Central Bank Review 17 (2017) 1–10

Contents lists available at ScienceDirect

Central Bank Review

journal homepage: http://www.journals.elsevier.com/central-bank-review/

Assessing nominal GDP targeting in the South African context

Kenneth Creamer*, Robert Tregathen Botha

University of the Witwatersrand, NCB213 West Campus, Wits University, South Africa

ARTICLE INFO

Article history:
Received 31 October 2016
Received in revised form
13 February 2017
Accepted 13 February 2017
Available online 17 March 2017

Keywords:
Monetary policy
Nominal GDP targeting
Income targeting
Inflation targeting
SARB
Central bank loss function

ABSTRACT

The main purpose of this research paper is to determine whether Nominal GDP targeting as a monetary policy regime would be superior to Inflation targeting in minimising the South African Reserve Bank's loss function. This is done by algebraically deriving the necessary conditions for Nominal GDP targeting to dominate Inflation targeting using two different forms of loss functions. The first form includes price stability and output stability, while the second form includes both price and output stability and adds currency fluctuation into the loss function, both using data from 1993Q1 to 2014Q1 and uniquely incorporating data from the mining sector due to the sector's key role in the South African economy. Based on these results and practical issues of Nominal GDP targeting, such as the possibility of enhancing the severity of stagflation, this paper does not recommend Nominal GDP targeting as a monetary policy framework for South Africa.

1. Brief outline of topic

Since the first case of implementing Inflation targeting (IT) in New Zealand in 1990, IT has attained the status as the dominant framework for monetary policy in many countries around the globe. Mishkin (1997) described IT as involving "the public announcement of medium-term numerical targets for inflation with a commitment by the monetary authorities to achieve these targets".

However, the IT regime's status as the most suitable pillar for policy formation is considered by some to be rivalled by Nominal GDP targeting (NGDPT). This is not a new notion because the debate of NGDPT versus IT started in the 1980 and 90's, with important early contributions from Taylor (1985) and Hall and Mankiw (1994). Although it subdued for the larger part of the 1990s-2000s, the debate experienced a revival after the 2008 financial crisis (Frankel, 2012). The crisis highlighted some of the regime's shortcomings, and as a result, gained support for IT to be replaced by NGDPT.

Advocates for NGDPT argue that IT greatly lacks an adequate response to market bubbles and responds inappropriately to supply and terms of trade shocks. The argument is made that NGDPT will lead to a more stable economic environment and therefore minimise the Central Bank's (CB) loss function (consisting of the output gap and inflation volatility) because it takes into account real GDP growth and inflation compared to IT, which only takes inflation into account. Therefore, some consider NGDPT to be more suitable as a framework for monetary policy, particularly, but not limited to, countries with high vulnerability to exogenous supply shocks. The argument is also made that by strictly targeting inflation, there is extensive negative pressure on economic growth, which may lead to desired inflation but very little or no economic growth.

This is an important topic within Macro Economics and monetary policy theory, and research on this topic contributes to how the field of economics and policymakers consider an appropriate monetary policy framework. Relatively little research has been conducted on this topic in developing countries, especially within a quantitative framework. To begin to fill this gap, this paper conducts a quantitative study on South African monetary policy, aiming to determine which of NGDPT or IT would provide greater stability to the South African economy.

2. Literature review

Detailed analyses of the early experiences involved in the implementation of the IT framework were offered by Goodhart and Vinals (1994), Leiderman and Svensson (1995), Haldane (1995), Mccallum (1996) and, with particular reference to South Africa by Aron and Muellbauer (2006). The original idea of NGDPT as a

* Corresponding author.
E-mail address: kenneth.creamer@wits.ac.za (K. Creamer).
Peer review under responsibility of the Central Bank of the Republic of Turkey.

http://dx.doi.org/10.1016/j.cbrev.2017.02.001

monetary rule came from a lecture by James Meade in 1977 (Mccallum, 2011:1). The idea was further developed due to the need to improve monetary policy credibility, combat high inflation, and create a robust system that was adaptable to demand and supply shocks (Bhandari and Frankel, 2015:3).

2.1. Brief explanation of how nominal GDP targeting works and its history

The basic logic behind NGDPT is that CBs ought to adjust policy rates in order to achieve predetermined nominal GDP (NGDP) targets. By targeting NGDP, the CB is essentially targeting inflation and the economy's long run average growth of output (real GDP) (Mccallum, 2011:1). Monitoring NGDP gives the CB signals of aggregate nominal spending, and by adjusting policy rates, the CB can influence spending through its influence on aggregate demand (Mccallum, 2011:1).

In the 1980s, CBs followed a money supply targeting regime, but due to supply and demand shocks, they experienced trouble with an unstable money demand (Frankel, 2012). These shocks are one of the reasons why NGDPT was developed; however, NGDPT has not been adopted as the official monetary policy framework of any country (Bhandari and Frankel, 2015:3). The successor was exchange rate targeting, but this regime fell powerless as a result of the speculative "attacks" during the currency crises of the 1990s (Frankel, 2012). At this time, CBs started to turn to IT.

However, the financial crisis in 2008 highlighted some weaknesses of the IT regime, especially the lack or inappropriate response to asset bubbles and supply side shocks (Frankel, 2012). As a result, interest in NGDPT as a replacement for IT has received increased attention from several economists, including Scott Sumner (Bentley University), Professor Jeffrey Frankel (Harvard University), and Christina Romer (former Chair of the Council of Economic Advisors in the Obama administration) among others.

2.2. Arguments for (advantages of) nominal GDP targeting

The first argument made in favour of NGDPT is that inflation is not the only figure the CB is concerned about, as it is also, or ought to be, concerned about output, especially for political credibility (Mccallum, 2011:1). Because the CB is concerned about both inflation and output, having only one figure that includes inflation and output is considered to be an advantage, as opposed to considering them separately (Mccallum, 2011:2).

Second, compared to IT, NGDPT has an arguably superior ability to respond to supply and terms of trade shocks (Frankel, 2012). The argument is that IT responds to supply shocks inappropriately. In response to a supply shock, such as an increase in oil prices, an IT regime increases policy rates in order to supress demand and thus relieves inflationary pressure, but at the same time, this puts further negative pressure on output (Frankel, 2012). This translates into a decrease in employment. In an NGDPT regime, the supply shock is automatically split between inflation and output. In the long run, advocates of NGDPT believe this will result in inflation that is similar to an IT regime but with smaller fluctuations in output (Mccallum, 2011:1), thus resulting in a more stable economy. Considering terms of trade shocks, Frankel (2012) argues that an economy adapts better when the monetary policy responds to changes in the prices of exported goods, as opposed to prices of imported goods, such as in the case of IT. In other words, under different circumstances or during different phases of the business cycle, the economy may be more robust and render smaller output gaps. In the face of an adverse supply shock, only NGDPT allows the currency to depreciate accordingly (Frankel, 2014).

Third, some believe NGDPT may create greater stability in the financial system, driven by the argument that by implementing NGDPT, financial bubbles will be easier to subdue because of the strong relationship between NGDP and asset bubbles (Mccallum, 2011:2).

Fourth, NGDPT arguably may be more appropriate for nations that seek to gain monetary policy credibility because when choosing a target that is frequently missed, the credibility of the CB is eroded (Bhandari and Frankel, 2015, 4). Due to the compilation of NGDP, freedom exists within one figure. In other words, there is potential for change in real GDP and inflation without changing the NGDP target, making it is easier to achieve. This point fuels the argument that NGDPT may potentially have the same benefits as discretionary monetary policy or an IT regime with a target range, while maintaining the same expectations (Bhandari and Frankel, 2015:6).

Fifth, based on the reach of a CB influence, NGDP as a target is arguably more appropriate than inflation as a target. Frankel argues that monetary policy naturally influences the sum of real income growth and inflation, not the breakdown between the two, and therefore should also target the sum of the two variables (Frankel, 2012). Because they cannot influence these two variables separately, CBs cannot make a decision regarding the relative importance of inflation and real output (Frankel, 2012).

2.3. Arguments against (disadvantages of) nominal GDP targeting

First, inflation statistics are produced arguably more frequently and more consistently than NGDP figures, which allows an IT regime to respond faster and is arguably based on more accurate information (Hassan and Loewald, 2013:6). Thus, the frequency and revision of NGDP statistics are a major challenge for real-time implementation of NGDPT (Hassan and Loewald, 2013:6). In addition, forecasting nominal income may be more problematic than forecasting inflation (Hassan and Loewald, 2013:6).

Second, within an NGDPT regime, there would be much speculation about how a specific target is compiled between inflation and real output, causing a reduction in the CB's ability to signal expected inflation (Du Plessis and Rietveld, 2014:5). This creates a situation where the CB cannot anchor the public sector's inflation expectations and may ultimately reduce the effectiveness of monetary policy.

Third, targeting NGDP may be difficult because of the two variables that make it up. In response to monetary policy, lags of different length may be experienced because output responds faster than inflation (Rudebusch, 2002).

Fourth, concerns are raised that once the NGDP target is reached, the CB would have to tighten up excessively, which might cause greater welfare loss in comparison to moderate changes in the monetary policy stance. Although this can be avoided if the target is revised, this threatens the credibility of the CB (Hassan and Loewald, 2013:6).

Fifth, because NGDPT combines inflation and real GDP, of which the central bank has no long-term control, joining it with the difference in transmission lags between output and inflation would complicate the extent to which the CB can be held accountable (Du Plessis and Rietveld, 2014:12). Thus, the adoption of NGDPT may reduce accountability and therefore the independence of the CB as well (Du Plessis and Rietveld, 2014:12).

Sixth, choosing an NGDP target may create complications because the potential GDP is prone to be politically sensitive (Du Plessis and Rietveld, 2014:12). This may pose an even larger challenge when the potential or target output that is used by monetary authorities differs from government estimations and might be difficult to articulate publicly (Hassan and Loewald, 2013:6).