

# **Stable Monetary Policy to Connect More Americans to Work**

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**social capital project**

A project of the Joint Economic Committee – Republicans | Chairman, Sen. Mike Lee  
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## INTRODUCTION

Deep recessions are not only economic, but social disasters. Lost income makes it less affordable to start and maintain families. Layoffs disconnect people—often already-marginalized people—from the labor force, depriving them of the social ties, emotional stability, and structure that come with working life. Both financial and personal investment into the institutions of civil society decline. Some of these wounds heal with the labor market during recoveries. Others leave long-lasting—even permanent—scars.

After the longest expansion on record, culminating in low unemployment rates not seen in half a century, the coronavirus pandemic plunged the United States overnight into a severe recession. While the ongoing downturn was clearly produced by an external shock unrelated to the state of the economy or economic policy, such recessions have, in recent decades, tended to be the exception rather than the rule. Just as more effective public health policies might have headed off the current recession, better economic policies might have averted many recessions in the past, including the Great Recession, and could prevent future recessions.

Avoiding future costly downturns like the Great Recession should be a top priority of economic policy. This report will trace the ways that monetary policy, in particular, can be improved to avoid the mistakes of the recent past and the consequences of those mistakes. Monetary policy in the United States is implemented by a central bank, the Federal Reserve, with objectives established for it by Congress.

It might be ideal if federal policymakers could ignore monetary policy, or somehow put it on autopilot, leaving people free to exchange good and services without government having to concern itself with the amount of currency in the economy or interest rates. Unfortunately, short term conditions can change in ways that cause spending to grow more slowly or fall, creating a shortage of currency in circulation. As discussed below, the long-term nature of contracts and the related tendency of prices and wages not to fall during downturns can prevent quick market corrections. Consumers, lenders, employers, and other market participants may then react by continuing to slow their spending, prolonging the downturn. Eventually, the economy will return to a healthy equilibrium and adjust to new price levels, though potentially with large temporary economic costs in the form of joblessness. These costs can be avoided if, early on, central banks increase the supply of currency in circulation.

At other times spending will rise too quickly relative to what the economy is producing. The currency issuer can head off painful disequilibria characterized by inflation by reducing the supply of currency.<sup>1</sup>

Thoughtful analysts bucking convention have envisioned a world of competing currency offerings by private and public institutions, and questioned the economic, policy, and constitutional underpinnings of the Federal Reserve. This report does not address those arguments; rather, it proceeds from the premise that the Federal Reserve will remain the monopoly issuer of currency. Given this role, it has to make decisions about how much currency to supply to the economy and when. Rules that anchor the currency supply to some economic benchmark promote predictability and stability for the consumers and investors who use the currency. They also remove discretion from Federal Reserve officials, whose decision-making is unavoidably influenced by the biases and pressures that affect even the most hard-headed analysts.

The best anchor for monetary policy decisions is nominal income or nominal spending—the amount of money people receive or pay out, which more or less equal out economy-wide. Under an ideal monetary regime, spending should not be too scarce (characterized by low investment and employment), but nor should it be too plentiful (characterized by high and increasing inflation). While this balance may be easier to imagine than to achieve, this report argues that stabilizing general expectations about the level of nominal income or nominal spending in the economy best allows the private sector to value individual goods and services in the context of that anchored expectation, and build long-term contracts with a reasonable degree of certainty. This target could also be understood as steady growth in the money supply, adjusted for the private sector's ability to circulate that money supply faster or slower.

Unfortunately, Federal Reserve policy from 2007-2018 erred too far towards curbing the growth of nominal spending—a stance known colloquially as “too tight” monetary policy. The result was a long, persistent “output gap,” or shortfall in GDP relative to what the economy could have produced with more ample nominal spending. While not the only policy problem of the time period, the output gap was a clear consequence of the Federal Reserve's choice of policy anchor and its level of commitment to the anchor.

The mass unemployment that followed the 2008 financial crisis was an economic disaster whose effects will be felt for years to come. Americans lost trillions of dollars of income and tens of millions of years of work.

The job losses were also concentrated among disadvantaged groups, increasing inequality along the dimensions of both education and race.

This era is useful to study because it can inform policy in future recessions, including, to some extent, the current one. A well-chosen and consistent monetary policy anchor will not solve every problem—and certainly not ones directly related to public health—but it can facilitate the execution of financial and business contracts and shore up the social contract by lowering uncertainty about the future.

## CHARACTERISTICS OF OUTPUT GAPS

Output gaps are the difference between actual output (what the economy produces) and potential output (the maximum amount the economy could produce sustainably over the long term with the general price level in equilibrium.)

The second half of this definition is a difficult counterfactual, one that can never be fully established as fact, but it is useful conceptually and at least somewhat measurable. The economy includes some long-run or “structural” unemployment; there was still some unemployment in 2007, and there was still some at the top of the 2020 economic peak. But there is also short-run or “cyclical” unemployment, which manifests in times of financial turmoil and then recedes as the economy improves.

Output gaps essentially involve the cyclical unemployment: the work and income lost to the business cycle. To the extent that output gaps are measurable, one could measure them in person-years of work lost, or cumulative GDP lost over time.

The most recent example of a typical large output gap comes from the 2008-2009 recession, when 8.7 million nonfarm jobs were shed. The output gap then persisted for about a decade; the jobs were not immediately regained, but rather, slowly added back over a period of many years.

Output gaps are frequently concurrent with—but distinct from—recessions. Recessions are typically defined through periods of output contraction (for example, two quarters of consecutive decline.) Output gaps are conceptually different from output contraction; they concern levels, not growth rates. An economy with an output gap is an economy that is smaller than it would be under normal financial conditions; and this could be the case regardless of whether it is growing or contracting at the moment.

It is possible to have a recession without an output gap; for example, an economy suffering from population loss could contract without having a problem of unemployed resources. It is also possible to have an output gap

without a recession. For example, if many workers lost jobs due to a financial crisis, and the economy began gradually putting them back to work, one could see positive growth even as many were still jobless. There was an output gap well into the current recovery. Even an entirely recessionless period could include an output gap; for example, low aggregate demand could cause joblessness for many workers—and therefore, an output gap—even while productivity gains for other workers create enough growth to overcome that weakness and produce a positive aggregate growth number.

This report focuses on output gaps because they are undesirable, and they could be mitigated with commitment to a nominal income anchor.

### *Output Gaps Begin with Slowdowns in Spending*

Output gaps tend to begin with a slowdown, or even a decrease, in spending throughout the economy. A sudden and sharp decrease, like that of 2007-2009, is known as an aggregate demand shock. Under such conditions, individuals and firms choose to hold more cash or government debt, and spend less on consumer goods or investments.

Spending is determined by both private-sector conditions and monetary policy conditions. For example, if new information shows that some private-sector investments or loans are riskier than people previously thought, they may respond by lending less to the risky private sector and holding more of their savings in riskless, government-issued financial assets. However, the government has some influence on this decision as well through the setting of short-run interest rates. If it sets interest rates higher than economic fundamentals warrant, people will park more of their money with the government to earn a risk-free return, and spend less money on investment and consumption; if the government sets interest rates relatively low, people will spend more.

Whatever the cause, a spending pullback in consumption and investment is almost by definition a reduction in nominal GDP, as those two components—consumption and investment—comprise the vast majority of GDP. Unless either foreigners or the government purchase more on net to offset a pullback in spending from the private sector, nominal GDP must necessarily fall.

While nominal GDP is not the same as real GDP, there is a strong correlation between the two measures in practice. A fall, or even a slowdown, in nominal GDP often results in an output gap.

### *Output Gaps are Disequilibria, Not Efficient Market Outcomes*

Shocks to nominal GDP (money spent) create shocks to real GDP (goods and services purchased), and output gaps, because they throw prices into disequilibrium. When nominal spending becomes scarcer, prices set prior to that scarcity will be too high. Consider a sharp drop in nominal spending like that of the 2007-2009 demand shock. Prices set to be efficient and market-clearing in 2007, prior to the demand shock, were not efficient by the end of 2009. However, because many prices are slow to adjust—or, more colloquially, “sticky”—the old, too-high-for-2009 prices persisted despite their inefficiency, and markets failed to clear.

The pre-shock prices in such a situation function like a price floor in a basic microeconomic supply-and-demand model; if a price is set above the point at which supply and demand meet, there will be a surplus of producers willing to sell at the price, but a shortage of buyers. Fewer goods and services will be purchased or sold.

The most important of the prices thrown out of equilibrium by an unstable market are the prices for labor: wages, salaries, and benefits. By the end of 2009, there was a surplus of producers willing to sell their labor at prevailing wage levels, but a shortage of buyers. Put more simply: there was unemployment.

### *The Market Cannot Adjust Immediately to Demand Shocks*

Markets are often resilient to some shocks, updating prices quickly and reaching new equilibria. It is worth asking why markets do not update quickly in response to aggregate demand shocks. If the economy efficiently employs resources at one level of nominal spending, why is another not equally good? Why can't prices just scale down by an appropriate factor, leaving the real economy—the amount of goods and services produced—entirely unchanged?

If this were possible, and every single dollar-denominated quantity changed by the same amount in the economy all at once, that would be fine and life would go on unchanged. However, in practice such immediate adjustment to a shock to nominal GDP is impossible. Free markets depend on long-run contracts, implicit and explicit. Job offers, mortgages, bonds, and leases all come with expectations—or even formal obligations—that last months, years, or decades into the future. Because these contracts cannot adjust, equilibria in the private sector cannot immediately adapt to unexpected changes in overall nominal spending.

Consider, in particular, the labor market, which is unusually slow to adapt. One might assume that it is at least legally possible for many employers to cut wages—and that their employees might, in the absence of better options, accept such cuts. In practice, this rarely happens. Empirically, wages are “sticky,” and especially, “sticky downward.” Research into wage changes for

individual workers show that very few workers have their wages cut, but a large number of workers each year end up with a precisely zero change in their nominal wage.<sup>2,3</sup> This distribution suggests that firms are reluctant to cut wages. While each employer has its own reasons, one clear reason to avoid cutting wages is that it is acrimonious to ask workers to accept the cuts.

Recent research extends the empirical evidence of sticky wages further, and shows that even for new hires—for employment contracts that do not even exist yet—employers are unlikely to cut wages for a particular job title during contractions.<sup>4</sup> There are many plausible ways to explain this behavior, but the simplest is that employers value some sort of equity between the new hires and incumbent employees of the same job.

Even unemployed workers—at least, those not immediately desperate for money—may contribute to the sticky wage phenomenon through aversion to pay cuts when they take a new job. A worker who earned a particular salary in the past may expect that salary again, even from a new employer.

Whatever the reasons for the empirical fact of sticky wages, the evidence is clear that nominal wage levels can endure for years without reaching equilibrium; if a wage level is too high to be market-clearing, the labor market will wait as long as it takes for that level to clear markets once more. In the meantime, though, unemployment will endure.

The same sort of dynamics affect other prices. A landlord might want to offer new customers lower rent in order to take units off the market, but doing so might require her to lower prices for her existing renters. So instead, vacant apartments take longer to fill.

Finally, firms often require the useful information embodied in other firms' prices in order to update appropriately. When a firm picks the optimum or equilibrium price for its own products, it does so not just based on the state of the economy as a whole, but also based on the asking prices of input goods used in the production process, or the listed prices of competing products. If all prices are thrown out of equilibrium at once—as happens in a recession—a firm cannot adjust completely to new conditions because of sluggish price adjustments from other firms.<sup>5</sup>

One feature—perhaps even the defining feature—of well-functioning free markets is that firms and individuals do not need to independently calculate the value of every good or service they purchase, sell, or compete with. They can instead take prices from others as a given and respond accordingly. This channel breaks down during recessions, because all prices are out of equilibrium at once.

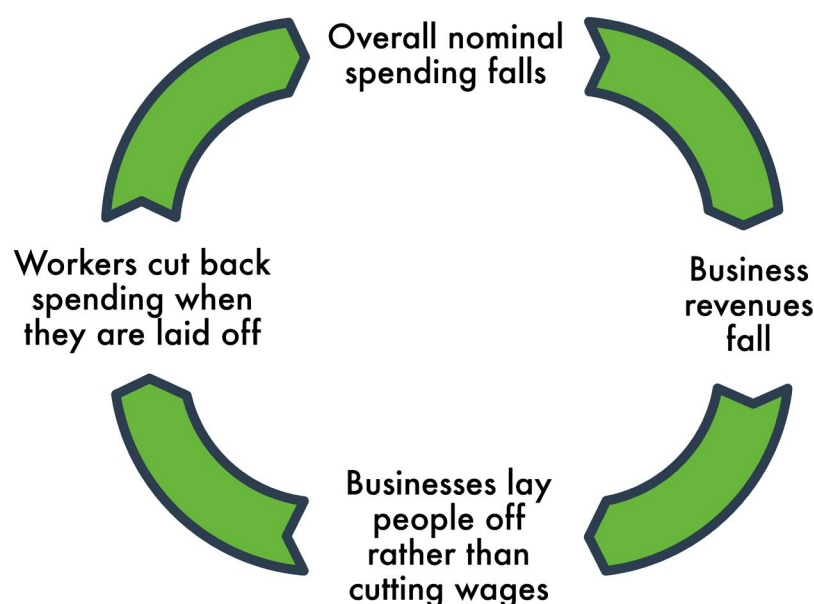
For example, a retailer might see signs of a recession when sales fall. It knows it must adjust its prices downward to keep its inventory moving. However, the wholesale prices of its inventory remain—at least for now—unchanged.

The retailer reduces its prices modestly, but not too much, in order to protect its margins. Later on, it becomes clear that the retailer's suppliers are also struggling to move their products in the recession, and they cut prices as well. Then, and only then, can the retailer cut prices further, spurring sales while still making a reasonable margin on its sales. Rather than a single price adjustment to restore equilibrium, the retailer has to go through a slow, iterated process where firms react to each other's price updates.

Simple economic models use a frictionless theory of the economy where smart agents update their prices immediately to address surpluses or shortages. Certainly, that is the rational thing to do, and people attempt to do it as fast as they can. However, it is more difficult than it looks on paper. Norms, contracts, loss aversion, and difficulties in gathering information all combine to create substantial inertia in overall price levels.

### *Feedback Loops Compound the Problems of Demand Shocks*

A second reason that markets struggle to handle aggregate demand shocks is that demand shocks generate what economists call general equilibrium effects; disequilibria in money and wages are powerful enough to change the nature of the whole economy. Therefore, in analyzing the problem, it is not enough to note that too-high prices result in over-supply and under-demand for labor. One must then consider the impact this unemployment has on the economy as a whole, and any second-order results springing from that impact. In the case of cyclical unemployment, some of the major second-order results reinforce, rather than mitigate, the original problem. Spending in the economy falls, demand for labor falls, people become unemployed because of sticky wages, and then spending in the economy falls further because unemployed people spend less.





This kind of feedback loop can be extraordinarily powerful; it is the primary mechanism by which problems in mortgages in the mid-2000s ultimately resulted in millions of job losses for people in unrelated industries. The cycle shown above is not the only feedback loop present in recessions; for example, businesses cut back spending on capital goods in addition to labor, out of natural fears that the capital good will not be a worthwhile investment with the economy in a downward spiral.

In fact, all throughout the economy, individuals and firms can respond to aggregate demand shocks by cutting back spending further. Savers shift their earnings from risky new investments in new or marginal capital to bidding up the prices of safer, less productive, assets. Consumers—even those who still hold jobs—decide to tighten their belts and hold more cash or cash equivalents, and eschew new loans.

One of the most powerful feedback loops can come from government policy; if the central bank is sluggish to respond to a demand shock, and maintains short-run interest rates at a too-high level, then government creates additional demand-side failure by offering lenders much better terms than the private sector; it then becomes increasingly advantageous for savers to park their money with the federal government, rather than putting it to work funding more productive private-sector investments.

While not all of the general equilibrium effects of demand shocks are self-reinforcing, many of them are—and powerful enough that the problem can quickly run away from policymakers and become painful to resolve.

### *Summary*

The description of output gaps above ultimately leads to two points about them: first, that output gaps are a considerable problem, and second, that they are related to the federal government policy choices in issuing currency.

Sharp, unexpected changes in the path of nominal spending—or demand shocks—throw prices out of equilibrium throughout the economy. Layoffs born of this problem are not efficient “creative destruction,” or the magic of efficient markets at work; instead, they are glitches in the system of currency issuance, interacting with contract law, norms leading to sticky prices, and individually rational behavior creating feedback loops. Government compounds, rather than alleviates, this problem, when it offers attractive risk-free returns—essentially, above-market rates—on government assets during demand shocks, crowding out or deterring private spending.

Conditional on a policy framework where the federal government issues financial assets and legal tender, there must be some rules—implicit or explicit, mandatory or discretionary—that determine when government-issued financial assets are issued, and what they can be redeemed for.<sup>6</sup> These rules are monetary

policy, and the government necessarily has one, whether it wants to or not.

Currency issuers must be aware of this consequence: the financial assets they issue create a “hurdle rate” for the currency’s users; holding onto those assets is a choice for households and firms, one that competes directly with the alternatives of holding private-sector financial assets or directly and immediately purchasing goods or services.

If government is to issue financial assets, it should do so in a way that minimizes distortions. As the harms of output gaps are severe, government should make sure that its issuance of financial assets does not unintentionally distort markets and create output gaps unnecessarily.

## **THE PAIN OF OUTPUT GAPS IS INTENSE AND CONCENTRATED AMONG THE MOST ECONOMICALLY DISADVANTAGED**

We can reliably make at least two quantitative claims about output gaps: the first is that they are especially large economic policy problems. The second is that the pain from output gaps is unevenly distributed; those who lose their jobs suffer a great deal more than those who retain their jobs, or had savings in cash or bonds.

### *Output Gaps Constitute a Large Economic Inefficiency*

When economists speak of inefficiency, they usually think of suboptimal production; a worker produces one good rather than another, even though the second good would better maximize overall well-being. Inefficiency happens for a variety of reasons—regulations, taxes, monopolies restricting supply, environmental externalities—and it can be a serious problem.

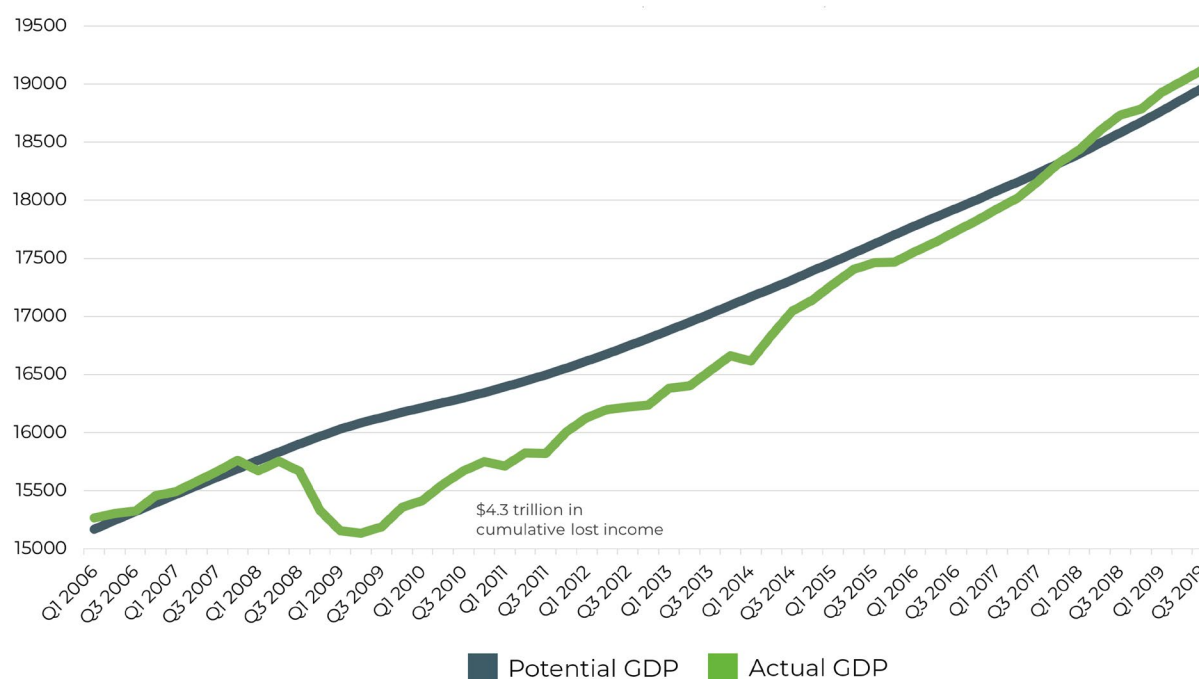
However, suboptimal production is still production. It typically creates producer and consumer surplus—just not as much surplus as the most efficient outcome would have. By contrast, under an output gap, there are workers who remain unemployed entirely.

Output gaps are also more important than any industry-specific policy problem because they affect many or all industries simultaneously. The scale of job loss from the Global Financial Crisis—8.7 million lost, even as population grew—was orders of magnitude larger than other individual policy problems in the U.S. economy. More importantly, it remained large for years afterwards; the depressed levels of employment persisted.

### *Estimating the Total Cost of Last Decade's Output Gap*

Below are the official figures for actual GDP and potential GDP, as estimated by the Bureau of Economic Analysis (BEA) and Congressional Budget Office (CBO) throughout the recent decade. The CBO's measure of potential GDP is based primarily on assumptions about how fast productivity is expected to grow, and on how many people it expects could be employed sustainably without accelerating inflation. Multiplied together, these two factors produce potential GDP.<sup>7</sup>

Figure 1. Actual and Potential GDP (Billions of Chained 2012 Dollars)



Sources: U.S. Congressional Budget Office, Real Potential Gross Domestic Product [GDPPOT], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPPOT>; U.S. Bureau of Economic Analysis, Real Gross Domestic Product [GDPC1], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPC1>

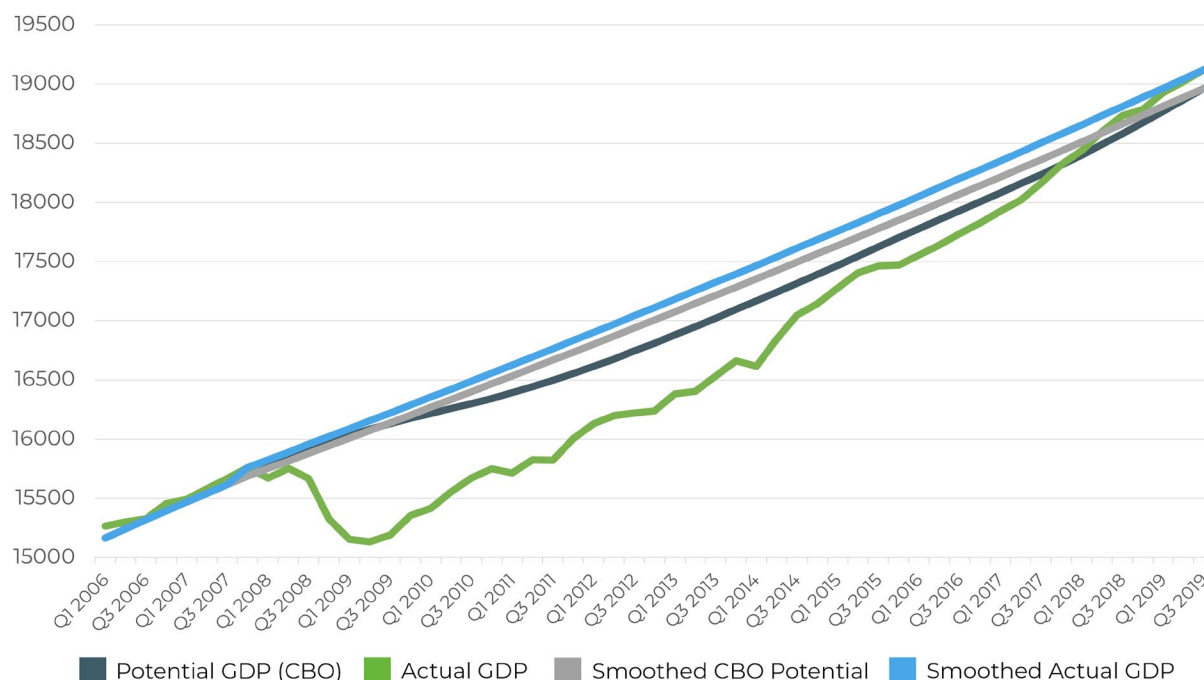
One conventional measure of the cumulative cost of the output gap throughout the years quantifies the area between the curves from the start of the output gap to the end. By this measure of potential, the output gap began in the first quarter (Q1) of 2008 and ended in the third quarter (Q3) of 2017. By the CBO estimates, \$4.3 trillion of income was foregone relative to potential.

This number is immense. It is also likely a deep underestimate. Recent research shows estimates of potential GDP are correlated with demand shocks; in other words, we misidentify some of the business cycle as permanent change in the economy and understate potential GDP during recessions.<sup>8</sup> This would cause us to systematically underestimate the size of output gaps; for example, we might say a worker is structurally unemployed, only to see them return to work after the economy improves again.

There is good reason to believe this happened in the particular case of the 2007-2019 output gap. First, because the phenomenon described is actually visible on the chart of CBO's estimate of potential GDP. Rather than continuing upward at a roughly-steady exponential pace, it actually bends a little bit down towards actual GDP during the recession. Second, because the CBO bases its estimate of potential output heavily on its assumptions about the natural state of the labor market, and it got those assumptions wrong. In the early 2010s, CBO raised its estimate of the long-run natural rate of unemployment, thereby assuming that the economy had less potential than it really did. This assumption proved incorrect by the late 2010s when unemployment fell to historic lows, so CBO revised it back downward.

With the benefit of hindsight, we can come up with a better estimate of the latent potential of the 2010s US economy. The graph below shows two simple estimates of how potential GDP may have been higher between Q4 of 2007 and Q3 of 2019. The first estimate is a simple exponential growth path between the CBO's potential GDP estimates from those two quarters. In other words, it removes the "bend" in the CBO chart. A second, more aggressive estimate assumes the Q4 2007 and Q3 2019 figures are full employment, and draws an exponential growth path between them to estimate potential output.

Figure 2. Alternative Measures of Potential GDP (Billions of Chained 2012 Dollars)



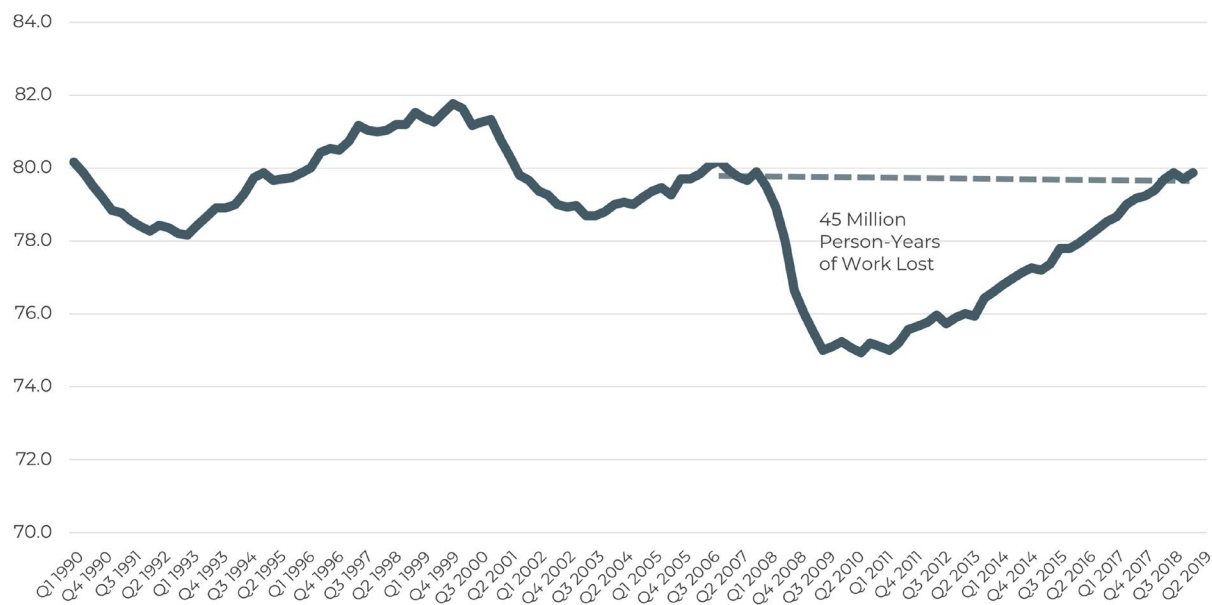
Sources: U.S. Congressional Budget Office, Real Potential Gross Domestic Product [GDPPOT], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPPOT>; U.S. Bureau of Economic Analysis, Real Gross Domestic Product [GDPC1], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDPC1>

All three measures of potential output are reasonably similar for many purposes; however, if we do not allow potential output to “bend” downward—if we do not excuse possibly-cyclical unemployment as structural—we find the cumulative output gap to be larger than the CBO’s estimate would suggest. Under the smoothed-out version of CBO potential we find the cumulative cost of the output gap to be \$5.6 trillion. Under the more aggressive assumption, the cumulative cost of the output gap was \$6.8 trillion.

Even the aggressive assumption—that GDP should have grown smoothly between 2007 and 2019 rather than having a big hole in the middle—is reasonable, and in fact may be a conservative estimate of the costs of the output gap. If there is a “hysteresis” effect—that is, we missed out on skill-building and capital investment due to the crisis—then productive capacity could have been even higher in 2019 if that hysteresis had not occurred.

There is another way to quantify the output gap, though, one that may be more meaningful in a social sense: this measure is denominated in jobs for workers of prime working age. In both 2007 and 2019, the share of prime-age (that is, 25-to-54-year-old) individuals with a job reached 80.2 percent. While this was not an all-time high, it was relatively close to the all-time high set in 2000.

Figure 3. Employment-Population Ratio, Age 25-54



Sources: U.S. Bureau of Labor Statistics, Employment-Population Ratio - 25-54 Yrs. [LNS12300060], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/LNS12300060>

Let us assume that this rate of employment is natural—that it would have been sustainable in the long run, absent the disequilibrium from the financial crisis. If this is the case, then 45 million person-years of work were lost among prime-age U.S. workers.

This estimate—despite its size—may be conservative: it does not include job losses for workers 55 and older—some of whom describe themselves as retired, but may have preferred to continue working under better circumstances. It also assumes—perhaps wrongly—that employment highs of the late 1990s and early 2000s are no longer an appropriate benchmark for full employment.

Nonetheless, even under conservative assumptions, the output gap in the United States since 2008 has been gargantuan; cumulatively over the period, in terms of both jobs and GDP, the lost output is greater than the annual output of Germany.

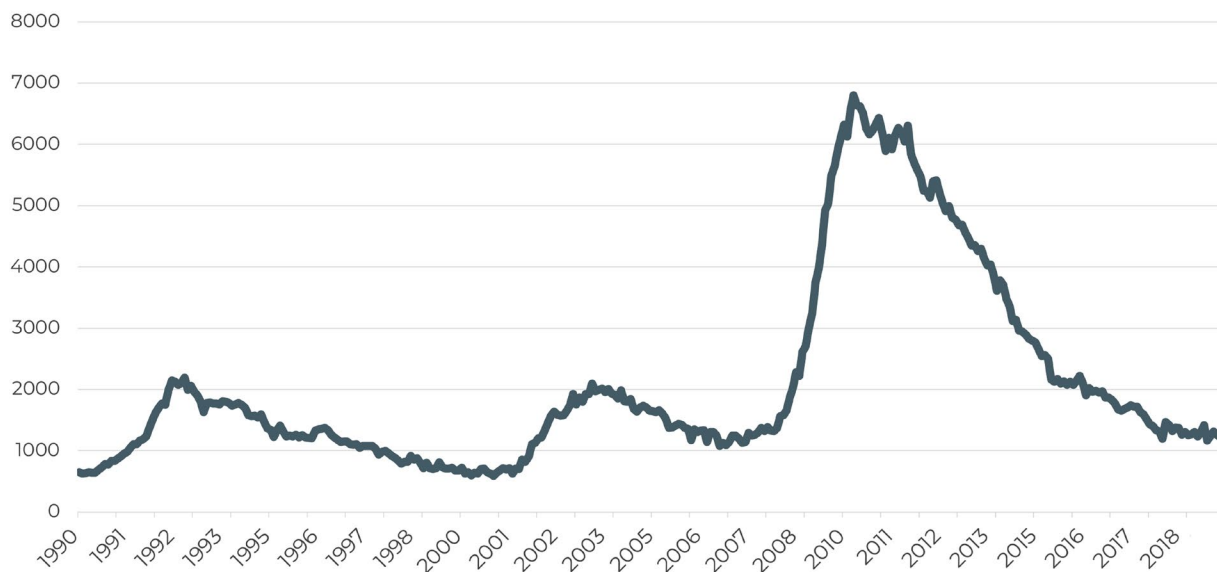
### *The Concentration of Output Gaps*

It is also important to note that these losses were concentrated especially hard among particular Americans. One could imagine an evenly-distributed output gap—each individual loses two weeks a year worth of paid work, and suffers five percent lower income than they would have otherwise—but that is not the way that output gaps manifest in practice.

Instead, some people have their hours and income cut entirely through layoffs—or, more abstractly, through the absence of job offers that would otherwise have been extended in a better economy. Meanwhile, other workers are able to hold onto their existing jobs at their existing pay and hours.

One way to see the unequal distribution of unemployment is to observe the catastrophic rise in unemployment of 27 weeks or longer. At the peak of the output gap almost 7 million Americans reported being unemployed for more than half a year. In other words, of the 45 million person-years of employment lost due to the output gap, much of it was concentrated among especially unfortunate workers.

Figure 4. Unemployed 27 Weeks & Over, Thousands of Persons



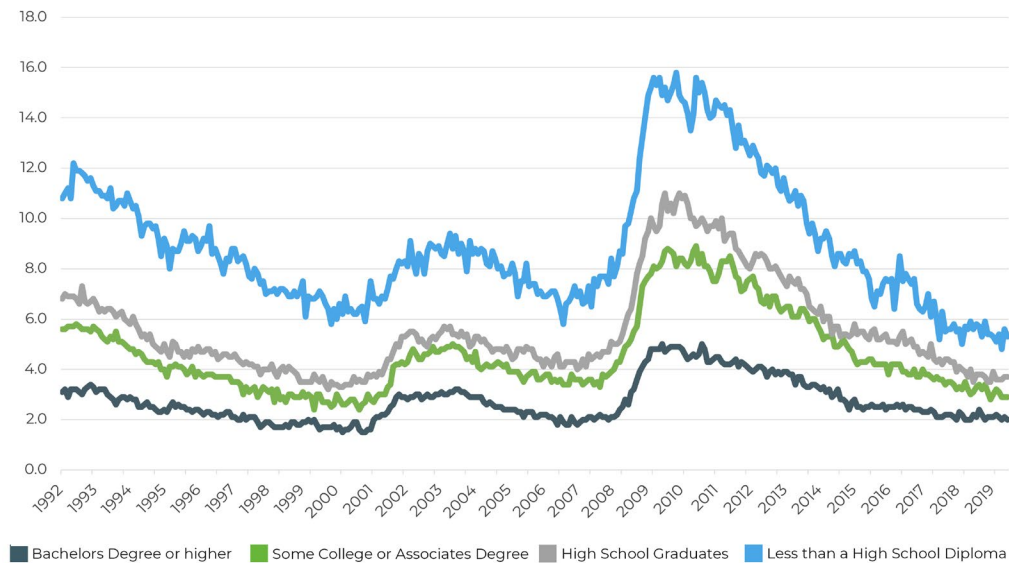
Sources: U.S. Bureau of Labor Statistics, Number Unemployed for 27 Weeks & Over [UEMP27OV], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/UEMP27OV>

It is also important to note that the unemployed are not a random cross-section of the population. Rather, unemployment is concentrated among particular groups—typically, ones that already start at a disadvantage. Output gaps have an outsized negative impact on lower-education individuals and minorities—but conversely, those same workers stand to benefit more from a recovery.

A chart of unemployment rate by education shows that the most recent business cycle had a larger impact on less-educated individuals than on more-educated individuals. For example, the unemployment rate for those without a high school diploma rose and fell by about ten percentage points during the recession and the subsequent recovery. For college graduates, this figure was about three percent. College graduates and less-educated individuals both felt the same effects directionally, but the magnitude for less-educated individuals was greater.



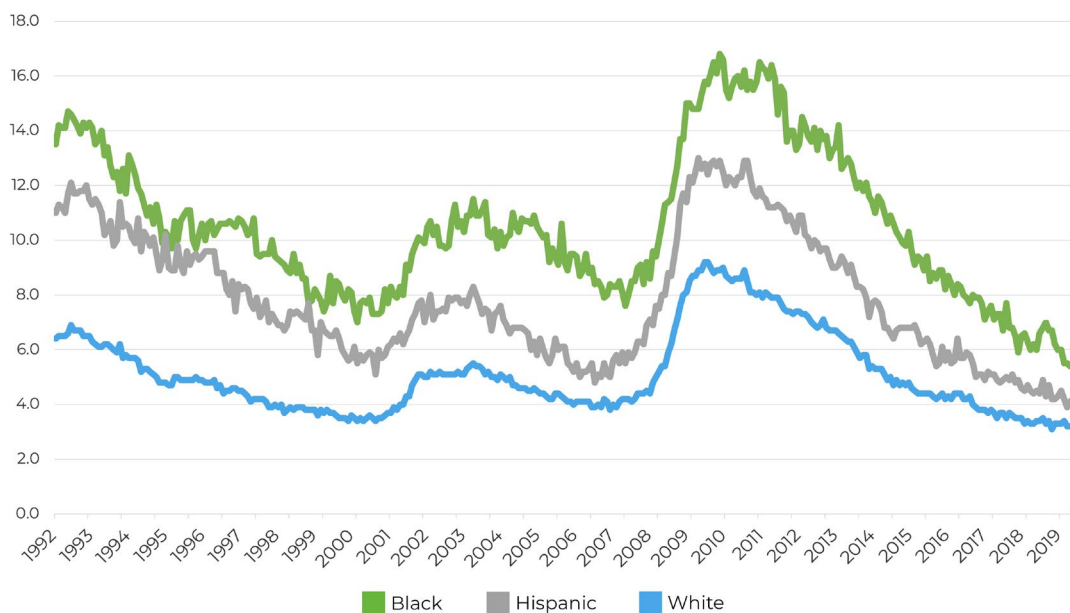
Figure 5. Unemployment Rate by Education



Source: U.S. Bureau of Labor Statistics, Unemployment Rate by Education [LNS14027662, LNS14027689, LNS14027660, LNS14027660], retrieved from FRED, Federal Reserve Bank of St. Louis

A similar story can be told by race. While unemployment rose for all groups during the financial crisis, and fell gradually throughout the recovery, the magnitude of the swing was considerably larger for black or Hispanic workers than for white ones. For example, while the business cycle involved about a five or six percentage point swing for white workers, it was a nine point swing for black ones.

Figure 6. Unemployment Rate by Race or Ethnicity



Source: U.S. Bureau of Labor Statistics, Unemployment Rate by Race [LNS14000003, LNS14000006, LNS14000009], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/LNS14000003>



Both the analysis by education and the analysis by race reveal a kind of “last in first out” labor market: the demographic groups that generally have higher levels of unemployment are the most sensitive to the business cycle.

This characteristic of the business cycle can unfortunately lend itself to some policy errors: one can credibly blame unemployment on structural factors, even when the cyclical component is more important. For example, one could say that the unemployed tend to be less-educated and have fewer skills. While this is true, unemployment can be multi-causal—both cyclical and structural—and to the extent that the cyclical component can be addressed, it should be.

### *The Social and Psychological Impact of Output Gaps*

It is important to see the output gap as not just a loss of income, and not just as a loss of work, but also as a loss of the social capital that comes from financial stability and participation in working life.

As explored in previous research by the Joint Economic Committee’s Social Capital Project, there are social and psychological benefits from inclusion in the working world. In the project’s *Wealth of Relations* paper, we note that inclusion in the world of working adults helps people build other sorts of social ties.<sup>9</sup>

Robert Putnam’s bestseller *Bowling Alone* compiles a variety of evidence on the subject. Colleagues can account for a majority of a worker’s daily conversations, and a substantial fraction of their friends—though typically not as many close friends as from other sources. Workplaces can also serve as recruiting grounds for other organizations in civil society. While Putnam believes workplaces cannot replace the social ties that come from other civil society organizations, they do create connections to friends and organizations.<sup>10</sup>

In *The Once and Future Worker*, Oren Cass writes that work helps build skills useful in other areas of life, imposing structure and practice in “mundane but essential disciplines.” He also argues that skill-building and self-reliance help build a sense of worth and self-respect.<sup>11</sup>

The strongest evidence of the value of work is perhaps in the alternative: the absence of work. A report by the Social Capital Project examining the lives of prime-age men without jobs shows that they are likely to self-report poorer mental well-being, fewer friends, and even lower participation in civic activities such as churchgoing.<sup>12</sup> One could hope that non-employment would free people’s time up to help them build more social ties. However, on average, this does not seem to be the case; the non-employed, and especially non-employed men, tend to struggle to find fulfilling uses of their time.<sup>13</sup>

In the relationship between employment and social capital, causality likely runs both ways; while those with more social capital are likely better at finding work, evidence also suggests that joblessness and income insecurity cause a decline

in social relations. Job loss from recessions is associated with a rise in depressive symptoms.<sup>14</sup> Output gaps are also associated with a fall in parenthood<sup>15</sup> and delayed household formation.<sup>16</sup>

Furthermore, civil society more broadly suffers: the recent recession was associated with a decline in charitable giving, one that was slow to recover and even greater than would be expected by the drop in income alone.<sup>17</sup> Furthermore, survey results from the National Conference on Citizenship show that 72 percent of respondents reported cutting back time spent on volunteer work in the recession, and that 66 percent of respondents felt people were responding to hard times by looking out for themselves, not others.<sup>18</sup>

In some studies, output gaps are associated with a rise in suicides,<sup>19</sup> though this is contested.<sup>20</sup> While overall alcohol use—like most economic activity—declines in recessions, binge drinking rises.<sup>21</sup> The bulk of the evidence suggests that illegal drug use also increases in recessions due to personal stress, even despite a reduced ability to pay.<sup>22</sup>

All in all, output gaps cause not just lasting economic damage, but lasting social damage as well. The scars from our most recent output gap will take a long time to heal.

## **MONETARY FAILURES OF THE GREAT RECESSION**

### **OUTPUT GAP**

The output gap beginning in 2007 was unusually long-lasting and deep. By the Congressional Budget Office's estimates, it lasted for ten years and reached six percent of GDP.<sup>23</sup> Both of these problems were attributable in part to the Federal Reserve's too-tight monetary policy, a decade-long series of errors. These errors all ran in the same direction, curbing spending too much. This helped cause, deepen, and lengthen the output gap. It is, of course, easier to identify these errors with the benefit of a dozen extra years of hindsight that contemporary decision-makers did not have. Indeed, many of the points below have already been acknowledged by past or current Federal Open Market Committee (FOMC) members. However, these mistakes are described here to better inform future choices.

#### *2007-2008: Scope Creep and Underreactivity*

In 2007-2008, the Federal Reserve made four major conceptual errors that contributed substantially to the crisis.

- Slow reaction to a worsening employment situation, starting in 2007;
- Overemphasis on oil prices, which are often (as in this case) un-representative of the overall demand-side situation;

- Scope creep: attempts to cut down the housing market in 2007, even at the expense of the rest of the economy; and
- Constricted credit for the public at-large even as financial institutions got emergency lending and bailouts.

## Underreactivity to Struggling Labor Markets

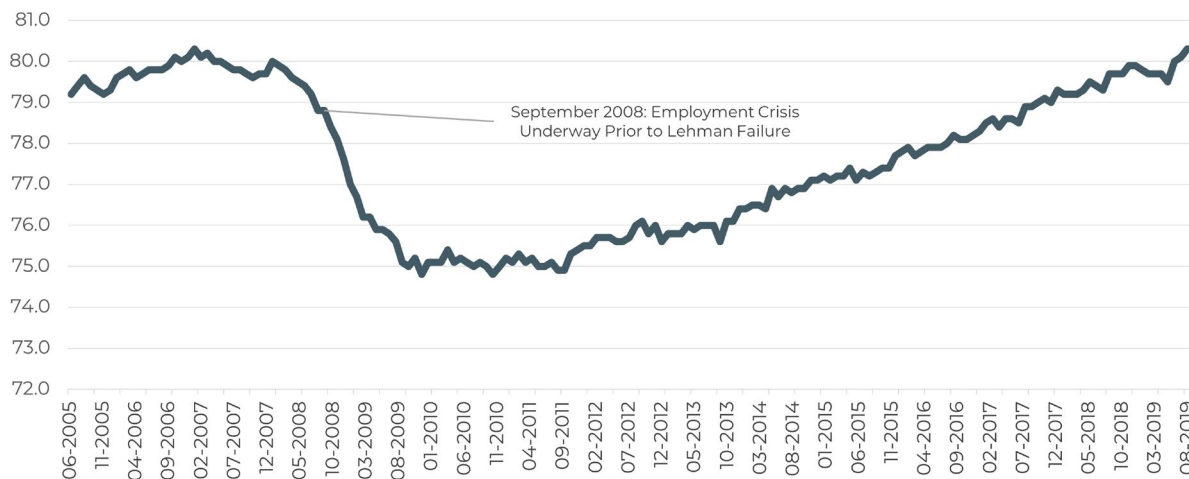
In the abbreviated telling of the 2008 financial crisis, the financial turmoil precedes the mass unemployment. For the most part, this was true; the most harrowing months of job loss came after the collapse of Lehman Brothers in September 2008. However, the labor market had stalled by 2007 and was clearly weakening.

In fact, the weakening labor market likely caused some of the later financial turmoil; with better job prospects, more people could have repaid mortgages, bolstered falling house prices, and provided equity and risk tolerance to capital markets.

Consider how four different measures of employment fared between their 2007 peaks and December of 2008, when the Federal Reserve finally exhausted its conventional policy tools and lowered rates all the way to zero.

Beginning with the employment-to-population ratio among individuals age 25-54, or “prime-age employment-to-population ratio, in January of 2007, the ratio sat at 80.3 percent—off of its all-time highs, but strong. By March 2008, when Bear Stearns failed, it had dipped below 80 percent for good. By September 2008, when Lehman Brothers failed, the ratio had fallen below 79 percent. In December 2008, when rates finally hit zero, the figure stood at 77.6 percent.

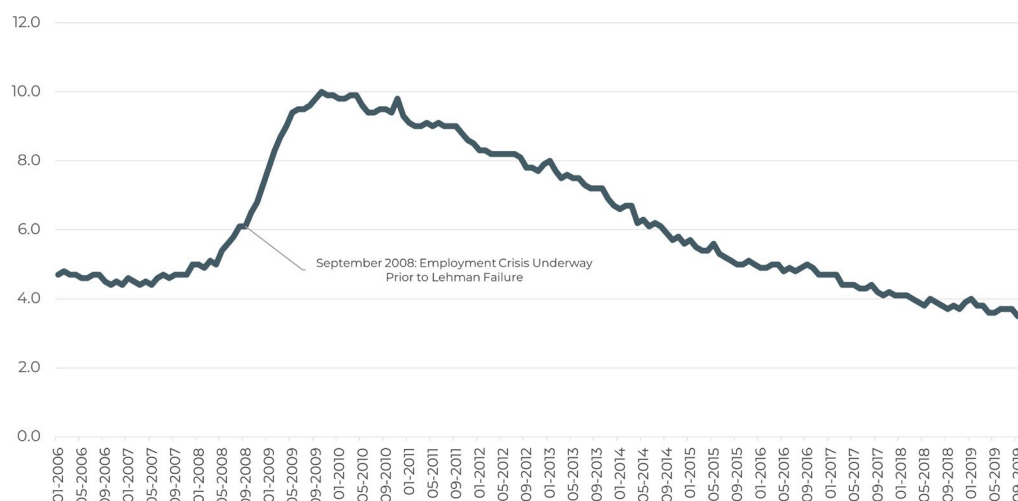
Figure 7. Employment Population Ratio (Age 25-54)



Source: U.S. Bureau of Labor Statistics, Employment-Population Ratio - 25-54 Yrs. [LNS12300060], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/LNS12300060>

The civilian unemployment rate told a similar story; in May of 2007, it was 4.4 percent—again, not its all-time best, but still good. By the time of the Bear Stearns failure, it was 5.1 percent. A particularly bad month in 2008 with a half-percent rise was largely ignored.<sup>24</sup> In September, when Lehman failed, the unemployment rate reached 6.1 percent, and by the time the Federal Reserve took interest rates to zero in December 2008, the unemployment rate was 7.3 percent.

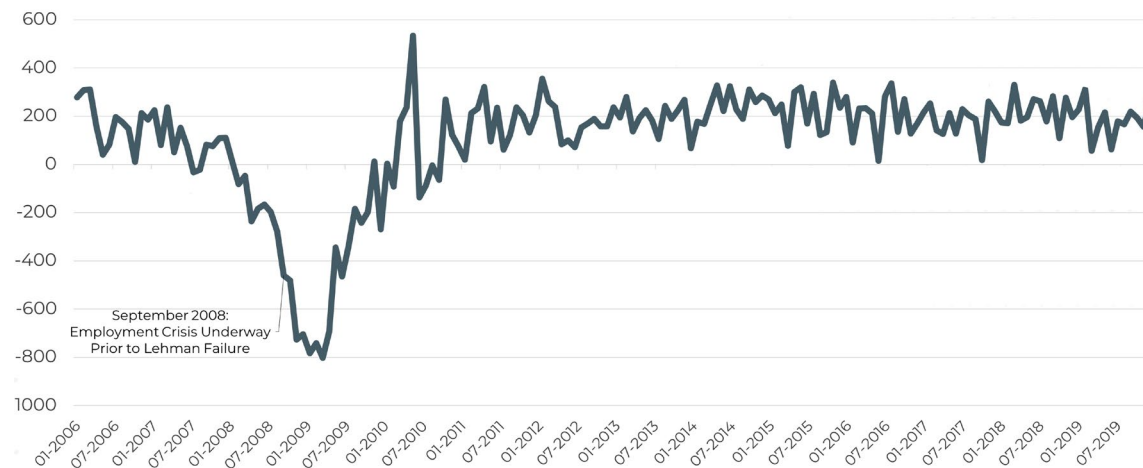
Figure 8. Unemployment Rate



Source: U.S. Bureau of Labor Statistics, Unemployment Rate [UNRATE], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/UNRATE>

Nonfarm payrolls also showed distress: in the summer of 2007, two months showed negative payroll growth. In 2008, every single month except for January reported negative payroll growth—in other words, by December of 2008, when the Federal Reserve finally moved the federal funds rate to zero, the economy was in its eleventh consecutive negative-job-growth month.

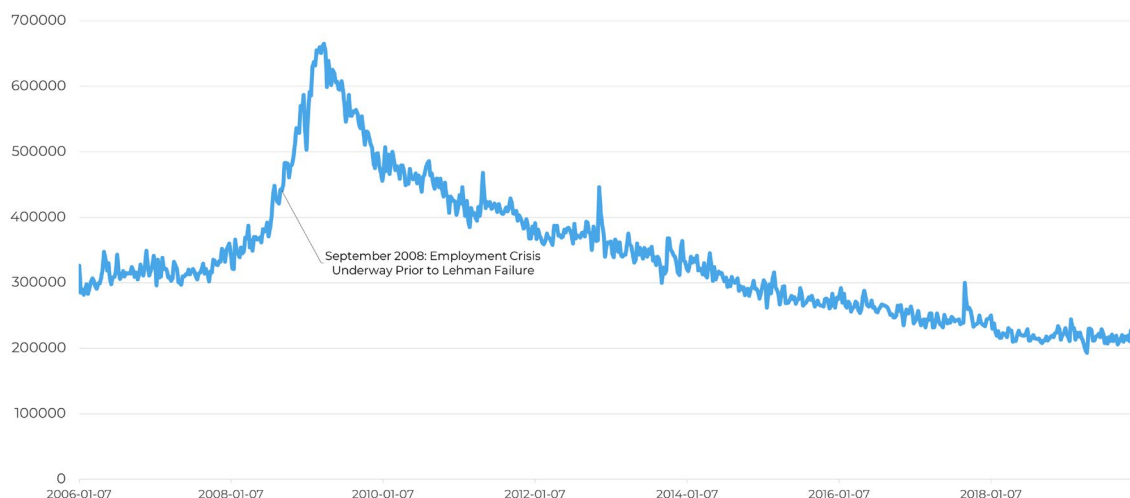
Figure 9. Change in Nonfarm Payrolls by Month (thousands)



Source: U.S. Bureau of Labor Statistics, All Employees, Total Nonfarm [PAYEMS], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/PAYEMS>

A final measure of extreme distress is the weekly initial unemployment claims data. Initial claims of 300,000 per week were normal during the 2007 economy. By the time of the Bear Stearns fire sale in March, this count had accelerated to 368,000—the worst number since the aftermath of Hurricane Katrina. By the summer, though, this level would look positively ordinary; August yielded numbers worse than Katrina. November yielded numbers worse than the September 11th attacks. These were not one-off events, though—these were repeated weekly events. Despite seeing these numbers almost in real time, week after week, the Federal Reserve lowered rates only gingerly. By the time it reached zero in its December meeting, the economy had experienced the five worst weeks of the century to date, and had experienced them consecutively.

Figure 10. Initial Unemployment Claims



Source: U.S. Employment and Training Administration, Initial Claims [ICSA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/ICSA>

The Federal Reserve consistently underreacted to deeply-troubling numbers in four different indicators of employment—all of which were telling the same story. Until the very last month of 2008, there were conventional policy tools available to slow or reverse these terrible job losses. In any month prior to December 2008, the Federal Reserve could have lowered rates by more, unleashed more spending into the economy, and saved some jobs.

### Overemphasis on Inflation—Especially Oil

One reason the Federal Reserve reacted so slowly to a deteriorating employment situation in 2007-2008 was undue attention to inflation—and particularly, inflation in energy prices. While maintaining stable inflation is one of the two components of the Federal Reserve’s dual mandate, the Federal Reserve has long held that “core” personal consumption expenditures (PCE) inflation—which excludes volatile commodities like oil from its basket—is often more informative for determining the state of aggregate demand.<sup>25</sup>

While the Federal Reserve forgot this lesson during 2008 and focused strongly on rising oil prices, it is in fact a lesson worth remembering. To understand why Federal Reserve economists have often preferred the Core PCE measure, it is worth comparing the difference between it and the ordinary PCE measure.

Figure 11. PCE Price Indices (Percent Change from Year Ago)



Source: U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Price Index [PCECTPI, PCEPILFE], retrieved from FRED, Federal Reserve Bank of St. Louis

One obvious way they differ is that Core PCE is a much more stable series. But to understand why Core PCE is genuinely more informative for the Federal Reserve's purposes, it helps to consider what the Federal Reserve's dual mandate is fundamentally about: it is about keeping a stable relationship between spending of the domestic currency and domestic productive capacity. For example, if too much spending chases too little productive capacity, inflation can run away from the central bank. In contrast, the converse can produce deflationary spirals and output gaps. Navigating a steady path between these two extremes is the principal challenge for any currency issuer.

Unlike the price of domestic services, commodity prices are not really about this domestic monetary balance. Commodity prices are defined by global supply and demand, and they can often move separately from demand-side price level trends. Oil does this—but oil is also such an important commodity that it can dramatically shift overall price levels. These idiosyncratic changes in oil prices create noise in inflation data that is not particularly correlated, in the long run, with the outcomes the Federal Reserve cares about. For these reasons, the Federal Reserve often ignores oil shocks. However, it failed to ignore them in 2008.

In Chairman Bernanke's account, he describes the August 2008 meeting this way:

At the same time, we could not completely dismiss inflation concerns. Oil prices had fallen to \$120 per barrel from their record high of \$145 in July. However, staff economists still saw inflation running at an uncomfortable 3½ percent in the second half of the year. Even excluding volatile food and energy prices, the staff expected inflation to pick up to around 2½ percent, more than most FOMC members thought was acceptable.<sup>26</sup>

Bernanke did not completely agree with this view, but he did have to accommodate it. The Federal Reserve held interest rates steady in August 2008, with a single dissent favoring a rate increase. Bernanke writes that if anything, “the 10-1 vote understated rising hawkishness on the Committee.”<sup>27</sup>

It is true that all else equal, lower inflation would certainly have been better; but the Federal Reserve had a dual mandate, and collapsing financial markets and rising unemployment were far more unacceptable than slightly-off-target core inflation.

One particularly strong account of the Federal Reserve's fixation on 2008's oil-driven inflation comes from journalist Matt O'Brien. Counting the mentions of inflation and unemployment—the two halves of the dual mandate—he finds that the former dominated the discussion by a 10:1 ratio until the September meeting, followed by a 5:1 ratio at the September meeting.<sup>28</sup> This is extraordinary because—as O'Brien notes—inflation expectations were not particularly high, and collapsed immediately after the Federal Reserve's surprisingly-hawkish September statement was released. The statement contained the following passage:



The downside risks to growth and the upside risks to inflation are both of significant concern to the Committee. The Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability.<sup>29</sup>

This statement came in the third straight quarter of recession, as unemployment had climbed 1.7 percentage points and two major financial institutions had failed. The predicted inflation never materialized, and the U.S. would experience substantial deflation by the following year.

### Scope Creep

Housing prices rose substantially leading up to 2006. However, the housing market began to decline in 2006, as the Federal Reserve hiked interest rates to an eventual high of 5.25 percent. Housing starts peaked in January of that year, and residential construction employment in March.

A decline in housing starts or construction employment was not per se a problem; throughout 2006, growing employment in other sectors roughly compensated for the decline in housing employment. The Federal Reserve noted—likely correctly—that the late-2005 prices were too high, and saw the initial stall in housing markets in 2006 as a welcome development.

In 2007, though, economy-wide employment began suffering, suggesting that the rate hikes were beginning to constrict the overall economy, not just the housing market. The Federal Reserve, to its credit, noticed the reversal and began to cut rates in September 2007. However, it underreacted—as described above—in part because it had begun to see curbing the housing market as a goal in itself: a strange sidetrack into policy beyond the scope of the central bank’s mandate. As then-Chairman Bernanke recalls the September meeting:

As in August, we again discussed the issue of moral hazard—the notion, in this context, that we should refrain from helping the economy with lower interest rates because that would simultaneously let investors who had misjudged risk off the hook. Richard Fisher warned that too large a rate cut would be giving in to a “siren call” to “indulge rather than discipline risky financial behavior.”<sup>30</sup>

While this particular view was not entirely representative of the Federal Reserve as an institution, moral hazard was discussed in the context of interest rate decisions. Moreover, in his book *Shut Out*, Kevin Erdmann notes that the Federal Reserve as a whole would issue statements describing the weakness in the housing market as a “correction,” suggesting a kind of normative view that housing prices should fall.<sup>31</sup> The Federal Reserve kept this language even well into the decline of employment measures. The focus on moral hazard and housing prices largely detracted from attention to an ailing labor market.



## Where's My Bailout?

All of these problems with the 2007-2008 Federal Reserve came together—the underweight on employment, the overweight on inflation (particularly, dubious non-core inflation measures) and the tendency to micromanage rather than react to the broader picture—when banks began to struggle and fail.

The Federal Reserve clearly understood the need for monetary injections into struggling financial institutions. However, it actively rejected the idea that the rest of the economy—which was also struggling—might need the same.

In the middle of March 2008, Bear Stearns failed. The Federal Reserve made two choices that month: it chose to help finance the purchase of Bear Stearns by JPMorgan, injecting some liquidity into capital markets, but it almost simultaneously chose to set the federal funds rate at 2.25 percent for the rest of the country. Setting aside Bear Stearns for a moment, we should consider what that rate meant: it gave would-be spenders or would-be lenders the option of parking their money with the government for 2.25 percent, rather than spending or lending it to someone else in the private sector. It was a choice to constrain spending and credit. 2.25 percent was still a cut—a choice to constrain credit by less than before—but a choice to constrain credit nonetheless.

Injecting capital into financial markets does increase spending and stem job losses. What is curious, though, was the use of such extraordinary measures when ordinary measures were nowhere near exhausted. Consider how Bernanke aptly explained the reasoning for the Bear Stearns bailout:

Wall Street and Main Street are interconnected and interdependent, I explained. “Given the exceptional pressures on the global economy and financial system, the damage caused by a default by Bear Stearns could have been severe and extremely difficult to contain,” I said. And the damage would have surely extended beyond financial markets to the broader economy. Without access to credit, people would not be able to buy cars or houses, and businesses would not be able to expand, or in some cases, even cover current operating costs. The negative effects on jobs and incomes would be fast and powerful.<sup>32</sup>

This explanation is exactly correct, especially regarding access to credit: which is why it is all the more remarkable that the Federal Reserve was still constraining credit with its interest rate policy. Credit was constrained for any borrower who could not offer lenders better terms than the 2.25 percent risk-free return offered by the federal government—and in a time of financial turmoil and weak employment, lending was risky, so that risk-free 2.25 percent looked quite good. Creditors lent less for cars and houses and businesses, and the lack of credit had negative effects on all three of these sectors.

Much of the controversy over the economics of the Bear Stearns bailout focused on moral hazard. The real question is why the Federal Reserve took actions that, as Paul Volcker described it, “extend[ed] to the very edge of its lawful and implied powers”<sup>33</sup> when perfectly ordinary, legal, and powerful operations for providing credit were also available. The most plausible explanation, based on Federal Reserve communications in 2008 and the description of the August meeting found in Bernanke’s memoir, was that rates were kept high because of inflation concerns.

Taken separately, the bailout and interest rate decisions are coherent. But together, it is difficult to square them. As the Federal Reserve told it, spending enabled by emergency below-market-rate liquidity injections to Bear Stearns was good spending that helps Main Street, while spending enabled by a federal funds rate of (for example) 1.75 percent would have been bad spending that would spur inflation.

This pattern of easier credit for troubled financial institutions but tighter credit than necessary for the rest of us continued throughout 2008: as George Selgin documents, the Federal Reserve actually took care to offset its emergency operations’ effect on overall demand. Increases in credit to troubled banks were matched with corresponding decreases in credit elsewhere in the system.<sup>34</sup> In Bernanke’s words, this was done to “keep a lid on inflation.”<sup>35</sup>

One tool in this offsetting process was interest on excess reserves (IOER). In October of 2008, the Federal Reserve began paying IOER.<sup>36</sup> This policy induced banks to hold reserves and earn interest from the government rather than lending to private-sector individuals or institutions. This constrained credit for the private sector, outside of the banks that were rescued with below-market-rate lending.<sup>37</sup>

Bernanke made an important point in his defense of the Bear Stearns bailout, about the interdependence of Wall Street and Main Street. Bernanke explains one direction of the dependence, but the opposite direction is just as valid; better credit to ordinary spenders on cars and houses could have helped many of the struggling financial institutions, and prevented the outcome that the Federal Reserve feared: additional bank failures and the need for additional bailouts.

Bernanke often notes that he had sympathy for those who asked him, “Where’s my bailout?”<sup>38</sup> Perhaps the Chairman was constrained by the views of others on the Committee, but it was actually a perfectly reasonable question: there was indeed more that he could have done for them.

Instead, though, the Federal Reserve kept credit tight for the economy as a whole, while treating the symptoms of that tight credit individually with bespoke rescue packages for financial institutions. This inconsistent state of affairs persisted for about nine months until December 2008, when the Fed finally caved on policy rates and set them to zero.

### *2009-2014: Overly-Hawkish Communications*

Over the 2009-2014 period, the Federal Reserve's actions were constrained to some degree by the zero lower bound: it had little or no ability to reduce interest rates further. This zero interest rate policy was appropriate, as the output gap was huge. The Federal Reserve also used some additional policy tools to further spur spending.<sup>39</sup> One of these was communicating more about the future of Federal Reserve policy ("forward guidance").

The addition of forward guidance to the Federal Reserve's policy toolkit was an extraordinarily important development—and forward guidance can be extraordinarily effective. After all, almost every asset in the economy, from equities to corporate bonds to mortgages, is affected by future Federal Reserve decisions—or even, the entire universe of possible Federal Reserve decisions. Economists sometimes call this universe the "reaction function."

But there was a problem with forward guidance in the 2010s: Federal Reserve communications often described a hawkish reaction function—an inclination to run monetary policy relatively tightly.

Consider the Federal Reserve Board's projections from January 2012<sup>40</sup>, when interest rate predictions (often known as "dot plots," for the way they were frequently charted) had just been issued for the first time. The projections told us that the median participant in the exercise believed that 2014 was the appropriate year for interest rates to rise. They also told us some other things about 2014: that participants believed Core PCE inflation would be below-target in the range of 1.6 to 2.0 percent, and that participants believed the unemployment rate would be in the range of 6.7 to 7.6 percent.

Put together, these predictions paint a clear picture of extraordinarily tight monetary policy. They told us that a Federal Reserve faced with an economy with elevated unemployment and below-target inflation would act to curb spending by tightening credit.

In a world of forward-looking economic actors, a strong signal of future tight monetary policy has a direct transmission mechanism into spending decisions today. When people expect future nominal incomes to be lower, that result is capitalized into every bond and equity price. For example, firms will get lower valuations from venture capitalists, private equity, and public stock markets, curbing their ability to raise cash to spend on new projects. Ironically, the predictions of too-early "liftoff" likely helped delay the actual liftoff, by keeping asset prices and investment depressed.

Caveats abound about the dot plots. They are not a rigid policy plan. They are a collection of several different people's views, some of whom are not voting members. They are prone to misinterpretation. But communication in January 2012 (and in many future meetings) was actually quite clear: it predicted that the Federal Reserve would begin tightening even with below-target inflation and

above-target unemployment. And it predicted correctly: the Federal Reserve soon would raise rates in 2015 under precisely those conditions.

There was one other clear problem with the Federal Reserve's communications strategy: it published predictions about the sustainable long-run rate of unemployment, and actually raised that estimate all the way to 5.6 percent at the peak of the output gap, even though unemployment below five percent had recently been experienced before the crisis. This signaled that it would consider such an unemployment rate desirable, or even, difficult to improve upon without creating inflation. It was neither. One can also see this as a form of "forward guidance," broadly defined. It was a strong hint that the Federal Reserve would begin hiking rates and constricting credit again, even if unemployment was still relatively far from pre-crisis levels. This prediction also proved to be true.

While forward guidance was too hawkish throughout this period, it became less so over time—eventually tying interest rate guidance to fairly-specific inflation and employment outcomes. By the end of the period, guidance policy had improved substantially.

### *2015-2019: Premature Rate Hikes*

When the Federal Reserve achieved "liftoff" in 2015 by raising interest rates, the economy was still a moderate distance away from the pre-crisis level of employment. A flurry of rate hikes followed in 2017-2018, stalling the prime-age employment-to-population ratio below its prior peaks, and preceding the kind of wage growth one would expect of a full-employment economy.

In a 2018 analysis, Moody's economists Adam Ozimek and Michael Ferlez argue persuasively that the Federal Reserve hiked interest rates too quickly. It believed at the time that the economy was closer to full employment than it actually was.<sup>41</sup> At the time, the unemployment rate was just above five percent: worse than the best pre-crisis months, but somewhat close to them. However, subsequent data has shown—for reasons that are not fully understood—that the unemployment rate measure can go much lower than it did in previous expansions.<sup>42</sup>

In 2019, the Federal Reserve ended up reversing some of its 2018 rate hikes, in part to mitigate the error described by Ozimek and Ferlez; the current Chairman of the Federal Reserve, Jerome Powell, has stated that the long-run sustainable rate of unemployment is lower than previously thought.<sup>43</sup> This error was the final error of the cycle, but perhaps the simplest: there was no zero-lower-bound issue to contend with, there were no fast-moving financial collapses to react to, and there were no commodity shocks going on at the same time. The Federal Reserve simply misread the labor market and slowed the pace of its recovery using conventional policy tools.

## MONETARY POLICY CAN USE BETTER MEASURES

The Federal Reserve made mistakes in the most recent recession, but it also was creative and thoughtful in response to a new situation, making policy innovations in areas such as forward guidance that will be valuable for decades to come. Central banking—and especially, central banking close to the zero lower bound—is a relatively young science with a small sample size of experiences to learn from. The 2007-2019 output gap was an extraordinarily valuable learning experience, and the insights gleaned from it can be put to good use.

One lesson from the most recent output gap is that the Federal Reserve often had trouble gauging the state of the economy. It has access to many indicators, but some are more valuable and reliable than others—and which indicators are best depends on what portion of a business cycle the economy is in.

### *Use Employment Measures as Early Warning Signs*

The earliest warning signs of the financial crisis were employment-related indicators. While the conventional wisdom usually dates the beginning of the crisis to March 2008 and Bear Stearns, or September 2008 and Lehman Brothers, there were troubling signs from employment indicators before then.

There are good practical and theoretical reasons to believe that drops in employment will continue to be the fastest warning signs of demand-side trouble. The practical reason is that employment is relatively simple to measure, while GDP or PCE inflation are a great deal more complex and require the collection of many more data points. Over the long run, these indicators are quite useful—but given constraints on the speed of data collection, jobs numbers simply get into decisionmakers' hands faster.

The theoretical reason to favor employment measures is that drops in employment will accelerate other stressors. For example, if people are losing their jobs, they are more likely to spend less and further slow the economy, or default on their debts and contribute to financial instability.

Recent work by the Federal Reserve has affirmed this view of employment measures. Economist Claudia Sahm devised an algorithm colloquially known as the “Sahm Rule,” which treats sudden rises in the unemployment rate as reliable early warning signs of a contraction.<sup>44</sup> While the Sahm Rule is based on the official unemployment rate for simplicity's sake and to facilitate comparability across time, it is likely that other employment measures, such as payroll surveys or unemployment claims, could be used as additional data points to scan for early signs of recession.

### *Understand the Limitations of the Headline Unemployment Rate*

While the official unemployment rate is very useful at predicting the start of recessions, and is generally directionally correct for measuring the state of the economy over the short run, it has proven less useful as output gaps wear on. In contrast, the prime-age employment-to-population ratio seems to have held up better and allows for more sensible comparisons between pre-crisis and post-crisis perceptions of full employment.

There is a reason for this: the unemployment rate implicitly divides the populace into three groups—the employed, the unemployed seeking work, and those not in the labor force. However, it simply discards the final category, and it turns out that final category includes useful information.

Many jobless individuals identify as retired, as students, as homemakers, or as disabled. These are understandable reasons not to work, and many individuals in these categories would not work under any realistic circumstances. Yet some of the people who place themselves in these categories during output gaps can and do find jobs when the economy improves. This empirical fact suggests that for some, nonemployment is not an immutable feature of demographic characteristics, but rather, at least partly contingent on the state of the labor market.

The reason that the unemployment rate becomes less useful as output gaps drag on is that the unemployed find substitute activities to occupy their time, like going back to school, or at least find personal reasons for why they do not have a job—such as being retired. We begrudge no one their retirement or their ability to go back to school, but if they would have instead taken a job in a healthier labor market, that is useful information to know. The prime-age employment-to-population ratio gets at this distinction, while the unemployment rate does not.

### *Choose Inflation Indicators Wisely*

As described above, the inflation component of the dual mandate led the Federal Reserve astray in 2008. While one aspect of the mistake—the attention to oil—seems apparent and widely-accepted in retrospect, it is worth thinking about the inflation component in a little bit more detail.

The purpose of the inflation component of the dual mandate is not to protect Americans from all possible price increases, even if they reflect real fundamentals, or prices of foreign goods or global commodities. The purpose is more like preventing the central bank from a particular failure mode, where it fruitlessly throws money at the economy in a bid to bring output above the maximum possible or maximum sustainable amount. Such an effort will bid up all factors of production—land, capital, and wages—as more and more money chases the same capacity.

If we understand the inflation component of the dual mandate in this way, it makes sense for the Federal Reserve to put very little weight on commodity prices from its analyses, and make use of Core PCE.

It is also worth paying particularly close attention to the nominal growth in domestic worker compensation, which is a good measure of the extent to which factors of production are being bid up (or, from the consumer's perspective, the extent to which the price of services are being bid up).

The employment cost index (ECI) collected by the Bureau of Labor Statistics (BLS) is a good measure here, especially the ECI for wages and salaries. It is stable for an inflation measure, and—while it has a shorter history than many other economic indicators, it may be expected to continue to show less random noise than other inflation measures and come close to approximating the platonic demand-side inflation that central banks should avoid bringing to excess.

The ECI tends to run higher than other inflation measures like the PCE index, because increased productivity does not dampen growth in the ECI. This is mostly a feature, not a bug: it would not make much sense to loosen monetary policy in response to a positive productivity shock that was passed on to consumers in the form of lower prices, or to tighten it in response to a year of weak productivity growth that was passed on into higher prices.

### *Beware Updated Estimates of Potential GDP or Employment in Times of Cyclical Disruption*

One problem worsening the 2008-2019 output gap was that the Federal Reserve increased its estimates of the “natural rate of unemployment” (the lowest sustainable rate) as more people lost jobs, lowering potential GDP inaccurately and underestimating the output gap. This strategy has the obvious problem of mistaking cyclical movements for structural ones. The Federal Reserve has since revised its estimates of the natural rate back downward, as jobs were added once again. While updating one's beliefs in response to new data is good, one should be wary of updating beliefs about long-run capacity based on data collected under unusual short-run conditions.

### *Beware of Using Interest Rates as a Measure of the Stance of Monetary Policy*

One particularly technical point about measurement concerns the stance of monetary policy. FOMC statements have frequently identified low interest rates as a sign of accommodative policy.

This is not always and everywhere correct. Neither is the converse: that high interest rates are a sign of tight policy. As Milton Friedman observed in his famous American Economic Association presidential address:



As an empirical matter, low interest rates are a sign that monetary policy has been tight—in the sense that the quantity of money has grown slowly; high interest rates are a sign that monetary policy has been easy—in the sense that the quantity of money has grown rapidly.<sup>45</sup>

This observation—made in 1968—has largely held up, and in fact predicted to some degree both the late 1970s (when, despite high interest rates, inflation soared to record levels) and the early 2010s (when, despite low interest rates, inflation remained persistently below target and unemployment remained elevated.)

The key to the observation is that easy money gives ample credit, allowing spending to increase at an accelerating pace, raising nominal GDP growth expectations and inflation expectations, pushing the equilibrium interest rate (at least in nominal terms) upward. Tight money does the opposite: it causes spending to slow and lowers nominal growth expectations and inflation expectations, which pushes the equilibrium rate of interest down.

Only one amendment needs to be made to Friedman's telling: he focused on growth in the quantity of money. At the time, interest rates were always positive, and people only held money if they intended to spend it shortly. At the zero lower bound, this is no longer true; velocity of money—the extent to which it switches hands—can fall sharply. Instead of looking to quantity of money, one must look to quantity times velocity (which happens to be equivalent to nominal GDP, or NGDP).

Scott Sumner phrases it in an improved and more modern formulation.<sup>46</sup>

Interest rates are not a reliable indicator of the stance of monetary policy. On any given day, an unexpected reduction in the fed funds target is usually an easing of policy. However, an extended period of time when interest rates are declining usually represents a tightening of monetary policy. That's because during periods when interest rates are falling, the natural rate of interest is usually falling even faster (due to slowing NGDP growth), and vice versa.

The natural rate of interest is another economic abstraction that is hard to pin down precisely, but Sumner can be loosely translated as follows: during periods where the central bank is cutting interest rates, the risk-adjusted attractiveness of private-sector investments is falling even faster, so savers are still crowding into government bonds even at the lower rates.

Sumner considers the growth rate of NGDP a better guide to the stance of monetary policy. A policy that enables an acceleration in spending—however it is implemented—is loose, and one that forces a deceleration or contraction—however it is implemented—is tight. This formulation—based on effects—seems more appropriate than a measure based on interest rates alone.



Why are the semantics here important? First, because effects matter. Monetary policy stances are named after their intended effects; loose or accommodative or expansionary monetary policy should presumably be loosening, accommodating, or expanding something. Tight or contractionary policy should presumably be tightening or contracting something.

Second, semantics are important because names have an effect on the policy's politics. The Federal Reserve in 2015 had essentially achieved some relatively-normal results for years: steady improvement in the employment rate, steady (though below-target) core inflation, and steady four percent growth in NGDP, which is also a normal result. However, it labeled these policies "accommodative." This lent credibility to the plausible-sounding-but-wrong critique that the low interest rates at the time were "artificial" in a way that higher interest rates would not have been. It put the FOMC under pressure to "normalize" policy by tightening, which it did by the end of the year.

Third, a results-based measure of the stance of monetary policy, such as NGDP growth, appropriately captures the effects of policies that do not involve the setting of short-term interest rates: for example, quantitative easing or forward guidance.

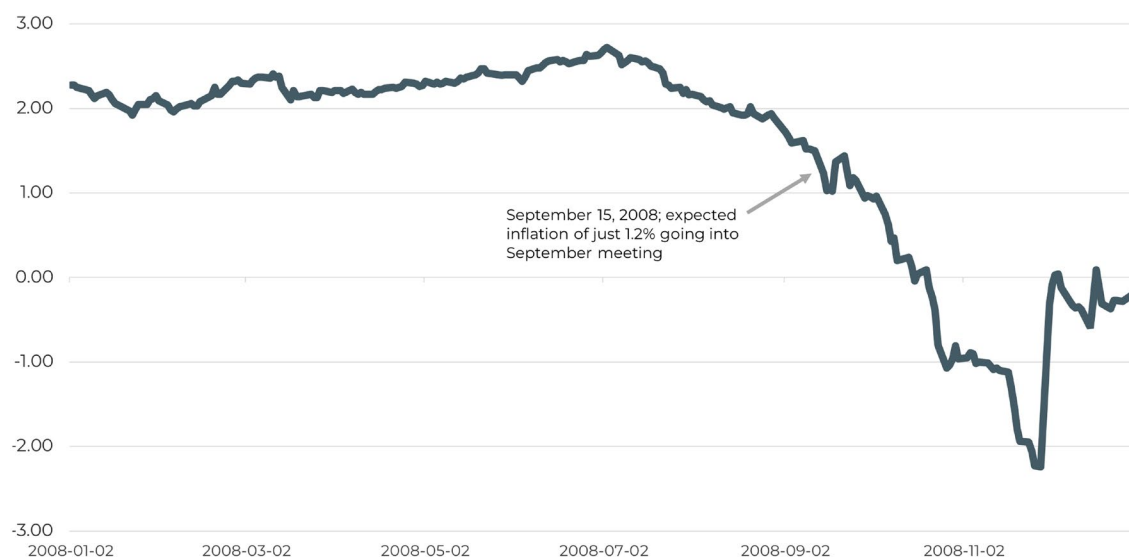
### *Use Market Indicators More Frequently*

A number of market indicators can help the Federal Reserve make good predictions about the future. Mechanically tying Federal Reserve actions to market data is largely not a reasonable policy option, but markets can help the Federal Reserve predict the consequences of policy.

Treasury inflation-protected security (TIPS) spreads, or the difference in yield between inflation-protected bonds and ordinary bonds, have been underused in the Fed's decision-making process in the past. These can tell the Federal Reserve what market expectations of inflation are. While the Fed's inflation projections are typically good, TIPS spreads are extraordinarily quick to update in critical moments—as they were in 2008. By the September 2008 meeting, where the FOMC statement considered downside growth risks and upside inflation risks to be about equal, TIPS markets were pricing in far-below-target inflation of just one percent.

The Federal Reserve updated its beliefs towards low inflation soon after the TIPS market did—however, there was at least one FOMC-meeting window where policy could have been better informed by using the TIPS spread.

Figure 12. Inflation Rate Expected Over the Next Five Years, as Indicated by the TIPS Spread



Source: Federal Reserve Bank of St. Louis, 5-Year Breakeven Inflation Rate [T5YIE], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/T5YIE>

## ADOPT BETTER POLICY FRAMEWORKS

There are several changes to the policy framework that could help monetary policy tackle output gaps with more vigor. Several have been discussed by current and former Federal Reserve officials.

We will begin with policies intended to be helpful at the beginning of output gaps—or at catching them before they start. Then we will move to policies intended to be helpful at the zero lower bound, to be used after conventional interest rate cuts are no longer possible.

### *Reject Interest Rate Smoothing, Especially When Conditions are Worsening*

The Federal Reserve tends to move interest rates in increments—often by quarter points, sometimes by half points, and very rarely by three quarters of a point or more. In many circumstances, this is welcome, creating an impression of a captain with a steady hand on the tiller.

However, when one needs to change course quickly, this steadiness—the slow, deliberate movement, as if turning a battleship—is no longer the right move. The experience in 2008 showed that conditions can often deteriorate quickly, and in such cases, a central bank interested in slow course change can end up falling behind the curve; conditions change so rapidly and feedback loops are so strong in the private sector that the natural rate of interest falls faster than the central bank cuts rates. It therefore ends up failing to provide the desired stabilization.

Economists Miles Kimball and Scott Sumner are among those wary of this particular practice. Sumner writes “The Fed needs to be much more aggressive when the business cycle is impacted by a dramatic shock.”<sup>47</sup>

A potentially dangerous phrase in the monetary policy vocabulary is “cutting cycle.” It suggests that the central bank will cut rates, but then, finding the previous cut too weak or less responsive than private capital markets, will have to cut rates again, and potentially repeat this process several times. It is plausible that “cutting cycles” do have some place in optimal monetary policy, but in practice most cutting cycles—like that of 2008—have had unhappy results. Credibility may be improved more by a single forceful action than several tentative ones.

### *Integrate the Two Components of the Dual Mandate into a Single Mandate*

The dual mandate leaves much room for ambiguity in terms of how to weight unemployment and inflation concerns; however, it is possible to integrate inflation and unemployment data into a single mandate that implicitly contains both components. The most promising methods for this begin with the observation that inflation is a price, and employment is a quantity. Therefore, they look to measures of price multiplied by quantity.

Fortunately, many such metrics exist. One of the most obvious of these is nominal GDP. The idea of targeting nominal GDP originated with monetary economist Bennett McCallum,<sup>48</sup> but also has been advocated by other economists such as Scott Sumner, Christina Romer,<sup>49</sup> Jan Hatzius,<sup>50</sup> and Joshua Hendrickson.<sup>51</sup> While there are some technical issues implementing a nominal GDP target in real time, economist David Beckworth, another advocate, proposes methods to predict nominal GDP more quickly, including the use of new data sources or futures markets.<sup>52</sup> At a minimum, stable nominal GDP growth is an excellent medium- and longer-run measure of central bank performance.

One way of thinking about monetary policy is in terms of a “nominal anchor.” The idea is that the central bank can choose to hit exactly one nominal target, no more. It sets one price, and all other prices are determined by their relationship with that anchor price. NGDP targeting advocates propose anchoring the price of all things combined. This has the very simple virtue of making sure that policymakers stay focused on the big picture, rather than becoming too heavily invested in specific and idiosyncratic measures or markets.

For example, any regime that directly targets employment will be required to define how it measures employment, and then define what constitutes full employment under that measure. (This has sometimes been known as the non-accelerating inflation rate of unemployment.) However, with many measures and a changing economy, this rate is hard to find or define.

Similarly, any regime that targets inflation will be required to define its inflation measure: what basket of goods counts, how that basket of goods changes over time as tastes or technologies change, and how the measure accounts for quality improvements in newer goods. This is quite technical and sensitive to assumptions.

NGDP targeting has fewer of these details to account for. There are no assumptions embedded in it about the natural rate of unemployment or the right basket of goods. Only the growth in overall currency usage is stabilized, and everything else is left to markets.

### *Make Clear, Specific Forward Guidance*

A brilliant innovation of the mid-2010s Federal Reserve was state-specific forward guidance, a policy tool that remains highly effective at the zero lower bound. Guidance was “state-specific” in that the FOMC described the conditions or “states” under which it would commit to decisions. (In that particular case, raising rates above zero.) As forward guidance becomes clearer and more specific, it begins to resemble rule-based policy rather than discretionary policy, creating a predictable guide to how monetary policy would work in a variety of scenarios.

Ben Bernanke described the evolution of this policy in his presidential address to the American Economic Association:

Over time, the FOMC pushed back against the excessively hawkish expectations of market participants with more precise and aggressive forward guidance. In August 2011, the FOMC for the first time explicitly tied its guidance to a date, indicating that it would keep the fed funds rate near zero “at least through mid-2013.” In January 2012 it extended that commitment “at least through late 2014,” and in September 2012 it extended the commitment yet again to “at least through mid-2015.” In December 2012, the FOMC switched from guidance specifying a date for policy action (calendar guidance) to a description of the conditions that would have to be met for rates to be raised (state-contingent guidance). Specifically, policymakers promised not even to consider raising the policy rate until unemployment had fallen at least to 6.5 percent, as long as inflation and inflation expectations remained moderate. A year later, this statement was strengthened further, with the FOMC indicating that no rate increase would occur until “well past the time” that unemployment declined below 6.5 percent. In principle, state-contingent guidance, which ties future policy rates to economic conditions, is preferable to calendar guidance because it permits the market’s rate expectations to adjust endogenously to incoming information bearing on the outlook.<sup>53</sup>

This policy was highly effective because it could influence market participants' expectations about the future. Bernanke further documents a variety of quantitative and anecdotal evidence that the policies had the desired effects and loosened monetary policy—not by changing the interest rate people were experiencing at that very moment, but instead, by informing them about the path of interest rates under a variety of hypothetical moments. In other words: by describing the reaction function.

While the specific numbers used in the forward guidance were ultimately not nearly aggressive enough (6.5 percent unemployment turned out to be an unambitious goal) the framework for forward guidance was exactly right, and monetary policy should make ample use of it during slowdowns.

### *Adopt a Level Target*

Level targeting is perhaps the single most effective zero lower bound policy, and likely has benefits even outside of the zero lower bound. The idea of “level targeting” is to have a consistent long-run growth path in mind for the target variable, not just growth rate to target anew each period.

There are two strong reasons to believe a level target would be effective. The first is that level targets would do a better job of anchoring expectations for long-term contracts, such as mortgages. For example, it is considerably easier for a mortgage lender to operate if she has at least a general sense of what nominal incomes in America will look like in the 30th year of the loan. Will they double? Will they triple? A nominal income level targeting regime can actually provide an answer to that question, making long-term contracts considerably easier to write. Similarly, if a pension plan were interested in implementing a cost-of-living adjustment to benefits based on inflation, it would be easy to make long-run projections under an inflation level targeting regime.

The second reason for believing in the effectiveness of a level target is that a level target constitutes a kind of forward guidance, which—through its impact on expectations, can actually work backwards in time. In promising a steady long-run path, it encourages people to invest more steadily in the present, knowing that over the long run, rough patches will be smoothed out.

Nominal GDP level targeting, or NGDPLT, is one of the most popular uses of the level targeting idea. Level targeting dovetails particularly well with NGDP targeting because it turns the target into a long-run goal. In a level-targeting regime, short-run blips like revisions to GDP data are understood to be less consequential; instead the central bank maintains focus on keeping the long-run path steady.

The Federal Reserve recently moved towards understanding its inflation target as a longer-run average, rather than a short-run point to target each period.<sup>54</sup>

This is similar to level targeting in its focus on stabilizing long-run expectations, and also improves predictability for private-sector contracts.<sup>55</sup>

### *Use Market Signals to Help Find Full Employment*

As covered above, the Federal Reserve from 2015 to 2018 raised interest rates because it believed the economy was approaching full employment and that a rate hike would help stave off inflation. Had its belief been correct, this move would have made sense: generating unnecessary inflation by attempting and failing to bring employment above its natural level would have been a costly mistake worth avoiding.

However, this prediction turned out not to be quite right; the economy was able to sustain, without inflation, unemployment levels significantly lower than the FOMC had estimated, and significantly lower than those of the recent past.

That revelation required some epistemological modesty—which the Federal Reserve has embraced—but it also requires a rethinking of how we close out recoveries and achieve a “soft landing.”

It may be best to rely on an automatic process derived from the private sector’s price signaling, and wait until market prices show evidence that the output gap has been closed.

This approach would be especially valuable when paired with the use of wage growth measures such as the ECI.

## **CORONAVIRUS DISEASE 2019 AND MONETARY POLICY**

U.S. economic activity peaked in February 2020.<sup>56</sup> In the ensuing months, economic activity declined dramatically as individuals and institutions responded to Coronavirus Disease 2019 (COVID-19.) For many economic indicators, the changes in response to COVID-19 are the fastest or largest changes on record.

Monetary policy cannot mitigate the direct harms of COVID-19. However, it is still worthwhile to consider how to implement monetary policy appropriately in 2020 in light of the pandemic. Maintaining stability is unusually challenging because of the large size and the peculiar nature of the disruption.

Some of the general advice for monetary policy in the previous sections will apply to the COVID-19 pandemic. Some of it will not. Furthermore, some new points unique to this particular crisis will apply, even though they do not apply normally.

### *Monetary Policy Adjusted Quickly in March 2020*

Above, this report criticized past monetary policy for slow reaction times, and discussed the use of early indicators, such as unemployment claims, to head off collapses in spending. These criticisms do not apply to 2020 economic contraction.

The Federal Reserve reduced interest rates to near-zero levels in March 2020, the first month of the contraction. This was an appropriate recognition of market conditions: the expected return on private sector investments had fallen, so it was necessary for government-issued assets to trade at reduced yields as well, rather than setting an impossibly-high hurdle rate for private lending.

Additional policies with macroeconomic impact came from Congress: particularly, the Families First Coronavirus Response Act and the Coronavirus Aid, Relief, and Economic Security (CARES) Act, both signed into law that same month. These were not monetary policy, and their merits will not be discussed here, but they are relevant to monetary policy in that they increased nominal incomes to individuals, offsetting losses in income from business closures or layoffs.

These responses actually pre-dated most unemployment indicators; while unemployment numbers are usually the quickest indicator of a collapse in spending, faster indications, such as prominent business closures, were available in this unusual case.

### *Increases in Short-Run Spending are Not Always Desirable or Feasible*

Under usual conditions where nominal spending falls sharply, the development is unwanted and a sound monetary policy regime would typically reduce interest rates to counteract that. This reduces the opportunity cost of spending, inducing the private sector to hire, consume, and invest, until the path of nominal spending is once again stabilized.

This prescription is less useful under current circumstances than under the typical conditions where spending falls. Some ways of spending increase the risks of COVID-19 infection and spread; those kinds of spending have decreased, in some cases, dramatically. Some spending has been expressly prohibited by state or local laws, and other spending has simply been reduced by ordinary consumer choice. These drops in spending are not the products of monetary policy, and unlikely to be shifted by anything in the monetary policy toolkit. Another way to put this idea is that potential output simply will be lower for as long as COVID-19 remains a relevant concern.

It is important to recognize the limits of short-run monetary policy under these circumstances. Some economists, such as Narayana Kocherlakota, a former president of the Federal Reserve Bank of Minneapolis, suggest reducing short-term interest rates into negative territory in an attempt to stimulate



the economy.<sup>57</sup> Setting aside potential unintended legal or administrative consequences of this move, the prescription is likely to have limited effectiveness while COVID-19 is circulating.

Rate cuts work primarily through a substitution effect; they change for individuals the tradeoff between current spending and future spending, and make current spending relatively more attractive. (While this is a tradeoff at the individual level, it is not a tradeoff for the economy as a whole. The spending of the first individual increases the income of another.) While the substitution effect is normally powerful, it is limited for a cautious individual or firm during the COVID-19 pandemic, as many forms of spending would increase transmission. The usual substitution effect that makes rate cuts expansionary is less effective than usual.

There are also other effects, such as income effects: rate cuts effectively mean that banks or savers will have less money in the future than they would absent the rate cut. This can curb lending or spending. Under most circumstances, the substitution effect dominates the income effects, and rate cuts are expansionary. However, after a certain point, rate cuts may be contractionary. This point is known as the reversal rate.<sup>58</sup> Under circumstances where the substitution effect is less potent than usual, it follows that the reversal rate should be higher than usual. Central banks have historically not worried about the reversal rate—and they should not worry about it under current policy—but driving interest rates negative in an attempt to marginally increase spending during a pandemic would certainly risk reaching the point where rate cuts are counterproductive.

Short-run monetary policy is of limited use until consumers and firms are comfortable with the health consequences of spending more freely.

### *Employment Data Requires Substantial Adjustments to Be Understood*

Another issue unique to the year 2020 is that data series in employment and inflation are less helpful in the short run than they would usually be in guiding monetary policy.

Employment series have some unusual problems that must be considered and adjusted for.

First, many workers are in unusual states somewhere between employment and unemployment. (For example, unemployed on temporary layoff.) Some such workers categorize themselves incorrectly when taking the household survey (for example, by marking themselves as employed but absent from work.) The BLS has been forthcoming and transparent on how to think about this issue, and provided information on how to adjust for these likely-incorrect responses.<sup>59</sup>

Furthermore, it may be difficult—among those workers in limbo—to understand which ones really will have a job to go back to, and which ones will



not. Just because a layoff is reported as temporary in the household survey does not mean it will ultimately be temporary.

Finally, labor force participation declined dramatically as the pandemic took hold, from 63.4 percent in February to 60.8 percent in May.<sup>60</sup> This suggests that some unemployed workers are not looking for jobs—but presumably, only temporarily so, because they are waiting for COVID-19 to abate to begin their search. Their removal from the labor force—and therefore, the unemployment rate calculations—results in a measured unemployment rate that does not reflect their joblessness.

Some of the best work in understanding the employment situation comes from Jason Furman and Wilson Powell, who adjust for both the labor force participation issue and the misclassification of those marked as employed but absent. They find that the unemployment situation is worse than one would typically infer from the unemployment rate.<sup>61</sup>

Furman and Powell further suggest a measure of “full recall unemployment rate,” of what the unemployment rate would be if all the workers who report themselves as temporarily laid off were immediately able to return to work. This is an optimistic measure, they note, as some who report temporary layoffs will end up permanently laid off. However, it puts a lower bound on the number of Americans without jobs of any kind. Their full recall unemployment rate for May was 7.1 percent, suggesting a substantial number of Americans neither had a job nor expected to have one to return to.<sup>62</sup> By September, it had fallen to 6.6 percent, which is better but still millions of jobs short of full employment.<sup>63</sup>

The unemployment data are difficult to read, and likely less precise than they usually are; however, clear lessons can be drawn from them. First, that unemployment is historically high. Second, much of it is reported to be temporary, but some of it is not; even a full reopening and a successful suppression of COVID-19 could leave the U.S. with some people unemployed who should not be, and were not unemployed prior to the pandemic.

### *Inflation Data Will Not Be Easily-Usable until Suspended Economic Activities Return*

Inflation data is likely to be extremely incommensurate with past experience, so much so that the headline numbers may not be useful, and even individual components may need contextualization.

A large number of products have become temporarily unavailable. While this is an ordinary problem for the BLS, and they have procedures for imputing the prices of temporarily-unavailable items by finding prices of comparable items from elsewhere, this problem is happening at an extraordinarily scale in 2020 as millions of businesses are paused. There are also changes in how the data

is collected; in-person data collection has ceased, and respondents may be changing their behavior in ways unknown to survey takers.<sup>64</sup>

Finally, there is an important conceptual point about what the large number of product absences means for the dollar—and what returning those products to market would restore. The dollar's purchasing power has fallen, in a certain sense, in that it can no longer safely get people a product that was previously available to them. It will rise substantially if COVID-19 is effectively suppressed or burns itself out. The absence or availability of products is, for the time being, a much more interesting component of the purchasing power of the dollar than the price levels of the goods that are available.

In the long run, after COVID-19 is at bay, stable inflation will once again be a meaningful indicator of the state of the economy. However, for the short run, it is likely inadvisable to treat 2020's inflation figures as comparable with those of the recent past, or assume that inflation works the same way as it has in the recent past.

#### *Although GDP is Falling, Nominal Personal Income Has Remained High*

This paper has thus far treated nominal income and nominal spending as synonymous goals. As one person's spending is another person's income, these two indicators move together (and, under certain formulations, they are identical.)

However, under the specific circumstances of the COVID-19 recession, GDP has fallen even as personal income has risen, an unusual combination. The contours of the COVID-19 recession can best be seen in the BEA's advance GDP estimates for the second quarter of 2020.

For that quarter, nominal GDP declined by \$1.805 trillion—a huge disruption that would concern any analyst. However, disposable personal income grew by a total of \$1.53 trillion (annualized). Most forms of market income declined precipitously; in annualized terms, employee compensation fell \$794 billion, and proprietors' income by \$224 billion. However, personal income ultimately rose, because government transfers and lower taxes contributed \$2.419 trillion and \$148 billion to annualized personal income, respectively.<sup>65</sup>

GDP and personal income are typically correlated; however, in 2020 nominal personal income has been sustained through increases in government transfers and decreases in taxes—some automatic, and some as consequences of acts of Congress. Government deficits have increased sharply, which is not a sustainable long-run solution, and some individuals have lost income even after transfers, but on average personal income has been shielded from the consequences of the recession.

The final notable item from the BEA report is that personal saving has increased sharply, to a \$4.694 trillion annualized rate, up from just \$1.594 trillion in the first quarter. This suggests that on average—if not in every individual case—households are accumulating money that they expect to spend later.

Although nominal GDP is usually an excellent measure of whether policy has been too loose or too tight, nominal personal income may temporarily be better for understanding the state of the economy. Under ordinary circumstances, a drop in nominal GDP usually comes with low disposable income and weak household balance sheets, and therefore, a limited ability for households to spend in the future and return nominal GDP back to trend. However, in this particular case—since nominal household income was preserved by Congress, and since households have potential savings to deploy as the virus recedes, the prospects for returning nominal GDP to its pre-COVID path are much more realistic than the Q2 nominal GDP numbers would suggest.

### *Level Targeting and Long-Run Guidance Can Build Expectations of a Strong Recovery*

The principal instrument of monetary policy—short term interest rates—is already at zero and likely to remain there. Furthermore, attempts to increase spending in the very short run may not be welcome, as many forms of business are closed and many forms of spending are unsafe.

However, despite this, monetary policy can still be improved, and this can be done primarily through clarifying expectations about the future—about the period where COVID-19 is successfully and permanently suppressed. As mentioned previously, forward guidance is an extraordinarily powerful tool for currency issuers, especially when it is detailed and state-specific.

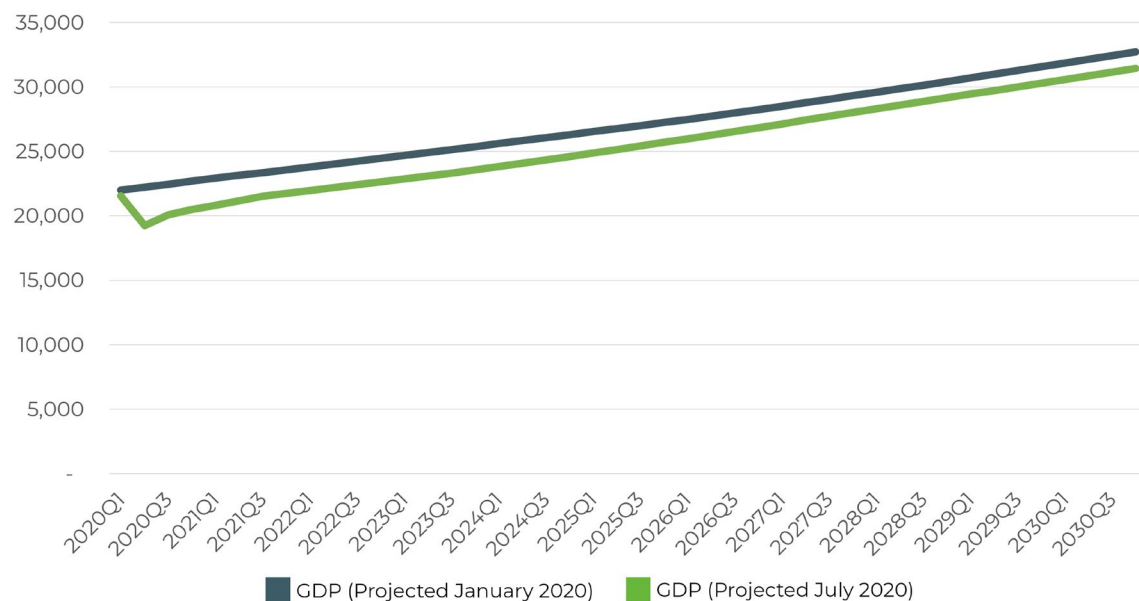
The most important directive for monetary policy is to allow the surge of spending to come once COVID-19 clears. It should explicitly avoid hiking interest rates, which would encourage dollar users to park money with the government rather than use it for hiring new workers, until the economy has returned to its original path.

The second most important directive for monetary policy is to clarify—now, in the present—that monetary policy will not be tightened too early. For example, in the very recent past, prior to COVID-19, more than eighty percent of Americans age 25-54 were employed. In the very recent past, there were consensus expectations about nominal GDP for the years 2021, 2022, and beyond. Describing a “level target” policy—in which monetary policy is not tightened until the economy returns to that trend, with specific markers for what would constitute a return to normalcy—would help build confidence that a strong recovery is coming.

It is important to build that confidence now; while many types of spending are currently being avoided for health reasons, it is still possible for some firms to raise capital, hire, and invest in some long-run projects. They will do both more freely and more easily if a strong recovery is expected.

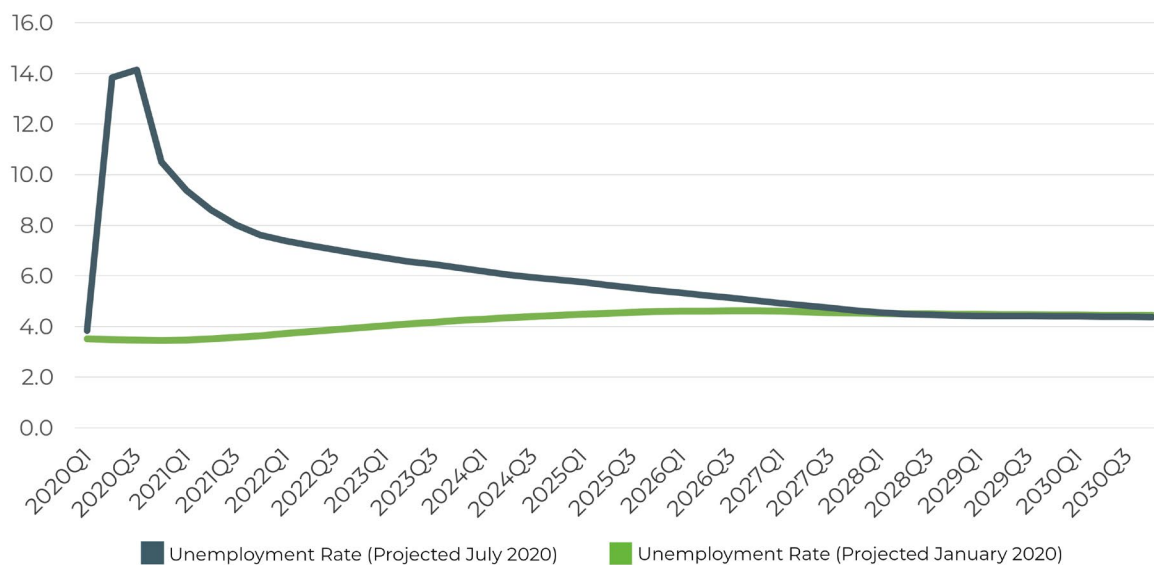
It is important to note that CBO projections show a slow, decade-long slog towards the prior trend. When its July economic projections are compared to its January 2020 baseline, developed prior to the COVID-19 outbreak in the United States, one can see a large and enduring difference on both nominal GDP and employment.<sup>66 67</sup>

Figure 13. Projections of Nominal GDP, Pre- and Post-COVID-19 (billions of dollars, annualized)



Sources: Congressional Budget Office, The Budget and Economic Outlook: 2020 to 2030, January 28, 2020, <https://www.cbo.gov/publication/56020>; Congressional Budget Office, An Update to the Economic Outlook: 2020 to 2030, July 2, 2020, <https://www.cbo.gov/publication/56442>

Figure 14. Projections of Unemployment, Pre- and Post-COVID-19



Sources: Congressional Budget Office, The Budget and Economic Outlook: 2020 to 2030, January 28, 2020, <https://www.cbo.gov/publication/56020>; Congressional Budget Office, An Update to the Economic Outlook: 2020 to 2030, July 2, 2020, <https://www.cbo.gov/publication/56442>

These projections, if they became reality, would be disheartening: a decade of economic progress wiped out, and a decade more to earn it back once again. But there are reasons to expect or hope that a better path for the economy is possible. CBO projections cannot assume the impact of new policies that have not yet been enacted, and some promising employment data has been released since the projections were made.

Finally, monetary policy could communicate that such an outcome would be unacceptable, using state-specific forward guidance. Under the CBO's forecast, for example, rate hikes are projected even at times when unemployment exceeds 5 percent. While this may be consistent with past experience, and with the rate hikes described by Ozimek and Ferlez as a mistake, it need not be true of the future. Monetary policymakers could state that if nominal GDP was still below its expected trend, and unemployment was still elevated relative to the recent past, that there would be no tightening under such circumstances.

The temporary COVID-19 economy was not meant to endure for the long run. Once the virus has waned, policy should clear the runway for spending to pick up again as fast as possible. From a monetary policy perspective, this means forgoing rate hikes or other tightening actions until normalcy is restored.

## CONCLUSION

Output gaps, generating periods of mass unemployment similar to that of the last decade, are among the most important problems in developed economies. Recent experience and research have helped us understand the nature of the problem, and to devise progressively-better strategies to alleviate it.

Devising these strategies is a project deeply worth undertaking. Output gaps like that of the last decade come with tremendous losses. The losses are most easily denominated in dollars and jobs, but they can also be denominated in other units: mental wellbeing, work friendships, and children who were never born because young couples did not feel financially secure enough for parenthood.

These losses are terrible, but at least some of them are preventable. Some past losses were simply mistakes by currency issuers in understanding the complex and fragile systems built atop their currency. In the future, currency issuers could achieve better outcomes by stabilizing nominal income. More generally, we can use what we have learned from the experiences of 2007-2019 to help mitigate the present COVID-19 recession, and prevent or mitigate future recessions as well.

**Alan Cole**  
**Senior Economist**

## ENDNOTES

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1. A key feature of currency is that it can be used more or less frequently. More frequent usage is effectively similar to increasing the supply, less frequent usage is effectively similar to reducing the supply; speaking of the supply of currency is a simplification of a more complex process.
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6. At least some proposals exist to dramatically reduce the federal government's role in currency and banking. States and firms can and do issue financial assets or even "currencies" redeemable for real productive capacity; this behavior could be scaled up in the absence of a federal currency. However, in practice the dollar has existed in some form since 1792, and will likely continue to be the world's most important currency for decades or centuries to come.
7. As these estimates include a fair amount of projection about a counterfactual, they should be considered approximations, with room for debate. However, they are meaningful approximations; the CBO's approximations suggested that higher levels of employment (similar to those that had been achieved in 2007, or those that would eventually be achieved in the late 2010s) were possible, and that those workers would contribute to GDP.
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