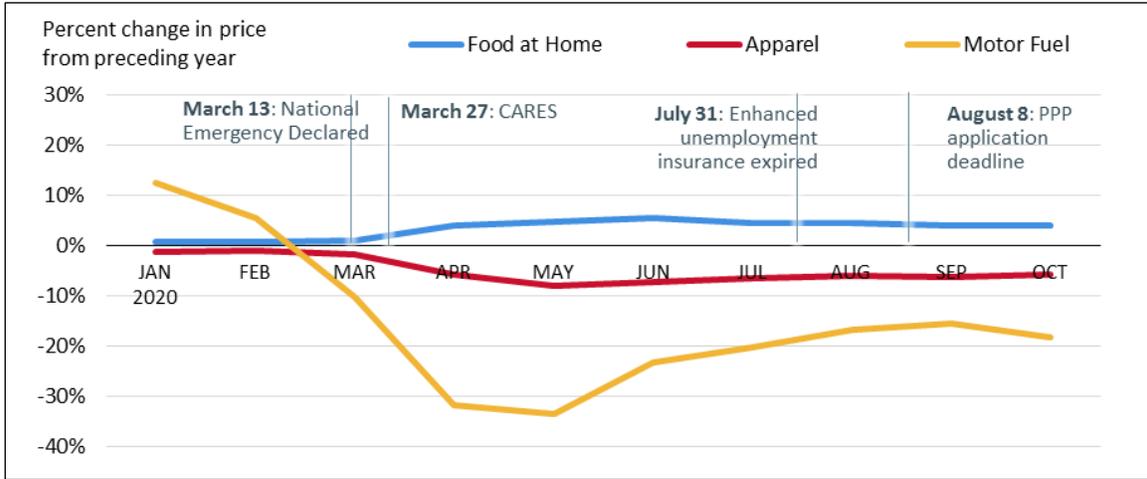
Labonte.

<sup>31</sup> BLS, “Consumer Price Index (CPI) Databases,” at <https://www.bls.gov/cpi/data.htm>.

<sup>32</sup> For more information about the Federal Reserve’s Monetary Policy Strategy Statement and the recent changes to it, see CRS Insight IN11499, *The Federal Reserve’s Revised Monetary Policy Strategy Statement*, by Marc Labonte.

<sup>33</sup> BLS, “Consumer Price Index (CPI) Databases,” at <https://www.bls.gov/cpi/data.htm>.

**Figure 11. Price Changes of Selected Consumer Goods**



Source: BLS.

## Policy Impact on the Economy

In response to the COVID-19 pandemic, the federal government implemented a wide range of stimulus and liquidity measures. Congress passed, and the President signed, four major laws between March and April 2020 to address the effects of COVID-19 and provide direct assistance to households and businesses:

- Coronavirus Preparedness and Response Supplemental Appropriations Act 2020 (P.L. 116-123),
- Families First Coronavirus Response Act (P.L. 116-127),
- Coronavirus Aid, Relief, and Economic Security (CARES) Act (P.L. 116-136), and
- Paycheck Protection Program and Health Care Enhancement Act (P.L. 116-139).

The Federal Reserve’s response included lowering the federal funds rate (the overnight interbank lending rate), purchasing assets, reviving and creating new emergency credit facilities, and encouraging use of the discount window.<sup>34</sup>

This section discusses the impacts of these policies, the expiration of certain provisions, and potential future policies on the domestic economy.

## Enacted Policy

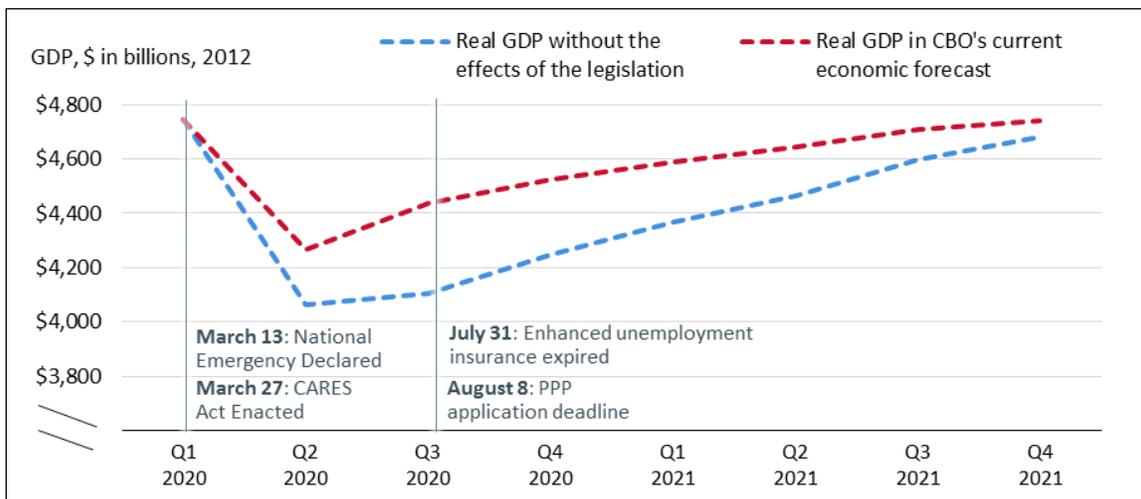
### Fiscal Policy Impact

The size and speed of the initial policy response to COVID-19 was historic in both nature and proportion. While much uncertainty still exists, it is clear that the policies enacted this year have had a positive effect on the economy. The Congressional Budget Office (CBO) published a report

<sup>34</sup> For more information on the Federal Reserve’s response to the COVID-19 pandemic, see CRS Report R46411, *The Federal Reserve’s Response to COVID-19: Policy Issues*, by Marc Labonte.

on the potential short- and long-term effects of legislation enacted in March and April 2020 on the domestic economy.<sup>35</sup> In the short term, CBO projects the policies enacted will increase real GDP by 4.7% and 3.1% in 2020 and 2021, respectively. In the longer term, CBO expects the policies to increase the debt-to-GDP ratio, resulting in higher borrowing costs, dampened GDP, and smaller national income, assuming no austerity measures are taken.<sup>36</sup> By 2023, CBO projects GDP would be slightly smaller than if fiscal stimulus had not been implemented. CBO calculates that the policies will increase GDP by 58 cents for every dollar they add to the deficit between 2020 and 2023.<sup>37</sup> **Figure 12** illustrates the quarterly impact of pandemic-related legislation on real GDP through 2021, as projected by CBO. The largest impact occurs in the third quarter of this year and decreases in each subsequent quarter but remains positive through 2021.<sup>38</sup>

**Figure 12. Estimated Effects of Pandemic-Related Legislation on Gross Domestic Product**



**Source:** Congressional Budget Office (CBO).

**Note:** GDP not annualized.

**Figure 13** displays the effects of certain pandemic-related enacted provisions on personal income as determined by BEA. The effects are measured as a percentage of total monthly personal income.<sup>39</sup> The economic impact payments had the largest single-month impact on personal

<sup>35</sup> CBO, *The Effects of Pandemic-Related Legislation on Output*, September 2020, at <https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf>.

<sup>36</sup> Austerity measures (actions taken to reduce the budget deficit, often through decreased government expenditures) could result in lower levels of debt, and therefore lower borrowing costs, higher GDP, and larger national income in the long-run, although in the short-term could cause further harm to GDP and related measures.

<sup>37</sup> CBO, *The Effects of Pandemic-Related Legislation on Output*, September 2020, at <https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf>.

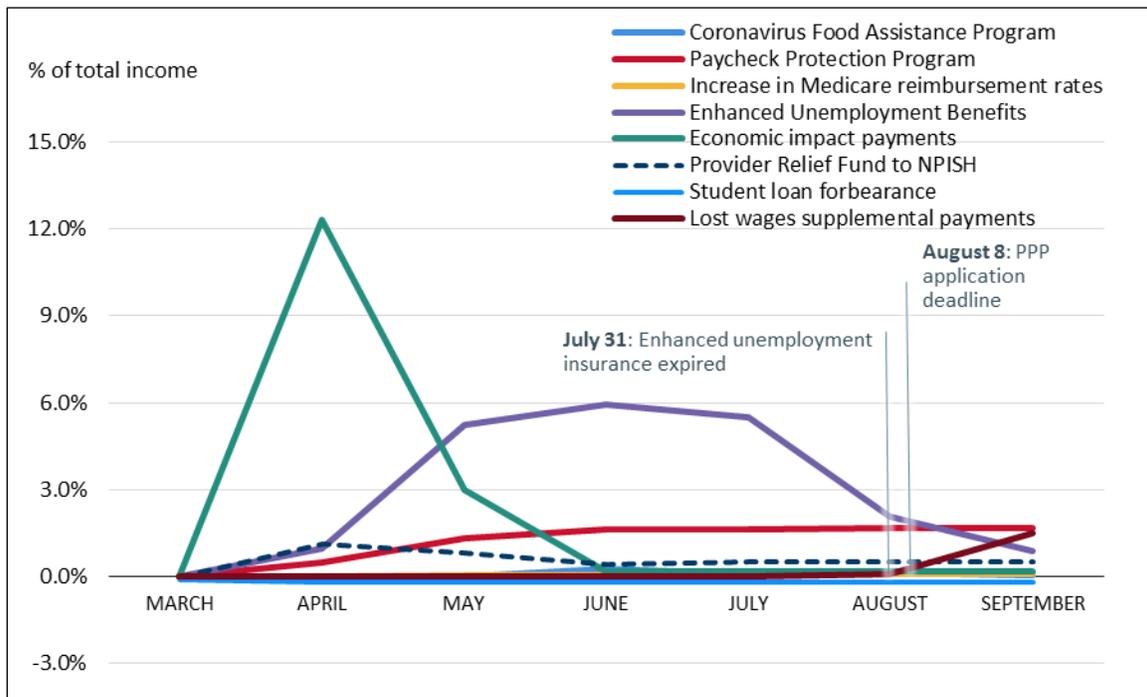
<sup>38</sup> Others have done analyses on the effects of specific legislation on the U.S. economy in the short- and long-term. For example, a study from the Wharton School of the University of Pennsylvania found that the CARES Act would “produce around 1.5 million additional jobs by 2020 Q3 and increase GDP by \$812 billion over the next two years.” For more detailed information on this analysis, see Alexander Arnon, Zheli He, and Jon Huntley, “Short-Run Economic Effects of the CARES Act,” University of Pennsylvania, *Penn Wharton Budget Model*, April 8, 2020, at <https://budgetmodel.wharton.upenn.edu/issues/2020/4/8/short-run-effects-of-the-cares-act>.

<sup>39</sup> For example, if total personal income in a given month was \$100 and a specific program contributed \$10 to total personal income in that month, that program would constitute 10% of total personal income.

income of the programs analyzed. In April, the payments constituted more than 12% of total personal income and were largely responsible for the 12.2% increase in total personal income in the same month. This overall increase in personal income was significant, especially given the unprecedented decreases in employment and GDP in the same month. Personal income in September is still higher than it was in February, before the pandemic began, but lower than in April. This increase and maintenance of levels of personal income, in large part due to the CARES Act, could be responsible for some of the unusual phenomena happening during this recession, such as the maintenance of housing demand and the smaller than usual drop in durable goods spending.

Most of the one-time payments were made in April and therefore the effects on personal income dropped off very quickly—total personal income fell 4.2% and 1.2% in May and June, respectively. The enhanced unemployment benefits each month also contributed significantly to personal income—over 5% in May, June, and July, at which point the provision for the additional \$600 per week expired, likely contributing to a 2.7% drop in total personal income in August.<sup>40</sup> Of note, this 5% represents the effect on total personal income; for those unemployed individuals actually receiving the benefits, this percentage will be much higher because their incomes would be lower than average. Other programs such as the Paycheck Protection Program contributed relatively less to total personal income but would also have much larger effects for those individuals directly receiving the benefits.

**Figure 13. Effects of Selected Policies on Personal Income**



Source: CRS calculations using BEA data.

<sup>40</sup> BEA, “Effects of Selected Federal Pandemic Response Programs on Personal Income, September 2020,” table, October 30, 2020, at <https://www.bea.gov/sites/default/files/2020-10/effects-of-selected-federal-pandemic-response-programs-on-personal-income-september-2020.pdf>; and BEA, “Personal Income and Outlays,” news release, August 2020, October 1, 2020, at <https://www.bea.gov/news/2020/personal-income-and-outlays-august-2020>.

**Notes:** Underlying data seasonally adjusted at annual rates. Data subject to revision. NPISH stands for nonprofit institutions serving households.

## Monetary Policy Impact

The CBO report cited above includes a brief analysis of the impact of the Federal Reserve’s emergency lending facilities on GDP.<sup>41</sup> CBO estimates the lending facilities will increase real GDP by 0.1% and 0.3% in 2020 and 2021, respectively. The budgetary costs to the Federal Reserve are expected to be offset by interest income generated by the programs. More generally, CBO determined that the lending facilities should increase confidence and provide a more stable and favorable lending environment, thereby increasing “overall demand by supporting businesses’ and consumers’ spending, helping increase businesses’ chance of survival, and preserving production capacity, all of which will help expedite a recovery.”<sup>42</sup>

## Provision Expirations and Future Policy

As discussed previously, CBO projected that the stimulus had a significant positive effect on the economy in the short run; however, many of the provisions of the CARES Act have expired or been exhausted,<sup>43</sup> which will also have an effect on the economy. Of note, the Payroll Protection Program closed on August 8,<sup>44</sup> nearly 90% of the \$300 billion in direct support economic payments provided for in the CARES Act were made as of August 28,<sup>45</sup> and the temporary increase of \$600 per week in unemployment benefits expired on July 31.

Despite gains to many economic indicators since April, the economy is still not fully recovered. Without additional federal aid, certain industries, including the airline industry, are preparing to furlough and layoff significant portions of their workforces.<sup>46</sup> Surveys of small businesses, including the Census Pulse Survey and the U.S. Chamber of Commerce Coronavirus Small Business Impact Poll, indicate that small businesses feel insecure.<sup>47</sup> According to the Financial Stress Index from the Pulse Survey, financial stress among small businesses improved between

<sup>41</sup> CBO, *The Effects of Pandemic-Related Legislation on Output*, September 2020, at <https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf>.

<sup>42</sup> CBO, *The Effects of Pandemic-Related Legislation on Output*, September 2020, at <https://www.cbo.gov/system/files/2020-09/56537-pandemic-legislation.pdf>.

<sup>43</sup> For more detailed information on the expiration and exhaustion of provisions, see CRS Insight IN11475, *Economic Activity and the Expiration of COVID-19 Relief Provisions*, by Grant A. Driessen and Lida R. Weinstock.

<sup>44</sup> U.S. Small Business Administration, Paycheck Protection Program: An SBA Loan That Helps Businesses Keep Their Workforce Employed During the Coronavirus (COVID-19) Crisis, at <https://www.sba.gov/funding-programs/loans/coronavirus-relief-options/paycheck-protection-program>.

<sup>45</sup> Internal Revenue Service, “IRS Statement on Economic Impact Payments by state (as of Aug. 28, 2020),” August 28, 2020, at <https://www.irs.gov/newsroom/irs-statement-on-economic-impact-payments-by-state-as-of-aug-28-2020>.

<sup>46</sup> For example, see Patrick Thomas, Sarah Chaney, and Chip Cutter, “New Covid-19 Layoffs Make Job Reductions Permanent,” *The Wall Street Journal*, August 28, 2020, at <https://www.wsj.com/articles/new-covid-19-layoffs-make-job-reductions-permanent-11598654257>; and Andrew Van Dam, “As Permanent Economic Damage Piles Up, the Covid Crisis is Looking More Like the Great Recession,” *The Washington Post*, August 25, 2020, at <https://www.washingtonpost.com/business/2020/08/25/permanent-economic-damage-piles-up-covid-crisis-is-looking-more-like-great-recession/>.

<sup>47</sup> See, e.g., U.S. Census Bureau, *Small Business Pulse Survey*, October 8, 2020, at <https://portal.census.gov/pulse/data/>; and MetLife & U.S. Chamber of Commerce, *Small Business Coronavirus Impact Poll*, July 29, 2020, p. 2, at [https://www.uschamber.com/sites/default/files/metlife\\_uscc\\_sbi\\_coronavirus\\_impact\\_poll\\_july.pdf](https://www.uschamber.com/sites/default/files/metlife_uscc_sbi_coronavirus_impact_poll_july.pdf).

the beginning of the survey in April and the week of August 16-22, but has shown no improvement between August 16-22 and October 4-12.<sup>48</sup>

Although there are certain short-term benefits to additional stimulus, there would also be tradeoffs. As shown in the previous section, fiscal policy enacted in March and April 2020 showed significant gains to GDP in the short run, but by the end of 2021, CBO projects the gains from policy are minimal. Additional stimulus would also increase the debt-to-GDP ratio, already at 135.6% in the second quarter of 2020—the highest since World War II.<sup>49</sup> Increasing the national debt could be cause for future austerity measures, which would hinder growth.

Future fiscal policy remains uncertain at this point. As scored by CBO, the CARES Act will increase federal deficits by about \$1.7 trillion over the 2020-2030 period,<sup>50</sup> and Congress has been debating an additional stimulus package. The Heroes Act (H.R. 925), as adopted by the House on October 1, would increase the deficit by \$2.4 trillion over the 2021-2030 period.<sup>51</sup> A previous “Heroes Act,” H.R. 6800, which passed the House on May 15, has not been scored by CBO. The Senate has yet to pass any bills, most recently holding a cloture vote on October 21 on the Delivering Immediate Relief to America’s Families, Schools and Small Businesses Act (S.Amdt. 2652), which was not invoked by a vote of 51-44. CBO has estimated that if passed, this legislation would increase the deficit by \$519.3 billion over the 2021-2030 period.<sup>52</sup>

The path of monetary policy is more evident at this point. The Federal Reserve’s emergency lending facilities are set to expire at the end of the year,<sup>53</sup> although these facilities could be extended. The Federal Reserve has additionally already indicated it will keep the federal funds rate close to zero for the foreseeable future.<sup>54</sup>

## Future Economic Outlook

### Economic Uncertainty

One of the key features of the current recession is the higher than average amount of uncertainty. The macroeconomic outlook is largely being driven by a public health crisis that is, in and of itself, difficult to predict. As of July, CBO forecasts that real GDP will remain below potential and that the unemployment rate will remain above the 2019 rate for the remainder of the decade.<sup>55</sup>

<sup>48</sup> U.S. Census Bureau, *Small Business Pulse Survey*, October 8, 2020, at <https://portal.census.gov/pulse/data/#weekly>.

<sup>49</sup> Federal Reserve Bank of St. Louis and U.S. Office of Management and Budget, “Federal Debt: Total Public Debt as Percent of Gross Domestic Product [GFDEGDQ188S],” retrieved from FRED, Federal Reserve Bank of St. Louis, at <https://fred.stlouisfed.org/series/GFDEGDQ188S>, October 20, 2020.

<sup>50</sup> CBO, *H.R. 748, CARES Act*, P.L. 116-136, April 16, 2020, at <https://www.cbo.gov/publication/56334>.

<sup>51</sup> CBO, *H.R. 925, Heroes Act*, October 16, 2020, at <https://www.cbo.gov/publication/56686>.

<sup>52</sup> CBO, Estimate for Senate Amendment 2652 to S. 178, the Delivering Immediate Relief to America’s Families, Schools and Small Businesses Act, October 21, 2020, at <https://www.cbo.gov/publication/56694>.

<sup>53</sup> Board of Governors of the Federal Reserve System, “Federal Reserve Board Announces an Extension Through December 31 of Its Lending Facilities That Were Scheduled to Expire On or Around September 30,” press release, July 2020, at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200728a.htm>.

<sup>54</sup> Board of Governors of the Federal Reserve System, “Federal Reserve Issues FOMC Statement,” press release, September 16, 2020, at <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200916a.htm>.

<sup>55</sup> CBO, *An Update to the Economic Outlook: 2020 to 2030*, July 2, 2020, at <https://www.cbo.gov/publication/56442>.

These forecasts assume no policy changes or additional stimulus, meaning that future policy has the ability to improve (or worsen) the forecast.<sup>56</sup>

To a large extent, the economy cannot fully recover until the pandemic has ended. Fears of the virus and social distancing make it unlikely that commerce can regain its pre-pandemic pace while COVID-19 still poses a threat. However, once the public health crisis has passed, it is possible the economy would recover at a relatively fast pace, as compared with other recessions. Normally, aggregate demand remains depressed and the economy could take several years to return to full employment after a recession. The current recession is different than past recessions in that it was caused not by an inherently economic or financial shock but by a public health crisis. Given that the macro-fundamentals prior to the pandemic appeared to be sound, once the cause of the recession has passed, it might be assumed that the economy can return to normal quickly. However, the longer the pandemic and resulting recession last, the more likely certain effects are to be longer lasting as well.

## Potential Lasting Impacts

The depth and uncertainty of the COVID-19 pandemic and resultant recession have created speculation about potential long-lasting impacts to the economy. It is difficult to speculate about what lasting impacts there might be. To some extent, this will be driven by the length of the pandemic and any structural reforms the federal government might enact in response to the nature of the crisis. Although speculation as to the permanence of any effect is difficult, there is some research about the economic effects of prior pandemics (most notably the Spanish Flu of 1918) that could be of some use in helping frame possible economic hurdles in the coming years. For example, anecdotal evidence from the 1918 pandemic indicate that reduced investment in human capital could be a long-term problem because of any lasting morbidity among survivors and any long-run pressure that might be put on healthcare and government assistance programs. However, the policy response to COVID-19 will likely result in a more positive outcome than the policy response in 1918 did.<sup>57</sup>

As discussed previously, unemployment may take a long time to reach pre-pandemic rates and GDP may take a long time to reach potential GDP, but both are expected to happen eventually. In the aggregate, the economy may fully recover, but there could be longer-lasting impacts for specific groups of individuals. These groups may include those who work for industries that have been hit hardest by the pandemic and may face higher and longer rates of unemployment, individuals from geographical areas that suffered large losses (both of lives and businesses), or low-income individuals that could not bear the costs of the recession as easily as others. Some have forecasted a “K-shaped” recovery, meaning that some groups of individuals and businesses will recover quickly, but the economic situation for others will worsen and take much longer to recover, if ever. For example, telework is possible in certain industries and has allowed work to continue largely uninterrupted, whereas other industries require face-to-face services and have been struggling due to decreased demand. If consumer preferences change as a result of the pandemic, this could mean a changing landscape for businesses. For example, if enough individuals get used to cooking at home and eating out less, this could mean fewer restaurants

<sup>56</sup> CBO projections may not match other projections due to differences in underlying assumptions about the epidemiology of the virus as well as future social distancing measures. For more information on forecasts of economic activity and the recovery, see CRS Insight IN11460, *COVID-19: How Quickly Will Unemployment Recover?*, by Lida R. Weinstock.

<sup>57</sup> Vellore Arthi and John Parman, *Disease, Downturns, and Wellbeing: Economic History and the Long-Run Impacts of COVID-19*, NBER, Working Paper no. 27805, September 2020, pp. 2, 23-24, at <https://www.nber.org/papers/w27805.pdf>.

will exist in the future. Questions of consumer preferences and unemployment rates cannot be answered until there are data on consumer behavior after the pandemic has ended.

In addition, further speculation exists about permanent changes to consumer behavior in the form of the personal saving rate, which has increased during the pandemic. A permanent increase, which cannot be predicted with accuracy at this stage, would dampen the recovery in the short term, but might be a net positive for the economy in the long run.

The economic community has competing concerns about whether the country is facing low inflation (or potentially even deflation) or high inflation in the coming months, and years. During a recession, inflation typically declines, as falling aggregate demand puts downward pressure on prices. However, rising inflation is often a concern during a recovery and expansion as employment recovers and nears or reaches full employment. Rising employment has been associated with rising inflation in the past but this relationship has been weaker in recent years.<sup>58</sup> The Federal Reserve took certain actions, notably the rounds of quantitative easing that resulted in a nearly \$3 trillion increase in the Federal Reserve's balance sheet in a matter of weeks,<sup>59</sup> which contributed to a sizable increase in the money supply. According to conventional economic theory, an increase in the money supply will result in an increase in inflation; however, during the 2007-2009 financial crisis, the Federal Reserve significantly increased the money supply without inflation increasing meaningfully.<sup>60</sup> Further, some disagree that high inflation is likely as the economy recovers from the COVID-19 pandemic because the recovery's pace has slowed in recent months, the status of any future stimulus is uncertain, and the Federal Reserve's credibility will likely keep inflation expectations on track.<sup>61</sup>

Another area that has seen much media speculation is changes to the nature of work. Given the overall increase in productivity and the switch to work-from-home for many industries, some speculate that these changes may be at least partially permanent and that there will be an increase in telework opportunities.<sup>62</sup> It is, however, not necessarily evident that the increase in productivity is a direct result of telework, and it is likely that some amount of innovation in the economy has been spurred out of necessity (e.g., research and development for a vaccine) and that innovation and then productivity may decrease once the crisis has passed. Changing norms and preferences towards more telework could still cause an increase in telework opportunities, even if telework turns out to be similarly or less productive than on-site work. Some prominent companies, notably Twitter, have even already made the announcement that they will provide the ability to telework permanently.<sup>63</sup> Such a change at a large scale would have wide-ranging implications for a variety of factors, including office space, transportation networks, IT services, and housing

<sup>58</sup> For more information on the relationship between employment and inflation, see CRS In Focus IF10443, *Introduction to U.S. Economy: Unemployment*, by Lida R. Weinstock.

<sup>59</sup> Board of Governors of the Federal Reserve System, "Credit and Liquidity Programs and the Balance Sheet: Recent Balance Sheet Trends," at [https://www.federalreserve.gov/monetarypolicy/bst\\_recenttrends.htm](https://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm).

<sup>60</sup> Letter from John C. Williams, president and CEO of the Federal Reserve Bank of San Francisco, to Western Economic Association International, July 2, 2012, at <https://www.frbsf.org/economic-research/publications/economic-letter/2012/july/monetary-policy-money-inflation/>.

<sup>61</sup> Sarah House and Michael Pugliese, "A Recipe for Higher Inflation?" *Wells Fargo Securities Economics Group Special Commentary*, September 25, 2020, pp. 5-6.

<sup>62</sup> Katherine Guyot and Isabel V. Sawhill, *Telecommuting Will Likely Continue Long After the Pandemic*, Brookings Institution, Time and the Middle Class Series, April 6, 2020, at <https://www.brookings.edu/blog/up-front/2020/04/06/telecommuting-will-likely-continue-long-after-the-pandemic/>.

<sup>63</sup> Jessica Gynn, "How Would You Like to Work from Home 'Forever'? Twitter Is Encouraging Employees to Do So," *USA Today*, May 12, 2020, at <https://www.usatoday.com/story/tech/2020/05/12/twitter-work-from-home-forever/3118879001/>.

preferences. However, it is difficult to predict whether this type of action will be widespread; for all the ardent supporters of this type of change, there are also detractors, and for the change to be widespread across industries, considerable structural changes and technological improvements would need to be made.<sup>64</sup>

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<sup>64</sup> Organisation for Economic Cooperation and Development (OECD), "Productivity Gains from Teleworking in the Post COVID-19 Era: How Can Public Policies Make It Happen?" *OECD Policy Responses to Coronavirus*, September 7, 2020, at <https://www.oecd.org/coronavirus/policy-responses/productivity-gains-from-teleworking-in-the-post-covid-19-era-a5d52e99/>.