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## Inflation targeting: How the Federal Reserve abandoned 'honest money' for a perpetual inflation tax

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# **Inflation targeting: How the Federal Reserve abandoned “honest money” for a perpetual inflation tax**

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## **Inflation targeting: How the Fed abandoned “honest money” for a perpetual inflation tax**

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### **Abstract**

There was a time when the Federal Reserve believed that honest money—i.e., a stable price level— was essential for achieving full employment. Today, retired Fed officials are recommending that the Federal Open Market Committee (FOMC) target 3-percent inflation. They argue that a 3 percent inflation target would limit the risk of deflation and create large transitory reductions in unemployment and cumulative gains equal to 50 percent of GDP over a 15-year period. I review the evidence on deflation, the Phillips curve relationship that promises to deliver sizable output gains, the FOMC’s historical experience with Phillips curve models, and how the FOMC’s monetary strategy evolved from policy coordination, to price stability, to implicit, and finally to explicit inflation targeting. I analyze historically important factors that may prevent the realization of the hypothetical gains created by increasing the inflation rate target and summarize the literature that describes the costs and benefits of inflation. Finally, I provide estimates of the additional inflation tax revenue generated by increasing the FOMC’s inflation target from 2 to 3 percent and show that, at a minimum, if the hypothetical gains were realized, more than 61 percent of the output gains would accrue to the Federal government. If output gains are not forthcoming, the change in the inflation target will still transfer trillions of dollars of inflation tax revenue from the public to the federal government and impose additional welfare costs that come with higher inflation.

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<sup>1</sup> I am grateful for the suggestions of Alex Pollock and John Kearns on an earlier draft of this paper.

## **Inflation targeting: How the Fed abandoned “honest money” for a perpetual inflation tax**

### **I. Introduction**

Once upon a time, the Federal Reserve championed stable prices as a prerequisite for achieving full employment. In a [1978 commencement speech](#), Federal Reserve Board Governor Wallich equated price stability with “honest money”. Today, far from targeting stable prices, the Federal Reserve’s [goal](#) is to create 2-percent inflation on average over an unspecified extended time period. For some, the goal of creating 2 percent perpetual inflation is not sufficiently ambitious. Former Fed officials are [lobbying](#) for a higher inflation target of 3 percent, claiming it will generate large gains in employment and output even though the forecasted gains seem to contradict lessons learned from the Great Inflation ([Bryan, 2021](#)). Regardless, influential Federal Reserve staff have abandoned the principle of “honest money” in favor of a perpetual and substantial Federal Reserve inflation tax.

In a recent paper ([Reifeschneider and Wilcox, 2021](#)), two newly retired Federal Reserve Board senior officers, argue that the Fed should revise its policies and target a 3 percent average inflation rate instead of the current 2 percent target.<sup>2</sup> With 2-percent inflation, prices increase by almost 35 percent over a 15-year period. With 3-percent inflation, prices increase by 56 percent. The change in the inflation target is claimed to generate sizable gains in employment and output over the 15-year period their model simulations say it takes for the economy to fully adjust to the new policy. The advertised output and employment gains are theoretical—they only occur in simulations of the Federal Reserve Board’s large scale macro-econometric model of the economy.

The model simulations presume the existence of a short-run Phillips curve—a phenomenon whereby higher unanticipated inflation reduces unemployment. Raising the target inflation rate to 3 percent induces a transitory surge in employment because inflation expectations are presumed to adjust slowly over time. According to the authors, the new policy unfolds as follows:

[T]he FOMC quickly lowers the federal funds rate to zero and holds it there for several years...long term interest rates fall, stock market values rise, and the real exchange rate depreciates. The improvement in financial conditions causes employment and output to boom, with the result that expected and actual inflation gradually rises in an environment of persistently tight labor and product markets. Over time, however, the favorable financial conditions and stronger real activity fade away as monetary policy gradually becomes less accommodative in response to trend inflation slowly converging to the new target.

The authors estimate that, starting from an economy with 2 percent expected inflation and 4 percent unemployment, by changing the Fed’s inflation target to 3 percent, the unemployment rate gradually declines to 1.5 percent after about 5 years, before taking another decade to gradually return to the 4 percent unemployment rate assumed to be consistent with non-accelerating inflation. The authors estimate that this change in Fed policy will create a cumulative output gain equivalent to about 50 percent of GDP over the 15-year simulation interval.

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<sup>2</sup> Reifeschneider and Wilcox are not unique in their call for increasing central bank inflation rate targets. Other economists who share the view that central banks need a larger interest rate buffer to enable them to reduce interest rates to counter deflationary shocks while keeping interest rates nonnegative include inter alia, Blanchard, Dell’Ariccia, and Mauro 2010, Williams 2009, and Ball 2013.

The alleged gains created by increasing the Fed's target inflation rate target from 2 to 3 percent seem incredibly large, at least to me. However, Messer Reifeschneider and Wilcox are accomplished economists, so I was interested in understanding the source of their forecasted gains and how these gains squared with Federal Reserve history and the related academic literature, including identifying questionable assumptions and other issues that could possibly derail their forecast. The issues are interesting and important but can be difficult to follow, even for economists. So I decided it would be useful to share a prospective on their findings that summarizes relevant history and the economic issues related to the estimated benefits in a manner that is accessible to most interested readers. A preview of my findings follows.

The argument for increasing the inflation rate target to 3 percent is that higher expected inflation rates will translate into higher nominal interest rates, which will in turn give the Fed more room to lower interest rates to counter deflationary pressures. An implicit premise is that deflation is everywhere and always associated with deep recessions or even depressions. History shows this perception to be inaccurate. There have been many more instances of price deflations that have occurred against a backdrop of growth than against a backdrop of depression.

By the Fed's own [admission](#), Federal Open Market Committee (FOMC ) forecasts of inflation, which are judgmentally-adjusted projections from the Fed's econometric models, have a checkered history when it comes to accuracy. For example, FOMC transcripts show that the Fed's internal estimates of the Phillips curve consistently produced inaccurate inflation rate forecasts in the second half of the 1990s, the early 2000s, and in periods following the Great Recession.

FOMC members and Federal Reserve System economists have never been able to definitively identify the reasons for these consistent patterns of inflation forecasts errors. Some have attributed the errors to systematic changes in inflation expectations while others thought the errors owed to reductions in the non-accelerating inflation rate of unemployment (or [NAIRU](#)). Both explanations imply that the short-run Phillips curve used to forecast inflation shifted in ways that were not anticipated by FOMC members or Federal Reserve economists.

More recently, forecasts for the 2021 inflation rate have been consistently revised upward at multiple FOMC meetings as inflation exceeded forecasts. These forecast errors are a reflection of the fact that a Phillips curve relationship will only produce accurate inflation and unemployment forecasts when the NAIRU is constant, inflation expectations are anchored, and most disturbances to output and unemployment are a consequence of changes in aggregate demand and not supply shocks (Sumner, 2021).

A large academic literature argues that a low and stable rate of inflation can generate gains in output and employment by reducing the output and employment costs created by sticky nominal wages and prices. However, the idea that raising the inflation target from 2- to 3-percent will generate large gains in output and employment is inconsistent with a similarly large literature that argues that **reducing** expected inflation generates significant and long-lasting increases in GDP. Several studies argue that the aggregate welfare gains from a lower expected inflation rate far exceed the short-run unemployment related costs of reducing inflation expectations. The latter literature is squarely at odds with the output and employment gains forecast by Reifeschneider and Wilcox.

The estimated benefits of transitioning to a 3 percent average inflation target are also hard to reconcile with the recent historical record. The Fed formally adopted a 2 percent inflation target in 2012 and kept the Federal Funds rate near zero until 2016. Even with the added stimulus of massive quantitative easing (QE) purchases in 2012, 2013 and 2014—purchases which are not part of the Reifeschneider and Wilcox 3-percent inflation target policy simulation—the economy did not experience the projected boom that is forecast to materialize when policy rates are kept at zero for an extended time. Given this history, it is natural to question the magnitude of the forecasted benefits generated by adopting a 3 percent inflation target.

Then there is the issue of inflation expectations and Fed credibility—or the public’s belief that the Fed can deliver on its inflation target. The simulated benefits of a 3 percent inflation target depend critically on the inflation expectations of businesses and households remaining anchored around a low inflation rate. While the current FOMC and the simulation estimates assume that long-run inflation expectations are firmly anchored and durable, others believe that long-term inflation expectations are adaptive and could quickly increase should actual inflation remain elevated above the target 2 percent for any extended period. No research has conclusively shown that long-term inflation expectations are truly anchored as many Fed officials hope. The assumption that a Phillips curve relationship is durable and can be used to successfully guide a monetary policy that will stimulate output and employment while keeping inflation contained to targeted rates over a 15-year period is heroic given the historical record.

Lastly, the uncertain benefits of a higher inflation rate target must be weighed against the certain cost of imposing a very large perpetual inflation tax on households and businesses—an inflation tax imposed by an unelected and largely unaccountable independent agency of the Federal government. In a best-case scenario, where the Reifeschneider and Wilcox estimate of the benefits of a 3 percent inflation-targeting regime are realized, the inflation tax transfers more than 61-percent of the alleged output gains to the federal government to redistribute according to its priorities.<sup>3</sup> Moreover, over this 15-year period the additional percentage point of inflation will transfer more than \$7 trillion of resources from the public to the federal government regardless of whether the policy change generates any additional output. My guess is that the magnitude of the implicit inflation tax bill is much larger than many might imagine.

The remainder of the paper is organized as follows. Section II reviews the historical evidence regarding links between deflation and depression. Section III discusses the history of the Phillips curve. Section IV discusses the Federal Reserve’s historical reliance on the Phillips curve to guide monetary policy. Section V discusses Federal Reserve monetary policy during the Great Inflation. Section VI discusses the Federal Reserve’s experience as it tried to contain inflation and restore price stability under chairman Volcker and Greenspan. Section VII reviews the FOMC deliberations as it moved from a goal of price stability to an internal inflation targeting strategy, to an explicit inflation target. Section VIII provides an overview of the academic literature on the costs and benefits of inflation. Section IX discusses the implicit inflation tax paid by businesses and consumers and provides some illustrative estimates of the magnitude of the tax under a successful 2-percent and 3-percent inflation targeting policy. Section X discusses the importance of inflation expectations and the Fed’s inflation-fighting credibility under its inflation targeting regime, including its ability to maintain the public’s confidence if it moves to a higher inflation

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<sup>3</sup> This presumes that Congress does not simultaneously cut corporate and personal income taxes to offset the federal revenue gained from inflation.

target. A final section summarizes issues to be considered when evaluating recommendations that the Fed adopt a 3-percent inflation rate target.

## **II. Does Deflation Cause Depressions?**

Those advocating for a higher inflation rate target, including Reifeschneider and Wilcox, argue that higher expected inflation is needed to give the FOMC an adequate buffer to lower interest rates to combat recessions. Since nominal interest rates equal the real interest rate plus the expected rate of inflation, higher expected inflation means higher nominal rates. Higher nominal rates give the FOMC more room to lower nominal rates to counteract recessions, thereby lowering real interest rates, without pushing nominal interest rates negative.

The emphasis on low inflation expectations and the concern that low nominal interest rates may limit the Fed's ability to use interest rates to prevent a deflation is a relatively new worry in the context of the Fed's monetary policy history. The argument is that when businesses and consumers begin to expect deflation, they will withhold demand, waiting for lower prices and thereby deepen a recession. In extreme cases, the demand deficit may lead to mass unemployment and widespread bankruptcies turning a recession into a depression. According to (then) Federal Reserve governor Bernanke (2002),

Deflation is in almost all cases a side effect of a collapse of aggregate demand--a drop in spending so severe that producers must cut prices on an ongoing basis in order to find buyers. Likewise, the economic effects of a deflationary episode, for the most part, are similar to those of any other sharp decline in aggregate spending--namely, recession, rising unemployment, and financial stress.

Concern about low inflation expectations and nominal interest rates was notably absent from the FOMC's list of worries in the 1950s and 1960s when the US last experienced periods of very low inflation and even deflation. Instead, according to Meltzer (2009, p. 233) the Fed was in a political fight to maintain the discretion to use monetary policy to stabilize prices and employment. A Joint Economic Committee (JEC) staff report, "Employment, Growth and Price Levels", argued that that FOMC's actions aimed at stabilizing prices and maintaining high employment had actually resulted in higher prices and lower economic growth,

The theory that in an environment of stable prices the economy will experience sustainable healthy growth is fallacious. The severe, restrictive application of present monetary and fiscal tools which would be necessary to halt the increase in prices would keep the economy in a perpetual state of slack. (JEC staff report as quoted in Meltzer, 2009, p.233)

The JEC staff recommended that monetary and fiscal policy abandon attempts to stabilize prices in favor of allowing a modest amount of "creeping" inflation as a means for improving economic growth. According to Meltzer (2009, p. 243), in a letter to Senator Paul Douglas, the chairman of the JEC, Federal Reserve chairman Martin defended the FOMC's policy of pursuing stable prices,

My interest in a monetary policy directed toward a dollar of stable value is not based on the feeling that price stability is a more important national objective than either maximum sustainable growth or a high level of employment, but rather on the reasoned conclusion that the objective of price stability is an essential prerequisite for their achievement.

A review of the historical experience suggests that the currently fashionable view that transitory deflations are extrinsically linked with deep recessions or even depressions puts too much emphasis on the Great Depression, a period which is unique compared to most historical periods of deflation. For example, Atkeson and Kehoe (2004) examine the empirical relationship between deflation and depression using 100 years of historical data for the US and 16 other countries. Their data includes the Great Depression. Atkeson and Kehoe conclude, "...the only episode in which we find evidence of a link between deflation and depression is the Great Depression (1929—34). We find virtually no evidence of such a link in any other period."

Many historical deflationary periods occurred when countries followed the gold standard. The gold standard tended to produce a mean-reverting price level so there would be periods of inflation following the discovery of new gold supplies followed by deflationary periods when economies grew faster than the production of new gold stocks (Bordo, 1999). According to Bordo (2005),

In that [gold standard] regime, price level movements were determined by the fundamentals of the gold market, which were largely exogenous to individual countries; deflation was an essential part of that process as discussed above and it turned out to be associated with favorable productivity developments.

In more modern times, the Japanese experience of the last 30 years is often cited as a poster-example of deflation negatively impacting economic growth. For example, Bordo (2005) writes,

The example of deflation receiving the most attention today is Japan, which has had bouts of falling prices since the mid-1990s. It seems to be a case of "bad" deflation characterized by stagnant real activity along with mild deflation.

Bernanke (2002) shares the view that deflation lowered Japan's economic growth but argues that outcome could have been prevented had Japan demonstrated the political will to adopt needed reforms,

In short, Japan's deflation problem is real and serious; but, in my view, political constraints, rather than a lack of policy instruments, explain why its deflation has persisted for as long as it has. Thus, I do not view the Japanese experience as evidence against the general conclusion that U.S. policymakers have the tools they need to prevent, and, if necessary, to cure a deflationary recession in the United States.

Japan may be an example where economists' have overemphasized the importance of deflation, or a case of what Bordo (2005) calls a "deflation scare." For the past few decades, Japan's growth rate of real GDP has been famously slow compared to other advanced countries. There are various reasons besides deflation that may explain Japan's slow growth rate including long-standing problems in the banking and insurance sectors (Hoshi and Kashyap, 2004) and an aging workforce with more than a quarter of the population over age 65 (Berke, 2018), among other possible reasons.

Unlike the United States, over the last thirty years Japan's population growth has not only been stagnant but in actual decline since 2010. The reduction in Japan's working population in part explains its slow real GDP growth rate. On a per capita basis, Pollock (2016) argues that Japan's real GDP growth does not compare all that poorly against the growth record of other advanced countries. In fact, on a per capita



basis Pollock estimates Japan grew faster than Italy, France and Spain, even though these European countries were not experiencing deflation at the time.

The preoccupation with preventing deflation also contradicts the Fed's current view that long-run inflation expectations are well-anchored at 2 percent. A deflation-recession scenario would seem to require that inflation expectations adapt quickly to anticipate deflation. Moreover, it presumes that the Fed's ability to stimulate the economy ends when nominal interest rates reach zero. This presumption is inconsistent with post financial crisis FOMC monetary operations that have relied heavily on QE and the special lending programs Federal Reserve Board governor Bernanke (2002) foreshadowed while still a Federal Reserve Board governor. Since the Fed is still executing monetary policy using QE stimulus under chairman Powell, presumably the FOMC believes that asset purchases have a stimulative impact.

### **III. The Phillips Curve: The Tradeoff between Unemployment and Inflation**

The simulated benefits of the 3 percent inflation target depend on an estimate of the NAIRU and the slope and stability of the Phillips curve relationship built into the Fed's econometric model. The Fed's own experience during the Great Inflation highlights problems that arise when policy-makers assume there is an exploitable tradeoff between unemployment and inflation.

According to [Humphrey \(1985\)](#), the earliest suggestion that there is a tradeoff between unanticipated inflation and unemployment can be traced to the writings of David Hume (1711-1776). However, Hume's ideas did not gain widespread recognition among economists until A. W. Phillips (Phillips, 1958) documented the existence of a seemingly stable relationship between wage inflation and unemployment rates using data from the United Kingdom. In the early 1960s, economists like Paul Samuelson, Robert Solow ([Samuelson and Solow, 1960](#)) and [Walter Heller](#), advisors to the Kennedy and Johnson administrations, popularized the Phillips curve among elected officials by suggesting that the Phillips curve relationship could be exploited to achieve the administrations' target of maintaining a 4 percent unemployment rate.

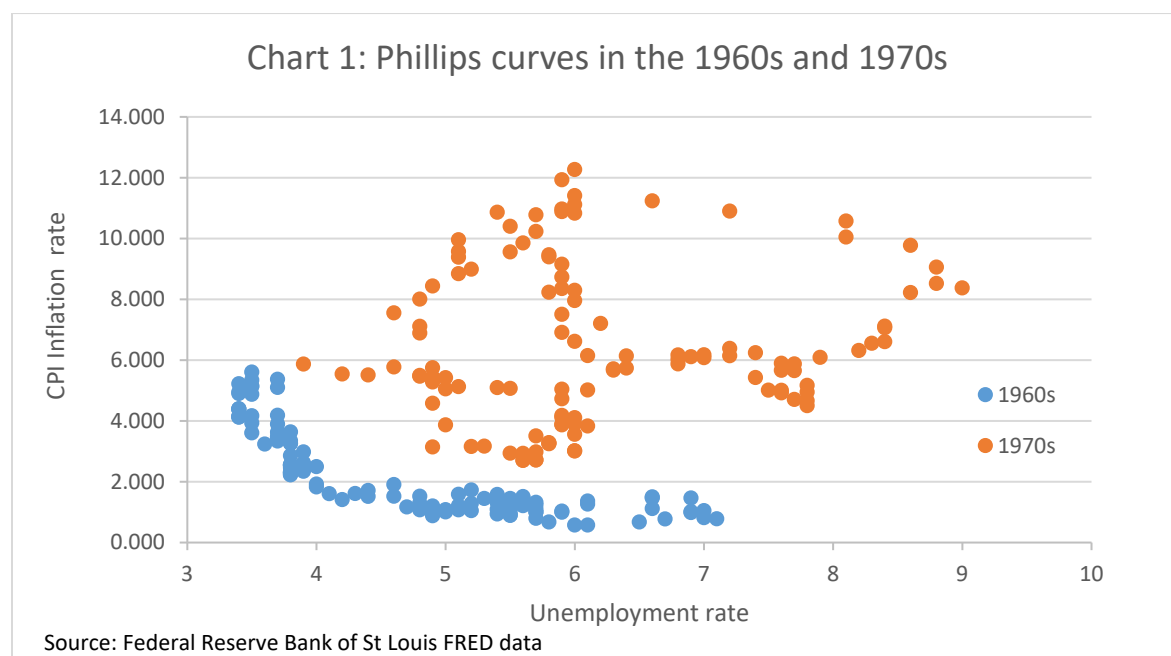
US inflation and unemployment rate data from the 1960s [Chart 1, blue dots] seems to suggest that there is a stable trade-off between unemployment and inflation—in the 1960s, higher inflation was systematically associated with lower unemployment rates. Over time, economists attached meaning to certain features of the curve. Notice that unemployment rates as low as 4 percent occur in conjunction with very low inflation rates. The 4 percent unemployment rate is the so-called NAIRU, the lowest unemployment rate that is not associated with an acceleration in the rate of inflation. Many economists believe that the level of the curve is in large part driven by the inflation expectations of businesses and households. During the 1960s it appears as if the public's expectations of inflation were stable, anticipating an inflation rate a little over 1 percent. If alternatively, businesses and households had expected higher inflation, the entire set of blue dots would be shifted up to reflect higher expected inflation.

By the 1970s [Chart 1, orange dots] the relationship between inflation and unemployment that prevailed in the 1960s no longer appears in the data. The economy experienced much higher inflation with high unemployment. The ex post explanation for the breakdown in the 1960s Phillips curve relationship during the 1970s is that the latter decade saw significant changes to both inflation expectations and the NAIRU.

The economic mechanism behind the Phillips curve, as described by former Federal Reserve Board Governor Wallich ([Wallich, 1976](#)), is as follows:

...inflation becomes a means of exploiting labor's money illusion, its supposed failure to anticipate inflation correctly. ... It is believed that labor will respond to a seemingly large wage offer that subsequently is eroded by inflation. If labor fails to notice the trick, it will keep working for less than it really had demanded, and employment will be higher.

Some economists argue that the apparent stability of the 1960s Phillips curve can be attributed to the Bretton Woods international exchange rate system that required that the US dollar be convertible into gold at \$35 a troy ounce. Dollar convertibility restricted the Fed's ability to expand the money supply which in turn anchored business and household expectations of low inflation. These expectations were reinforced by experience as inflation was well contained from the mid-1950s through the mid-1960s.



The 1970s brought the demise of the Bretton Woods system, a sizable depreciation of the US dollar, and a series of oil shocks that disrupted existing production processes and increased the NAIRU. All of these factors accelerated inflationary pressures. The Fed's ability to accommodate inflation was no longer restricted by the need to hold gold reserves, and the public's inflation expectations adapted as government policies focused on achieving full employment goals while inflation accelerated. Once businesses and consumers correctly anticipated rising prices, it was no longer possible to trade-off higher inflation for lower unemployment.

#### IV. Monetary Policy and the Phillips Curve

Alan Meltzer's ([Meltzer, 2009](#)) exhaustive reviews of FOMC meeting transcripts, official documents and personal records kept by Federal Reserve System officials suggests that the Phillips curve played little or no role in the FOMC's monetary policy deliberations in the 1960s and 1970s. Chairman Martin's views on the Phillips curve were clearly articulated in his testimony ([Martin, 1963](#)) to the Joint Economic Committee,

Over the years, we have seen counterposed full employment or price stability, social objectives or financial objectives, and stagnation or inflation. In the last case there was even serious discussion of the number of percentage points of inflation we might trade-off for a percentage point increase in our growth rate. The underlying fallacy in this approach is that it assumes that we can concentrate on one major goal without considering collateral, and perhaps deleterious, side effects on other objectives. But we cannot.

[Stephen Roach \(2021\)](#), a Federal Reserve Board economist during the Great Inflation, recounts the methodology that guided the Fed's monetary policy deliberations under chairman Arthur Burns' tenure,

[Arthur Burns]...ruled the Fed with an iron fist, [but] lacked an analytical framework to assess the interplay between the real economy and inflation, and how that relationship was connected to monetary policy. As a data junkie, he was prone to segment the problems he faced as a policymaker, especially the emergence of what would soon become the Great Inflation. Like business cycles, he believed price trends were heavily influenced by idiosyncratic, or exogenous, factors – “noise” that had nothing to do with monetary policy. This was a blunder of epic proportions.

Researchers ([Meade and Thorton, 2010](#)) who have reviewed FOMC transcripts from 1982 to 2003 have concluded that the Phillips curve did not play an important role in FOMC policy discussion until Alan Blinder and Janet Yellen joined the Federal Reserve Board in 1994. These new Federal Reserve Board members, along with Laurence Myer who joined in 1996, were strong proponents of using a Phillips curve framework to forecast inflation. Chairman Greenspan reportedly was agnostic on the use of the Phillips curve, accepting its forecasts when they agreed with his intuitive assessments and discounting them when they contradicted his economic judgement.

During the late 1990s, several FOMC members became critical of the Phillips curve framework when it consistently overestimated the inflation rate. The source of these forecasts errors was a topic of considerable debate. Some FOMC members thought the errors could be attributed to unanticipated fluctuations in the NAIRU, but, as Chairman Greenspan noted ([Board of Governors of the Federal Reserve System, 1995, p. 39](#)), such an explanation was not helpful for formulating monetary policy,

...saying that the NAIRU has fallen, which is what we tend to do, is not very helpful. That is because whenever we miss the inflation forecast, we say the NAIRU fell.

Others FOMC members attributed the errors in the Fed's inflation forecasts to changes in business and household inflation expectations. Many on the FOMC thought that the public was finally becoming confident in the Fed's ability to sustain a low inflation environment.

The Federal Reserve still uses the concept of a Phillips curve when formulating monetary policy, but today Fed economists ([Daly, 2021](#)) think the curve is very flat. The conjecture is that the flat slope is a reflection of inflation expectations that are firmly anchored in the belief that the Fed can achieve and maintain its 2-percent inflation target ([Engemann, 2020](#)). If the Phillips curve is nearly flat, and that flat relationship proves durable, relatively large changes in unemployment can occur with only small changes in the inflation rate. According to Federal Reserve vice-chairman Clarida ([Clarida, 2019](#)),

...the short-run price Phillips curve—if not the wage Phillips curve—appears to have flattened, implying a change in the dynamic relationship between inflation and employment. A flatter

Phillips curve permits the Federal Reserve to support employment more aggressively during downturns—as was the case during and after the Great Recession—because a sustained inflation breakout is less likely when the Phillips curve is flatter. However, a flatter Phillips curve also increases the cost, in terms of lost economic output, of reversing unwelcome increases in longer-run inflation expectations. Thus, a flatter Phillips curve makes it all the more important that inflation expectations remain anchored at levels consistent with our 2 percent inflation objective.

The theoretical employment and output gains purportedly generated by adopting a 3-percent inflation target depend critically on the assumption that the economy maintains a flat Phillips curve relationship and an unchanged NAIRU as the public's inflation expectations slowly adapt over time from 2-percent expected inflation to 3-percent expected inflation under a new higher FOMC inflation target.

## **V. Federal Reserve Policy and the Great Inflation**

According to [Alan Meltzer \(2005\)](#), the Great Inflation began when the Johnson administration ran deficits to simultaneously support the Vietnam War and Great Society programs while pressuring the Fed to adopt accommodative monetary policies. The administration pressed for “policy coordination” among the Fed, Congress and the executive branch which, among other things, required the Fed pursue a simulative policy in the guise of “even-keel” policies ([Holland, 1967](#)). Even-keel policies required the Fed to inject reserves into the banking system to keep interest rates constant during Treasury debt financings. The emphasis on policy coordination amongst all branches of government, including at the Federal Reserve, successfully pressured the Fed to adopt a monetary policy that supported the Phillips curve-driven policies of the Kennedy and Johnson administrations.

Federal Reserve chairman Martin, while personally committed to price stability and maintaining the convertibility of the dollar into gold, believed in Federal Reserve “independence within the government”. According to Meltzer (2005, p. 159), this meant that “if an elected administration proposed and Congress approved budget deficits, the Federal Reserve had to help finance part of them.” Policy coordination effectively required the Fed to adopt the “same objectives and attach similar weights to employment, price stability and the [balance of] payments deficit” as the Congress and administration (Meltzer, 2005, p. 160).

The Kennedy, Johnson and Nixon administrations were all unwilling to fight inflation if that required any sizable increase in unemployment. The administrations' emphasis on policies that targeted a 4 percent unemployment rate pressured the Fed to adopt accommodative policies.<sup>4</sup> The FOMC' member's views on inflation under the tenures of chairman Martin and chairman Burns largely reflected those in Congress and the administration in part because the Federal Reserve Board governors are appointed by [and so typically reflect the views of] the current administration. According to Meltzer, “a majority preferred to continue inflation rather than increase unemployment. If inflation could be reduced at an

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<sup>4</sup> The 4 percent full employment rate target was explicitly stated in the 1962 Economic Report of the President (p.46), “In the existing economic circumstances, an unemployment rate of about 4 percent is a reasonable and prudent full employment target for stabilization policy. If we move firmly to reduce the impact of structural unemployment, we will be able to move the unemployment target steadily from 4 percent to successively lower rates.”

unemployment rate of 4.25 or 4.50 percent, they would accept it. But they did not want any higher unemployment.”

The Great Inflation began with a modest increase in inflation in 1965. In subsequent years, the public came to realize that when unemployment increased above 4 percent, the level presumed consistent with full-employment, the government would initiate efforts to stimulate the economy even as inflation accelerated.

In the 1970s, the economy experienced a series of supply-side shocks in the form of disruptions in the supply of oil. These supply shocks produced both high rates of inflation and high unemployment. The public’s inflation expectations, instead of being anchored as they were in the 1960s under the Bretton Woods system, began to anticipate higher inflation. As the public’s inflation expectations adapted to reality, the Phillips curve inflation-unemployment relationship of the 1960s evaporated.

According to the Federal Reserve’s own account of its history ([Sablik, 2021](#)),

In the 1970s, the Fed pursued what economists would call “stop-go” monetary policy, which alternated between fighting high unemployment and high inflation. During the “go” periods, the Fed lowered interest rates to loosen the money supply and target lower unemployment. During the “stop” periods, when inflation mounted, the Fed would raise interest rates to reduce inflationary pressure. However, the Phillips Curve tradeoff proved unstable in the long-run, as inflation and unemployment increased together in the mid-1970s. While unemployment trended down slightly by the end of the decade, inflation continued to rise, reaching 11 percent in June 1979.

By March 1980, annual CPI inflation rate reached 14.6 percent with unemployment at 6.3 percent.

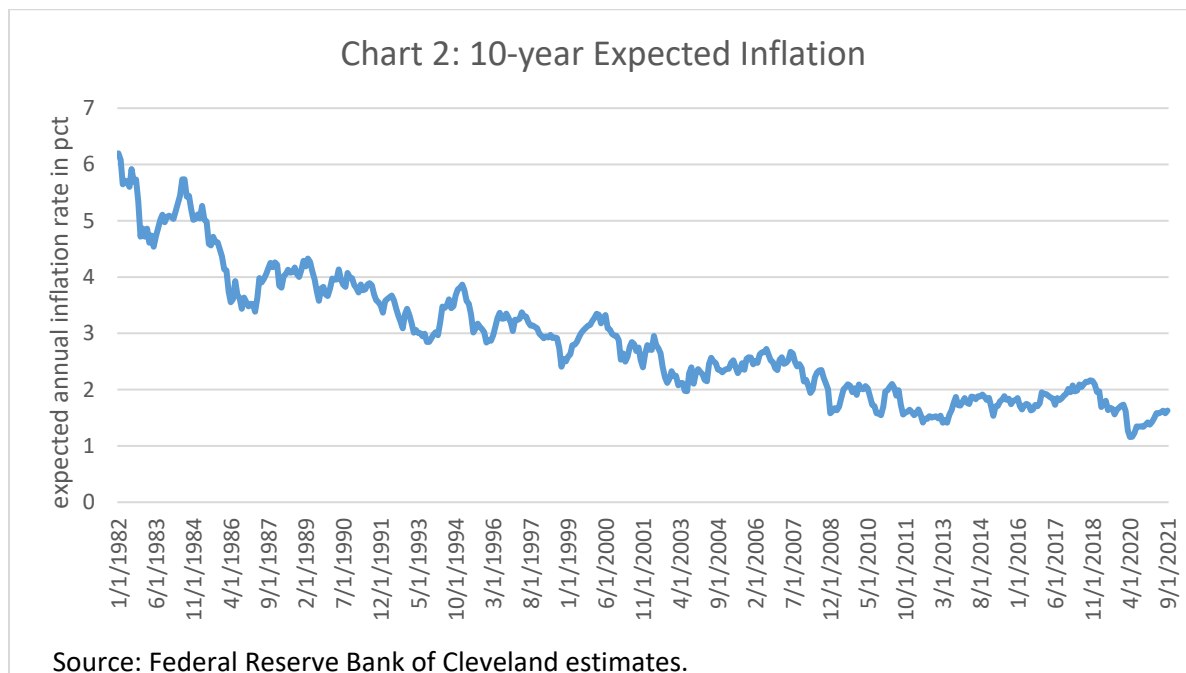
## **VI. Targeting Price Stability**

In the early 1980s, Federal Reserve Chairman Paul Volcker famously ended the practice of policy coordination. Under his chairmanship, the Fed restricted the growth rate of the money supply, forcing interest rates to rise to unprecedented levels. High interest rates triggered a severe recession. The unemployment rate peaked at 10.8 percent in 1982. The Fed-induced recession ultimately slowed the rate of inflation.

Despite the Fed’s success in moderating inflation, Chart 2 ([Federal Reserve Bank of Cleveland, 2021](#)) shows that the public’s expectations of future inflation were slow to react. It was as if businesses and households required proof that the Fed was truly committed to following low inflation rate policies before revising their expectations to anticipate low future inflation rates.

Under the chairmanships of Paul Volcker and Alan Greenspan, Fed policy was focused on reducing inflation with the ultimate goal of restoring price stability. Over time, as the Fed successfully contained inflation, many economists believed that the Fed’s commitment to price stability gradually gained credibility among the public which was reflected in reduced business and household expectations of future inflation. In Congressional testimony ([Greenspan, 2005](#)), chairman Greenspan echoed the words chairman Martin wrote 45 years earlier, when he explained the Fed’s continuing commitment to price stability,

“For our part, the Federal Reserve will pursue its statutory objectives of price stability and maximum sustainable employment—the latter of which we have learned can best be achieved in the long run by maintaining price stability.”



## VII. From Price Stability to Inflation Targeting

The journey from a monetary policy that targets price stability to one guided by a 2 percent perpetual inflation rate target was famously foreshadowed in the transcripts of the July 1996 FOMC meeting ([Board of Governors of the Federal Reserve System, 1996, pp. 50-51](#)):

MS. YELLEN. Mr. Chairman, will you define "price stability" for me?

CHAIRMAN GREENSPAN. Price stability is that state in which expected changes in the general price level do not effectively alter business or household decisions.

MS. YELLEN. Could you please put a number on that? [Laughter]

CHAIRMAN GREENSPAN. I would say the number is zero, if inflation is properly measured.

MS. YELLEN. Improperly measured, I believe that heading toward 2 percent inflation would be a good idea, and that we should do so in a slow fashion, looking at what happens along the way. My presumption based on the literature is... that given current inaccurate measurements, heading toward 2 percent is most likely to be beneficial.

In the mid-1990s, the views of Governor Yellen were controversial among some Federal Reserve policy makers. In the 1996 inaugural issue of the Federal Reserve Bank of Dallas *Economic Insights*, Dallas bank president Bob McTeer ([McTeer, 1997](#)) lamented the fact that some of his colleagues were satisfied with a 3 percent inflation rate when such a position was tantamount to abandoning honest money:

One problem with our commitment to sound money probably is the progress we have made on inflation since the 1970s. ...we willingly underwent wrenching adjustments in the early 1980s to break the back of inflation. As progress was made and our memories faded, our determination has waned. We have stopped thinking of sound money as honest money.

The Fed journey toward reinterpreting price stability as an explicit inflation target took another 16 years. The San Francisco Fed ([Shapiro and Wilson, 2019](#)) reports that, between 2000 and 2008, many FOMC members seemed comfortable with an unofficial inflation target of 1.5 percent. After the Great Recession, Fed policymakers coalesced around an unofficial 2 percent inflation target, as measured by the annual change in the price index for personal consumption expenditures. The latter policy became explicit when it was publically announced in January 2012.

For its part, the Fed's official position is that a target of 2 percent inflation averaged over an extended [but undisclosed] period is the best way to achieve long-run price stability and maximum employment. The Fed argues that full-employment interest rates must be high enough to allow the Fed to significantly reduce interest rates when economic expansions end and recession looms. [According to the Federal Reserve Board of Governors \(2021\)](#),

...inflation that is too low can weaken the economy. When inflation runs well below its desired level, households and businesses will come to expect this over time, pushing expectations for inflation in the future below the Federal Reserve's longer-run inflation goal. This can pull actual inflation even lower, resulting in a cycle of ever-lower inflation and inflation expectations...If inflation expectations fall, interest rates would decline too. In turn, there would be less room to cut interest rates to boost employment during an economic downturn.

The most ironic part of the Reifeschneider and Wilcox advocacy of a 3 percent inflation target is that the 1996 FOMC discussion about internally adopting a 2-percent inflation target was that a 2 percent inflation target was seen as the best way to **reduce inflation** from rates consistently near or above 3 percent. Janet Yellen herself argued ([Board of Governors of the Federal Reserve System, 1996, p. 45](#)) that the benefits of reducing business and household inflation expectations from 3 percent to 2 percent justified the adoption of an explicit 2 percent inflation target:

I want to wrap up by indicating what happens when we do the cost-benefit analysis by using the ... estimates of inflation-related changes in permanent unemployment along with... estimates of the tax related welfare benefits... . As I total things up, it appears to me that a reduction of inflation from 3 percent, which I take as roughly our current level, to 2 percent, very likely, but not surely, yields net benefits.

Other members of the FOMC publically advocated for the Fed to adopt an inflation target as the means for reducing inflation expectations to 2 percent from the then prevailing 3 percent rate. For example, in a 1997 speech Federal Reserve Bank of St Louis bank president Thomas Melzer said, (Melzer, 1997),

In short, when inflation is too high—and I think even 3 percent is too high—a specific inflation target and stated timetable would make it easy to see if policymakers were in fact carrying out their responsibilities. I would argue that announced policy objectives in the form of inflation targets would enhance the Fed's credibility, because its policy actions would be easier to interpret.

## VIII. The Costs and Benefits of Inflation

The “costs” and “benefits” of inflation have been widely debated in the economics profession for decades. In this literature, benefits and costs generally refer to some aspect of inflation that increases or decreases potential GDP or alters business or household preferred consumption and investment choices in a way that impacts aggregate social welfare. Costs and benefits roughly correspond to changes in the total output available to be consumed or invested regardless of the distribution of the output, or to impacts on consumer surplus because inflation alters consumption patterns from patterns that would be optimal under price stability.

On the benefits side, many think of inflation as monetary grease that reduces losses that would otherwise be caused by frictions in the labor and product markets. Nominal wages rarely fall. They are sticky downward because employers believe nominal wage reductions adversely impact employee morale and productivity in part because nominal wage cuts likely will result in the loss of the most productive workers (Bewley and Brainard, 1993). Employers generally prefer nominal pay freezes to nominal wage cuts. Rigidities can also arise when wages are fixed by contract with terms which are infrequently renegotiated. In cases where wages are less constrained by formal contract terms, rigidities arise because workers find nominal wage cuts to be unfair and demeaning except in unusual circumstances. Empirical evidence (e.g., Akerlof et.al., 1996, and Lebow et. al., 2003) supports the idea that nominal wages are rarely cut. The distribution of employee nominal compensation changes tends to be asymmetric with far fewer instances of nominal compensation cuts and a pronounced spike in occurrences of nominal wage freezes.

Rigidities in nominal wages reduces output and social welfare when a negative demand shock reduces the demand for labor at prevailing nominal wages (Akerlof, et. al., 1996). By reducing real wages, inflation attenuates the increase in the unemployment rate that might otherwise accompany a negative demand shock, thereby increasing output and improving social welfare. Unlike the Phillips curve phenomenon that depends on unanticipated inflation, this alleged benefit of inflation accrues even when inflation is fully anticipated. According to this theory, higher rates of anticipated inflation should be associated with lower values of the NAIRU. However, empirical evidence seems to show the opposite to be true—lower inflation realizations appear to be associated with lower estimates of the NAIRU (Gordon, 1997, 1998, Lebow et. al., 2003).

Sticky nominal prices can also introduce frictions that reduce output and employment. Nominal prices can be sticky because firms have to spend resources, so-called menu costs, to change posted prices. Unless price changes are sufficiently large, a firm could be better off keeping its posted prices constant because menu costs exceed the additional profits generated by updating prices. When nominal prices are sticky, and do not adjust fluidly to changes in demand, firms produce too much or too little compared to the profit maximizing level of output at the new set of prevailing prices. While the impact at the individual firm level may be small, the cumulative impact of efficiency losses across the entire economy can in theory be large. If the economy experiences a negative demand shock, real prices should fall but will not when nominal prices are sticky. In such a situation, a positive inflation rate can help speed the adjustment of real prices to bring them in line with new demand conditions. This, in turn, will reduce the shock-induced reduction in demand and employment.<sup>5</sup>

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<sup>5</sup> See for example Ball et al. (1988) and references therein.



There is a large literature on the costs of inflation and the benefits that can be garnered by permanently reducing the expected rate of inflation.<sup>6</sup> The costs of inflation typically focus on (i) the loss in consumer surplus caused by reductions in non-interest bearing liquid balances; (ii) the loss in economic growth caused by inflationary distortions on business capital investments; and, (iii) so-called menu costs, or the extra transaction costs required to frequently update prices or renegotiate contracts in an inflationary environment.

Inflation, whether unanticipated or fully anticipated, increases the cost of holding non-interest bearing transaction balances. Since businesses and households are induced to hold fewer transaction balances than they would if the price level were stable, their overall level of utility is reduced. Under low to moderate expected inflation, the reduction in cash balances results in a loss of consumer surplus as citizens have to make more trips to the bank or utilize other methods of payment to economize on the holdings of cash balances.<sup>7</sup>

The estimated welfare costs associated with the inflationary impact on the demand for real transactions balances depends on modeling assumptions. Except for cases of extremely high or hyperinflation, most are less than 0.1 percent of GDP (Tödter and Manzke, 2007). Under conditions of hyperinflation, people revert to barter as a means of trade. Barter is extremely inefficient and imposes a huge loss on social welfare. An additional potential impact of expected inflation for which there is some empirical support ([English, 1999](#)) is over-investment in financial services in high inflation economies as institutions grow to help citizens economize on cash balances.

Because tax liabilities are calculated based on nominal wages, dividends, interest, and nominal capital gains relative to the historical cost of investments, inflation interacts with the tax system in ways that create or magnify distortions in household consumption and savings decisions, investments in owner occupied housing, and business cost of investment capital. If the tax system were fully indexed or equivalently if taxes were assessed on real instead of nominal basis, inflation would have no effect on the real effective cost of debt and equity financing faced by businesses and household incentives to over-invest in housing would be reduced. Because personal income tax rates differ from corporate tax rates, and dividends, interest, and capital gains themselves are taxed at different rates, the relationship between inflation, the cost of investment capital, and inflation-induced distortions in household savings and investment decisions are complicated. Inflation also creates menu costs mentioned previously.

Theoretical arguments suggest that higher inflation rates, whether anticipated or unanticipated, increase the cost of investment capital which, other things equal, reduces the amount of real investments made by businesses and corporations. Inflation interacts with the tax system to incentivize business to produce using less capital than would otherwise be optimal, reducing GDP below potential. The interaction of inflation with household income taxes discourages savings and encourages overinvestment in residential real estate. Estimates of the impact of these effects on GDP vary depending on assumptions. Several researchers (Feldstein 1996, and Cohen, Hassett and Hubbard, 1999) estimate that reducing the inflation rate from 4 percent to 2 percent could increase real GDP by as much as 1 percent. Because inflationary distortions permanently reduce GDP below potential, the cumulative

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<sup>6</sup> The literature on this topic is extensive. See for example Friedman (1953, 1971), Bailey (1956), Barro (1970, 1972), Dowd (1994), Tödter and Manzke (2007), Feldstein (1979, 1982, 1983, 1996), Cohen, Hassett and Hubbard (1999) and references therein.

<sup>7</sup> The substitute methods of payment would not have been preferred if the price level were stable.

social welfare loss associated with retaining a 4 percent inflation rate is much larger than 1 percent. Depending on the rate used to discount future losses, the estimated present discounted value of lost GDP can be many times the 1 percent level change in real GDP.

Inflation also has redistribution effects that may or may not impact total output and aggregate social welfare. Inflation reduces the real income of workers in industries and professions when it is unanticipated which may result in an increased employment and output as is presumed in Phillips curve models of the economy. Unanticipated inflation redistributes income between creditors and debtors. Perhaps the most important resource redistribution caused by inflation, whether anticipated or unanticipated, is the redistribution of resources from the public to the federal government. Estimates of the federal revenues collected through the inflation tax are discussed in the following section.

Reifeschneider and Wilcox recognize that inflation may have costs that offset some of the theoretical gains in output and employment that they forecast will be created by the adoption of a 3 percent inflation target. After paying lip service to the costs of inflation without any substantive analysis, the authors conclude, "Nevertheless, the increased burden associated with an increase in average inflation from 2 to 3 percent strikes us as likely to be small."

Unfortunately, the tendency to ignore the costs of inflation is both a common and long-standing tradition among economists following the 1960s Keynesian revolution, so common in fact that governor Wallich wrote,

Like burglary, inflation is an extralegal form of redistribution. Unfortunately, many economists share with politicians the habit of always regarding inflation as the lesser of any alternative evils. ([Hershey, 1988](#))

## **IX. Inflation Targeting and the Perpetual Inflation Tax**

Regardless of whether or not the inflation rate used to guide monetary policy is an accurate measure of the price increases consumers face, a 2 percent inflation target imposes a perpetual real tax on the public. This inflation tax redistributes purchasing power from businesses and consumers to the federal government. The federal government in turn uses the proceeds to fund its policy priorities.

Inflation imposes an implicit tax on business and households in the form of reduced purchasing power of non-interest bearing dollar balances and the principal value of outstanding government debt held by the public. Inflation is also reflected in higher nominal wages, interest and dividend payments and profits. Since business and households pay tax on the nominal value of their income, higher inflation imposes a higher tax liability on the public. This inflation-induced tax liability is larger when tax rates are progressive.

Consider for example the implicit inflation tax on the public imposed by a monetary policy that successfully achieves a 2 percent inflation target. For purposes of this example, I assume that, to a close approximation, savings and money-market account balances earn a zero nominal rate of interest. While the implicit inflation tax is collected on all non-interest bearing dollar balances, US government interest-bearing securities and from the interaction of income taxes on inflated nominal corporate and household income, my example focuses only on the inflation tax revenue garnered from non-interest bearing transaction balances and interest-bearing US government securities.

The total nominal revenue generated by the implicit inflation tax on non-interest bearing balances is the product of the inflation rate times the non-interest bearing money supply (Friedman, [1953](#), [1971](#)). I approximate the latter by [M2](#) less the interest the Federal Reserve pays banks on their reserve balances held at the Fed. As of July 2021, M2 was [estimated](#) to be \$20.564 trillion. Bank [reserves](#) held at the Fed were \$3.944 trillion on which the Fed paid an interest rate of [15 basis points](#). The total revenue the federal government confiscates by reducing the purchasing power on non-interest bearing balances by 2 percent per year is approximately \$405 billion annually given current levels of M2 and bank reserves.

If the Fed were to move to a 3 percent inflation target and keep the interest rate on reserve balances unchanged, the total implicit transfer of purchasing power to the government from the public would be \$611 billion. In addition, as discussed above, business and consumers will suffer an additional indirect loss (the loss of consumer surplus) because inflation will encourage them to economize on their holding of non-interest bearing cash balances to avoid the tax. The higher the inflation rate, the more the public will economize on their holdings of non-interest bearing transaction balances.

Inflation also imposes an implicit tax in the form of lost purchasing power on the principal value of interest-bearing government debt held by the public. At the end of 2021Q2, it is estimated that the public held about \$22.8 trillion in interest-bearing non-inflation-protected US government securities.<sup>8</sup> The implicit tax revenue generated by a successful 2-percent inflation target policy is 2 percent times the principal balance, or \$456 billion annually. Under a 3-percent inflation targeting regime, the implicit inflation tax would increase to \$684 billion.

If nominal interest rates are equal to the real interest rate plus the expected rate of inflation, nominal interest rates are 2 percentage points higher with a credible 2 percent inflation target than they would be if the price level was expected to remain stable. Since nominal interest earnings are taxed, 2 percent perpetual inflation increases the federal income liability of the public. Continuing the prior example, with real rates assumed to be at zero and nominal interest rates on Treasury securities at 2 percent, the \$22.8 trillion in US government debt held by the public generates \$456 billion in nominal interest earnings. Using the 2018 average income tax rate ([15.4 percent](#)) for the 20 percent of households earning the highest comprehensive income, the inflation-generated tax on interest income is \$70.2 billion. In other words, the public will pay \$70.2 billion more in tax on the interest earned on their US government securities simply because inflation rate is 2 percent. If the inflation target is successfully increased to 3 percent, the inflation-induced tax bill would be \$105.3 billion.

These three components of the implicit tax generate approximately \$931 billion in purchasing power annually for the Federal government under a successful 2 percent inflation targeting regime.<sup>9</sup> The government's inflation tax haul increases to \$1.4 trillion annually under a 3 percent inflation targeting regime. These estimates do not include estimates of the annual inflation-generated taxes on the public's nominal wages, dividends, capital gains and non-Treasury debt interest earnings.

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<sup>8</sup> According to the [US Treasury](#), there is \$28.429 trillion in outstanding US Treasury Debt. About \$550 billion of the outstanding US Treasury Securities are inflation protected securities (TIPS). According to the Sep 30, 2021 federal Reserve [balance sheet](#), the Federal Reserve owned 5.456 trillion in US Treasury securities including \$367 billion in TIPS.

<sup>9</sup> \$405 + \$456 + \$70 billion.

Under a successful 2 percent inflation targeting regime, the government extracts a minimum of \$931 billion in purchasing power from the public by depreciating the value of non-interest bearing transaction balances, and depreciating the value of, and taxing the interest payments on, interest-bearing US securities debt held by the public.<sup>10</sup> As a point of reference, this component of the inflation tax is equal to more than 24 percent of (but not included in) the \$3.863 trillion total estimated tax receipts the Federal government will collect in 2021. Under a 3 percent inflation target, this source of government revenue grows to \$1.4 trillion, or over 36 percent of the total tax receipts collected by the Federal government.

Over the 15-year period in the Reifeschneider and Wilcox simulations, the authors estimate that a 3 percent inflation target could generate a total increase in output equal to about 50 percent of GDP or about \$11.5 trillion based on [estimates](#) of 2021Q1 potential GDP. For comparison purposes, using my incomplete accounting and rough estimates of the inflation tax, going from a 2 percent to 3 percent inflation target would increase the inflation tax by more than \$469 billion per year, with a real present value of more than \$7 trillion over 15 years if the real interest rate is zero. These inflation tax cost estimates are understated, not only because they exclude the inflation tax on nominal wages, dividends, profits and interest on non-US Treasury debt held by the public, but also because they exclude the extra revenue transfer that will take place over time as government debt and non-interest bearing transactions account balances increase over the 15-year simulation horizon.

So under a best-case Reifeschneider and Wilcox scenario in which the economy does generate a cumulative \$11.5 trillion in additional GDP over the 15-year period the economy takes to fully adjust to the new higher 3-percent inflation rate target, the federal government will control the disposition of at least \$7 trillion (61 percent) of this new output from the transfer of purchasing power imposed by the inflation tax.

If the change in the inflation target turns out to have little or no impact on real economic output, the higher inflation rate target will still channel more than \$7 trillion from the public to the federal government coffers over the 15-year period in the Reifeschneider and Wilcox study.

## **X. Inflation Expectations Under Inflation Targeting**

Many believe that maintaining the Federal Reserve's "inflation-fighting" credibility among businesses and households is critical for the successful conduct of monetary policy. According to Federal Reserve chairman Yellen (2015),

...the presence of well-anchored inflation expectations greatly enhances a central bank's ability to pursue *both* of its objectives--namely, price stability and full employment. Because temporary shifts in the rate of change of import prices or other transitory shocks have no permanent influence on expectations, they have only a transitory effect on inflation. As a result, the central bank can "look through" such short-run inflationary disturbances in setting monetary policy, allowing it to focus on returning the economy to full employment without placing price stability at risk.

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<sup>10</sup> If higher inflation expectation sparked a sell-off in the public's holdings of the holding of US Treasury debt, the sales would push up yields on outstanding securities and create capital losses for investors.

The projected benefits of moving to a 3 percent inflation target in the Reifeschneider and Wilcox study depend on a stable flat Phillips curve, which in turn presumes that the Fed's inflation-targeting prowess has achieved a high degree of credibility with the public. In July 2021 testimony before Congress, chairman Powell stated ([Powell, 2021a](#)),

"To avoid sustained periods of unusually low or high inflation, the Federal Open Market Committee's (FOMC) monetary policy framework seeks longer-term inflation expectations that are well anchored at 2%, the Committee's longer-run inflation objective... Measures of longer-term inflation expectations have moved up from their pandemic lows and are in a range that is broadly consistent with the FOMC's longer-run inflation goal."

Chairman Powell's confidence that inflation expectations will remain firmly anchored discounts the experience of the past 40 years. Since the Fed adopted inflation targeting in 2012, it has yet to impose a restrictive monetary policy to curb inflation. The need to adopt flexible inflation rate targeting arose because, for many years, the Fed was unable to attain its 2 percent inflation target.

The data on the public's 10-year inflation expectations following the Great Inflation shows that it required many years of successful inflation-fighting before the Fed's commitment to price stability gained credibility among the public. Whatever credibility the Fed has achieved under its 2 percent inflation targeting regime, it is not obvious that this credibility will be maintained should the Fed fail to react in the event that inflation remains above 2 percent for a considerable period. Nor is it likely that its current credibility will transfer if the Fed adopts a new 3 percent inflation targeting regime. According to former Fed chairman Bernanke ([Bernanke, 2015](#)),

...proponents of alternative targets have to accept the fact that, for better or worse, we are not starting with a blank slate. For several decades now, the Fed and other central banks have worked to anchor inflation expectations in the vicinity of 2 percent and to explain the associated policy approach. A change in target would face the hurdles of re-anchoring expectations and re-establishing long-term credibility, even though the very fact that the target is being changed could sow some doubts.

The Fed's position, at least to date, is that the current surge in inflation is transitory. In a recent speech ([Powell, 2021b](#)), chairman Powell argues that temporary special circumstances are driving a surge in inflation—an argument that is eerily reminiscent of the explanations for accelerating inflation given by chairman Burns during the Great Inflation. In Chairman Powell's words,

Inflation at these levels is, of course, a cause for concern. But that concern is tempered by a number of factors that suggest that these elevated readings are likely to prove temporary.... The spike in inflation is so far largely the product of a relatively narrow group of goods and services that have been directly affected by the pandemic and the reopening of the economy.... These effects, which are adding a few tenths to measured inflation, should wash out over time.

If you are wondering whether reliance on "anchored long-term inflation expectations" as the primary mechanism for keeping inflation in check is the monetary policy equivalent of a [Jedi mind trick](#), that is because it might well be. Economists have no proven theory that explains how businesses and households form their inflation expectations. There is really no evidence that the recent history of low stable inflation rates reflects the public's faith in the Federal Reserve's inflation-fighting chops. There are

other plausible theories of inflation expectation formation that are not so forgiving in the face of repeated inflation rate shocks.

There are economists at the Fed and elsewhere who believe that long-term inflation expectations adapt in a manner consistent with [bounded-rationality](#). Expectations appear to be anchored around 2 percent because inflation has been close to or below 2 percent for more than a decade— low enough that inflation has not been a very important consideration impacting household and business decisions. According to Rudd (2021),

...the recent historical period with “anchored inflation expectations” could represent, “one in which inflation isn’t on workers’ “radar screens” anymore (or is at least is only a very tiny blip), which in turn yields an outcome where current price inflation does not respond (much) to past inflation (because inflation is not a major factor in wage determination).

Under this view, should inflation break out of a narrow range around 2 percent on the upside, businesses and households could begin to focus on inflation and decide to reassess their expectations regarding future inflation. In other words, the apparent stability of long-run inflation expectations over the past decade just may reflect the fact that, until recently, the public has had no reason to revise its long-run inflation expectations. A sustained increase in the inflation rate above 2 percent could trigger a major revision in business and consumer inflation expectations, quickly shifting the presumed Phillips curve relationship upward. Under these dynamics, the output and employment gains estimated by Reifeschneider and Wilcox would evaporate, and the Fed might even be required to increase unemployment to bring inflation under control. According to Rudd’s (2021),

...it is far more useful to ensure that inflation remains off of people’s radar screens than it would be to attempt to “reanchor” expected inflation at some level that policymakers viewed as being more consistent with their stated inflation goal. In particular, a policy of engineering a rate of price inflation that is high relative to recent experience in order to effect an increase in trend inflation would seem to run the risk of being both dangerous and counterproductive inasmuch as it might increase the probability that people would start to pay more attention to inflation and—if successful—would lead to a period where trend inflation once again began to respond to changes in economic conditions [as they did in the 1970s].

The Fed’s performance under inflation targeting is consistent with the view that long-term inflation expectations are more reflective of past inflation than confidence in the Fed’s ability to hit its inflation target. Since 2009, the Fed has unsuccessfully tried to spark inflation to stimulate employment and, until recently, it never faced the need to consider restrictive monetary policies. Today, with inflation rates significantly above 2 percent and consumer survey data (Rabouin, 2021) documenting consumer inflation worries, the Fed has maintained an accommodative monetary policy.

Rock solid confidence in the Fed’s ability to meet its inflation target would also be inconsistent with the FOMC’s repeated inability to correctly anticipate inflation. Over the second half of the 1990s, in the early 2000s, and for many years after the financial crisis, FOMC forecasts consistently over-predicted inflation. Today the reverse is true—2021 FOMC inflation forecasts have consistently underestimated inflation. From February to March 2021, core PCE inflation (the Fed’s preferred measure) rose from 1.5% to 2%—twice as high as the FOMC’s June 2020 projection. In response, the FOMC revised its forecast for 2021 inflation up to 2.2%. By June 2021, inflation accelerated to 3.6%, and the FOMC again increased

its 2021 inflation forecast to 3.4%. In the September 2021 FOMC meeting, many officials expected core inflation (CPI inflation less food and energy) to rise [to 3.7 percent](#) by the end of the year, up from a forecast of [3 percent](#) in June 2021.

Transitory or not, there is evidence that the recent surge in inflation may be beginning to impact long-term inflation expectations and labor union wage negotiations. The press is replete with stories about surging inflation (e.g., [Timiraos, 2021](#), [Guilford and Cambon, 2021](#)) and unions that are striking ([Newman, 2021](#)) seeking much larger wage increases than were included in past contract agreements. Moreover, a recent [report](#) (Federal Reserve bank of New York, 2021) suggests that short- and medium-term inflation expectations have recorded new highs and are already well in excess of the FOMC's 2 percent target.

## **XI. Conclusions**

A simulation analysis in a recent paper by Reifeschneider and Wilcox is used to support a recommendation that the FOMC increase its average inflation rate target from 2- to 3-percent. The 15-year simulation forecasts that a 1-percent increase in the inflation target will produce large gains in output and employment. However, the forecasted gains are based on multiple heroic assumptions that are inconsistent with a large body of academic literature and the past 70 years of Federal Reserve history.

The need for a 3 percent inflation target presumes that the Fed needs to raise nominal interest rates to ensure that there is a large enough buffer above a zero nominal interest rate so the FOMC can use lower interest rates to prevent deflation which is always and everywhere presumed to be associated with recession if not depression. More than 100 years of data on 17 different countries show that deflation does not prevent economic growth. The Great Depression, the event most cited as proof of the destructive forces associated with deflation, is an outlier among historical deflationary episodes. Moreover, the FOMC's continued reliance on QE policies demonstrates that the FOMC has tools it can use to stimulate demand even when nominal interest rates are zero.

According to Reifeschneider and Wilcox forecasts, the adoption of a 3-percent inflation target will not only give the FOMC a larger nominal interest rate buffer, but it will also create large gains in output and employment as the economy adjusts to the new higher inflation rate target. They forecast that unemployment will decline to as low as 1.5 percent during the 15-year adjustment period and result in cumulative gains in output as large as 50 percent of potential GDP. The forecasted gains in output and employment presume the existence of a durable flat Phillips curve tradeoff between inflation and unemployment which in turn requires the stability of several factors that have rarely been stable over extended periods in the past.

One presumption behind the estimated output and employment gains is that the NAIRU remains at 4 percent over the entire 15-year period. This assumption would rule out supply disturbances (e.g., oil and gas supply shocks, green energy power grid failures, COVID-related closures) and demographic changes in the composition of the workforce caused by immigration or new government programs that discourage labor force participation. Academic studies, the history of FOMC deliberations and recent pandemic-impacted data suggests that the NAIRU varies over time, often in ways that are not fully anticipated.



A second key presumption needed to generate the simulated gains is that business and consumer long-run inflation expectations are firmly anchored at 2 percent and will only slowly adapt over the 15-year period it takes the economy to fully adjust to the new higher 3-percent inflation target. There is no well-supported theory regarding the formation of inflation expectations and no evidence that inflation expectations will remain anchored at 2-percent should the economy experience a sequence of positive inflation shocks or should the FOMC announce a new higher inflation target. Indeed, recent data suggests that surges in producer and consumer prices have already caused short- and medium-term inflation expectations to rise well in excess of the FOMC's 2-percent average inflation target.

A third and related assumption is a gently-sloped Phillips curve. Estimates of the sloping segment of the Phillips curve were much steeper in the 1960s than they are today. Some suggest that the flatter slope of the Phillips over the recent past can be explained by increased public confidence in the Fed's commitment to fighting inflation. If that belief proves false in the face of accelerating inflation, the sloped segment of the Phillips curve could get much steeper, implying smaller gains in employment as inflation expectations adjust to the new higher 3-percent target.

A realistic assessment of Federal Reserve history does not instill confidence in estimates derived from a 15-year simulation from Phillips-curve style econometric model. The Kennedy and Johnson administrations belief in Phillips curve estimates from the 1960s were instrumental in causing the Great Inflation of the 1970s. FOMC minutes show that, when the FOMC began using Phillips curve estimates to formulate monetary policy, their inflation estimates were prone to systematic forecast errors that often remained unexplained.

It is also unclear whether the Phillips curve econometric model used to simulate the gains in output and employment takes into account the costs that higher inflation imposes on the economy in the form of higher capital costs, lower investment, and reduced growth in potential GDP. Reifeschneider and Wilcox dismiss the economic costs of higher inflation with only passing remarks and do not provide any discussion of the impact of the new higher inflation rate target on capital accumulation and economic growth.

There are numerous reasons why the hypothetical gains in output and employment purportedly unleashed by increasing the FOMC inflation target from 2- to 3-percent may never materialize. Regardless, the increase in the implicit inflation tax that will come with a higher inflation rate is a certainty, and the increase in the tax is not small by any measure. Today, a 2-percent inflation rate transfers, at a minimum, \$931 billion in resources from businesses and households to the federal government each year. This amount is not counted in Federal tax receipts and yet it is equivalent to more than 24 percent of the \$3.863 trillion in tax receipts the federal government is estimated to collect in 2021. Under a 3 percent inflation rate target, the estimated inflation tax increases to at least \$1.4 trillion annually.

Instead of pursuing a monetary policy that targets honest money, the proposal to adopt a 3 percent inflation target as well as current FOMC policies targeting a 2-percent average inflation are, in many ways, reminiscent of monetary policy during the Great Inflation. Today the FOMC is once again practicing policy coordination with Congress and the administration. Much as it did in the 1960s, the Fed is facing political pressures to facilitate the funding of massive deficits created by elected representatives. It is difficult to escape the fact that the Fed has only limited independence. As chairman Martin so eloquently started nearly 60 years ago, the Fed has "independence within the government",



not independence from the government. Moving from honest money to a 2-percent, and perhaps at some future date to a 3-percent average inflation target will ensure that trillions of dollars of addition resources will be extracted from the public to finance federal government deficits through the implicit inflation tax.

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