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Inflation in the Wake of COVID-19

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SUMMARY

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Marc Labonte
Specialist in Macroeconomic Policy

Lida R. Weinstock
Analyst in Macroeconomic Policy

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The Federal Reserve defines stable prices to be inflation (the general rise in the price of goods and services) of 2% annually. After decades of low inflation, inflation has been above the Fed's 2% target since March 2021 and is projected to exceed 3% for 2021 as a whole.

For inflation to be problematic from a policy perspective, the increase has to be sustained and sizeable. To date, the increase has arguably not met either criteria, although some inflation measures are higher than others. The Fed and other forecasters project that inflation will return to around the Fed's 2% target in 2022 under current policy. Critics believe these forecasts are too optimistic for a number of reasons, including the proposed path of fiscal and monetary policy and changing expectations.

Some of the causes of the recent increase in inflation relate to the disruptions to supply caused by the COVID-19 pandemic and ensuing consumer spending rebound in certain sectors. As such, there are reasons to believe that some of these price pressures are temporary. Nevertheless, there are concerns that higher inflation could become sustained if the rapid rates of gross domestic product (GDP) growth experienced since the second half of 2020 cause the economy to overheat and inflationary expectations rise. At present, the economy is still operating below its potential, but the Congressional Budget Office (CBO) projects that output could exceed potential by 2022 if rapid growth continues. Overall employment is still below pre-pandemic levels, and overall wages are not rising faster than inflation, but certain industries have experienced labor shortages that could be indicative of an overheating economy if they became widespread.

Unprecedented fiscal and monetary stimulus helped an economy where output fell by about one-third due to COVID-19. Keeping fiscal and monetary stimulus in place helps insure against the risk of the recovery faltering, particularly in light of the emergence of the Delta variant. But there is also the risk that keeping stimulus in place when the economy is now growing rapidly could contribute to an overheating economy that leads to a sustained increase in inflation. The Fed has signaled that it intends to keep stimulative monetary policy in place for the time being. Fiscal policy is scheduled to start unwinding this year under current law, but fiscal packages that have seen legislative action (such as and the Senate-passed version of) could potentially add more stimulus, depending on the details.

Prior to the pandemic, the Fed's focus had shifted from a concern that inflation would be too high to a concern that it would persistently be too low, as inflation had repeatedly fallen short of its 2% target since the 2007-2009 "Great Recession." In 2020, the Fed announced that it would tolerate periods of inflation above 2% following periods below 2% in order to achieve an average inflation target of 2% over time. As such, inflation in the 3% range in 2021 would help bring average inflation closer to its target. This may help explain why the Fed has not tightened monetary policy in response to higher inflation.

History provides mixed examples of periods where inflation has and has not been easily contained by policymakers. Inflation was high during World War II and the Korean War but fell rapidly afterward. In the "Great Inflation," from the mid-1960s to the early-1980s, a series of supply shocks, changes in inflation expectations, and a failure to sufficiently tighten monetary policy ultimately resulted in double-digit inflation. Inflation fell only after a long and deep downturn featuring very high interest rates. Since then, inflation has been consistently low, and a moderate rise in inflation in one year has not been predictably followed by higher inflation in the next year. The last time inflation was above average for a number of months was 2008; by 2009, prices had fallen slightly (called deflation). A key difference between the Great Inflation and now is that inflationary expectations of individuals have been relatively low, although they have risen modestly this year.

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Introduction

The COVID-19 pandemic has led to many unexpected and unprecedented economic developments.[1] One of those developments is higher price inflation than the United States has experienced in recent decades. According to several measures, including the Consumer Price Index (CPI) and the Personal Consumption Expenditures (PCE) Index, prices have risen more rapidly than usual on both a monthly and an annual basis for several months, most notably since March 2021. CPI inflation is the more commonly cited measure in the media, whereas PCE inflation is the Federal Reserve's preferred measure. PCE inflation is typically somewhat lower than CPI inflation but nonetheless has also been relatively high of late—the last time PCE inflation ran as high as it has been during 2021 was 2008. For 2021 as a whole, Federal Reserve leadership is projecting that PCE inflation will be between 3% and 3.9%.[2] This is comparable to projections by private sector economists and the Congressional Budget Office (CBO).

Inflation is a policy concern for Congress in multiple ways. First, higher prices affect spending on government programs and the capacity of government programs at a given spending level. Second, high inflation is unpopular with the general public because it erodes purchasing power. Third, rising inflation might be a leading signal of an overheating economy.[3] As such, an infrastructure bill (the Senate-passed version of H.R. 3684) and a budget resolution (S.Con.Res. 14) that would allow for a $3.5 trillion budget reconciliation bill have seen legislative action in 2021, and Congress has debated their potential effects on inflation. Finally, Congress has oversight responsibilities for the Federal Reserve, and Congress has mandated that the Fed achieve stable prices.[4] Inflation is currently higher than the 2% threshold that the Fed has chosen as its definition of price stability.

But is all inflation undesirable in all circumstances? The consensus view among economists is that inflation warrants a policy response only if it is high and sustained—exactly how high and for how long is open to debate. If the Fed's projections are correct, inflation will return to around 2% by 2022, making the current increase temporary, modest over the year as a whole, and self-correcting. Some critics believe that the Fed is being too optimistic, however, and that a monetary and fiscal policy course correction are necessary now to avoid high inflation becoming endemic.

This report begins by explaining what inflation is and how it is measured. It then discusses the costs of inflation, as well as the costs of inflation being too low. Next, it discusses the potential causes of inflation. Then it discusses the history of inflation in the United States since World War II. Finally, it analyzes the causes and implications of the current situation and prospects for future inflation.

What Is Inflation?

Inflation refers to the general increase in the price of goods and services (not including asset prices) across the economy. As inflation occurs, individuals can purchase fewer goods and services with the same amount of money—thus, inflation can also be thought of as a general decrease in the value of money. Measures of inflation are used to adjust monetary figures to keep

[1] See CRS Report R46606, *COVID-19 and the U.S. Economy*, by Lida R. Weinstock.

[2] Federal Reserve, *Summary of Economic Projections*, June 16, 2021, https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210616.pdf.

[3] See CRS Report R45723, *Fiscal Policy: Economic Effects*, by Lida R. Weinstock.

[4] See CRS In Focus IF11751, *Introduction to U.S. Economy: Monetary Policy*, by Marc Labonte.

purchasing power constant over time, allowing for more accurate comparisons across disparate time periods. Monetary figures that have been adjusted for inflation are referred to as *real*, and noninflation-adjusted figures are referred to as *nominal*.

The rate of inflation can be measured by observing changes in the average price of a consistent set of goods and services, often referred to as a market basket. Inflation is generally measured using a price index, such as the CPI or PCE. A price index was constructed by dividing the price of a market basket in a given year by the price of the basket in a base year. Chain weighting considers changes in spending habits. The rate of inflation is then measured by calculating the percentage change in the price index across different periods.[5]

Different price indices use different goods and services within their market baskets and are generally used for different purposes. For example, CPI includes consumer goods and services typically purchased by households, which is often used to adjust household income over time. By contrast, the gross domestic product (GDP) deflator, which is generally used to adjust GDP for inflation over time, measures inflation for all final goods and services produced in the United States. Likewise, PCE measures inflation for all final goods and services purchased by consumers in the United States. Because of methodological differences, inflation as measured by CPI is slightly higher than as measured by PCE. PCE inflation is the Federal Reserve's preferred measure of inflation. There are a number of additional measures of inflation, including the Producer Price Index, Employment Cost Index, and Import/Export Price Index. For the purposes of this report, PCE inflation will be used moving forward.

Inflation is often characterized by one of two measurements: *headline* inflation or *core* inflation. Headline inflation includes the full set of goods and services within a given market basket, whereas core inflation excludes energy and food prices. Researchers often use core inflation in place of headline inflation due to the volatile nature of the price of food and energy, which can mask the longer-term trends in headline inflation that concern policymakers and economists. However, headline inflation can provide a more accurate sense of the price changes that individuals actually face.[6]

As inflation measures the general increases in prices across the economy, a change in price of any single good or service does not equate to overall inflation. However, goods and services in a particular basket are given different weights to convey the relative importance of that item to the overall economy. For example, a category of greater relative importance to the economy, such as food, will be weighted more heavily in determining overall inflation than a category of lesser importance, such as apparel.[7]

Costs of Inflation

In general, inflation can be costly to the economy—especially when it is unexpected—because it tends to interfere with pricing mechanisms in the economy, resulting in individuals and businesses making less than optimal spending, saving, and investment decisions. Additionally, economic actors often engage in actions to protect themselves from the negative impacts of inflation, diverting resources from other, more productive activities.

[5] See CRS In Focus IF10477, *Introduction to U.S. Economy: Inflation*, by Lida R. Weinstock.

[6] See CRS In Focus IF10477, *Introduction to U.S. Economy: Inflation*, by Lida R. Weinstock.

[7] Federal Reserve Bank of Cleveland, *Consumer Price Data*, https://www.clevelandfed.org/our-research/center-for-inflation-research/consumer-price-data.aspx.

Note that some of the costs of inflation also apply to deflation (falling prices), although they may manifest themselves in different ways. Most economists believe deflation to be even more costly to the economy than inflation is, as it is often associated with recessionary conditions, and therefore a small amount of inflation is considered to be ideal so as to make potential deflation less likely.

This section describes several potential types of costs of inflation and the difficulty in measuring some of these costs. Many costs of inflation will increase the higher or more sustained the inflation is. The discussion that follows provides a general description of potential costs, which may be felt more or less keenly depending on the particular circumstances.[8] In a case where inflation rises only temporarily and moderately, the costs described below would be expected to be modest.

Anticipated vs. Unanticipated Costs

Some costs are incurred only when inflation is unanticipated, while other costs arise even when the inflation is fully anticipated. When unanticipated, price signals can become misinterpreted, and this can reduce economic efficiency. But once individuals adjust to the new higher inflation rate, accurate price signals are restored, and so this cost is only temporary. Individuals can safeguard themselves against some of the effects of inflation if they expected the inflation. For example, if inflation is expected to rise, workers can demand an increase in nominal wages, or lenders can require that the interest rate they receive be tied to the rate of inflation in some way. In reality, inflation is never entirely predictable, and, as such, individuals and businesses tend to attempt to put safeguards in place, especially when inflation is high. Some costs occur only because of the absence of appropriate safeguards: for example, the absence of indexed contracts.

In a fully indexed economy—one in which all contracts are adjusted for changes in the price level—inflation can impose only two real costs: the less efficient arrangement of transactions that result from holding smaller money balances and the necessity to change posted prices more frequently ("menu costs").[9] Both individuals and businesses hold money balances in cash or bank accounts because it allows each to arrange transactions in an optimum or least costly way (e.g., for business this involves paying employees, holding inventories, billing customers, maintaining working balances) and to provide security against an uncertain future. Holding wealth or assets in a money form, however, incurs an opportunity cost—that is, what is given up when one action is taken opposed to another. The opportunity cost of holding money is the nominal interest rate (equal to the real interest rate plus the inflation rate) that could be earned if the excess money were used to purchase an interest earning asset. Thus, when the rate of inflation rises, holding money becomes more costly. Individuals and businesses then attempt to get by with smaller money balances. For businesses, this may mean billing customers more frequently. For employees, it may mean demanding to be paid more frequently. The new patterns are less efficient: They use more time or more resources to effect a given transaction. Similarly, efficiency is lost when more time and resources are used to frequently adjust prices to match inflation. This is an example of a permanent cost of inflation, which rises as inflation rises.

[8] Richard G. Anderson, *Inflation's Economic Cost: How Large? How Certain?*, Federal Reserve Bank of St. Louis, July 1, 2006, https://www.stlouisfed.org/publications/regional-economist/july-2006/inflations-economic-cost-how-large-how-certain.

[9] To some extent, the advent of certain technologies have decreased menu costs. The name comes from the costs of restaurants to print new menus—which, prior to personal computing, would have to have been contracted out to a printing service—but refers more generally to the costs to producers of changing their nominal prices.

In an economy that is not fully indexed, inflation can lower the real value of income and the real rate of return on investments, both of which can distort incentives for individuals to work and businesses to grow their capital. For example, some parts of the tax system are indexed for inflation, but others are not. Consider what happens to the real after-tax rate of return on business capital during inflation. For tax purposes, the depreciation of business plant and equipment is based on actual or historical costs. When inflation rises, charging depreciation based on historical cost raises the nominal profits of businesses and the basis on which corporate profits taxes are levied. As a result, the after-tax real rate of return falls, and this discourages businesses from adding to their stock of plant, equipment, and structures—a basis for future economic growth. This is another example of a permanent cost associated with higher inflation.

Distributional Costs

Costs of inflation to individuals may not impose a burden on the overall economy because they are in the nature of a redistribution of either income or wealth: What is lost by some is gained by others. Nevertheless, these redistributions can have real effects on the individuals affected. According to the Bank of International Settlements, that redistribution is likely to be regressive from lower income households to higher income households, because the latter are more capable of protecting themselves against inflation.[10] The bank's logic states that relatively low income households largely hold their savings as cash (which earns no return and thus has a value that falls by the full rate of inflation) or in bank accounts (which typically earn no or low returns unlikely to keep up with inflation), whereas relatively high income households avail themselves of a wider array of investment options, a number of which better control for inflation or have values that typically rise along with prevailing inflation.

In addition to savers, there is some amount of real redistribution of wealth felt by lenders and borrowers when inflation increases. Inflation lessens the value of money and therefore can be seen to benefit borrowers in the case where the terms of repayment do not account for inflation—the borrower, for all intents and purposes, will pay the lender back with money that is worth less than it was when the money was first borrowed.

Optimal Level of Inflation

Many economists have argued that low and stable inflation is conducive to higher long-term economic growth, because it minimizes the costs of inflation and reduces the risk of costly deflationary periods.[11] How exactly to define *low* and *stable* is subject to debate. High levels of inflation are clearly not optimal. For example, economies experiencing hyperinflation (when annual inflation reaches triple or quadruple digits) have historically experienced costly disruptions to the normal functioning of the economy. However, there is little consensus among economists over whether, say, 0%, 2%, or 4% inflation is preferable, although there is generally agreement that stable and predictable inflation is preferable. Since 2012, the Federal Reserve has identified an average inflation rate of 2% (as measured by the PCE) as optimal.[12] In practice,

[10] Bank for International Settlements, *Annual Economic Report*, 2021, ch. 2, https://www.bis.org/publ/arpdf/ar2021e2.pdf.

[11] Testimony of Fed chairman Ben Bernanke before the Senate Committee on Banking, Housing, and Urban Affairs, in U.S. Congress, November 15, 2005.

[12] Board of Governors of the Federal Reserve System, "Guide to Changes in the 2020 Statement on Longer-Run Goals and Monetary Policy Strategy," in *Review of Monetary Policy Strategy, Tools, and Communications*, https://www.federalreserve.gov/monetarypolicy/guide-to-changes-in-statement-on-longer-run-goals-monetary-policy-strategy.htm.

inflation always fluctuates a little from year to year, and since the early 1980s a rise in inflation in one year has not been predictably followed by higher inflation in the next year.

What Causes Inflation?

There are several potential causes of inflation in an economy. Inflation can be demand or supply driven and, in the long run, is related to monetary policy. This section discusses in greater detail a few causal categories of inflation and the role of monetary policy in controlling inflation in the short and long term.

Demand-Pull Inflation

Inflation that is caused by an increase in aggregate demand (overall spending) absent a proportional increase in aggregate supply (overall production) is known as demand-pull inflation. When aggregate demand increases by more than its trend rate, typically the productive capacity of the economy does not immediately adjust to meet higher demand, particularly if the economy is at or near full employment.[13] In response to the increased demand in the economy, producers will attempt to increase the quantity of goods and services they provide. To increase production, producers may attempt to hire more workers, increase pay for current workers (who may need to work longer hours), or invest in more equipment, all of which increase production costs. Assuming producers are not willing to eat into profits in order to ramp up production, they are likely to increase the prices of their final goods and services to compensate themselves for the increase in production costs, thereby creating inflation.[14] Inflation can work to lower demand and increase supply and thus can be the means to bring supply and demand back into equilibrium, particularly in an overheating economy in which demand has risen above what the economy can produce at full employment.

Any number of factors could contribute to increases in aggregate demand, including the normal ebbs and flows of the business cycle, consumer and investor sentiment, the value of the dollar, and fiscal and monetary policy, among others. Given the unprecedented policy response to the pandemic,[15] the role of expansionary fiscal and monetary policy in contributing to inflation has been of particular interest to many economists and policymakers. Expansionary fiscal policies include an increase in the budget deficit by lowering taxes or increasing government spending or transfers to individuals. Such policies work to increase overall spending in the economy by driving up consumer demand. This in turn can lead to increased production and decreasing unemployment levels. The downside to achieving these benefits through expansionary fiscal policy is that it can result in demand-pull inflation in the short term, particularly if the economy is at full employment. Expansionary fiscal policy is unlikely to cause sustained inflation, as expansionary policy typically involves temporary increases in spending. Such one-time increases may produce similar one-time increases in inflation but would be likely to cause persistent

[13] In an economy that is not near full employment, an increase in aggregate demand would be less likely to create inflation as this would imply that the economy is not working at its full productive capacity. In other words, if aggregate demand is lower than aggregate supply, aggregate demand has some room to increase before outstripping aggregate supply.

[14] Federal Reserve Bank of San Francisco, *What Are Some of the Factors That Contribute to a Rise in Inflation?*, October 2002, https://www.frbsf.org/education/publications/doctor-econ/2002/october/inflation-factors-rise/.

[15] See CRS Report R46729, *Federal Deficits, Growing Debt, and the Economy in the Wake of COVID-19*, by Lida R. Weinstock; and CRS Report R46411, *The Federal Reserve's Response to COVID-19: Policy Issues*, by Marc Labonte.

increases in inflation only if such policy were persistently applied. Additionally, monetary policy can potentially be used to offset the inflationary effects of such policy.

The Role of Monetary Policy in Responding to Inflation

Economists generally believe that, in the long run, inflation is tied to monetary policy. The Federal Reserve, which ultimately controls the supply of money, is tasked with maintaining stable prices in the economy. In other words, the Fed has a mandate to keep inflation in check. The Fed has tools to control inflation, mainly the federal funds interest rate—the overnight rate at which banks lend to one another. Other interest rates in the economy tend to move in the same direction as the federal funds rate, with shorter-term rates moving more closely with it and longer-term rates less so. Changes in interest rates affect overall economic activity by changing the demand for interest-sensitive spending (goods and services that are bought on credit). The main categories of interest-sensitive spending are business physical capital investment (e.g., plant and equipment), consumer durables (e.g., automobiles, appliances), and residential investment (i.e., new housing construction). All else equal, higher interest rates reduce interest-sensitive spending, and lower interest rates increase interest-sensitive spending.

Interest rates also influence the demand for exports and imports by affecting the value of the dollar. All else equal, higher interest rates increase net foreign capital inflows as U.S. assets become more attractive relative to foreign assets. To purchase U.S. assets, foreigners must first purchase U.S. dollars, pushing up the value of the dollar. When the value of the dollar rises, the price of foreign imports declines relative to U.S. import-competing goods, and U.S. exports become more expensive relative to foreign goods. As a result, net exports (exports less imports) decrease. When interest rates fall, all of these factors work in reverse and net exports increase, all else equal.

Business investment, consumer durables, residential investment, and net exports are all components of GDP. Thus, if expansionary monetary policy causes interest-sensitive spending to rise, it increases GDP in the short run. This increases employment, as more workers are hired to meet increased demand for goods and services. Most economists believe that monetary policy cannot permanently change the level or growth rate of GDP or employment, because long-run GDP is determined by the economy's productive capacity (the size of the labor force, capital stock, and so on). However, monetary policy can permanently change the inflation rate. If monetary policy pushes demand above what the economy can produce, then inflation should eventually rise to restore equilibrium.[16] Unless contractionary monetary policy is then used to slow economic activity, inflation is likely to remain at its new, higher level—in which case monetary policy is said to have accommodated higher inflation. When setting monetary policy, the Fed must take into account the lags between a change in policy and economic conditions. Otherwise, high inflation can become endemic, which might then require monetary policy to become contractionary enough to cause a recession to root it out.

Cost-Push Inflation

Inflation that is caused by a decrease in aggregate supply as a result of increases in the cost of production absent a proportional decrease in aggregate demand is known as cost-push inflation. An increase in the cost of raw materials or any of the factors of production—land, labor, capital,

[16] Olivier Blanchard and David R. Johnson, "The Phillips Curve, the Natural Rate of Unemployment, and Inflation," in *Macroeconomics*, 6th ed. (Upper Saddle River, NJ: Pearson Education, 2013), p. 171.

entrepreneurship—will result in increased production costs.[17] Assuming producers' productivity is at or near its maximum, producers will not be able to maintain profit margins in response. Much the same as the demand side issue, if producers cannot or will not accept lowered profits, they will raise prices.[18]

The classic example of cost-push inflation is the result of a commodity price shock, which sharply decreases the supply of a given commodity and increases it price. Certain commodities are inputs in the production process, and as the price of an important input good increases, so does the price of the final goods and services, resulting in inflation. Cost-push inflation, especially when caused by a supply shock, tends to result only in a temporary increase in inflation unless accommodated by monetary policy. Supply disruptions are often alleviated naturally, and for inflation to be persistently high, supply shock after supply shock would need to occur.[19]

One of the reasons a commodity shock in particular is a widely cited example of something that causes cost-push inflation is that demand for many commodities is considered to be *inelastic*. The elasticity of demand refers to how consumers' appetite for a good changes given the price it is offered at.[20] A completely inelastic good is one that consumers would purchase at the same rate regardless of the price. For example, demand for oil and other petroleum products are generally fairly inelastic: Not only are such products directly used by consumers; they are also inputs in the production and transport process with few substitutes readily available.

Another commonly cited example of cost-push inflation is caused by increases in the cost of labor, often referred to as wage-push inflation. An increase in the federal minimum wage, for example, could theoretically cause inflation. When producers need to pay their workers more, they may opt to pass that cost along to the consumer or decrease the amount of workers they employ to keep costs even, assuming they are able to do so without changing the quantity of goods or services they supply. The extent to which an increase in wages affects the price level depends largely on how many workers are affected by the wage increase and the size of the increase. In the case of the minimum wage, very few workers or very many workers could be affected, depending on the level of increase.

Expectations

Inflation expectations can add to inflationary pressures and become self-fulfilling. When individuals expect prices to rise, they generally behave according to this belief. For example, if a consumer expects prices to rise in the future, that person may decide to spend more today, before the purchasing power of the dollar decreases. If expectations change across the economy, this can lead to increased levels of spending and therefore increased aggregate demand, which, all else equal, would result in demand-driven inflation. Likewise, workers may demand wage increases to compensate themselves for future inflation, which can result in cost-push inflation, particularly in the situation in which wage growth outstrips inflation. When expectations are met, this serves to further ingrain expectations that inflation will persist or even accelerate, which in turn leads to more inflation, and so on and so on. This situation is often referred to as a *wage-price spiral* in

[17] Federal Reserve Bank of St. Louis, "Factors of Production," in *The Economic Lowdown Podcast Series*, https://www.stlouisfed.org/education/economic-lowdown-podcast-series/episode-2-factors-of-production.

[18] Federal Reserve Bank of San Francisco, *What Are Some of the Factors That Contribute to a Rise in Inflation?*

[19] Dallas S. Batten, *Inflation: The Cost-Push Myth*, Federal Reserve Bank of St. Louis, June 1981, p. 21, https://files.stlouisfed.org/files/htdocs/publications/review/81/06/Inflation_Jun_Jul1981.pdf.

[20] Federal Reserve Bank of St. Louis, *Price Elasticities of Demand*, https://research.stlouisfed.org/dashboard/9575.

the case when wage and price growth continue to cause each other to increase, leaving the potential for inflation to become increasingly high and hard to reduce.[21]

Inflation expectations can be measured by surveying consumers or professional economists, or it can be gleaned from market data, such as Treasury Inflation-Protected Securities. Historical experience suggests that individuals respond to a significant increase in actual inflation by increasing their expectations of future inflation, although this may not occur instantaneously. Another determinant of expectations is how credible individuals find the Fed's commitment to low inflation.

Inflation Trends

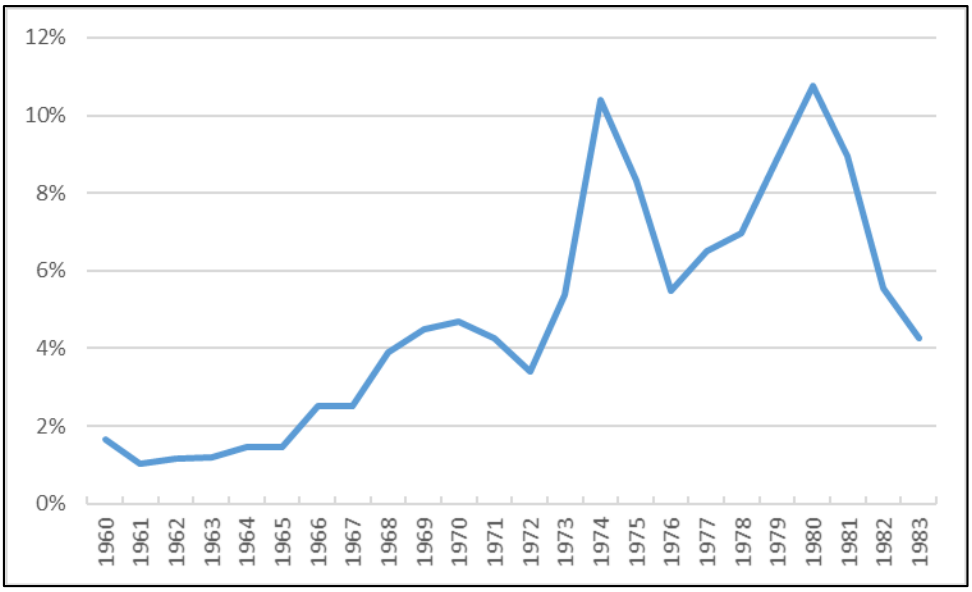
Much of the concern about the possibility of higher inflation today stems from high inflation experiences in U.S. history. A closer look at those episodes may help determine what to expect today. There are two notable types of high inflation periods to consider: the "Great Inflation" from the mid-1960s to early 1980s and some shorter-lived inflationary episodes surrounding U.S. wars.

"Great Inflation"

As shown in **Figure 1**, after averaging around 1% in the first half of the 1960s, inflation (as measured by the PCE) began rising to 2.5% in 1966, above 4.5% in 1970, nearly 10.5% in 1974, and above 10.5% in 1980. (CPI showed a similar, but somewhat higher pattern.) Inflation then began declining rapidly, with PCE falling below 4% in 1984, and it has been mostly low ever since (see **Figure 3**).

Figure 1. Annual Inflation, 1960-1983

PCE Index



Source: CRS calculations using U.S. Department of Commerce, Bureau of Economic Analysis data.

[21] Blanchard and Johnson, "The Phillips Curve, the Natural Rate of Unemployment, and Inflation," p. 164.

Economists attribute this "Great Inflation" to several causes.[22] In thinking about those causes, it can be helpful to distinguish between "supply shocks" that caused short-term spikes in inflation during that period and causes of the long-term upward trend in inflation.[23] Short-term causes include the removal of wage and price controls (implemented in 1971 and completely removed in 1974),[24] the end of fixed exchange rates in 1971 and subsequent depreciation of the dollar in real terms,[25] oil price shocks in 1973-1974 and 1979, and food price shocks in the 1970s. Inflation reached a new high after each of these shocks, which would have been unlikely to occur in their absence. But each of these factors would be expected to increase inflation only temporarily. A one-time increase in the price of oil in isolation, for example, would lead to a one-time increase in the inflation rate, but if oil prices then levelled off at the higher level, it would make no further contribution to inflation in later years (because inflation measures the change in prices, not the level of prices).

The long-term upward trend in inflation over the entire period is attributed to monetary policy that was persistently too "easy" (i.e., stimulative) and the unmooring of inflation expectations.[26] (Fiscal stimulus was employed sporadically over this period but not consistently enough to explain the long-term upward trend and not in the years with the largest increases in inflation.) The reason why policy was too easy differed in the 1960s and 1970s. During the 1960s, policymakers attempted to exploit the Phillips Curve—a belief that lower unemployment could be achieved at the cost of higher inflation. At first, this seemed to work—unemployment fell from 4.5% in 1965 to 3.5% in 1969—but then unemployment began rising and did not return to 4.5% again for the remainder of the Great Inflation. Once inflation expectations rose,[27] higher inflation no longer yielded lower unemployment, and higher unemployment was not sufficient to bring inflation down to low levels.[28] In the 1970s, when inflation rose in response to oil shocks, the Fed faced a tradeoff between raising interest rates to mitigate the inflationary effects or "accommodating" inflation to mitigate the negative effects on growth and employment. The Fed largely chose the latter option throughout the decade. The high inflation period was brought to an end when the Fed sharply tightened monetary policy under new Fed Chair Paul Volcker in the early 1980s, bringing inflation expectations back under control but triggering a deep recession in the process.

Because equilibrium interest rates, economic growth rates, and unemployment rates are not constant over time, it should be noted that it was not obvious during the Great Inflation that

[22] Michael Bryan, "The Great Inflation," *Federal Reserve History*, November 2013, https://www.federalreservehistory.org/essays/great-inflation.

[23] Alan S. Blinder and Jeremy B. Rudd, "The Supply-Shock Explanation of the Great Stagflation Revisited," in Michael D. Bordo and Athanasios Orphanides, eds., *The Great Inflation: The Rebirth of Modern Central Banking*, (Chicago: University of Chicago Press, June 2013), https://www.nber.org/system/files/chapters/c9160/c9160.pdf.

[24] The removal of wage and price controls allowed pent-up price increases to occur, causing inflation to rise.

[25] The depreciation of the dollar caused import prices to rise and increased demand for exports, which put upward pressure on overall inflation.

[26] Allan Meltzer, "Origins of the Great Inflation," *Federal Reserve Bank of St. Louis Review*, vol. 87, no. 2, Part 2 (March/April 2005), pp. 145-175, https://files.stlouisfed.org/files/htdocs/publications/review/05/03/part2/Meltzer.pdf.

[27] Data on inflation expectations going back to the 1960s is limited, but what is available seems to confirm this view. See Jan J. J. Groen and Menno Middeldorp, "Creating a History of U.S. Inflation Expectations," Federal Reserve Bank of New York, August 21, 2013, https://libertystreeteconomics.newyorkfed.org/2013/08/creating-a-history-of-us-inflation-expectations/.

[28] One lesson taken from this experience was that persistently keeping labor markets "too hot" would not yield any lasting benefits in terms of labor market outcomes. The experience of keeping labor markets "too hot" without any noticeable increase in inflation in the years before the pandemic (and, to a lesser extent, in the 1990s) casts doubt on whether this lesson still holds.

monetary policy was too easy. Although short-term interest rates rose at times in nominal terms, monetary policy remained easy because interest rates did not increase quickly enough to keep up with inflation, so real rates were low or even negative.[29] In hindsight, real rates compatible with the stable inflation experienced in periods before and after turned out to be too low during the Great Inflation, as will be discussed in more detail below. Further, equilibrium growth rates were falling and unemployment rates were rising, but because policymakers did not realize it quickly enough, they were still aiming to achieve what had become unachievable growth and unemployment rates. By current standards, budget deficits were also small—they exceeded 3% of GDP in only two years of the Great Inflation. Thus, the main evidence after the fact that policy was too easy is that inflation was too high, not that interest rates were lower or budget deficits were higher than in other periods.

Wars

An analogy has been drawn between the pandemic's economic effects and wars—both involve disruptions to supply (both production and the workforce) and sudden shifts in demand for certain goods and services that could initially increase inflation. For example, a shift to a wartime economy can lead to a sudden increase in the production of military equipment and a sudden reduction in the production of nonmilitary goods and services and, in some cases, temporarily high household saving as a result.[30] In addition, some wars featured large increases in government spending and budget deficits that were accommodated by monetary stimulus, similar to the pandemic. Thus, some have suggested looking at the inflation experience during wartime to gain insight into how inflation might respond to the pandemic.

The Vietnam War occurred during the Great Inflation period, covered in the previous section. This experience would seem to lend credence to the idea that wars can have long-lasting effects on inflation, but as the previous section outlines, several other factors are seen as the primary causes of high inflation at that time. Instead, the best examples of wars leading to inflationary pressures are World War II and the Korean War.

As shown in **Figure 2**, inflation was high during and after World War II. It was above 4% each year from 1941 to 1948, peaking at 12% in 1942 and 10% in 1947, as measured by the PCE. Prices then fell in 1949 and remained low until the late 1960s.[31] The one year when inflation was high in that period (almost 7% in 1951) was during the Korean War.[32] By 1952, inflation was below 2% again, where it would remain through 1956. The economy did not experience the same unmooring of inflation expectations and long-lasting wage-price spiral as the Great Inflation. This may be because a recession occurred shortly after both wars (in 1948-1949 and 1953-1954) that contributed to the decline in inflation. This is one key difference between these episodes and the pandemic: The pandemic triggered a deep recession followed by a rapid recovery. Thus, if the economy continues its rapid recovery today, there would be no comparable force pulling inflation down. Another key feature of these wars was a decline in government spending and the budget deficit after the war ended. CBO projects that both spending and the deficit will decline as a share

[29] The federal funds rate was not the Fed's policy target at the time, but rates that the Fed set directly, such as the discount rate, were also increased.

[30] Laura Nicolae, "US Daily: Pent-Up Savings and Inflation After World War 2," Goldman Sachs Research, February 25, 2021.

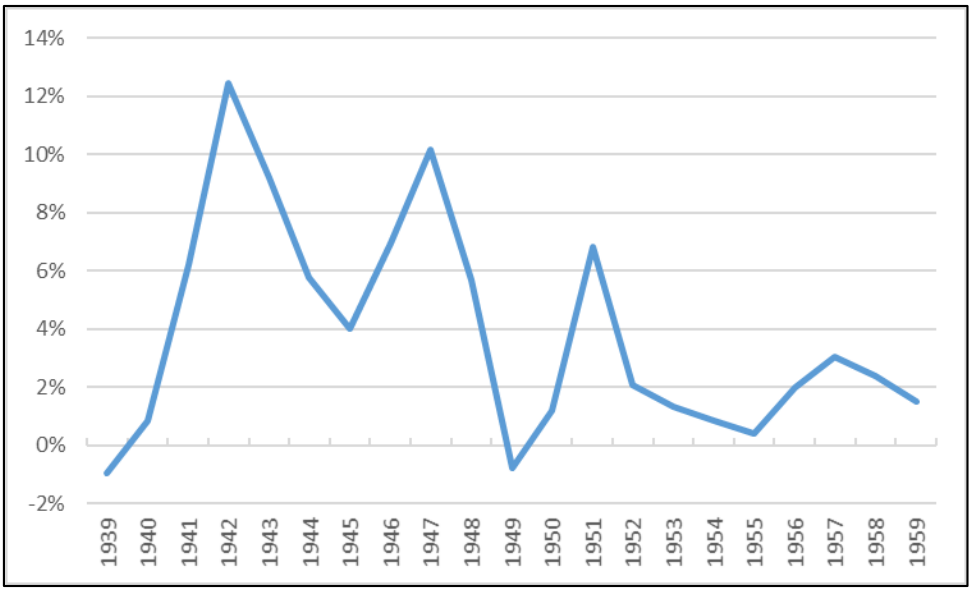
[31] World War I featured an even more extreme case of high inflation followed by deflation. That experience may be less relevant to today, however, because monetary policy was then governed by the gold standard.

[32] Joseph E. Gagnon, "Inflation Fears and the Biden Stimulus: Look to the Korean War, Not Vietnam," Peterson Institute for International Economics, February 25, 2021, https://www.piie.com/blogs/realtime-economic-issues-watch/inflation-fears-and-biden-stimulus-look-korean-war-not-vietnam.

of GDP in FY2022 under current policy, but Congress is currently debating legislation that could alter that projection if enacted. Nevertheless, both episodes demonstrate that a rise in inflation does not necessarily have to be persistent.

Figure 2. Annual Inflation, 1939-1959

PCE Index



Source: CRS calculations using U.S. Department of Commerce, Bureau of Economic Analysis data.

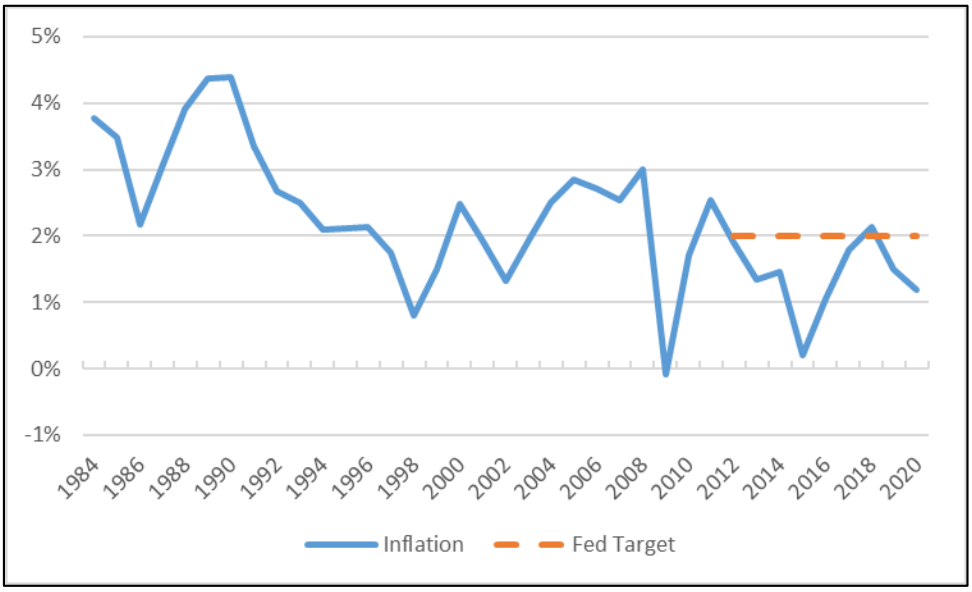
More recent wars—such as the first and second Iraq Wars and the Afghanistan War—were arguably too small in terms of military expenditures and economic impact to have a significant effect on inflation.

1980s-2020

Since the recessions of the early 1980s, the economy has not experienced comparably high inflation again. From 1984 to 1991, it averaged about 3.5%. On an annual basis, inflation (as measured by the PCE) has been below 3% since 1992 and has averaged a little under 2% from 1992 to 2020. (As measured by CPI, inflation has been slightly higher.) As a result, many economists and policymakers believed high inflation was no longer likely enough to present serious concern.

Figure 3. Annual Inflation, 1984-2020

PCE Index



Source: CRS calculations based on U.S. Department of Commerce, Bureau of Economic Analysis data.

Notes: In 2012, the Fed instituted an inflation target of 2%, as measured by the PCE index.

Since the 2007-2009 financial crisis, the Federal Reserve, as well as many economists and policymakers, have been more concerned that inflation has been too low. Since the Fed identified its ideal longer-run goal for inflation to be 2% in 2012, inflation was modestly below 2% each year except for 2018 through 2020. This persistent undershooting led the Fed to switch its focus (in terms of achieving its price stability mandate) from preventing too high inflation to preventing too low inflation. As a result, the Fed changed its monetary policy strategy in 2020 by explicitly stating that it would try to overshoot 2% inflation after periods when inflation has been below 2% in order to achieve a 2% average over time.[33]

The highest annual inflation rate since 1992 was in 2008, when it nearly reached 3%. This was mainly driven by a 14% increase in energy prices that year. That episode also featured three consecutive months of unusually rapid price increases, similar to the present. The Fed did not react to this increase in inflation—in the midst of the deepest and longest recession since the Great Depression—by tightening monetary policy.[34] Instead, the Fed was engaged in a then-novel asset purchase program (popularly referred to as "quantitative easing") that caused an unprecedented increase in the monetary base, which many critics worried would lead to runaway inflation. Critics' fears were not realized. In 2009, the economy experienced slight price deflation. This example illustrates that inflation can temporarily rise even during an unusually deep recession but that a rise in inflation does not necessarily lead to sustained high inflation. In hindsight, some believe that a mistaken concern with inflation that never materialized led

[33] Federal Reserve, *2020 Statement on Longer-Run Goals and Monetary Policy Strategy*, August 27, 2020, https://www.federalreserve.gov/monetarypolicy/review-of-monetary-policy-strategy-tools-and-communications-statement-on-longer-run-goals-monetary-policy-strategy.htm. For more information, see CRS Insight IN11499, *The Federal Reserve's Revised Monetary Policy Strategy Statement*, by Marc Labonte.

[34] As this example illustrates, the Fed has typically been more concerned with core inflation than headline inflation. Core inflation was only 2% in 2008. Unlike the 1970s, increases in food and energy prices did not feed through to increases in core inflation in the low inflation period, because inflation expectations remained stable and energy was less important to production.

policymakers to tighten fiscal and monetary policy prematurely, leading to a weaker recovery and prolonged return to full employment after the Great Recession.

Many economists believe that monetary policy was too easy during the Great Inflation, and some believe it was too tight during and after the Great Recession. Yet the federal funds rate averaged 6.8% from 1968 to 1978 and 0.7% from 2008 to 2020. This illustrates that the interest rate consistent with stable inflation is not itself constant over time. For one thing, interest rates need to be adjusted for inflation, but even once this is taken into account, "real" interest rates were higher (0.9%) from 1968 to 1978—when monetary policy was viewed as too easy—than from 2008 to 2020 (-0.9%, meaning nominal rates were on average lower than inflation)—when policy was viewed as too tight.[35] Thus, arguments that monetary policy is too easy today cannot be based solely on the fact that interest rates are zero.[36]

Current Outlook

As discussed above, inflation has been abnormally high in each month since March 2021. Using PCE instead of CPI and core inflation instead of headline inflation yields a lower inflation rate but still above the Fed's 2% target. A key policy question is whether this increase will be persistent or self-correcting. The Fed has argued that a number of temporary factors, described below, explain why inflation has risen, but those factors are unlikely to cause high inflation to persist in the future.[37] In June 2021, the median member of the Federal Open Market Committee projected that PCE inflation will rise to 3.4% in 2021 for the year as a whole before falling to 2.1% in 2022.[38] Private sector forecasts were similar. But there are several reasons why skeptics believe that these forecasts that the rise in inflation will prove moderate and fleeting are too optimistic.

Effect of Pandemic Disruptions

Since March 2020, the pandemic has disrupted businesses' ability to produce goods and services and consumers' spending patterns. These supply and demand disruptions have caused changes in the relative prices of affected goods that has caused overall prices to first fall and then rise unusually quickly. This pattern has also distorted 12-month measures of inflation since March 2021, because the year-earlier time period had unusually low prices, referred to as "base effects."

The pandemic caused numerous long-lasting business and supply-chain disruptions due to shutdowns, business interruptions, shortages, and social distancing. Some of these resulted in prices of component parts increasing and additional costs on businesses (such as extra cleaning costs), which may be passed through to consumers. The producer price index, which measures the price of inputs, increased by 1% in one month (i.e., an annualized rate of 12%) and 7.3% over the

[35] Adjusted using actual headline PCE.

[36] One challenge that the Fed has experienced since the Great Recession of 2007-2009 is the limits on monetary policy imposed by the "zero lower bound." The Fed has been limited in how much stimulus it can provide by lowering the federal funds rate, because it cannot be reduced below zero. As a result, the federal funds rate has been essentially zero from December 2008 to December 2015 and again since March 2020. Arguably, this limit on conventional monetary policy has made it more difficult for the economy to recover and has made the Fed reliant on unconventional policy to stimulate the economy.

[37] Federal Reserve, *Monetary Policy Report to Congress*, July 2021, https://www.federalreserve.gov/monetarypolicy/files/20210709_mprfullreport.pdf.

[38] The Federal Open Market Committee consists of Federal Reserve System governors and presidents and is the committee that sets monetary policy. June 2021 projections are available at https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210616.pdf.

12 months prior to June 2021. Some of these disruptions have been long lasting, such as a shortfall in microchip production, which is expected to continue for some time. Microchips are no longer limited to information technology products. With the proliferation of smart devices, microchips are now found in numerous types of consumer goods, including household appliances and vehicles. As a result, supply disruptions have emerged across a range of products. For example, the supply of new automobiles has been constrained by the shortage, part of the reason that new and used auto prices have risen sharply.

Individual supply disruptions, supply shocks, and bottlenecks are, by their nature, likely to be temporary and therefore would cause only a temporary increase in inflation. Goldman Sachs estimates that supply-constrained product categories are currently boosting core inflation by about 1 percentage point but only temporarily: By 2022, those categories are expected to decrease core inflation by about half a percentage point.[39] However, if these supply factors become ubiquitous and persistent enough, it may indicate that in the aggregate they are actually being driven by demand factors.

The pandemic also disrupted consumer spending patterns. For example, closures, social distancing, virus fears, and other restrictions in 2020 caused a dramatic decline in some categories of services that could be consumed only in person. Restaurants, hotels, and air travel are prominent examples. Prices for many of these products also experienced sizeable declines in 2020. Now that the economy is reopening, there is pent-up demand for categories of spending that were restricted in 2020. Prices for these categories are now recovering or, in cases where supply or labor disruptions are also an issue, even surpassing 2020 levels. This pent-up demand may not in and of itself cause persistent inflation in the future, however. A family that skipped vacation travel in 2020 may decide to take an extra vacation or spend more on vacation in 2021 but probably not in future years.

This is an example of how "base effects" affect inflation in the short term. Because monthly inflation data are "noisy" (i.e., they rise and fall quickly while not being indicative of a longer-term trend), economists tend to look at inflation over the previous 12 months. In March, April, and May of 2020, prices fell, and prices did not fully recover until August 2020, according to the CPI. (According to the PCE, prices fell in March and April 2020.) As a result, 12-month CPI inflation rates for March to August 2021—especially in March to May 2021—will appear high because the "base" of the calculation is a 2020 index number that is artificially low. Nevertheless, the rapid one-month increase in inflation in March, April, May, and June 2021 means that base effects do not explain the entire rise in inflation in those months.

Other goods and services, such as consumer durables (which had 28% growth in output in four quarters ending with the first quarter of 2021), were in greater demand as a result of the pandemic, as consumers could not spend on certain services and were spending more time at home. Sudden shifts in demand for certain goods can lead to short-term inflation, but in some cases, supply can eventually adjust to push prices back down. An example of this is lumber prices, which spiked when demand rose in the second half of 2020 but have subsequently declined.[40] Even if the demand shift for a particular good causes the price increase to be permanent, this does not mean that the price of the good will continue to rise in the future. If it

[39] David Mericle and Laura Nicolae, "Supply Chain Disruptions and the Inflation Outlook," Goldman Sachs, *US Economics Analyst*, June 27, 2021.

[40] Ryan Dezember, "Lumber Prices Are Way Down—but Don't Expect New Houses to Cost Less," *Wall Street Journal*, July 14, 2021, https://www.wsj.com/articles/lumber-prices-are-way-downbut-dont-expect-new-houses-to-cost-less-11626260401.

does not, then the price increase will not contribute to future inflation. This underlines the fact that long-term inflation is caused by general price increases, not relative price increases.

The rise in demand for consumer durables also appears to be driven by the increase in personal income caused by economic impact payments (often referred to as "stimulus checks") from pandemic relief legislation.[41] Because stimulus checks are one-offs, they are unlikely to cause persistent inflation.

A close look at the price of any one good or service tends to be explainable by certain unique factors. For example, some have focused on the large rise in used car prices since April 2021. But nearly every major category in the CPI has shown an above average increase in either the past three months or past 12 months to June 2021. The question is whether, when added together, these various factors point to a more general and longer lasting overheating of the economy.

Rising Asset Prices and Inflation

Asset prices are not included in the calculation of inflation, which is meant to measure only the change in the price of goods and services. Notably, houses are considered assets, so rising house prices do not factor directly into inflation. However, "owners' equivalent rent" is a large share of consumer price inflation measures and represents the hypothetical rent that homeowners would pay if they rented their houses.[42]

Equity (stock) prices, housing prices, and prices of alternative assets, such as cryptocurrencies, have all increased significantly since initially declining at the beginning of the pandemic. Because assets are not included in inflation measures, the rise in asset prices has no direct effect on inflation. Nonetheless, rising asset prices could potentially add to inflationary pressures. This connection is most direct in residential housing. If home prices rise, that may cause rents to go up, which would cause owners' equivalent rent and hence inflation to rise. More broadly, there can be a "wealth effect" on consumption when owners of assets, such as stocks, that have risen in value decide to spend more in response to their newfound wealth, which can add to inflationary pressures.

An Overheating Economy?

After the historically large decline in GDP in the second quarter of 2020, the economy grew at a historically rapid rate in the third quarter. Since then, it has continued to grow rapidly—albeit not at historical rates but at the highest three-quarter average since 1984—and is projected to continue growing rapidly through the first half of 2022. One might wonder why extremely rapid economic growth in the second half of 2020 did not cause inflation, but lower projected growth in 2021 is causing inflation concerns. The difference is attributable to where the economy is operating relative to its potential then compared to now.

As discussed above, rising inflation can reflect an overheating economy where the economy is operating at full potential and demand is still outpacing supply. One way to measure this is called the output gap. The output gap measures the difference between actual GDP and potential GDP (the most the economy could produce on a sustained basis) and is expressed as a percentage of potential GDP. When the output gap is negative, this indicates that actual GDP is that percentage below potential GDP. When positive, actual GDP is that percentage above potential GDP, and the economy is said to be at risk of "overheating." With a large negative output gap, inflationary pressures are subdued by unused resources and spare capacity. Very high growth rates are likely to be a sign that the economy is overheating only if the output gap is small or positive.

As seen in **Figure 4**, the halt in economic activity at the beginning of the pandemic caused a sudden increase in the output gap—from +0.5% in the fourth quarter of 2019 to -10.5% in the

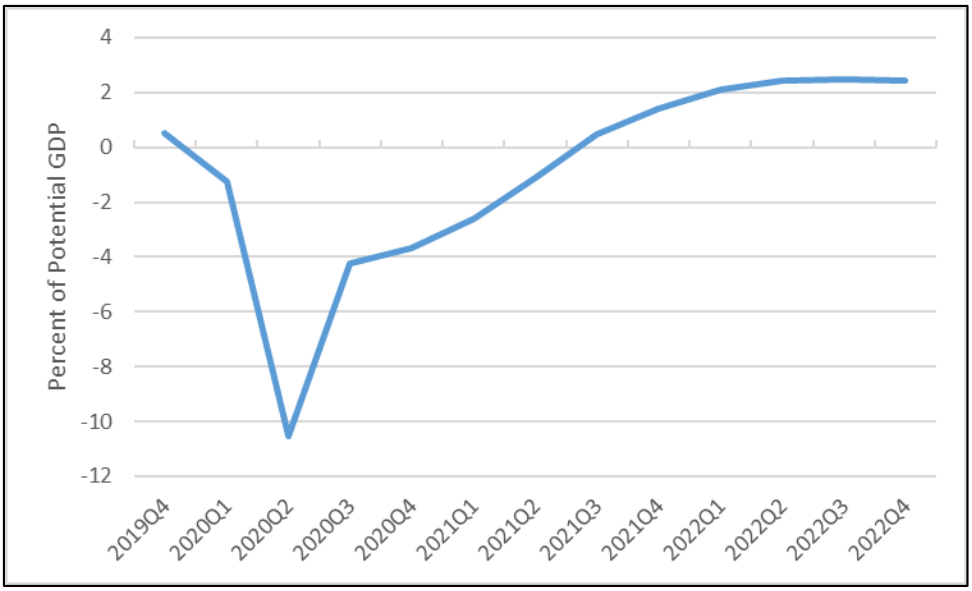
[41] See CRS Insight IN11546, *Personal Income Growth During the COVID-19 Pandemic*, by Lida R. Weinstock.

[42] It is not based on house prices or mortgage payments, which determine what homeowners actually pay out of pocket for their housing costs. It is imputed using actual rents of similar rented properties.

second quarter of 2020. The economy grew very rapidly in the second half of 2020, but a relatively large output gap remained: -3.7% in the fourth quarter of 2020. In other words, rapid growth in the second half of 2020 represented idle resources being brought back into production rather than the economy overheating. However, CBO projected that rapid growth in 2021 would close the remaining output gap and that, by the third quarter, actual GDP would exceed potential GDP based on its projection that GDP growth would exceed 6% in the first and fourth quarter and 8% in the second and third quarter of 2021.[43]

Figure 4. Projected Output Gap, 2019:Q4-2022:Q4

As a Percentage of Potential GDP



Source: CBO, 10-Year Economic Projections, July 2021, https://www.cbo.gov/system/files/2021-07/51135-2021-07-economicprojections.xlsx.

Notes: See text for details.

Because the growth pattern since the beginning of the pandemic has been unprecedented, an open question is whether growth can smoothly transition to a sustainable pace as the economy approaches full potential or whether it will overheat. CBO projected that, beginning in the first quarter of 2022, actual GDP will exceed potential by over 2% for five straight quarters (shown in the figure as a positive output gap), which could indicate sustained overheating of the economy that could result in higher inflation. As of July, CBO did not project that high inflation would persist beyond the first half of 2021, however.

The output gap and potential GDP are inferred rather than directly observed, however, and projections are always subject to uncertainty. Therefore, CBO may be overestimating how quickly the output gap will be closed even if its projections for actual growth prove correct. Namely, it is uncertain if the pandemic did any lasting damage to GDP or if potential GDP returned to its pre-pandemic course or even a higher growth course once the economy reopened. CBO estimated a modest and temporary decline in potential GDP growth during the pandemic, which would reduce the inferred output gap and cause a faster return to potential and greater inflationary pressures. Alternatively, if potential GDP were not still negatively affected by the

[43] Actual growth in the second quarter of 2021, released after CBO's projection, was 6.5%, so the output gap is likely modestly higher in the second quarter than CBO projected.

pandemic, then it would take longer for actual GDP to exceed potential than CBO projected, reducing inflationary pressures.

One reason that potential GDP during the pandemic may have fallen is because of the decline in labor force participation: With a smaller labor force, the economy is not capable of producing as much. Whether potential GDP recovers will depend on whether those unexpected dropouts return to the labor force, discussed in the next section.

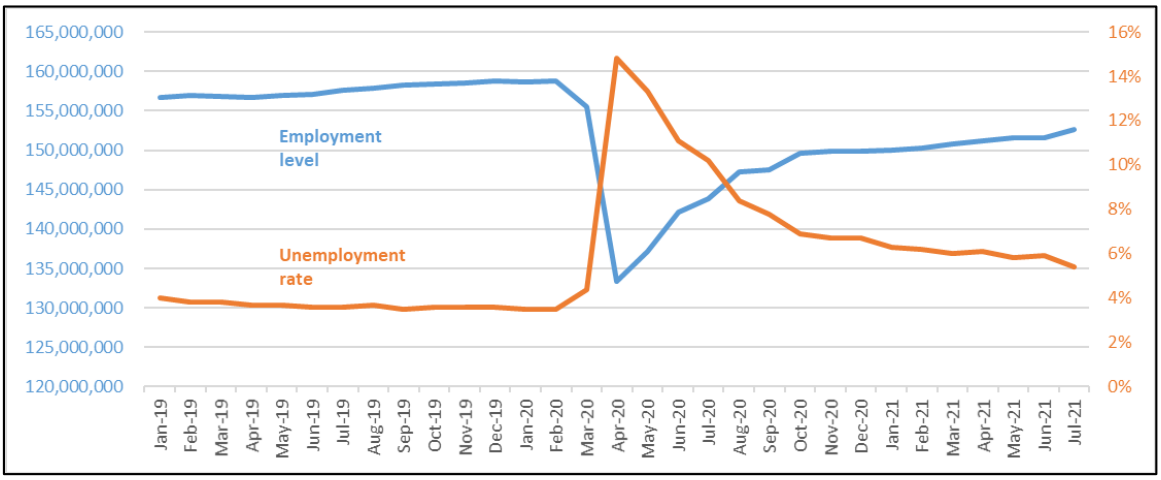
The Post-Pandemic Labor Market

The output gap is only one indicator of the economic recovery and possible economic overheating. Another primary indicator is the labor market, and the labor force has shown less recovery from the pandemic than GDP has to date. Nevertheless, current trends in the labor market have some economists and policymakers concerned that recent increases in the inflation rate are resulting, in part, from increasing wages and tight labor markets. As discussed previously, wage growth can impact inflation.

As shown in **Figure 5**, the level of employment was relatively high and the unemployment rate relatively low prior to the pandemic. Following the start of the pandemic, the unemployment rate increased rapidly to levels not seen since the Great Depression. Employment levels dropped over 20 million in April 2020 alone. While the employment situation has improved since April 2020, the unemployment rate as of July 2021 remained about two percentage points higher than in February 2020, before shutdowns went into effect, and the number of employed persons remained about 6 million lower over the same period. All else equal, this would imply a "looser" labor market—that is, one featuring a high amount of available labor relative to job openings and less upward wage pressure—in 2021 than in 2019.

Figure 5. Employment and Unemployment Situation

January 2019 to July 2021



Source: Bureau of Labor Statistics, Current Population Survey.

Despite the relatively "loose" conditions in the labor market overall—as evidenced by higher unemployment, lower employment, and lower labor force participation relative to pre-pandemic labor market conditions—some industries, such as leisure and hospitality or manufacturing, have shown characteristics of a "tighter" labor market, such as difficulty in hiring, increased worker

bargaining power, and nominal wage growth.[44] Despite the number of employed workers being relatively low, the worker-quit rate is higher than it was before the pandemic, and the ratio of available job openings to workers seeking jobs has risen significantly to the highest level in this century.[45] In terms of wage growth, **Figure 6** shows the nominal average hourly earnings (i.e., wages) of all private sector employees and employees in the leisure and hospitality sector, an industry that took relatively severe employment losses and has yet to recover in terms of employment levels.[46]

Average hourly earnings increased substantially in April 2020 as lower-wage workers lost their jobs at a higher rate than higher-wage workers at the onset of the pandemic, thereby increasing the average wage.[47] Wages began to normalize somewhat in May when overall hourly earnings dropped quickly, but they remained elevated compared to what they would have been had they continued on their pre-pandemic trajectory. Earnings growth largely returned to its previous long-term rate beginning in June 2020, although growth has been especially strong in recent months. It is, as of yet, too early to know if this recent increased rate will be sustained.

In contrast, specific components within the total private sector experienced more severe losses during the pandemic and higher rates of wage increase in recent months than the average. Taking the leisure and hospitality sector as an example, earnings losses following the early spike were more severe and the early recovery less robust as demand for in-person services was significantly dampened by restrictions and concerns over the spread of the virus. However, wages in this sector have increased at a more rapid rate in 2021 than the overall private average. In this case, the increase in wages is, in large part, an effort to attract workers, some of whom switched jobs[48] during the pandemic or are taking advantage of current labor market conditions to switch industries.[49] Thus, wage pressures in this industry may be driven more by a change in the relative attractiveness in an industry that is particularly exposed to the pandemic than emblematic of conditions in the overall labor market.

[44] Andrew Van Dam, "The Seven Industries Most Desperate for Workers," *Washington Post*, June 15, 2021, https://www.washingtonpost.com/business/2021/06/15/industries-with-worker-shortages/.

[45] Data available at https://www.bls.gov/charts/job-openings-and-labor-turnover/hire-seps-rates.htm and https://www.bls.gov/charts/job-openings-and-labor-turnover/job-openings-unemployment-beveridge-curve.htm.

[46] See CRS Insight IN11564, *COVID-19: Employment Across Industries*, by Lida R. Weinstock.

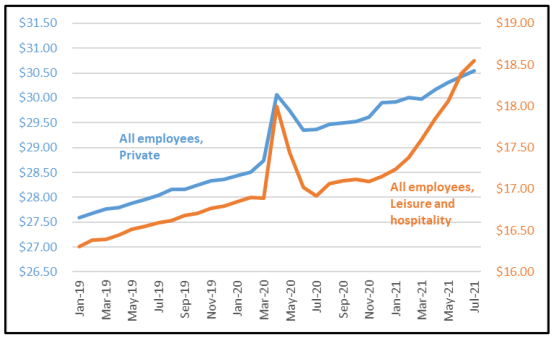
[47] Chair Cecilia Rouse and Martha Gimbel, *The Pandemic's Effect on Measured Wage Growth*, White House Counsel of Economic Advisers, April 29, 2021, https://www.whitehouse.gov/cea/blog/2021/04/19/the-pandemics-effect-on-measured-wage-growth/.

[48] Heather Haddon, Te-Ping Chen, and Lauren Weber, "Customers Are Back at Restaurants and Bars, but Workers Have Moved On," *Wall Street Journal*, July 13, 2021, https://www.wsj.com/articles/customers-are-back-at-restaurants-and-bars-but-workers-have-moved-on-11626168601.

[49] Chair Cecilia Rouse et al., *Distinguishing Between Signal and Noise in Recent Jobs Data*, White House Council of Economic Advisers, June 29, 2021, https://www.whitehouse.gov/cea/blog/2021/06/29/distinguishing-between-signal-and-noise-in-recent-jobs-data/.

Figure 6. Nominal Average Hourly Earnings

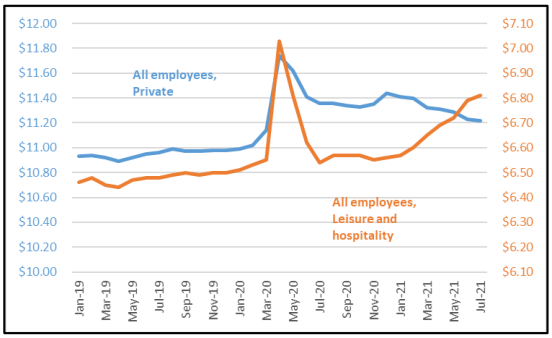
January 2019-July 2021



Source: Bureau of Labor Statistics, Current Employment Survey.

Figure 7. Real Average Hourly Earnings

January 2019-July 2021



Source: Bureau of Labor Statistics, Current Employment Survey.

Labor market tightness—and thus wage pressures—is likely to persist as long as economic growth is strong and labor force participation is low. Significant numbers of individuals dropped out of the labor force during the pandemic for a variety of reasons, including a lack of available child care,[50] fears of the virus (for those with jobs necessitating in-person interaction), and early retirements.[51] The labor force participation rate is still below what it was prior to the pandemic, and there is some evidence to suggest that some of this loss may be persistent, at least in the near term.[52]

The data above may suggest that demand for labor amidst the recovery from the pandemic could be putting some upward pressure on wages.[53] This, in turn, could put upward pressure on prices. Wage growth may also slow if supply becomes less constrained. That said, causality between wages and inflation is not unidirectional. Increased wages can put upward pressure on prices, but increased prices can also signal to workers that they should demand higher wages to compensate themselves for inflation. Should expectations of high inflation become ingrained in the public, it is likely that workers would do so, thereby putting further upward pressure on prices. As shown in **Figure 7**, overall wage gains have not outstripped inflation yet[54] and are thus unlikely to contribute to sustained increases in inflation at this point, although there have been some real gains in the leisure and hospitality sector in the past several months. Some amount of real wage growth is sustainable when it reflects gains in worker productivity. However, if labor market

[50] Lauren Bauer, *Mothers Are Being Left Behind in the Economic Recovery from COVID-19*, Brookings Institution, May 6, 2021, https://www.brookings.edu/blog/up-front/2021/05/06/mothers-are-being-left-behind-in-the-economic-recovery-from-covid-19/.

[51] The impact of unemployment insurance is not being considered because the unemployed are part of the labor force.

[52] Comparing supplemental data from the Bureau of Labor Statistics to overall data, only a minority of those unemployed and of the increase in individuals not in the labor force attribute their status to the effects of COVID. See Bureau of Labor Statistics, "Supplemental Data Measuring the Effects of the Coronavirus (COVID-19) Pandemic on the Labor Market," Table 4 and Table 9, https://www.bls.gov/cps/effects-of-the-coronavirus-covid-19-pandemic.htm.

[53] Bureau of Economic Analysis, *Personal Consumption Expenditures Price Index*, July 30, 2021, https://www.bea.gov/data/personal-consumption-expenditures-price-index.

[54] Bureau of Economic Analysis, *Personal Consumption Expenditures Price Index*, July 30, 2021.

conditions become too tight overall, surpassing full employment, wage growth may spur accelerating rates of inflation.[55]

Inflation Expectations

As discussed above, economists believe that inflation expectations are a key factor in determining whether higher inflation will persist. In the near term, expectations have risen but by less than the actual rise in inflation. For example, one survey of consumers' inflation expectations measured 4.8% over the next 12 months in June 2021—lower than actual inflation of 5.4% as measured by the CPI but higher than actual inflation of 4% as measured by the PCE.[56] Expectations for inflation over the next 5 or 10 years have shown a smaller increase that may not be significant.[57] But the fact that short-term expectations have already risen may mean that long-term expectations could also rise quickly if actual inflation persists.

Fiscal and Monetary Stimulus

In response to the pandemic, Congress and the President enacted fiscal stimulus of unprecedented size, and the Federal Reserve implemented monetary stimulus of unprecedented size.[58] The budget deficit (14.9% of GDP in 2020) reached double digits as a share of GDP for the first time since World War II, and the Fed has maintained interest rates near zero and its balance sheet increased by about $3 trillion from March to June 2020.[59]

As discussed above, stimulus is not in and of itself inflationary, but stimulus can lead to high inflation if it causes the economy to overheat. Stimulus helped stabilize an economy where output fell by about one-third in the first half of 2020 without causing inflation to rise. But now that the output gap is projected to close rapidly, economists have debated whether continued stimulus is necessary to support the economic recovery or whether it is contributing to overheating and high inflation.

Under current law, fiscal stimulus is mostly temporary and is scheduled to begin being withdrawn in 2021, a process that will reduce budget deficits gradually but still leave them historically high relative to GDP in coming years. In July 2021, CBO projected that, under current policy, deficits will decline from 14.9% of GDP in 2020 to 13.4% in 2021 to 4.7% in 2022 before falling to more normal shares of GDP in 2023.[60] By one measure, fiscal policy became contractionary in the second quarter of 2021.[61] However, more fiscal stimulus may be enacted in the 117th Congress.

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[55] Laurence Ball and N. Gregory Mankiw, "The NAIRU in Theory and Practice," *Journal of Economic Perspectives*, vol. 16, no. 4 (Fall 2002), pp. 115-136, https://scholar.harvard.edu/files/mankiw/files/jep.ballmankiw.pdf.

[56] Gwynn Guilford, "A Key Gauge of Future Inflation Is Easing," *Wall Street Journal*, July 26, 2021, https://www.wsj.com/articles/a-key-gauge-of-future-inflation-is-easing-11627291800. Data available at https://fred.stlouisfed.org/series/MICH.

[57] Federal Reserve, *Monetary Policy Report to Congress*, July 2021, p. 20, https://www.federalreserve.gov/monetarypolicy/files/20210709_mprfullreport.pdf.

[58] International Monetary Fund (IMF), *United States 2021 Article IV Consultation—Press Release*; Country Report No. 21/162, July 2021, https://www.imf.org/en/Publications/CR/Issues/2021/07/22/United-States-2021-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-462540?cid=em-COM-123-43429.

[59] For details, see CRS Report R46729, *Federal Deficits, Growing Debt, and the Economy in the Wake of COVID-19*, by Lida R. Weinstock; and CRS Report R46411, *The Federal Reserve's Response to COVID-19: Policy Issues*, by Marc Labonte.

[60] CBO, *An Update to the Budget and Economic Outlook: 2021 to 2031*, July 2021, https://www.cbo.gov/system/files/2021-07/57218-Outlook.pdf.

[61] Brookings Institution, "Hutchins Center Fiscal Impact Measure," July 30, 2021, https://www.brookings.edu/

On August 24, 2021, the House agreed to a rule (H.Res. 601) that adopted a FY2022 budget resolution (S.Con.Res. 14) and began debate on a major infrastructure bill (the Senate-passed version of H.R. 3684). The budget resolution included reconciliation instructions allowing for $3.5 trillion in spending over 10 years in future legislation. Until enacted, it is premature to predict what effect, if any, these legislative proposals might have on the economy and inflation.

The plans' effects on inflation are not the only, or even the primary, consideration in evaluating their costs and benefit. Nevertheless, in terms of inflationary effects, the main question is what level of fiscal stimulus is consistent with a brisk return to full employment without overheating the economy. Some economists have argued that the existing stimulus already enacted alone is too large relative to the current output gap, increasing the risk of high inflation.[62] Additional stimulus would add to those risks. Theoretically, if inflation were to prove persistent, other fiscal or monetary policy measures could be taken to reduce the level of stimulus. In practice, political considerations could make that difficult.

The Fed has also signaled that it does not intend to withdraw monetary stimulus in the near term. In July 2021, the Fed stated that it did not intend to raise interest rates above zero "until labor market conditions have reached levels consistent with the committee's assessments of maximum employment and inflation … is on track to moderately exceed 2% for some time" and would not reduce its asset purchases for the time being.[63]

The Fed has a statutory mandate to achieve maximum employment and stable prices, which it defines as 2% inflation as measured by the PCE. Higher inflation creates a conflict in how the Fed should approach its two statutory goals—it could tighten policy in response to higher inflation or maintain stimulus to address the employment shortfall.

There are several reasons the Fed believes that maintaining the stimulus currently in place is necessary. First, employment—almost 7 million below its pre-pandemic level—is still below what the Fed believes maximum employment to be. Second, the pandemic, in the midst of the Delta surge, still poses risks to the economic recovery. Third, although higher inflation has already materialized, the Fed does not believe that high inflation will persist or that inflationary expectations will rise. Fed leadership projected in June that inflation will fall to around 2% by 2022. Fourth, the measures of inflation that the Fed is focused on show lower rates of increase than does headline CPI, which attracts the most media attention. The Fed focuses on PCE, and the Fed typically responds more to movements in core than headline. Core inflation—while still above average—has been lower than headline inflation. Core PCE has recently been about two percentage points lower than headline CPI.

Fifth, in 2020 the Fed announced that it would aim to achieve an average inflation target of 2% that features periods of above 2% inflation to compensate for periods of below 2% inflation. Higher inflation in 2021 is consistent with this strategy. Because inflation has been below 2% by the Fed's preferred measure (PCE) in most years since the 2007-2009 financial crisis, a period of

interactives/hutchins-center-fiscal-impact-measure.

[62] See, for example, Lawrence H. Summers, "The Biden Stimulus Is Admirably Ambitious. But It Brings Some Big Risks, Too," *Washington Post*, February 4, 2021, https://www.washingtonpost.com/opinions/2021/02/04/larry-summers-biden-covid-stimulus/; Olivier Blanchard, "In Defense of Concerns over the $1.9 Trillion Relief Plan," Peterson Institute for International Economics, February 18, 2021, https://www.piie.com/blogs/realtime-economic-issues-watch/defense-concerns-over-19-trillion-relief-plan. The IMF projects that if the American Rescue Plan, American Jobs Plan, and American Families Plan were enacted, inflation would rise from below 2% to above 3% in 2021 before falling below 3% in 2022. The IMF also projects that GDP would be higher and unemployment would be lower. IMF, *United States 2021 Article IV Consultation—Press Release*.

[63] Federal Reserve, *Federal Reserve Issues FOMC Statement*, press release, July 28, 2021, https://www.federalreserve.gov/newsevents/pressreleases/monetary20210728a.htm.

inflation above 2% is needed to return to an average inflation rate of 2%. How much higher and for how long depends on the starting point. For example, the last time headline PCE exceeded 2%, it was 2.1% in 2018. If 2019 is taken as the starting point, average inflation would average almost exactly 2% from 2019 to 2021 if the Fed's median June projection for 2021 (3.4%) is correct. In other words, an inflation rate of 3.4% in 2021 is necessary to achieve a three-year average inflation target of 2%. As inflation was below 2% for several years before 2018, one could also pick an earlier starting point for the average inflation target, such as 2012. To average 2% inflation over the period 2012-2021, inflation would have to be 7.6% in 2021 to make up for the larger shortfall. Alternatively, inflation would have to be 3% every year from 2022 through 2025 to reach an average of 2% (assuming the Fed's projection for 2021 is correct). One can disagree with the Fed's strategy, but if the Fed reacted to the current increase in inflation by tightening policy, it would make it less likely that average inflation would reach its target of 2% because of past shortfalls.

The decision to not withdraw stimulus in reaction to inflation that is already above its 2% target underlines how its strategy for achieving price stability has changed. From the 1980s to the financial crisis, the Fed's strategy for achieving price stability was to tighten monetary policy preemptively *before* higher inflation had emerged. It believed that this was necessary because of lags in the time it took for a change in monetary policy to affect inflation and in order to keep inflationary expectations contained. Now, the Fed is signaling it would wait until *after* higher inflation has proven to be persistent to raise rates.

The Fed may be correct in its assessment today that higher inflation will not persist, but if it is wrong, it might not realize until it is too late and higher inflation has become embedded. In that case, it could be costly to the economy to get the "inflation genie back in the bottle" down the road. To some critics, this change in philosophy is a sign that the Fed no longer has the same commitment to ensuring price stability. This could be an issue, because if individuals stop believing the Fed is committed to low inflation, it makes it harder for the Fed to achieve low inflation because it keeps inflationary expectations anchored.

Will Money Supply Growth Lead to High Inflation?

Some commentators are concerned that current monetary policy will cause high inflation based on a "monetarist" explanation of inflation—that inflation rises when the money supply persistently and significantly outpaces the demand for money. The Fed's policies during the pandemic have been mostly financed by a rapid increase in the monetary base (currency and bank reserves). Currently, monetary base growth is mainly being caused by the Fed's $120 billion monthly purchases of Treasury securities and MBS. Increases in the monetary base can lead to increases in the broader money supply, and one measure of the money supply (M2) increased 16% from February 2020 to May 2020 and an additional 14% in the 12 months after that.[64] However, rapid increases in the money supply (albeit not as rapid as the growth between February and May 2020) did not result in higher inflation during the Great Recession, and the Fed has introduced new tools, such as paying interest on bank reserves and the Overnight Reverse Repurchase Agreement Facility, to contain inflationary pressures caused by growth in the monetary base.[65] In the Fed's view, the growth in the money supply to date has few implications for inflation.[66]

[64] M1 cannot be used over this time period, because a definitional change to include savings accounts caused it to quadruple.

[65] The Fed's goal in expanding the monetary base was to put downward pressure on interest rates and, in the spring of 2020, prevent a liquidity crisis by flooding the financial system with liquidity. It does not assess its policies based on their effect on the money supply.

[66] Federal Reserve, *Historical Approaches to Monetary Policy*, https://www.federalreserve.gov/monetarypolicy/historical-approaches-to-monetary-policy.htm.

Conclusion

The economy has not yet fully recovered from the pandemic, but GDP is recovering quickly. Rising inflation reflects factors unique to the pandemic and the rapid recovery, aided by the unprecedented fiscal and monetary policy implemented since early 2020. If projections are correct, the increase in inflation would be moderate, fleeting, and self-correcting. If so, policy changes that were overreacting to the increase could be harmful to the recovery. For example, with employment still low compared to before the pandemic, changing policy in reaction to a temporary increase in inflation could prolong the return to full employment.

Withdrawing stimulus prematurely poses risks—namely, that the recovery will falter without fiscal and monetary support or it will become necessary if another deterioration in public health causes another dip in economic activity. To illustrate these risks, some would argue that the tightening of fiscal and monetary policy after the Great Recession led to a weaker recovery and a prolonged return to full employment. But leaving stimulus in place too long also poses risks—an increase in inflation that becomes entrenched and costly to dislodge in the future, as well as exacerbating sectoral imbalances in the short run. The Great Inflation ended after the Fed's policies resulted in the federal funds rate reaching as high as 19%, causing a deep and prolonged "double dip" recession. Beginning to withdraw stimulus now might prolong the return to full employment, but the economy has repeatedly demonstrated an ability to eventually return to full employment so long as expansions last long enough.

Author Information

Marc Labonte
Specialist in Macroeconomic Policy

Lida R. Weinstock
Analyst in Macroeconomic Policy

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