The Case for NGDP Targeting

Lessons from the Great Recession

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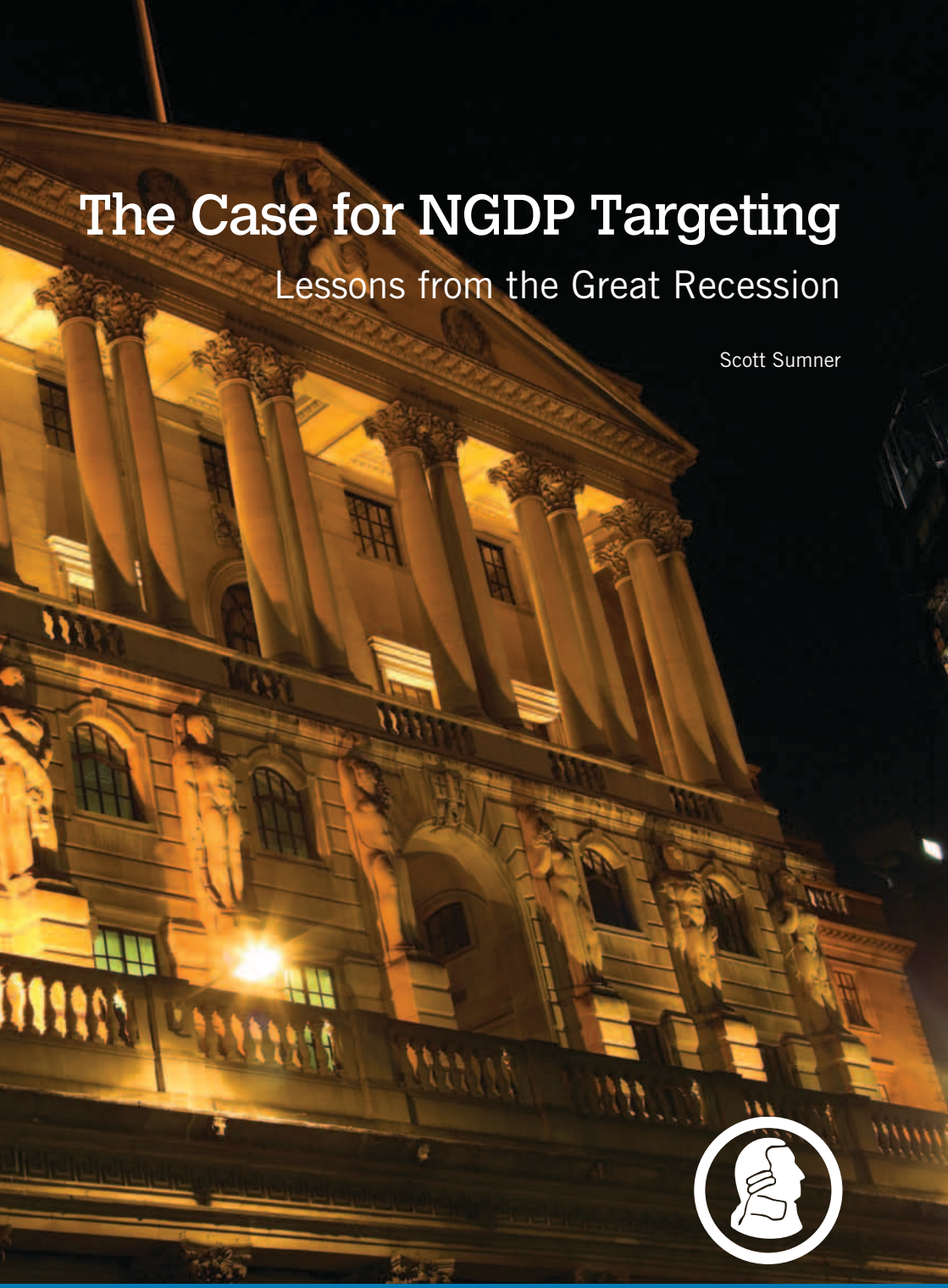

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Scott Sumner

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Executive summary

The recent economic crisis has exposed important flaws with inflation targeting, particularly the form practiced by real world central banks. A nominal GDP target can address the dual concerns of macroeconomic policy – inflation and jobs – with a single policy target. Had central banks pursued nominal GDP targeting during 2008, it is quite likely that both the financial crisis and the recession would have been much milder. Nominal GDP targeting works best when "level targeting" is used, which means making up for past under- or overshoots, and also if the central bank targets market expectations of nominal GDP growth.

Introduction

Over the past few decades many central banks adopted a policy of inflation targeting. As recently as 2007, this policy was widely viewed as a great success, particularly in comparison with the unanchored monetary regimes of the 1970s. In light of the recent financial panic and severe recession, it's a good time to ask whether we can do better. I'll argue in this paper that nominal income targeting, also known as NGDP targeting, offers several important advantages over inflation targeting, and no significant drawbacks. I will begin by discussing some theoretical advantages, and then explain how NGDP targeting could have benefited the UK during the recent crisis.

Part 1: The advantages of NGDP targeting over inflation targeting

A successful monetary policy should provide a relatively stable macroeconomic environment. Because monetary policy only affects prices in the long run, it's natural to visualize macro stability in terms of a low and stable rate of inflation. However monetary policy can also affect real output in the short run. Thus many central banks have a dual mandate, stable prices and relatively stable growth in output. The criticism of dual mandates is that they lead to policy incoherence; what should the central bank do if both inflation and unemployment are above target?

Nominal GDP targeting provides a way to address both inflation and output stability, without placing the central bank in the confusing situation of having to aim at two separate targets. Consider a country where the trend rate of output growth is roughly 2.5%. A 4% NGDP target would insure a long run rate of inflation of roughly 1.5%, with modest short term variation in response to real economic shocks, such as a sharp increase in energy prices. For instance, suppose oil prices rose sharply. Under strict inflation targeting, non-oil prices would have to fall to offset the increase in oil prices. If nominal wages are sticky, the fall in non-energy prices might lead to much higher unemployment. In contrast, NGDP targeting would allow a temporary period of above 1.5% inflation, along with somewhat lower output, in order to cushion the blow on the non-oil sectors of the economy.

The preceding example might make NGDP targeting seem less "hawkish" than inflation targeting, a backdoor method of allowing excessive inflation.

Yet the argument is completely symmetrical. George Selgin pointed out that NGDP targeting would produce lower than normal inflation during a productivity boom.[1] One of the criticisms of inflation targeting is that because central banks focus on consumer prices, they allow asset bubbles to form, which eventually destabilize the economy. Nominal GDP targeting cannot completely eliminate this problem, but it would impose more monetary restraint (as compared to inflation targeting) during periods where output growth was above normal. Indeed Friedrich Hayek advocated nominal income targeting for exactly that reason, to prevent "malinvestment" during productivity booms.[2]

Nominal GDP targeting can also help stabilize labor markets. Because nominal wages are adjusted at infrequent intervals, an increase in NGDP growth tends to lead to higher profits in the short run, and higher wages in the long run. During the period when wages are rising, some workers are underpaid, creating a tight labor market. Exactly the opposite occurs when NGDP growth slows, as we've recently seen in most developed economies. Stable NGDP growth tends to lead to stable wage growth. This means that workers with newly negotiated contracts receive similar wages to those on older contracts, and the aggregate wage rate is close to its equilibrium value (the wage rate that would occur if all wages were flexible.)

Some acknowledge that NGDP targeting can help stabilize output, but point to a serious cost: greater inflation variability. In fact, many of the problems generally associated with inflation are actually linked to NGDP volatility. For instance, inflation is said to raise the effective tax rate on capital, as most tax systems don't index taxes on interest and dividends. But the nominal interest rate may be more closely correlated with NGDP growth than inflation, meaning that the tax distortion is better explained

1 G. Selgin, *Less than zero: The case for a falling price level in a growing economy (April 1997).*
2 L. White, "Did Hayek and Robbins Deepen the Great Depression?", *Journal of Money, Credit and Banking (40-4, 2008).*

by high NGDP growth, rather than high inflation. Second, deflation (or disinflation) is often blamed for high unemployment. But once again the problem is actually caused by falling NGDP growth, as lower inflation due to productivity gains does not create unemployment. Third, low inflation is often thought to make a liquidity trap more likely. In fact, it is low NGDP growth that best measures the risk of hitting the zero rate bound. Interest rates fell to zero when Japan experienced mild deflation, but not when China experienced mild deflation.

Contrary to conventional wisdom, unexpected inflation is not unfair to lenders as long as NGDP growth is on target. If inflation were to rise sharply during a period where NGDP growth was stable, it would mean that a real shock had depressed the economy. Monetary policy cannot prevent some loss of output from a housing market slump; all it can do is to prevent the shock from unnecessarily spreading to otherwise stable sectors of the economy.

When real shocks occur it is only fair that both debtors and creditors share part of the loss. Suppose lenders made lots of foolish loans to the housing sector. This leads to a subsequent fall in real GDP, as housing construction plummets and workers must be retrained for other sectors. In that case NGDP targeting would lead to a period of above normal inflation, and lenders would bear some of the burden for this misallocation of capital, even in the absence of outright defaults. This is appropriate.

To summarize, it's not at all clear that the alleged weakness of NGDP target (higher inflation volatility) is much of a weakness at all. In contrast, there are many important weaknesses to inflation targeting. Let's first review the alleged benefits of inflation targeting. If prices rise sharply and wages are sticky, the economy may overheat and misallocate capital. If prices fall, firms lose money and unemployment rises sharply. From these examples it should be clear that the relevant inflation index would be one that measures the actual prices received by domestic producers. But that's not what we see in the real world:

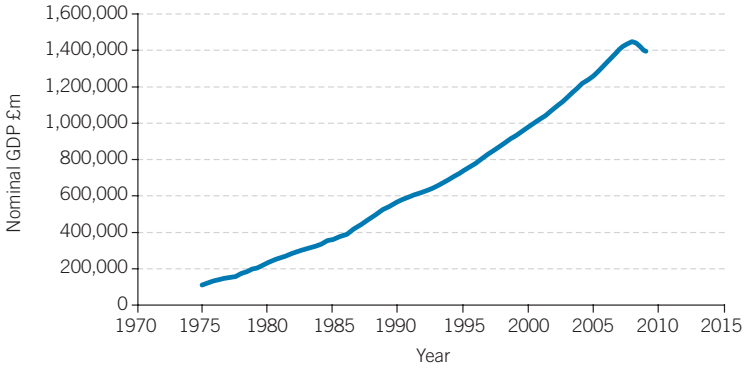
1. A rise in the VAT rate can lead to higher measured inflation, without there being any increase in the net price received by producers. This can lead a central bank to tighten policy inappropriately (and vice versa.)
2. If a currency depreciates sharply in the foreign exchange market, import prices can rise significantly, even if there is little change in the net price received by domestic producers.
3. In some countries housing prices are measured using a rental equivalent. But measured rents often reflect out-of-date historical prices, not the rent received on newly leased housing units (which often allow several months of free rent during a severe recession.)

These problems are not merely hypothetical. Both the first and second issues have recently distorted the measured CPI inflation rate in the UK. In the US, measured housing prices in the CPI rose between mid-2008 and mid-2009, even relative to other prices. This was because the CPI relies on rental equivalents. Meanwhile, the price that producers actually received for newly built homes was falling at one of the fastest rates in history. Thus measured housing prices were not providing the sort of "prices" relevant for macroeconomic stabilization. Even if inflation was the theoretically appropriate target of monetary policy (and for all the reasons discussed earlier I don't think it is) we don't currently have inflation measures that embody the concept implied by our macroeconomic models—the net price received by producers.

Part 2: NGDP targeting and the crash of 2008

A striking feature of the recent recession was the dramatic drop in NGDP between mid-2008 and mid-2009. In the US, 2009 NGDP fell at the sharpest rate since 1938. Even though the sub-prime crisis was centered in the US, nominal GDP in Japan, the eurozone and Britain fell even more sharply. During most postwar recessions British NGDP continued rising. Figure 1 shows the recent dramatic break in British NGDP growth.

1: UK nominal GDP, 1975–2009[3]



One obvious question is whether there was anything the Bank of England could and/or should have done about this sharp decline in NGDP. But the question also needs to be examined in a broader context. Could NGDP targeting in all the major developed economies have prevented the Great Recession? If not, how much could an open economy like Britain have done on its own?

The Great Recession has been widely misunderstood by the public, the press, and even many economists. The standard view is that housing was overbuilt in the 2000s, and that housing prices rose to unsustainable levels. When the bubble burst there was a large drop in housing construction, and then a severe financial panic. This led to a sharp fall in aggregate demand and the deep slump which afflicted most of the developed world.

A closer look at the timeline does not support the standard view. Roughly 70% of the decline in housing starts in the US occurred between January 2006 and April 2008, and yet unemployment hardly budged, rising from 4.7% to 4.9%. By October 2009, unemployment had risen to 10.1%. Thus housing by itself cannot explain the Great Recession; there was clearly a generalized

3 Office of National Statistics (retrieved January 2011).

drop in aggregate demand that affected almost all industries. The severe drop in US real GDP occurred when NGDP fell sharply after mid-2008, and a broadly similar pattern occurred in most other countries, including the UK. Interestingly, estimates from Macroeconomic Advisers suggests that in the US almost the entire decline in NGDP occurred between June and December 2008.[4] But the severe phase of the financial crisis did not occur until after Lehman Brothers failed in mid-September, when the fall in NGDP was already half over.

In my view the Great Recession was a smaller version of the Great Contraction of 1929-33. In both cases NGDP fell sharply relative to trend. Because nominal income is the total funds people and businesses have available to repay nominal debts, a sharp declines in NGDP growth often leads to financial distress. During the Great Recession a sharp fall in NGDP caused a mild financial crisis centered on subprime mortgages (in 2007) to turn into a severe crisis that also affected non-subprime mortgages, commercial real estate loans, and industrial loans in late 2008. Most observers have reversed cause and effect, assuming a simple financial crisis $\rightarrow$ recession transmission mechanism, whereas the actual pattern was much more complex, with lots of reverse causality.

Many observers also overlooked the importance of expectations. In late 2008 western governments were vigorously trying to bail out their banking systems, yet the problem seemed to get worse after each fix was adopted. The problem was that NGDP growth expectations plummeted in the last four months of 2008. As growth expectations declined, asset prices fell sharply, and this adversely impacted the balance sheets of the major banks. It was as if governments were trying to bail water out of a boat, without first patching the leak through which water was pouring in. NGDP targeting would not have completely prevented the financial crisis (which began in 2007 when NGDP growth was still adequate), but it would have prevented the crisis from worsening so dramatically in late 2008.

4 Macroeconomic Advisers, Monthly GDP Index (January 2011).

Some argue that "the real problem" was financial turmoil and overbuilt housing, and that these problems could not be papered over by printing money and propping up NGDP. In fact, modern macro theory tells us that to a very great extent, the "real problem" was nominal, a lack of nominal spending. Before rejecting this counter-intuitive argument, consider the following thought experiment. Suppose we could go back to 2006 and ask 100 prominent macroeconomists what would happen if central banks allowed NGDP to fall sharply between 2008 and 2009. Almost all would predict a severe recession. If you then added "and this decline occurred when the economy was already weakened by a financial crisis," I doubt anyone would say, "well then it's OK, the NGDP decline won't cause any harm." If someone suffering from pneumonia is suddenly stabbed by a mugger, it would not be appropriate for the doctor to exclaim "no need to patch up this knife wound, the patient's real problem is pneumonia."

Some argue that there was nothing that could have been done in late 2008 to prevent a fall in NGDP, because the major economies were stuck in a liquidity trap. There are all sorts of flaws in this argument. First, during the period when NGDP fell sharply the major central banks had not yet reduced nominal rates to zero. Second, some central banks also implemented contractionary policies, such as the Fed's decision to pay interest on reserves. Third, central banks can still provide stimulus by depreciating their currency once rates hit zero. For a large economy like the US there are political difficulties with doing this explicitly, but it is an option available to smaller open economies.

Of course all countries cannot simultaneously depreciate their currencies against one another, but they can do so against goods and services. Central banks have many options when nominal rates hit zero. In Sweden, the Riksbank began charging an interest penalty on excess reserves, which encourages banks to move newly created money out into the economy. The Fed engaged in "quantitative easing," which boosted stock prices and raised inflation expectations in the fall if 2010. Recent data suggests that real economic activity is beginning to pick up in the US. Central banks can

also commit to a higher inflation or NGDP growth target over time. Because investors don't expect the liquidity trap to last forever, this has the effect of lowering real interest rates.

Unfortunately, no central bank explicitly targets NGDP, thus we can't know for certain that NGDP targeting would have helped during the recent recession. But we do know that NGDP targeting would have required a much more expansionary monetary policy stance that what we actually saw in most countries during late 2008 and 2009. Thus we can look at those countries that did provide somewhat easier money, to see if their experience was better than others. One country that completely avoided the recession was Australia. Interestingly, in recent years Australia has had a somewhat higher trend rate of NGDP growth than other developed countries, and this allowed it to avoid the zero interest rate bound during the recession. Of course Australia also benefited from a resource boom once Asia began recovering in mid-2009, so monetary policy is not the only factor explaining its relative success.

A more apt comparison might be made with Sweden, which like Britain has a relatively open economy that is not part of the eurozone. One of the Riksbank's most prominent governors is Lars Svensson, a Princeton University economist who has advocated "targeting the forecast," i.e. adopting the policy stance expected to lead to on-target inflation.[5] Because inflation fell below target during the recession, this approach required a very aggressive policy of monetary stimulus. *The Economist* magazine's survey of forecasters estimates that Sweden's RGDP grew 4.6% in 2010, significantly more than the eurozone economies, and also much more that Britain, Denmark and Switzerland.[6] The superior performance relative to Britain partly reflects Sweden's concentration on capital goods exports, whereas Britain has been held back by problems in its important financial sector. But Sweden has also done quite well relative to other important northern

5 L. E. O. Svensson, "Inflation forecast targeting: Implementing and monitoring inflation targets", *European Economic Review* (41-6, 1997).

6 "The Economist poll of forecasters, February averages", *The Economist* (3 February 2011).

European capital goods exporters, which suggests that greater monetary stimulus might have reduced the severity of the recession. *The Economist* forecasts 3.2% RGDP growth for Sweden in 2011, also significantly faster than other Western European countries.

To summarize, we don't have data from actual NGDP targeters during the Great Recession. But we know that NGDP targeting would have called for much more aggressive monetary stimulus in late 2008 and 2009. We also know that countries that tried monetary stimulus do seem to have experienced somewhat faster real growth. The UK faced two special problems that might have limited the success of NGDP targeting: a sharply depressed world economy, and a weakened financial system. Because the City is such an important part of the UK economy, it was inevitable that a worldwide financial crisis would slow growth in Britain. And because Britain is an open economy, the sharp drop in world trade would have inevitably slowed growth somewhat during late 2008 and early 2009. NGDP targeting cannot prevent real problems from having some effect on RGDP growth rates, what it can do is prevent real problems from triggering unnecessary general declines in spending, affecting all industries.

Some argue that if a spending binge leads to a debt crisis, countries must "tighten their belts" and accept a certain amount of economic pain. That is true, but it is important to distinguish between two types of pain, lower consumption and joblessness. As an analogy, if a family faced severe debt problems the head of the household would not announce "it's time for us to tighten our belts and go on vacation." Rather he or she would call for less consumption, and more work. High unemployment is not an effective solution to debt problems. An NGDP targeting regime in Britain would have depreciated the pound, and that would have reduced the current account deficit. That sort of belt tightening is appropriate. Real wages might also have fallen, slightly reducing living standards. Again, this is a painful but necessary adjustment. But these changes (a weaker pound and lower real wages) would also have led to higher employment levels. Hard work is exactly what a highly indebted entity needs, whether a household or an entire country.

One especially discouraging aspect of recent policy debates in the US and UK has been the inappropriate way people distinguish between fiscal and monetary stimulus. In both countries there is a tendency to debate monetary stimulus in terms of its effects on inflation, whereas fiscal stimulus is evaluated in terms of its effects on real growth. But both types of stimulus directly affect demand, or nominal spending, and only indirectly affect inflation and growth. How NGDP growth is decomposed into inflation and growth depends on the slope of the aggregate supply curve, not on whether fiscal or monetary stimulus is being employed.

For instance, there is widespread concern in Britain that the coalition government's planned fiscal austerity will slow growth. And there is also widespread concern that current policies of the Bank of England will lead to excessive inflation. But both cannot be true. If fiscal stimulus is likely to lead to inadequate demand in Britain, then *ipso facto* Britain needs higher inflation, not lower inflation. Either demand is adequate or it isn't. If it's adequate then fiscal austerity is not a problem. If it is not adequate, then it makes no sense to worry that monetary policy could lead to excessive inflation. Of course all this confusion would end if we talked about demand in terms of NGDP, not prices and output. Once one thinks of policy this way, it is natural to assign the responsibility for adequate NGDP growth to the central bank, and let fiscal policymakers worry about long run savings/investment imbalances. Indeed if the monetary authority is targeting NGDP expectations, fiscal stimulus is a sort of "fifth wheel," which adds nothing to stabilization policy.

Nominal GDP targeting would also improve communication with the public. In the US the Fed recently announced that inflation was a bit too low, and hence they would engage in monetary stimulus. This made no sense to the average citizen; why should the Fed be trying to raise the cost of living? Indeed the Fed is not really trying to raise the price level; they are trying to boost NGDP growth. For any given rate of NGDP growth, they'd actually prefer more RGDP growth and less inflation. Talking about monetary stimulus in terms of nominal income has two advantages; it is more accurate, and it

also is something that the public can understand. It makes sense that the central bank would be trying to raise people's incomes when we are in a severe recession and incomes have fallen.

Part 3: Level targeting and forecast targeting

There are two ways of boosting the effectiveness of NGDP targeting, level targeting and targeting the forecast. Level targeting does not mean keeping NGDP constant, it means targeting a fixed growth rate trajectory, and making up for any near-term shortfalls or overshoots. Suppose the Bank of England has a 4% NGDP growth rate target, and that in 2015 NGDP growth was only 2%. With growth rate targeting they would still aim for 4% NGDP growth in 2016. With level targeting they would try to catch up for the shortfall in 2015, perhaps by aiming for 6% growth in 2016, or more likely 5% growth in both 2016 and 2017.

Recent theory suggests that level targeting is especially useful in a liquidity trap. If the central bank cannot cut nominal rates, level targeting automatically cuts long term real rates during a slump, by increasing NGDP and inflation expectations when near-term growth and inflation fall short of target. The advantages are so strong that in 2003 Ben Bernanke recommended the Bank of Japan adopt this approach (for the price level, not NGDP.) Interestingly the Fed has not done this, perhaps because inflation targeting of any sort is opposed by influential members of Congress.

The greatest advantage of level targeting is that it tends to prevent sharp NGDP fluctuations from occurring in the first place. As an analogy, consider a currency band in a fixed exchange rate regime. When the exchange rate falls toward the bottom of the band, speculators buy the currency and this tends to boost the price. By analogy, if NGDP fell below the target trajectory, investors and businesses would expect more rapid future NGDP growth, and those expectations would boost *current* aggregate demand.

Targeting the forecast means setting policy so as to equate the policymaker's forecast and goal. If the goal is 4% NGDP growth, it makes no sense to set policy at a level expected to produce 6% NGDP growth. It would be like a ship captain announcing that under current settings of the steering wheel, the ship is expected to reach Liverpool, even though the goal is to reach Southampton. Obviously the steering should be set in a position that equates the goal and forecast, and the same is true for monetary policy.

Fed policy in September 2008 shows the disadvantage of using a "backward-looking" monetary policy, which fails to target the forecast. In a Fed meeting two days after Lehman failed, the Federal Open Market Committee decided to leave rates unchanged at 2.0%, citing a roughly equal risk of recession and (high) inflation. In fact, by that date 5 year inflation forecasts in the indexed bond markets showed only 1.23% expected annual inflation, well below the Fed's implicit 2% target. The Fed was looking backward, reacting to worrisome headline inflation rates during the summer of 2008, when oil prices were high. Had it been targeting the forecast, it would have cut rates sharply, which in retrospect would have been appropriate.

A recent *Financial Times* story reported:

> *Others are open that the Bank [of England] is really targeting nominal gross domestic product growth of about 5 per cent a year regardless that this is not consistent with the Bank's strict 2 per cent inflation target objective.*[7]

This is good news. But if the Bank of England is serious they need to set up a NGDP futures market and subsidize trading of NGDP futures contracts. This would give monetary policy a compass, allowing them to avoid a sharp rise or fall in NGDP expectations. If NGDP future prices started rising, the Bank of England could tighten policy, and vice versa.

7 C. Giles, "Heat on Bank rises with inflation rate", *Financial Times* (12 Jan 2011).

In the long run an NGDP futures market could entirely eliminate the need for policy discretion. The Bank of England might promise to buy and sell unlimited amounts of NGDP futures at the target price (say 5% higher than current NGDP), thus making the policy goal equal to the equilibrium market price. Each purchase of an NGDP futures contract by speculators would trigger a parallel open market sale by the Bank of England. Alternatively, if investors expected sub-par nominal growth they would sell NGDP futures short, and this would trigger offsetting open market purchases by the Bank of England. In essence, the NGDP futures market would be forecasting the setting of the monetary base that was most consistent with on-target nominal growth. The monetary base would respond endogenously to changes in money demand, keeping NGDP growth expectations on target. This is roughly analogous to a gold standard regime, but with NGDP futures contracts replacing a fixed weight of gold as the medium of account.

Arguably, the greatest advantage of targeting NGDP futures prices is not that markets can forecast better than the Bank of England, but rather as a mechanism for holding central banks accountable. During the 1970s most central banks knew inflation was likely to be well above 2% or 3%, and yet failed to take corrective action. In late 2008 the Bank of England understood that NGDP growth expectations were plummeting sharply, worsening the financial crisis, but again failed to do what was necessary to arrest that decline. Right now all the public can do is look on with dismay when nominal aggregates fluctuate wildly. Under an NGDP futures targeting regime the public would have a strong economic incentive to push monetary policy back on track during periods of instability.

Stable NGDP expectations would help stabilize asset markets and wage rates, which would improve the overall performance of the UK economy. It would not eliminate all price level fluctuations, nor will it prevent all business cycles. But it would help maintain policy credibility when the headline inflation rate moves outside the target zone. Most importantly, it can produce reasonably low average inflation rates, and also prevent real shocks in one sector from causing unnecessary harm to the broader economy.

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