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THE CASE FOR NOMINAL GDP TARGETING

Scott Sumner



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ABSTRACT

THE RECENT FINANCIAL crisis exposed serious flaws with inflation-targeting monetary policy regimes. Because of inflation fears, the Fed did not provide enough monetary stimulus in late 2008, allowing the largest decline in nominal spending since the 1930s. This demand shock intensified the financial crisis and led to high unemployment. Nominal GDP targeting would have greatly reduced the severity of the recession, and also eliminated the need for fiscal stimulus. The national debt today would be far lower if Fed policy had been more expansionary and Congress had not passed the 2009 fiscal stimulus. Nominal GDP targeting also makes it much easier for politicians to resist calls for bailouts of private sector firms. It assures low inflation on average, and reduces the severity of the business cycle. It also makes asset price bubbles slightly less likely to occur.

JEL codes: E5; E3

THE HISTORY OF central banking is a story of one failure after another. This does not mean our actual monetary regimes have been the worst of all possible regimes—far from it. But it does mean we can improve policy by learning from experience. Every proposed reform is a response to a previous failure, an implicit display of lessons learned.

A big part of this story has been the search for a robust monetary system that could produce good outcomes under a wide variety of conditions without having to rely on a central bank run by a benevolent and omniscient philosopher king. It is a search for a monetary rule that can provide the appropriate amount of liquidity to the economy under widely differing conditions. In this paper I argue that the optimal monetary rule is a nominal gross domestic product (NGDP) target or something closely related. To understand the advantages of this approach, it helps to see how the theory and practice of central banking have changed over time. That is, it helps to see what went wrong with some previous monetary regimes and how past reformers responded to those failures.

THE GOLD STANDARD

IT IS NOT hard to see why gold and silver were used as money for much of human history. They are scarce, easy to make into coins, and hold their value over time. Even today one finds many advocates of returning to the gold standard, especially among libertarians. At the same time most academic economists, both Keynesian and monetarist, have insisted we can do better by reforming existing fiat standards.

It is easy to understand this debate if we start with the identity that the (real) value of money is the inverse of the price level. Of course, in nominal terms a dollar is always worth a dollar. But in real terms, the value or purchasing power of a dollar falls in half each time the cost of living doubles. During the period since the United States left the gold standard in 1933, the price level has gone up nearly 18 fold; a dollar in 2012 has less purchasing power than 6 cents in 1933. That sort of currency depreciation is almost impossible under a gold standard regime. Indeed, the cost of living in 1933 was not much different from what it was in the late 1700s. This is the most powerful argument in favor of the gold standard.

The argument against gold is also based on changes in the value of money, albeit

short-term changes. Since the price level is inversely related to the value of money, changes in the supply or demand for gold caused the price level to fluctuate in the short run when gold was used as money. Although the long-run trend in prices under a gold standard is roughly flat, the historical gold standard was marred by periods of inflation and deflation.¹

Most people agree on that basic set of facts, but then things get more contentious. Critics of the gold standard, like Ben Bernanke, point to periods of deflation such as 1893–96, 1920–21, and 1929–33, which were associated with falling output and rising unemployment. This is partly because wages are sticky in the short run.² Supporters point out that the U.S. economy grew robustly during the last third of the 19th century, despite frequent deflation and a flawed banking system susceptible to periodic crises. They note wages and prices adjusted swiftly to the 1921 deflation, allowing a quick recovery, and countries with well-run banking systems, such as Canada, did even better. The big bone of contention is the Great Depression. Should that be blamed on the gold standard or meddling government policies?

My own research suggests that the answer to the preceding question is both.³ But I do see some weaknesses in the arguments put forth by advocates of the gold standard. It is true that some of the worst outcomes were accompanied by unfortunate government intervention, particularly during the 1930s.⁴ However, it is worth pointing out that governments also intervened during the classical gold standard, the period before World War I.

Advocates of gold often base their arguments for gold on the assumption that it is dangerous to give the government control over money. They claim it is much easier and more tempting for governments to debase fiat money than gold coins. That is true, but it does not mean a gold standard prevents meddling governments from creating instability in the short run, as in the 1930s. For instance, during the interwar years, major countries such as the United States and France often failed to adjust their money supplies to reflect changes in the monetary gold stock.

Here is how I see the debate today. Advocates of gold correctly claim that a gold standard will tend to preserve the value of money over long periods of time and will

1. The price level effects of changes in stock supply or stock demand for (monetary or nonmonetary) gold are mostly reversed in the long run, as changes in the relative price of gold lead miners to increase or decrease the flow supply of gold. Although changes in the flow supply or flow demand for gold can have a lasting effect on the price level (and purchasing power of gold), Lawrence H. White showed that the net effects of such changes were quite small historically. See Lawrence H. White, *The Theory of Monetary Institutions* (Oxford, UK: Blackwell Publishers, 1999).
2. See Ben S. Bernanke and Kevin Carey, “Nominal Wage Stickiness and Aggregate Supply in the Great Depression,” *Quarterly Journal of Economics* 111 (August 1996): 853–83; and Lawrence J. Christiano, Martin Eichenbaum, and Charles L. Evans, “Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy,” *Journal of Political Economy* 113, no. 1 (2005): 1–45.
3. See Stephen Silver and Scott Sumner, “Nominal and Real Wage Cyclicalities during the Interwar Period,” *Southern Economic Journal* (January 1995): 588–601.
4. See G. Cassel, *Downfall of the Gold Standard* (London: Oxford University Press, 1936); and R. G. Hawtrey, *The Gold Standard in Theory and Practice* (London: Longmans, Green and Co., 1947).

sharply reduce the ability of governments to extract wealth from savers. Critics are right that a real-world gold standard is likely to deliver unacceptably large short-term fluctuations in the price level. I think the critics are also correct in assuming that wages are much stickier than they were during the gold standard's heyday and that the sort of deflation that led to just a brief surge in unemployment during 1921 (when wages quickly adjusted downward), might now lead to unacceptably high and persistent unemployment rates.⁵ Yes, a "classical" gold standard could probably do considerably better than the sort of regime the United States had between the world wars, but if we could count on the authorities to accept the discipline of such a standard, why not instead make them obey rules forcing them to stabilize inflation or NGDP growth?

Obviously, this debate could go on to look at all sorts of political models of policy-making. Instead I am going to focus on purely technical issues. I would like to sketch out what I think are the pros and cons of various fiat money policy regimes and leave for others the public choice issues of whether such regimes are politically feasible. However, I will return to politics at the end, when I argue that NGDP targeting would help us avoid many extremely counterproductive government interventions in nonmonetary aspects of the economy. There are good reasons many economists (including some with libertarian leanings, like Friedrich Hayek)⁶ have embraced some version of this policy target.

MONEY SUPPLY TARGETING AND THE TAYLOR RULE

IN THE UNITED States, gold was phased out in two steps. Domestically the United States left the gold standard in 1933, and internationally the last links were broken in the late 1960s and early 1970s. What followed was a period of very high inflation, which led to renewed interest in finding some sort of anchor for the price level. Between 1979 and 1982 Paul Volcker was seen as leading a monetarist experiment—trying to control inflation by reigning in the money stock.

Contrary to the belief of many economists, the Federal Reserve (Fed) never really adopted the sort of rigorous money-supply rule that had been advocated by Milton Friedman and other monetarists. Even during the early 1980s there was significant variation in the money supply growth rate. The problem is that velocity also seemed volatile, especially in the wake of the so-called monetarist experiment.⁷ That is not to say that Volcker's experiment was a complete failure. Volcker did break the back

5. In contrast to 1920–21 when wages fell sharply, the severe recession of 2007–2009 merely led to a slowdown in the rate of growth in nominal wages.

6. See George Selgin, "The 'Productivity Norm' vs. Zero Inflation in the History of Economic Thought," *History of Political Economy* 27 (1995): 705–35; and Lawrence H. White, "Did Hayek and Robbins Deepen the Great Depression?" *Journal of Money, Credit and Banking* 40, no. 4 (2008): 751–68.

7. Velocity is the ratio of nominal GDP to the money stock. The relationship is usually expressed with the following equation: $M \cdot V = P \cdot Y$.

of double-digit inflation, and by doing so proved that monetary policy rather than fiscal policy (expansionary under Reagan) was the key determinant of inflation.

Like central bankers everywhere, the Fed greatly prefers to target interest rates, not the money supply. So once inflation was brought down to relatively low levels, it went back to targeting the federal funds rate. But memories of the Great Inflation of 1966–81 led many economists to look for a policy rule that would prevent a recurrence of high inflation. John Taylor proposed a policy rule for adjusting the federal funds target in such a way as to keep inflation near 2 percent and keep output as close to potential as possible, reflecting the Fed’s dual mandate.⁸ The key insight was that as inflation rose above target, nominal interest rates had to be raised by more than one for one with inflation, assuring that even real interest rates were higher than before.

It is hard to overstate the importance of the Taylor Principle. In America, Paul Volcker and Alan Greenspan were feted as heroes who had adeptly steered the economy into the Great Moderation, the period of relative stability between 1983 and 2007. In fact, there was no miracle. All of the foreign central banks that operated under this principle also achieved success in bringing inflation down to low and stable levels. It may be politically difficult to bring down the rate of inflation, especially when contracts have been negotiated on the assumption that high inflation would continue. But once this is done, it turns out to be very easy to prevent a recurrence of high inflation. Just promise to raise nominal interest rates by more than any increase in the inflation rate until you are back on target.

Obviously something went wrong after 2007 (or maybe before),⁹ which is why you are reading this article. If the Great Moderation had continued, there would be little reason to abandon the Taylor Rule. But before we consider alternatives, let us discuss what did not go wrong with that rule: High inflation did not return. Over the past four years, the CPI (even including food and energy prices) has risen at the slowest rates since the mid-1950s, barely over 1 percent per annum.¹⁰ Instead, the problem since 2007 has been a severe recession and accompanying financial distress.

Robert Hetzel makes a distinction between the market disorder view and the monetary disorder view. Although the market disorder view is the conventional

8. See Lars E. O. Svensson, “What Is Wrong with Taylor Rules? Using Judgment in Monetary Policy through Targeting Rules,” *Journal of Economic Literature* 41 (2003): 426–77.
9. David Beckworth argues that excessive NGDP growth contributed to the housing bubble of 2003–2006. See David Beckworth, “Bungling Booms: How the Fed’s Mishandling of the Productivity Boom Helped Pave the Way for the Housing Boom,” in *Boom and Bust Banking: The Causes and Cures of the Great Recession*, ed. David Beckworth (San Francisco: Independent Institute, 2012).
10. Some skeptics argue that the CPI understates the true rate of inflation. In fact, there is no possibility of objectively measuring the rate of inflation when (highly subjective) estimates of the quality of goods are changing at a rapid pace. It should be noted, however, that even purely private attempts at estimating inflation (such as the MIT billion prices project) show very low rates over the past four years.

wisdom, the fact that NGDP fell during 2009 at the fastest rate since the 1930s suggests that monetary policy failure was at the center of the crisis. Like Hetzel, I do not believe financial distress alone can explain the crisis of 2008 and its aftermath.¹¹ Instead, I see an almost perfect storm of bad luck and bad policy. Interestingly, some of the most popular culprits do not seem to be the real problem. For instance, many critics think that the Fed's dual mandate (price stability and high employment) is itself a problem. In the past I shared this view, believing like others that the mandate was hopelessly vague and that the Fed could only hit one policy target at a time. Indeed the failures of the 1970s might have been due partly to the Fed's trying to hit an employment target that had become unachievable due to growing structural problems in the economy.

But it is hard to see how the dual mandate can be to blame for our recent difficulties. Yes, it would have been better had Congress insisted on an explicit NGDP growth target, with level targeting. Under level targeting, the central bank promises to make up for any near-term overshoots or shortfalls of the policy target. But it is not realistic to expect mere politicians to be able to devise a sophisticated monetary policy rule. It makes more sense to view the mandate as Congress asking the Fed to do the best it can at producing good outcomes in those two areas while leaving it to figure out how. If it seems I am being too generous to Congress, keep in mind that this interpretation is consistent with the Taylor Rule, a policy that seemed pretty successful for roughly a quarter century.¹²

Others might argue that this approach is too generous to the Fed, implicitly assuming that it will adopt the optimal policy rule. I would make a more modest claim: The Fed will adopt the sort of policy that the consensus of the macroeconomists view as best practices. If you follow Fed policy over time, including policies that failed, it almost invariably reflected the consensus views of mainstream academic macroeconomists. Change that thinking, and you can impact Fed monetary policy. For instance, on September 12, 2012, the Fed undertook some policy initiatives influenced by Michael Woodford, probably the most important and influential contemporary monetary economist.¹³

In truth, I think the Taylor Rule is flawed, but I do not see the dual mandate as the heart of the problem. It is important to distinguish between policy goals and a policy target. There is no reason the Fed cannot have multiple policy goals. Indeed, since

11. See Robert L. Hetzel, "Monetary Policy in the 2008–2009 Recession," Federal Reserve Bank of Richmond *Economic Quarterly* (Spring 2009): 201–33; Robert L. Hetzel, *The Great Recession: Market Failure or Policy Failure?* (Cambridge, UK: Cambridge University Press, 2012); and Scott Sumner, "Re-Targeting the Fed," *National Affairs*, no. 9 (2011).
12. Admittedly, following the Taylor Rule was a subconscious decision by the Fed in the early part of that period, as the rule was not discussed until the 1990s.
13. The Fed undertook an open-ended quantitative easing program, in which the amount of purchases will depend on progress toward the policy goals. The Fed also announced that it will maintain an easy money policy for some period after the economy has recovered, which represents an incremental move toward level targeting.

nominal shocks can have real effects in the short run, it makes sense to have goals related to both inflation and some measure of real economic activity. At the same time, the Fed can target only one variable at a time. The Taylor rule took a weighted average of inflation and output gaps (deviations from estimates of the natural rate of output), and formed a single target from that composite. In contrast, NGDP is a single target that can also satisfy the dual mandate since NGDP growth is the sum of inflation and real growth, and the latter depends on the state of employment. In most theoretical models, a target linked to a weighted average of inflation and employment will better address the Fed's dual mandate. In practice, it would be easier to get widespread agreement on an NGDP target, which does not require the Fed to estimate economic slack or the natural rate of unemployment.

If the dual mandate has not been the problem, why did monetary policy seem to fail so dramatically after 2007? I see three intertwined problems that together pushed monetary policy off course. These were:

1. The Fed's failure to target the forecast, that is, its overreliance on past trends rather than forecasts of where the economy was headed.
2. Its reliance on interest-rate targeting as the instrument of monetary policy.
3. Its failure to engage in level targeting, which means making up for any recent under- or over-shooting of the target path. The Fed instead set a new and lower growth target after it severely undershot its inflation and employment objectives in 2009.

A good example of the Fed's failure to target the forecast occurred in the September 2008 Federal Open Markets Committee meeting, which occurred right after Lehman Brothers failed. The Fed decided not to cut interest rates, keeping the federal funds target at 2 percent, where it had been since April. It cited equal risks of inflation and recession. It is easy to understand the recession worries; we had been in a recession since December 2008. But inflation? On the day of the meeting the five-year TIPS spread (a market indicator of inflation forecasts) had fallen to 1.23 percent, well below the Fed's 2 percent inflation target. If these indicators called for easing, why did the Fed stand pat? It turns out that inflation over the previous 12 months had been well above the Fed's 2 percent target. The Fed was responding to past data, not forecasts. It was like trying to steer a car while looking only in the rearview mirror.

Lars Svensson has argued that central banks should target the forecast, which is to say, they should set policy such that the central bank's forecast for the economy is exactly equal to the policy goal.¹⁴ For instance, if a central bank has a 2 percent inflation target, it should set the federal funds rate and monetary base at a level expected to produce 2 percent inflation. This is such common sense that many noneconomists

14. See Svensson, "What Is Wrong with Taylor Rules?"

are shocked to learn that real-world central banks do not behave this way. Instead, central banks resemble a ship's captain who says that while he hopes to reach the port of New York—and has been heading that way—given the current setting of the helm, along with forecasted wind and currents, he expects to end up in Boston. The attitude is perhaps somewhat understandable when interest rates are stuck at zero; but the Fed was not even targeting the forecast in the second half of 2008 when rates were still above zero.

In mid-December 2008, the federal funds target reached a level of zero to 0.25 percent, effectively ruling out further reductions. In theory, this should not have been a problem. There is a robust academic literature discussing alternative operating procedures. Ben Bernanke wrote papers discussing what the Bank of Japan should have been doing, but was failing to do, when rates in Japan hit zero in the late 1990s.¹⁵ But in practice the Fed became timid and failed to aggressively pursue a policy of monetary stimulus. Instead, Bernanke called for help from the Treasury. Under normal circumstances, that should not have been necessary since monetary policy is usually more effective in boosting demand than fiscal policy. Monetary policy also does not boost the deficit and, thus, impose the burden of higher future (distortionary) taxes. It is not clear why the Fed did not attempt its own more aggressive stimulus. Bernanke expressed vague worries about unspecified risks and costs of taking such an aggressive stand. Yet he was not burdened by similar worries when he encouraged the Bank of Japan to be more aggressive in the early 2000s.¹⁶

At one time, I believed the first two problems mentioned were the most crucial ones. These weaknesses made the policy somewhat clumsy, or slow to adjust to market conditions. But I have since concluded that the third problem, failure to level target, is actually the most important. Level targeting is a powerful tool, both for limiting central bank discretion and for establishing policy credibility. It essentially forces a central bank to do what it says it is trying to do.

Consider the case of Japan, which has experienced mild deflation since the mid-1990s. Because its deflation rate has been quite modest, often below 1 percent, the Bank of Japan can claim from its rate targeting perspective that it has merely fallen a bit shy of its goal of achieving price stability. The Bank of Japan has been rather vague about what its goal of price stability is, but most observers have taken it to mean something close to a target rate of zero—or just above zero. Recently the Japanese government expressly called upon the Bank of Japan to aim for a rate of 1 percent. With level targeting, the central bank commits itself, making up for past inflation shortfalls or overshoots. Thus, if the bank had been targeting Japan's GDP deflator, which has actually fallen by more than 15 percent since the mid-1990s, it

15. See Ben S. Bernanke, "Japanese Monetary Policy: A Case of Self-Induced Paralysis?" (working paper, Princeton University, Princeton, NJ, 1999).

16. See Ben S. Bernanke, "Some Thoughts on Monetary Policy in Japan" (speech, Japan Society of Monetary Economics, Tokyo, Japan, May 31, 2003), <http://www.federalreserve.gov/boarddocs/speeches/2003/20030531/default.htm>.

would have been forced long ago to generate enough inflation to make up for previous shortfalls, so the deflator would not be much different now than it was then. With level targeting, deflation could not have continued for long, in part because after a short bout of it expectations of future inflation would have risen high enough to reduce real interest rates and boost the price level. Market expectations would have helped stabilize Japan's price level. NGDP level targeting (along a 5 percent trend growth rate) in the United States prior to 2008 would similarly have helped reduce the severity of the Great Recession.

THE CASE FOR NGDP TARGETING

THE AFOREMENTIONED PROBLEMS could be fixed without going to NGDP targeting. The Fed could target the price level along a level path or a slightly rising trend line. We could commit to return to the trend line if Fed policy under- or overshoot in the short run. We could target the forecast and set policy at a level expected to succeed. We could switch from an interest-rate instrument to a policy instrument not subject to the zero-rate bound—the monetary base, or the price of CPI futures contracts. So why consider NGDP targeting?

There are several reasons for doing so, both theoretical and practical. I will review them in a moment. But let us start by clearing up a couple of things. First, NGDP targeting is not a way to boost growth or to generate a higher inflation rate in the economy. If the long-run trend rate of growth in the economy is X percent, then an NGDP growth target of X percent plus 2 percent will deliver the same long-run rates of inflation as a 2 percent inflation target. An NGDP target is consistent with any preferred rate of inflation or deflation. Friedrich Hayek, for instance, occasionally argued that monetary policy should aim at a stable level of nominal income, which would have meant having a rate of deflation equal to the long-term growth rate of real GDP.¹⁷

Second, an NGDP targeting regime responds to demand shocks (or changes in velocity) in exactly the same way as an inflation-targeting regime. In both cases the money supply adjusts to fully offset any sudden change in velocity.

If NGDP targeting accommodates shifts in money demand, and produces the same long-run rate of inflation as inflation targeting, how does it differ? It differs in how it responds to productivity, or supply shocks.

Suppose an oil embargo in the Middle East reduces our oil imports by 10 percent while boosting the price of oil by 60 percent. If it targeted inflation, the Fed would have to tighten money enough to deflate all nonoil prices in order to keep the overall CPI on target. Because nominal wages are sticky, or slow to adjust,

17. See White, "Did Hayek and Robbins Deepen the Great Depression?"; Lawrence H. White, "Hayek's Monetary Theory and Policy: A Critical Reconstruction," *Journal of Money, Credit and Banking* 31, no. 1 (1999): 109–20; and White, "Did Hayek and Robbins Deepen the Great Depression?"

a sudden fall in the price of domestically produced goods would cause a sharp increase in unemployment.

The Fed might try to prevent particular supply shocks, like shocks to oil and food output, from having such an adverse consequence by using a core price level index that excludes food and energy prices (although in practice this would not be a perfect solution, since energy is a component in the production of many final goods whose prices are included even in the core CPI). But productivity shocks can occur in any sector of an economy. For instance, the computer revolution drove productivity higher at an unusually rapid pace during the late 1990s. Because nominal wages are sticky in the short run, this initially led to much higher profits, higher levels of capital investment, and low rates of unemployment. Of course all these trends reversed in the early 2000s. Had the Fed been targeting NGDP instead of inflation, policy would have been tighter during the high-tech boom and perhaps also during the housing boom of 2004–2006.¹⁸

One way to think about NGDP targeting and the business cycle is to consider how such targeting would affect labor markets. NGDP is the total nominal income in the economy.¹⁹ The ratio of nominal wages to NGDP can be thought of as the share of NGDP earned for each hour's work. Now assume that nominal hourly wages are sticky. What happens if NGDP suddenly falls? There are two possibilities:

1. Employment might be unaffected, in which case nonwage income (capital income) would absorb the entire shock.
2. Employment will be affected, and with less income to go around and the same wage per hour, there would be fewer hours worked and more unemployment.

In practice, both profits and employment tend to decline when NGDP falls, but in the short run the biggest burden falls on workers, as unemployment is highly (and negatively) correlated with NGDP relative to trend. The year 2009 saw both the biggest fall in NGDP since the 1930s and the largest increase in unemployment since the 1930s. That is not a coincidence.

Elsewhere I have argued that the optimal monetary policy would stabilize aggregate hourly nominal wage growth.²⁰ This would keep the labor market in equilibrium and keep employment close to its natural rate. But there are all sorts of practical problems in measuring aggregate wage rates, and it is unlikely that a wage target would be politically feasible. NGDP targeting can be thought of as the

18. George Selgin and David Beckworth explain how NGDP targeting delivers better results when there are productivity changes. See Selgin, "The 'Productivity Norm' vs. Zero Inflation in the History of Economic Thought"; and David Beckworth, "Aggregate Supply-Driven Deflation and Its Implications for Macroeconomic Stability," *Cato Journal* 28, no. 3 (2008): 363–84.
19. Technically it is gross income, but the rates of change are highly correlated with changes in net national income.
20. See Scott Sumner, "Using Monetary Policy to Target a Nominal Wage Index," *Journal of Economics and Business* (May 1995): 205–15.

next best thing. A stable path of NGDP growth would tend to stabilize employment more effectively than an inflation target, because employers' ability to meet their wage bills depends more on NGDP growth than on the rate of inflation. During periods when prices rise despite slow NGDP growth, such as in late 2007 and early 2008, wages also grow slowly. NGDP targeting is the better way to keep aggregate nominal wages close to equilibrium, helping stabilize employment.

A second advantage to NGDP targeting is that it limits asset market instability. Asset bubbles tend to form when NGDP growth is higher than average. That is not to say that NGDP targeting would entirely eliminate asset bubbles. After all, the recent tech and housing bubbles occurred during periods when NGDP growth was only modestly above its trend. The big advantage here of NGDP targeting shows up on the downside. Financial-market crises are highly correlated with falling NGDP and are almost certainly made worse by it. The most famous example of this occurred in 1929–33, when U.S. nominal income was cut in half. Some economists believe that the Great Depression was triggered by a financial crisis.²¹ This is not the case. The first financial crisis occurred more than a year into the Depression, and it was probably caused by the collapse in spending that was then already in progress.

In the late 1990s and early 2000s a severe decline in NGDP caused a financial crisis in Argentina. Then, in 2008–2009, falling NGDP in the United States and Europe caused a relatively modest financial crisis to become much larger. For instance, the International Monetary Fund estimates that total losses to the U.S. banking system from the current crisis nearly tripled between April 2008 and April 2009 as NGDP growth expectations plunged. What started as a localized subprime mortgage crisis spread to other types of mortgages in other regions of the country and to commercial and industrial debt. In Europe, even sovereign debt became engulfed in the crisis. None of this should be surprising. The decline in NGDP was the largest since the 1930s, and it is out of nominal earnings that people, business, and governments have to acquire funds for repaying their debts.

Many have argued that inflation targeting is the best way to avoid unexpected and “unfair” transfers of wealth between creditors and borrowers. But George Selgin has shown that this is true only if the economy's productivity is not also changing and that, in general, an NGDP target or a closely related productivity norm would lead to less disappointment among debtors and credits.²² The basic idea is that changes in productivity alter living standards, in turn changing people's willingness and ability to borrow and lend. An expected improvement in productivity, for example, will make creditors seek higher returns on their loans while also making it possible for borrowers to afford higher rates. An unexpected improvement, on the other hand, will cause lenders to wish they had charged a higher rate than they actually charged,

21. For example, see Robert Hall, “Why Does the Economy Fall to Pieces after a Financial Crash?” *Journal of Economic Perspectives* 24, no. 4 (2010): 3–20.

22. See George Selgin, “Less Than Zero: The Case for a Falling Price Level in a Growing Economy” (Institute of Economic Affairs Occasional Paper, London, UK, 1997).

given their incorrect expectations. Under inflation targeting, that sort of disappointment is not avoided. In contrast, under NGDP targeting the productivity shock is offset by an opposite and equally unexpected change in the inflation rate, keeping ex post real rates closer to where they would have been if both lenders and borrowers had been equipped with perfect foresight.

Now consider a specific case in which nominal interest rates are 5 percent and people expect 5 percent NGDP growth composed of 2 percent inflation and 3 percent real growth. If a negative supply shock boosts inflation to 5 percent while forcing real GDP growth to zero percent, the lender ends up earning a zero real rate of return. But that only makes him suffer along with everyone else. With zero real GDP growth, there is no extra real income to share between lenders and borrowers. Under NGDP targeting the lender knows that each dollar he or she receives in the future will represent a given percentage of society's total nominal income, and the average borrower knows that he or she can always pay what is owed. If inflation were targeted at 2 percent, on the other hand, NGDP growth would shrink, making it difficult, if not impossible, for many borrowers to pay their debts.

PRAGMATIC ARGUMENTS FOR NGDP TARGETING

AS COMPELLING AS I think the arguments for NGDP targeting are, I have come to believe the pragmatic arguments for it are even more powerful. These arguments mostly revolve around some overlooked practical shortcomings of inflation targeting.

Ben Bernanke has long advocated inflation targeting. Even he must be surprised and disappointed with how poorly it worked during the recent crisis. Three practical issues contributed to this poor outcome. First, real-world measures of inflation are highly subjective and sometimes very inaccurate. Second, it is difficult to target inflation in a symmetrical fashion, in part because the public does not understand inflation targeting. Finally, inflation targeting encourages policymakers to think in terms of monetary policy affecting inflation and fiscal policy affecting real growth—a perception that is both inaccurate and potentially counterproductive.

Recall that inflation targeting is about more than just inflation. Advocates like Bernanke see it as a tool for stabilizing aggregate demand and, hence, reducing the severity of the business cycle. This is understandable, as demand shocks tend to cause fluctuations in both inflation and output. So a policy that avoids them should also stabilize output.

I have already discussed one problem with this view: The economy might get hit by supply shocks, as when oil prices soared during the 2008 recession. Some of that can be avoided by looking at the core inflation rate. Standard macroeconomic models predict that a reduction in aggregate demand will cause wage growth to slow, leading to lower core inflation. But even the core inflation rate was surprisingly sticky during 2008–2009, even after oil prices plunged. This made it harder for the Fed to aggressively stimulate the economy.

The problem seems to be that, according to the Bureau of Labor Statistics, housing prices did not fall. On the contrary, their data shows housing prices actually rising between mid-2008 and mid-2009, despite one of the greatest housing market crashes in history. And prices did not rise only in nominal terms; they rose in relative terms as well, that is, faster than the overall core CPI. If we take the longer view, the Bureau of Labor Statistics finds that house prices have risen about 8 percent over the past six years, whereas the famous Case-Shiller house price index shows them falling by nearly 35 percent.²³ That is a serious discrepancy, especially given that housing is 39 percent of core CPI.

Many might argue that the BLS number is better in the sense that it measures the rental equivalent of housing costs, that is, what it would cost to rent an equivalent housing unit. In contrast Case-Shiller shows the actual sales price of owner-occupied homes, which most consumers do not see in any given year. But the real question is: Better for what purpose? Those who favor inflation targeting, like Ben Bernanke, do so not because they hope to keep consumers happy but because they hope to stabilize the economy. That means avoiding unnecessary unemployment. The level of employment in the housing construction industry is almost certainly more closely related to the price of new homes being built than the rental equivalent of apartments in buildings constructed 30 years ago. If you had to predict the crash in housing construction after 2006, which measure would work best, an 8 percent increase in housing prices or a 35 percent decrease?

There are errors in the measurement of both inflation and NGDP growth. But to an important extent, the NGDP is a more objectively measured concept. The revenue earned by a computer company (which is a part of NGDP) is a fairly objective concept, whereas the price increase over time in personal computers (which is a part of the CPI) is a highly subjective concept that involves judgments about quality differences in highly dissimilar products.

Although the core CPI did not decline as quickly as expected during 2009 (due to high housing prices) core inflation did eventually fall to 0.6 percent in the late summer of 2010. This caused the Fed to push for higher inflation via a program called quantitative easing (QE), which entailed buying bonds to increase the monetary base. In principle, this program should have been completely uncontroversial. Inflation was well below the 2 percent Fed target, and this means that the Fed needed to nudge it somewhat higher. Instead the Fed ran into a firestorm of controversy, as the public was outraged to hear news reports that the Fed was trying to raise their cost of living at a time when many people were suffering from the recession.

It is pretty obvious that the public and the Fed were operating under completely different mental frameworks. When Bernanke calls for higher inflation, he means a higher level of aggregate demand, which economic theory suggests should raise

23. The core inflation data is from the BLS website: <http://www.bls.gov/cpi/cpid0906.pdf>. The Case-Shiller data can be found at the St. Louis Fed website: <http://research.stlouisfed.org/fred2/series/SPCS20RSA?rid=199>.

both the inflation rate and (in the short run) the real incomes of Americans. In contrast, when average Americans hear the term higher inflation, they think in terms of a reduction in aggregate supply (perhaps higher food and energy prices), which reduces the real incomes of average Americans. In this case, I would put more blame on the Fed, as it is not really correct to say the Fed wanted higher inflation. What the Fed really wanted was higher NGDP growth, that is, more spending. The Fed understood that more spending would also mean more inflation, but it hoped it would mostly result in greater employment and output.

The Fed does not raise inflation directly. By creating more money it raises total spending, or aggregate demand. Whether this leads to inflation depends on the slope of the short-run aggregate-supply curve. It is strange to call the goal of such a policy higher inflation, as the inflation is essentially a side effect of the increased aggregate demand, the desired effect of which is greater employment and real growth. Fed officials routinely talk as if the side effect were the thing that really mattered. No wonder the public is confused.

According to some news reports, the Fed was taken aback by the intense criticism of its second round of quantitative easing, or QE2, and this made them more cautious about implementing further stimulus. The dual mandate (which the Fed interprets as calling for about 2 percent inflation) would seem to have called for, and still calls for, a more expansionary monetary policy. Yet the Fed has held back, despite 8.2 percent unemployment and an inflation rate that has averaged only a bit above 1 percent since mid-2008 when the recession first became severe. It would have been both more accurate and less provocative for the Fed to have said in 2010 that the goal of QE2 was to boost Americans' incomes, not their cost of living.

Confusion over the nature of inflation targeting creates another political problem: It leads to the perception that the central bank controls inflation and the fiscal authorities control real GDP growth. Here is something peculiar most people do not think about. Our textbooks treat monetary and fiscal policy similarly, as two tools for controlling spending. Yet one almost never sees any discussion of fiscal policy from an inflation-targeting perspective. On one hand, if inflation is above target, the press almost always focuses on what the central bank needs to do. When there is an output shortfall, on the other hand, people are more likely to call for fiscal stimulus. Yet there is absolutely nothing in economic theory that would justify this imagined asymmetry, at least from the perspective of demand-side initiatives like higher government spending.

An example of this confusion occurred in Great Britain during the recent recession. The pace of recovery there has been especially disappointing. However, in 2010 and 2011 inflation ran well over the central bank's 2 percent target. The Bank of England understood this to be due in part to transitional factors, such as a higher value-added tax rate and increased oil prices, so it was prepared to tolerate inflation that was modestly above its target. The political pressure caused by the high inflation nevertheless made it unwilling to further boost NGDP growth, which has since

fallen to very low levels. At the same time, the perception that the British recovery was lagging led to further calls for fiscal stimulus, despite Britain's high deficit and debt ratios. But fiscal stimulus, aside from being no less capable of contributing to inflation when allowed to do so than monetary stimulus, cannot boost spending at all if the monetary authorities are targeting inflation. It is like the legislature stepping on the gas pedal at the same time that the central bank presses on the brake.

Fiscal and monetary policy both work by influencing aggregate demand. If the central bank targets inflation at 2 percent, any fiscal policy that succeeds in increasing aggregate demand will also tend to boost inflation, causing the central bank to tighten so as to keep inflation near its target. It has been known for decades that the fiscal multiplier is zero when the central bank targets inflation. But because people have become used to thinking that monetary policy determines the rate of inflation while fiscal policy determines real growth, they have overlooked this. If central banks targeted spending instead, the futility of fiscal stimulus would be more evident. For example, if the Bank of England was committed to a 4 percent NGDP growth target and everyone knew it, the government would not be able to argue that by spending more it could make the economy grow faster. Since it obviously could not even boost the growth rate of NGDP, how could it possibly cause real GDP to go up?

The preceding analysis points to still another advantage of NGDP targeting: Such targeting would make it easier for the public to appreciate the need for sound supply-side policies. If the fiscal authorities understood that the central bank was going to allow only 4 percent NGDP growth, then they would know that the only way to boost real growth would be with supply-side policies, even in the short run. Tax reform that lowered marginal tax rates would tend to increase aggregate supply and, hence, to improve the inflation/output growth split in NGDP growth.

Conversely, bad economic policies would be more difficult to justify. When NGDP is allowed to fall sharply—as when inflation is kept stable despite an adverse supply shock—unemployment tends to rise. This makes it harder to insist on market-oriented policies, which typically call for creative destruction. Under creative destruction, unemployment in parts of the economy may be tolerated for the sake of allowing greater expansion elsewhere. When spending collapses, however, people will generally ask where the workers who have lost their jobs can go. This is not an easy question to answer, nor is it easy to argue against bailouts and other measures aimed at keeping firms or industries from failing. In contrast, with NGDP targeting there is never a general collapse of spending, regardless of what is happened to productivity generally or to any particular industry or firm. With NGDP targeting, bailouts like the recent ones of GM and Chrysler would have been much harder to justify. Since they would not boost NGDP, any extra spending on cars made by these two companies would be fully offset by less spending on other American-made products. NGDP targeting would help restore policymaking to a classical framework in which decisions to benefit special interest groups would always have relatively visible opportunity costs.

It would also be much easier to avoid bailouts of big banks because proponents of too-big-to-fail policies could no longer claim that failing to bail out banks would push us into a recession. Indeed, with NGDP growing at a steady rate it is much less likely we would have the sort of contagion of financial failures that could produce a systemic crisis.

Finally, NGDP targeting would help depoliticize monetary policy. The current ill-defined dual mandate allows each side of the political divide to latch onto its preferred policy indicator and to argue that money is either too easy or too tight. This polarization has been especially pronounced during the Great Recession. NGDP targeting would provide for much greater transparency of whether policy was overshooting the target or falling short.

CAN WE TRUST THE FED TO TARGET ANY VARIABLE?

MANY ECONOMISTS ARE skeptical of the Federal Reserve. Libertarians, for example, favor a more laissez-faire regime, such as free banking. The issues involved here go well beyond the scope of this paper; however, I believe there are several ways to reduce the discretion of central banks under an NGDP-targeting regime.

One I have already mentioned is the importance of level targeting. Think of level targeting as a way of keeping the central bankers honest. From the 1960s to 1980s, inflation almost always exceeded the Fed's policy goal. Whenever the Fed missed it promised to try to do better. But those promises lacked credibility because the Fed was targeting growth rates, not levels, and so it never felt obligated to actually make up for its mistakes. The public became skeptical and rightly so. At the other extreme, the Bank of Japan has repeatedly fallen short of its inflation targets, has also kept promising to do better, and has also lost the Japanese public's confidence.

In contrast, if a central bank fell short of its price level target by 1 percent every single year, it would lower the inflation rate only during that first year. For instance, suppose the Bank of Japan had a price level target of 100. In the first year it falls 1 percent short due to a flaw in its targeting method, ending up at 99. For it to allow the price level to drop to 98 the next year would mean being short not 1 percent but 2 percent at the end of the second year—a failure to honor its commitment. On the other hand, if each additional year the Bank of Japan falls 1 percent short of the policy goal, the CPI will stay at 99, as the target stays at 100. This means it actually hit its goal for stable prices in every single year except the first. The public can adjust to any level of prices; what causes problems is unanticipated changes. The same rationale applies to NGDP level targeting.

In previous papers, I have discussed how central-bank discretion could be removed by a policy of targeting NGDP futures prices.²⁴ The basic idea is to set the

24. See Scott Sumner, "Using Futures Instrument Prices to Target Nominal Income," *Bulletin of Economic Research* 41 (1989): 157–62; and Scott Sumner, "Let a Thousand Models Bloom: The Advantages of Making the FOMC a Truly 'Open Market,'" *Berkeley Electronic Journals, Contributions to Macroeconomics* 6, no. 1 (2006): article 8.

monetary base at a level where NGDP growth is expected to be right on target. Each time someone buys an NGDP futures contract from the central bank, the purchase signals worry that NGDP growth is too high, obliging the Fed to restrain money growth. Each sale of NGDP futures contracts to the Fed signals concern of a slow-down and leads the Fed to inject more base money into the economy. Failure to do so would expose the Fed to potentially unlimited losses.

In essence, the market, not the central bank, would be setting the monetary base and the level of interest rates. Indeed the government's only role in this sort of regime would be to set the target path for NGDP. It would essentially be defining the medium of account (for example, during 2013 the dollar might be defined as one fifteen trillionth of expected 2014 U.S. nominal output.) Once government is that far removed from the process, it is relatively easy to move to free banking.

CONCLUDING REMARKS

MANY ECONOMISTS ARE acutely sensitive to the very real dangers of excessive inflation, but I believe some have a blind spot for shortfalls in nominal spending, which are arguably even more damaging. The deflation of the early 1930s led to the Nazis taking power, not the hyperinflation of a decade earlier. The United States had a relatively efficient small-government policy regime under Presidents Harding and Coolidge. Of course it was far from perfect, but as soon as the depression began policy starting getting more interventionist and (with the exception of the dollar devaluation of 1933–34) almost completely counterproductive.

An almost identical sequence of events took place in Argentina during the late 1990s and early 2000s. Argentina grew rapidly from 1990 to 1997, partly thanks to neoliberal policy reforms. But Argentine monetary policy became contractionary in the late 1990s and early 2000s, causing a significant decline in NGDP. Finally a new government took command, devalued the currency, and pursued a statist policy agenda. The new regime blamed Argentina's troubles not on tight money but on its former free-market policies, just as FDR had done 70 years earlier. More recently, the sharp decline in NGDP in the eurozone has led to calls for fiscal union. This might slightly ameliorate the current crisis, but the resulting increase in moral hazard would be storing up much more severe problems down the road.

NGDP targeting provides the best environment for free-market policies to flourish. It removes one of the most powerful excuses for statist policies: the claim that they will somehow create jobs. In the current policy environment, in which NGDP growth has fallen far below trend, there is an unfortunate tendency for some on the right to view NGDP targeting at a sort of left-wing proposal aimed at inflation. In fact, from Hayek in the 1930s, to people like McCallum, Mankiw and Selgin in the 1980s and 1990s, to the so-called market monetarists of today, NGDP targeting of some sort has long had strong appeal among economists sympathetic to free markets

and low inflation.²⁵ We need to look beyond the current crisis, and think long and hard about what sort of pragmatic monetary regime will best serve the economy in the decades to come.

POSTSCRIPT

IMMEDIATELY AFTER THIS paper was completed, the Fed announced some new QE initiatives, dubbed QE3. Although the new policy regime takes some baby steps toward both level targeting and targeting the forecast, it still falls far short of what is needed.

Under level targeting, the Fed would promise to make up any short-term under-shoots of its inflation target with a period of above trend growth. Although the Fed was not willing to set the short-term inflation target above 2 percent (to make up for the 1.2 percent annual inflation over the past four years), it did promise to keep monetary policy accommodative well into the recovery. That promise hints at an incremental move toward level targeting.

The Fed was also unwilling to formally adopt Svensson's "targeting the forecast" approach to policy. However it did promise to continue QE3 until its inflation/employment targets were hit. In contrast, previous QE programs had a fixed termination date. A full move toward targeting the forecast would involve the Fed doing enough QE right now to boost inflation or NGDP growth forecasts up to the target. Even these modest steps announced by the Fed did succeed in boosting stock prices and inflation expectations. If we had an NGDP futures market, the one- and two-year forward contracts probably would have increased by a few tenths of a percent. The Fed also lowered its unemployment forecasts for 2014 by a few tenths of a percent, although it still expects the recovery to be sluggish.

25. Lars Christensen coined the term market monetarist and has been a forceful advocate of combining NGDP targeting with a less interventionist approach to banking. See Lars Christensen, "Scott Sumner and the Case against Currency Monopoly . . . or How to Privatize the Fed," *The Market Monetarist*, October 23, 2011; and Lars Christensen, "NGDP Level Targeting—The True Free Market Alternative (We Try Again)," *The Market Monetarist*, July 19, 2012. As far as I know, William Woolsey was the first to connect futures targeting with free banking. See William Woolsey, "The Search for Macroeconomic Stability: Comment on Sumner," *Cato Journal* 12, no. 2 (1992). The number of market monetarists in the blogosphere is growing rapidly, and includes David Beckworth (<http://macromarketmusings.blogspot.com>), Lars Christensen (<http://marketmonetarist.com>), David Glasner (<http://uneasymoney.com>), Josh Hendrickson (<http://everydayecon.wordpress.com>), Marcus Nunes (<http://thefaintofheart.wordpress.com>), Nick Rowe (http://worthwhile.typepad.com/worthwhile_canadian_initi), Evan Soltas (<http://esoltas.blogspot.com>), Yichuan Wang (<http://synthenomics.blogspot.com>), and Bill Woolsey (<http://monetaryfreedom-billwoolsey.blogspot.com>).

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