



2015

Nominal GDP Targeting: A Policy Recommendation to Meet the Fed's Dual Mandate

R. Shaw Bridges
Gettysburg College
Class of 2015

Follow this and additional works at: <https://cupola.gettysburg.edu/ger>



Part of the [Economic Theory Commons](#), [Finance Commons](#), and the [Growth and Development Commons](#)

Share feedback about the accessibility of this item.

Bridges, R. Shaw (2015) "Nominal GDP Targeting: A Policy Recommendation to Meet the Fed's Dual Mandate," *Gettysburg Economic Review*: Vol. 8 , Article 6.

Available at: <https://cupola.gettysburg.edu/ger/vol8/iss1/6>

This open access article is brought to you by The Cupola: Scholarship at Gettysburg College. It has been accepted for inclusion by an authorized administrator of The Cupola. For more information, please contact cupola@gettysburg.edu.

Nominal GDP Targeting: A Policy Recommendation to Meet the Fed's Dual Mandate

Abstract

This paper was written in early December 2014 in response to the Federal Reserve Challenge Team's argument for a regime change in the Federal Reserve to nominal GDP targeting as the appropriate policy to return the U.S. economy to long-term sustainable economic growth. After the 2007 recession, the FOMC took extraordinary measures to minimize the collateral damage caused by bank balance sheets weighed down with mortgage-backed securities and other below-investment grade assets. The periodic "stress tests" and use of emergency lending facilities were historically unprecedented, however, the economy six years later was still growing slowly in part due to market uncertainty with FOMC forward guidance policy. This paper argues that the Fed is justified in using a policy that risks short-term rapid inflation in order to meet the "dual mandate" of full employment and price stability, and to prevent cyclical unemployment in the economy from deteriorating into structural unemployment.

Keywords

GDP, Federal Reserve, price stability

Nominal GDP Targeting: A Policy Recommendation to Meet the Fed's Dual Mandate.

A Fed Challenge Response Paper: Fall 2014

By R. Shaw Bridges III

Abstract:

This paper was written in early December 2014 in response to the Federal Reserve Challenge Team's argument for a regime change in the Federal Reserve to nominal GDP targeting as the appropriate policy to return the U.S. economy to long-term sustainable economic growth. After the 2007 recession, the FOMC took extraordinary measures to minimize the collateral damage caused by bank balance sheets weighed down with mortgage-backed securities and other below-investment grade assets. The periodic "stress tests" and use of emergency lending facilities were historically unprecedented, however, the economy six years later was still growing slowly in part due to market uncertainty with FOMC forward guidance policy. This paper argues that the Fed is justified in using a policy that risks short-term rapid inflation in order to meet the "dual mandate" of full employment and price stability, and to prevent cyclical unemployment in the economy from deteriorating into structural unemployment.

In 2007, the United States suffered the worst economic downturn in recent memory. In response, risk-averse businesses and consumers have withdrawn from investment and spending in order to pay off outstanding debts. This process of deleveraging, while focused primarily in the housing sector, has not only slowed economic growth in the recovery, but has also led to persistently low rates of labor force participation as well as inflation (Wenli Li and Susheela Patwari 2012, 9, and Fed Challenge Manuscript (FCM) 2014). The initial measures the FOMC took to avert an economic depression during the recession, which included the opening of

emergency lending facilities and the implementation of periodic stress tests of bank balance sheets, were extraordinary, and until this disaster struck, historically unprecedented (Ben Bernanke 2012, 2). Now approaching six years into the official period of recovery with interest rates still at the zero lower bound, analysts are divided over their interpretations of relevant economic metrics, and whether or not they indicate the much-desired self-sustainable economic growth needed to return to stable price levels and labor market conditions. This disagreement over interpretations of economic metrics in different sectors has only exacerbated uncertainty in financial markets, evidence for which has become increasingly apparent with threats of bond-market sell-offs in anticipation of Fed Chair Janet Yellen's speeches after the monthly meetings of the FOMC (Gavin Davies 2014).

In his address to the NABE Policy Conference late in February, economist Lawrence Summers stated aptly that today, monetary policy experts “*wish* for the problem of minimizing fluctuations around a satisfactory trend” (Lawrence H. Summers 2014, 65). Yet, as economist Michael Woodford maintains, if policy-makers fail to act decisively and with the utmost transparency, there is a distinctive risk this “*wish*” for real growth and a return to full employment will not be granted anytime soon (Michael Woodford interview, 2014). In order to effectively communicate monetary policy in the near future, it is this author's contention that a regime change to nominal GDP targeting is needed [See Figure 1]. In this paper, I argue this suggested deviation from the current forward guidance policy is necessary to meet the dual mandate of full employment and price

stability. Not only does this policy allow the Federal Reserve to firmly commit to economic recovery in the short term, but it also eliminates instability associated with uncertainty over the current ambiguity regarding the decision to raise interest rates. While short-term rapid inflation is a risk, however, prolonged economic stagnation can lead to a deterioration of cyclical into structural unemployment, which produces long run hysteresis in the economy. This real risk is sufficient justification for the adoption of this bold policy measure.

U.S. Economy After the Recovery

The Gettysburg College Federal Reserve Challenge Team's argument for nominal GDP targeting is reliant on several historical metrics that over the past several years have caused the Federal Reserve to adjust downward its estimates of future real growth. According to the Bureau of Economic Analysis, the most recent estimate in the third quarter of 2014 has revised real GDP upward to 3.9% from the previous advance estimate of 3.5%. This data point reflects a fall in the percentage change from last quarter, due to a downturn in private inventory investment and a deceleration in exports, investment spending, personal consumption expenditures, which was offset by an 10% increase in federal government consumption expenditure and gross investment (Lisa Mataloni, et. al. 2014). Despite the positive upward revision approaching the 4.6% growth in the second quarter, our Fed Challenge team was skeptical that the nearly 4.0% growth seen in these last two quarters is sustainable. The strong growth we have been experiencing over the past two quarters is a transitory

phenomenon due to a temporary decrease in oil and gas prices. Although consumers will have more to spend in the short-term, there is little reason to expect this level of growth to continue indefinitely (Patricia Cohen 2014). Yet, even if the BEA is now observing evidence of significant real growth, the persistent underperformance of the economy in the years since 2007 has led analysts at the Congressional Budget Office (CBO) to revise downward estimates of potential GDP [Figure 2] (FCM 2014). According to these estimates, Lawrence Summers argues, economists at the CBO believe we can return to a steady trend in growth, however, the leisurely speed of the recovery has caused them to reevaluate both the size of the capital stock and sustainable labor input (Lawrence H. Summers 2014, 66). These revisions have had the perhaps unintended affect of overstating the incremental upward movements in GDP analysts have observed in the last two quarters. The period of economic recovery we are experiencing has not involved a return of GDP to its potential.

This need for growth in excess of current trends is further exacerbated by estimates of labor force participation and the Bureau of Labor Statistics estimates of unemployment. Despite the recent positive indication of a drop in unemployment to 5.8%, a breakdown of this metric reveals a still volatile labor market [Figure 3] (BLS employment summary 2014). Both long-term unemployed and civilian labor force participation have been mostly constant since April, and still seven million are employed part-time out of necessity, possibly due to a skills mismatch [Figure 4] (ibid). Furthermore, while employment has shown marginal growth in health and food services industries, financial, mining and logging,

information, wholesale trade, and government employment numbers have largely remained unchanged month to month (ibid.). As our team indicates, the revision to 5.8% places us at the high end of the bracketed region of unemployment estimates for October between 5.2 and 5.8 as depicted in Figure 4. Contrary to the narrative of improvement and progress toward full employment, the Fed Challenge team argued that the consistently slow restoration of labor force participation indicates just the opposite. They cited November estimates of labor force participation at 62.8% of the population, which shows little improvement from 63% in September this year. Likewise, in their report for the Federal Reserve Bank of Cleveland, Stephanie Aaronson and colleagues indicated that the employment to population ratio (currently at 59.2%) is still only little over a half percentage point higher than the low in the recovery period (Stephanie Aaronson et al., 2014, 2). Labor force participation changes in response to factors such as declining market opportunities, wage growth, import competition, and retirement, under good economic conditions (ibid., 9, 12). Aaronson and colleagues indicates many participants dropping out of the labor force temporarily, such as young people enrolling in higher education programs, or discouraged workers, may have done so in response to slack in the labor market, and will likely return once conditions improve (ibid., 14). Using panel data of state level unemployment and LFP, the authors of this study found that between .25 and 1% of the decline in labor force participation was explained by cyclical effects. Yet, if a return of employment numbers and job growth is persistently slow, there is a risk that previously qualified workers will lose too much of their human capital. These authors reveal

cyclical pressures on employment and highering during the post-recession economic recovery, and more importantly, that there are still thousands of discouraged workers searching for employment opportunities (ibid., 22-4).

The Fed challenge team argued against economists who maintain that the currently low employment numbers in the U.S. are due primarily to pre-recession structural changes. Economists who argue that cyclical pressures often mask changes to the long-term composition of the unemployment rate have interpreted the Beveridge curve as evidence of structural unemployment. Peter Diamond and Aysegul Sahin's recent analysis of the "Beveridge curve" over past recessionary periods in the business cycle contradicts this narrative of structural unemployment in the labor market (Peter A. Diamond and Aysegul Sahin 2014). They reveal instead that the underlying relationship between the job vacancy and unemployment rates indicated by the curve reveals historically consistent outward movements following recessionary periods. These outward shifts suggest that firms are reluctant to resume a steady pace of new employee hires out of the labor force following a dip in production (ibid.). Whether due to the increased scrupulousness of firms selecting between potential employees from an unusually high population of qualified unemployed workers, or due to the continuation of the firm and household deleveraging process, firms are not hiring at high enough rates to put downward pressure on wages. This is evident from wage growth indicators such as average nominal hourly earnings, which is currently hovering at around 2.2 percent growth this past year [See Figure 5].

Federal Reserve Chair Janet Yellen indicates that while nominal wages have grown at a 2% rate for several years, in real terms wages have been flat (Janet Yellen Aug. 2014, 9). She argues this slow real wage growth will not exert “any meaningful upward pressure on inflation,” which means nominal wages will not rise for some time after employment starts to pick up (ibid). As our Fed Challenge team argued, this lack of inflationary pressure on wages will likely persist in foreseeable future, especially since oil prices, which recently dropped as low as \$65.9 per barrel at the end of November, has and will contribute to even lower long-term inflation [Figure 6]. Lower energy prices, while only temporarily putting downward pressure on inflation, have also led to a temporary surge in GDP growth that will only last as long as oil prices remain depressed (Jonathan Spicer and Rodrigo Campos 2014). In the aftermath of the recession, firms were unable to lower wages due to “downward nominal wage rigidity,” so layoffs were preferable. Now with economic conditions improving, firms have a larger pool of job applicants, including but not limited to the previously laid off workers (Janet Yellen 2014, 10). Therefore, these metrics collectively indicate a persistently sluggish labor market, which is certainly not creating the necessary demand for more workers to meet the Federal Reserve’s mandate of full employment (FCM 2014, 2).

In the years since the Great Recession, much analytical work has been done to grasp the economic implications of the process of household and firm deleveraging mentioned above. There has been a significant and steady downward trend in percentage of debt service payments to disposable

income. This downward trend shows that households are, as of early this year, continuing the process of deleveraging debts, such as paying down old household mortgages. According to Wenli Li and Susheela Patwari, the ratio of household credit to disposable income indicates that, as of 2012, U.S. citizens were only halfway through the process of deleveraging (2012, 15). The downward trend in the total credit liability as a ratio of disposable income reveals households are continuing to pay down this debt-overhang [Figure 7]. Moreover, household savings rates have remained high since the recession, hovering at around 3% higher than the low in 2007 [Figure 8]. In their book *House of Debt* (2014), Atif Mian and Amir Sufi argue that this process of household deleveraging has led to a lack of consumption growth, especially in low-income households that responded to the housing price shock by reducing their MPC (Atif Mian and Amir Sufi, 2014). Until this debt-overhang is paid down, household expenditures as a percentage of disposable income will continue to make an insufficient contribution to consumer spending and by extension GDP growth. Moreover, as economist Richard Koo has demonstrated, this process of deleveraging in the United States indicates we are recovering from a “balance-sheet recession,” which can lead to prolonged deficiency of aggregate demand (Richard Koo 2011, 1). He argues a policy that sets a low target for inflation is futile unless households are beginning to halt the deleveraging process. In the recovery from a balance sheet recession, aggregate demand is responsive to asset price changes, and not to relative changes in consumer prices (ibid). As the Fed Challenge team clarifies, however, the housing market as indicated under the Case-Shiller Home

Price Index, has recovered slightly this past year [Figure 9]. This is a positive indicator that a pick-up in consumer demand is possible, with a push from monetary policy-makers. In the next section, I argue the policy our team recommended supports this much-needed growth back to pre-recession trend of GDP.

Moreover, liquidity injections into the banking system have not increased the lending and borrowing practices of households and banks necessary to offset the fall in consumer spending. Lenders and borrowers are still repairing their damaged balance sheets and are hesitant to assume more debt-obligations due to perceptions of investment risk (ibid). Firms and households have been forced for years to deleverage their existing debts, despite interest rates at historic all-time lows. There has been some concern that banks are more likely to abuse the risk-taking channel and take on excess amounts of low-quality credit due to relaxed lending standards associated with future expectations of low interest rates (Teodora Paligorova et. al., 2012, 25). Yet the deleveraging process left banks that had damaged balance sheets following the recession with their hands tied behind their backs, hesitant to lend borrowers. Recently, however, the number of banks reporting tightening lending standards has dropped significantly, indicating that lenders are beginning to make loans to borrowers with potentially poor credit ratings. As the Fed Challenge team research into the financial sector indicates, there has been a renewal of levered loans despite the opposition of financial regulators, indicative of the below investment-grade securities packaged and sold before the financial crisis.

Investors will likely sell these leveraged loans with impunity to clients who in search of cheap, high returns, so long as the Federal Reserve continues to keep interest rates low [Figure 10] (Peter Eaves 2014). In a *Financial Times* article written this September, Tracy Alloway and Gina Chon indicate more than a third of loans given out by U.S. banks in 2014 came with leverage exceeding Federal Reserve guidelines, which are supposed to limit loans to bearing a value no more than 6x a company's annual earnings (Tracy Alloway and Gina Chon, 2014). Thus, the "frothy" growth we have experienced in the financial sector is likely more artificial and hence unsustainable outside zero-lower bound conditions. Koo argues that the "trauma" firms and households experience after paying down the debt-overhang creates an "exit problem" following balance sheet recessions. This phenomenon has been observable in Japan since the 1990s, where the private sector is borrowing averse, interest rates are at the zero-lower bound, and government debt as of 2012 was 237 percent of GDP (Richard Koo 2011, 34). The concurrent volatility of financial markets and household deleveraging in the United States renders higher interest rates an impractical Federal Reserve policy in the near future.

Still, expectations of positive economic improvements in the United States has led both to appreciation of the dollar, and depreciation of foreign currencies [Figure 11]. Recent developments in foreign markets suggests that global economic growth may bear down on domestic growth as well. The Bank of Japan has recently opted to continue another round of LSAPs indicating efforts to depreciate the Yen. Likewise, ECB banks of Sweden, Norway, and Switzerland will likely decide to adopt similar

unconventional policies such as LSAPs to stem the appreciation of the Euro (Nouriel Roubini 2014). New York Fed President William Dudley recently commented on Bloomberg that if the dollar appreciates against these foreign currencies, the result could mean lower net exports and a subsequent “dampening” of inflation (Alister Bull 2014). In developing a policy, the Federal Reserve must consider the possibility of external threats to self-sustainable growth in the coming years, and weigh the risks of high inflation compared with continued disinflation in the economy.

Defense of Nominal GDP Targeting

This fall, the Gettysburg College Challenge Team offered what I have maintained was a convincing analysis of the state of U.S. macroeconomic conditions in the wake of the 2007-9 recession. The U.S. economy since the Great Recession has been growing at a sluggish pace resulting in higher labor market slack than indicated by the current 5.8% unemployment statistic. Moreover, recent data indicators, such as dropping energy prices and irresponsible financial investment have led to spurious signs of growth that is unsustainable outside zero-lower bound conditions. In the past two months, the Federal Reserve has ceased its program of Large Scale Asset Purchases, leaving forward guidance strategies as our primary tool to reduce long-term interest rates (FCM 2014, 3). Different types of forward guidance strategies have been tested over the course of the recovery, and policy-makers differ in their opinions of its effectiveness. From August, 2011 to October, 2012, the Federal Reserve tried calendar based forward guidance, promising to keep the federal funds rate near zero

until a specified date in the future (ibid.). In December 2012, the Federal Reserve altered its criteria to data-based forward guidance, by promising to keep rates at the zero-lower bound until the unemployment rate passed below the threshold set at 6.5% (ibid., 4). Extensive economic literature has been amassed analyzing the benefits and drawbacks of both calendar and data based policy recommendations. There are significant practical disadvantages of these previous policies that constrain the economy from generating the growth necessary to avoid the threat of secular stagnation. I maintain that in order to achieve the growth we require, the Federal Reserve must adopt a more integrative approach to forward guidance, which targets nominal GDP instead of inflation.

In the past few years, policy-makers at the Federal Reserve have concentrated on chasing the simultaneous goals of stronger growth, capacity utilization, and financial stability, yet as the macro-economic analysis above reveals, this tripartite objective has become more difficult under zero-lower bound conditions (Lawrence H. Summers 2014, 66). As economist Larry Summers indicates, the economy is today underperforming at the potential level forecast in 2007 for the year 2014/15, and the improvements described by the unemployment to population ratio are murky [Figures 1 & 3]. The U.S. economy has made almost no progress returning to potential output, but Summers argues that declining real interest rates should concern policy-makers more (ibid., 69). He argues economists might be observing a period he describes as a “reversal” of Say’s Law, in which deficient demand yields deficient supply, and that the continuous lowering of interest rates to supply the labor force with jobs could render

monetary policy ineffective, and suppress economic growth indefinitely (ibid., 71). The result of this secular stagnation could eventually lead to a vast number of unemployable workers and a contraction in productive capacity, resulting in hysteresis (Matt O'Brien 2014). Moreover, Summers indicates the historical record suggests financial instability goes hand-in-hand with periods of growth. In the recovery period of the business cycle especially, with interest rates at the zero lower bound, stability in the financial sector becomes harder to achieve in conjunction with strong growth. Instead of waiting for the economy to grow naturally, policy-makers should therefore welcome the inflation necessary to contribute to meaningful growth in output.

Summers suggests that the increased MPS of households and firms resulting from changes to income distribution, cash hoarding by large corporations, and other debt-financed investment demand reducing activity may have also lowered the natural equilibrium real rate of interest (Lawrence H. Summers 2014, 69). Likewise, Minneapolis Federal Reserve President Narayana Kocherlakota argued at the 22nd Annual Hyman P. Minsky Conference that in the past six years, the U.S. has experienced changes in demand for safe assets that may persist over the coming decade (2013, 2). Kocherlakota contends that, given the poor outlook for employment and prices, the FOMC should lower the real interest rate even further below the 2007 threshold in order to generate significant growth (ibid., 6). This growth produced under conditions of low real interest rates will likely not come without the cost of financial instability that can occur with “inflated asset prices, high asset return volatility and heightened

merger activity” (ibid., 11). The preponderance of conceivable outcomes these authors cite suggests the risks associated with generating significant growth are difficult to avoid under slow recovery conditions.

The recommendation for nominal GDP target in part derives its strength as a policy from the argument that under current economic conditions, there is a chance the U.S. could be heading towards secular stagnation. Summers and Kocherlakota’s analyses in conjunction with the data our Federal Challenge Panel cited in reference to labor market conditions and the output gap indicates the risk of prolonged economic stagnation could lead to a contraction of human capital resulting in hysteresis. In addition to providing a clear policy criterion both for the FOMC and financial markets, the nominal GDP target could solve the issue Summers and Kocherlakota emphasize regarding the real interest rate and inflation. As Harvard Professor Jeffrey Frankel indicates, a nominal GDP target guarantees either acceleration in real growth, or that real interest rates will decline in response to the policy, which will in turn put upward pressure on aggregate demand (Jeffrey Frankel 2012). If indeed the U.S. is heading toward similar stagnation to the Japanese economy for the past two decades, the window for the Federal Reserve to adopt growth-supportive policies is narrowing with each passing year.

Unlike price-level targets, which have been judged to be a similar objective criterion, a nominal GDP target would provide greater quantitative gains. According to Jérémie Cohen-Setton et. al. (2013), five years out of the 2007 recession, the price level was not much lower than it would have been growing at 2% per year, whereas nominal GDP fell nearly 10%, as

indicated in Figure 1. They maintain the rise in expected inflation would thus have been smaller under the price-level targeting regime. Critics such as Charles Goodhart argue that unlike inflation targeting, however, NGDP would function poorly as a kind of Taylor rule, since it would entail both an interest rate as well as an output measure, and thus revisions to NGDP over time make the risk of overshooting the target at any given interest rate more volatile. A proponent of this policy innovation, Scott Sumner argues that unlike inflation targets, an NGDP target would only require a single estimate of the output gap at the time the target was set, thus avoiding the constant revisionary estimates to the output gap associated with “flexible inflation targets” (ibid., bibliography). Although there are difficulties associated with finding a long-run sustainable trend that would support the economic environment for employment and growth, as Scott Sumner argues, it would not be unreasonable to look at what past forecasts of growth had been prior to the recession as the goal (Scott Sumner 2012, 10). Suppose that the estimate for the growth rate set to reach a nominal GDP target would overshoot the target if growth accelerated or decelerated in the near future? The Federal Reserve would only have to make minor adjustments to forward guidance policy and other similarly influential policies on future expectations, in order to avoid overshooting the target. In this way, it would be clear to outside observers what the Federal Reserve’s future plans for the economy are under all possible scenarios for growth. Thus, this single criterion communicates the Federal Reserve’s intentions more efficiently than if continuous revisions were made to policy and hence future expectations based on an output gap estimate.

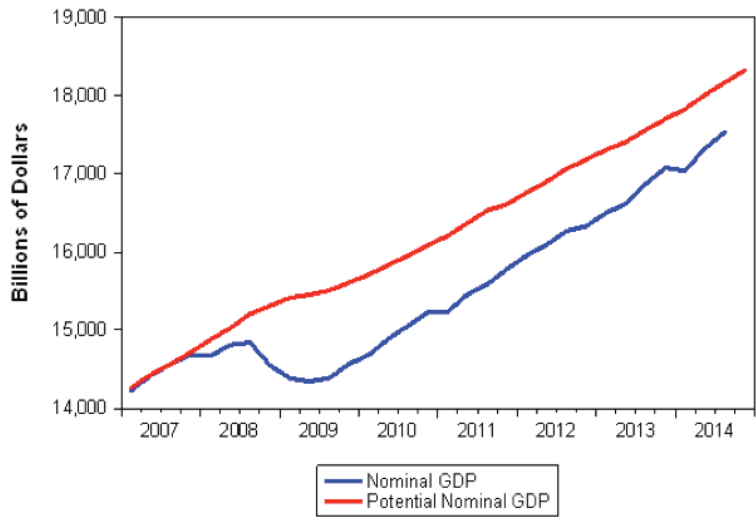
Furthermore, Charles A.E. Goodhart et. al. (2013) argues that a nominal GDP target policy regime would allow inflation to appear even more volatile than under price level targeting, because of uncertainty over long-run sustainable output. Yet as these recent critics of NGDP targets show, once the Federal Reserve sets the forecast for long-run sustainable growth at the pre-recession forecast, the Federal Reserve could also deliver a 2% inflation target at that long-run rate. In order to mitigate the risk of future adjustments to NGDP, Sumner argues, the Federal Reserve could set up futures markets and subsidize trading of NGDP futures contracts. This would have the effect of anchoring investor expectations and forecast the required monetary base to boost nominal growth, by providing the public with incentive to return to pre-recession growth trend (Scott Sumner 2011, 17-18). For some at the Federal Reserve, this policy still presents a risk they are unwilling to take due to the uncertainty of previous forecasts, possibly due to ex post facto reasons associated with growth estimates prior to the recession. Scholars have misconstrued the majority of these components of NGDP targets as drawbacks that impede its implementation, and not as strengths, or at least net advantages over and above current inflation target policy. As it stands, our Team's current recommendation inadequately addresses these concerns and should be changed if more members of the Federal Reserve are one day to be swayed to by our assessment.

Conclusion

The recommendation our panel made to the Federal Reserve is necessary to provide the much-needed future growth our economy needs to avoid secular stagnation. The current growth trends in the U.S. economy are indicative of slow growth from the recession of 2007-9, which will lead to persistently low labor force participation. Likewise, financial stability can only be achieved in strong growth conditions, once the Federal Reserve is able to raise interest rates without disrupting the process of deleveraging and subsequent growth in investment and consumer expenditure [Figure 12]. The sooner the Federal Reserve can return to pre-recession long-run sustainable growth trends the better. By setting a nominal GDP target, the Federal Reserve would be making a commitment to return the economy back to full employment levels before unemployed citizens of the United States become unemployable, and our potential output capacity contracts. Raising rates now would be premature, and while other policy regimes have had historically limited success, the burden of proof falls on our recommendation. As such, any one of the advantages to our policy discussed above could be used to persuade a battle-tested and wary Federal Reserve.

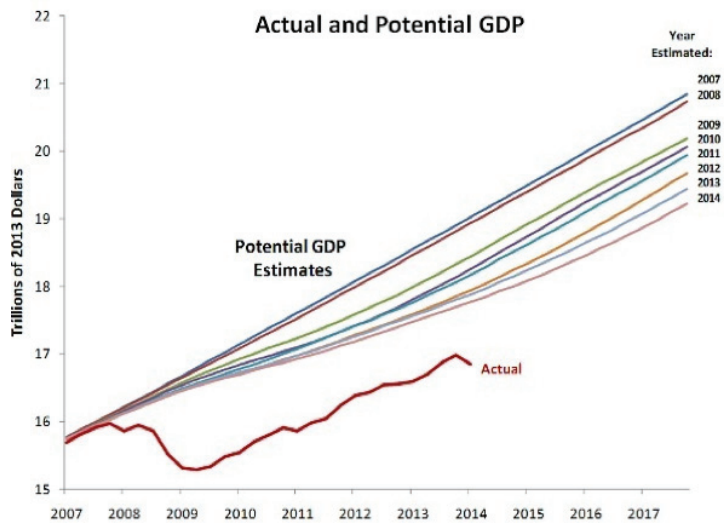
Appendix

Figure 1: Nominal GDP & Potential Nominal GDP



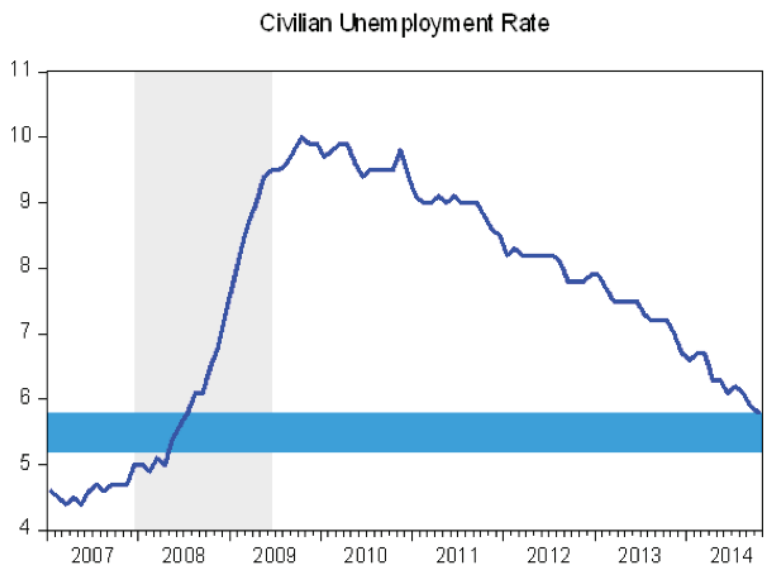
Source: Board of Governors of the Federal Reserve System

Figure 2: Revisions to GDP



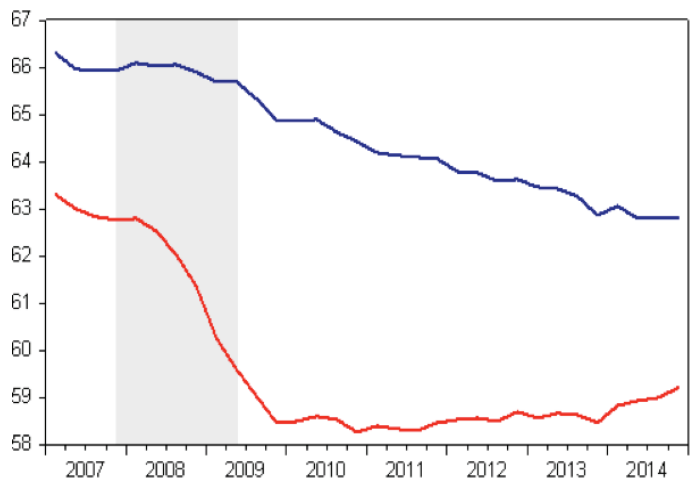
Source: VoxEU.org

Figure 3: Civilian Unemployment Rate



Source: U.S. Department of Labor: bureau of Labor Statistics

Figure 4: Unemployment Rate and Labor Force Participation Rate



Source: U.S. Department of Labor: Bureau of Labor Statistics

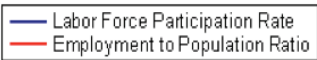
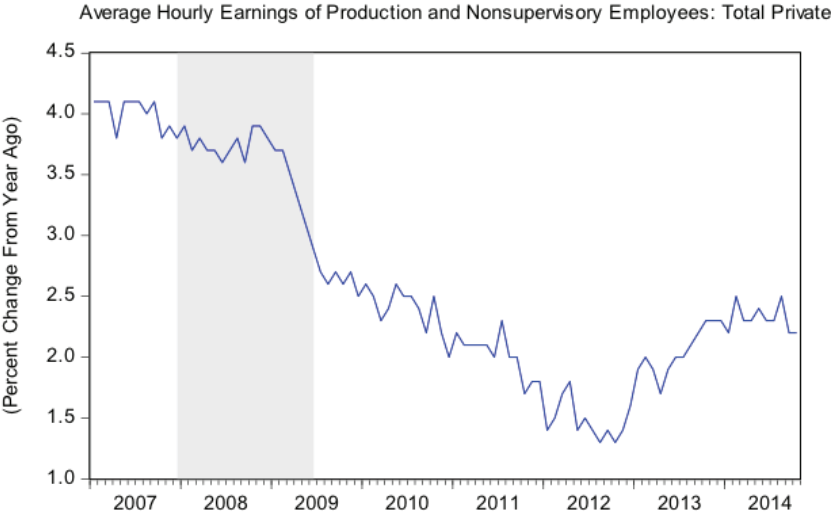
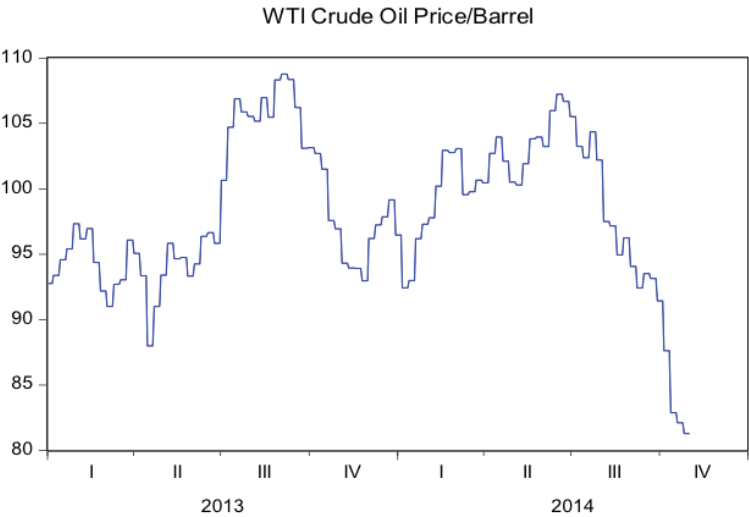


Figure 5: Wage Growth Average Hourly Earnings



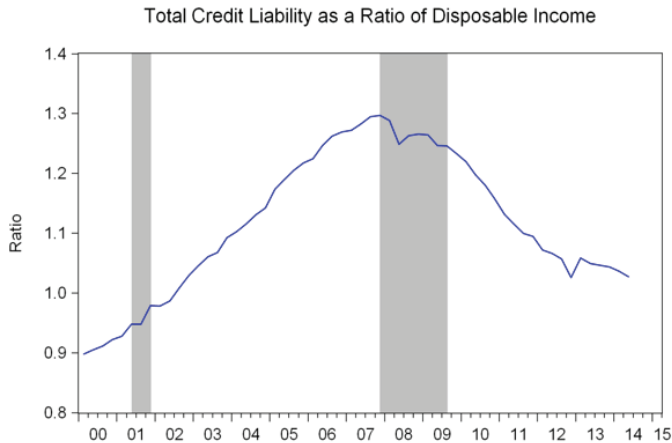
Source: U.S. Department of Labor: Bureau of Labor Statistics

Figure 6: Oil Prices over the past two years



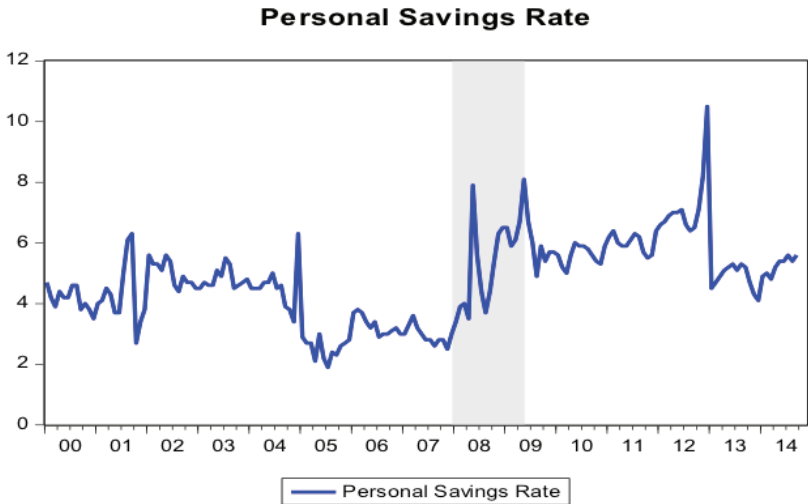
Source: Board of Governors of the Federal Reserve System

Figure 7: Measure of Household “Debt Overhang”



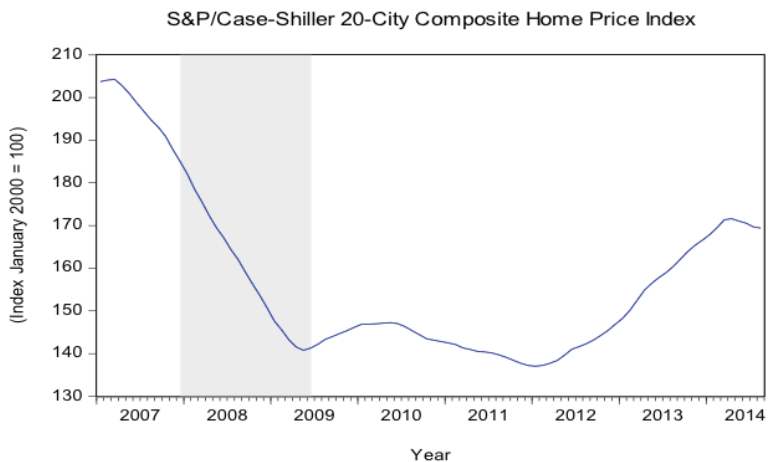
Source: Board of the Governors of the Federal Reserve, Bureau of Economic Analysis

Figure 8: Personal Savings Rate



Source: US Department of Commerce Bureau of Economic Analysis

Figure 9: Case-Shiller Home Price Index



Source: S&P Dow Jones Indices LLC

Figure 10: Bank Lending Standards

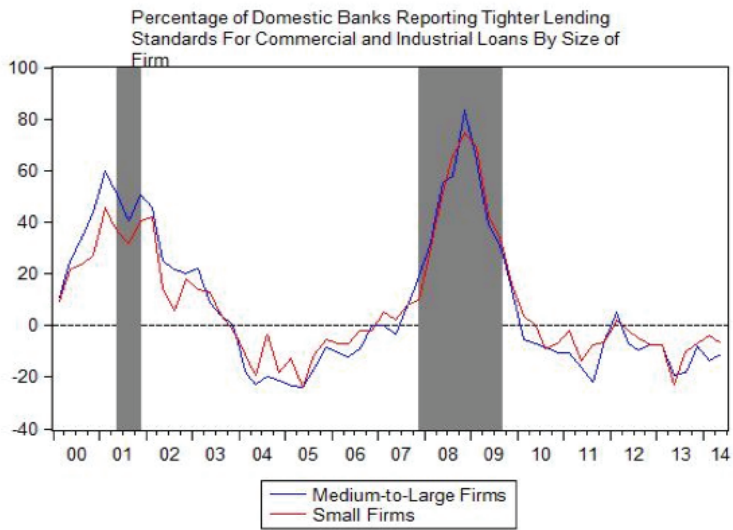
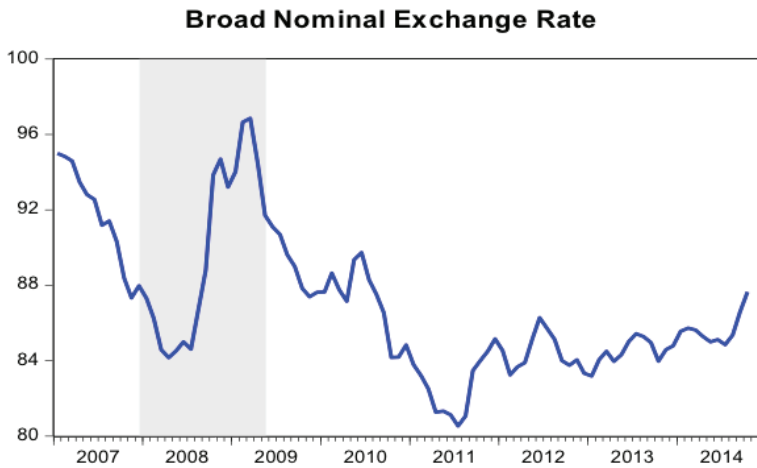
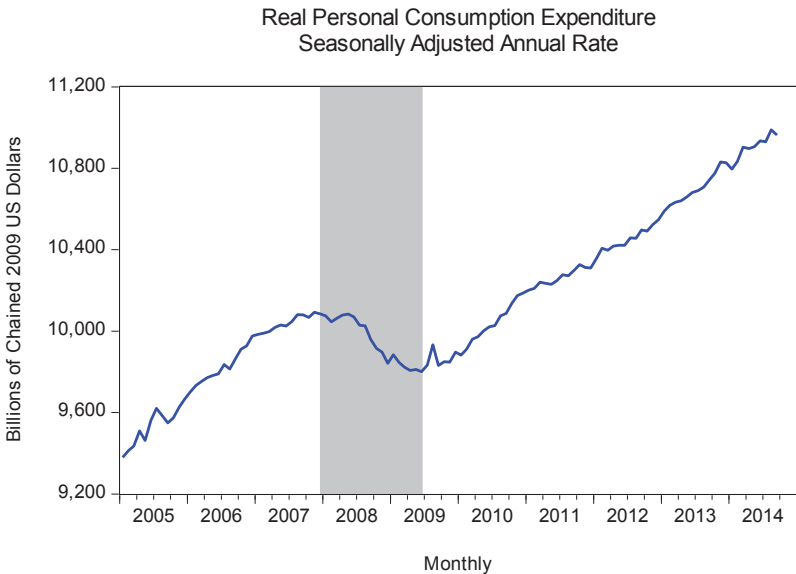


Figure 11: United States Nominal Exchange Rate



Source: Board of Governors of the Federal Reserve System

Figure 12: Consumer Expenditure



Source: U.S. Department of Commerce: Bureau of Economic Analysis