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**Nominal GDP Targeting and the Monetary Policy
Framework**

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Nominal GDP Targeting and the Monetary Policy Framework *

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EXECUTIVE SUMMARY

Recent calls for the adoption of a nominal Gross Domestic Product target (NGDP target, henceforth) for monetary policy, replacing or suspending inflation targeting, are driven above all by the combination of two factors: a) the desire to stimulate output and employment in stagnant advanced economies back to the pre-crisis path; and b) nominal interest rates near the zero lower bound in the same economies – with the US policy target rate at the effective lower bound since December 2008. In economies facing this set of conditions, the most compelling means of achieving a nominal income target is for the temporary targeting of an NGDP level until nominal income reaches its long-term trend. This would serve primarily as a commitment device: to add credibility to a commitment to keep real interest rates very low until a targeted level of output is reached, even if inflation rises in the interim.

The general attractions of NGDP targeting, relative to inflation targeting, are the automatic weight given to growth, and responsiveness to supply

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shocks. There are clear disadvantages. These include issues regarding the choice of target level; risk of loss of an inflation anchor; likely need for excessive tightening when growth is high; and exacerbated difficulties with real-time monetary decision-making due to data uncertainty and revisions. There are three reasons why, given its disadvantages, the advantages are not sufficiently compelling to justify a change in monetary policy framework in South Africa. First, supply side or structural impediments limit the effectiveness of expansionary monetary policy beyond what can be achieved under flexible inflation targeting. Second, a flexible inflation targeting regime, with occasional misses due to unexpected supply shocks, can retain credibility and maintain an effective anchor for inflation expectations if carefully articulated to the public. Third, responding to supply shocks as well as promoting output growth can be at least partly accommodated within the flexible inflation targeting regime.

One way of accomplishing this, using a relatively wide target range, would be to keep the inflation rate close to the midpoint of the target range as a long-term objective, while varying the point target depending on deviations of output growth from an implicit target; and/or in response to supply shocks, while remaining within the target band. In other words, the authorities could over the short term (up to 2 years) vary the point target for inflation within the band of 3 to 6%, facilitating short term movements in interest rates to respond more quickly to deviations. Such a scheme is consistent with the policy stance (advocated for example in Evans (2011)) of keeping interest rates very low, for as long as output growth remains below some target, provided forecast inflation does not exceed the upper bound of the target range.

1 Introduction

Numerous analysts, and a few policy makers, have recently proposed adoption of nominal income targeting, measured for example by nominal GDP, as the monetary policy framework – replacing or suspending inflation targeting. We focus on two aspects of the issue. The first concerns the general merits of nominal income targeting. We briefly revisit the basic idea and list its attractions and disadvantages. The second aspect is the post-2007 crisis discussion in advanced economies – why the recent upsurge in interest in nominal income targeting (the idea is about three decades old in the aca-

demographic literature), what current problems might it solve, and precisely how? Relatedly but also applicable to emerging economies, if there are limitations with inflation targeting, will these be resolved by switching to nominal income targeting? Analysis of these questions suggests that there are at present no compelling grounds for the abandonment of flexible inflation targeting in favour of adoption of nominal income targeting in South Africa.

The remainder of this note proceeds as follows. Section 2 introduces the basic idea and lists the main attractions and limitations of nominal income targeting, in general and with reference to policy implementation in South Africa. Section 3 discusses limitations of inflation targeting which partly explain the recent search for alternative monetary policy frameworks. Section 4 discusses the potential role of nominal income targeting in stimulating economies at the zero bound for nominal interest rates. Section 5 presents the concluding remarks.

2 Attractions and disadvantages of nominal GDP targeting

In a nutshell, targeting nominal income growth works as follows. Take an indicative rate of real GDP growth (its long-run trend or potential); add a target inflation rate. The sum is the target rate of nominal income growth. Conduct monetary policy (set the reference interest rate) to keep nominal GDP growth at or close to that target rate. Equivalent alternatives include targeting the level of nominal income (more on this below), or choosing different proxies for aggregate nominal spending.¹

According to its proponents, and under long-run money-neutrality, achieving this nominal income target should produce the same average inflation rate than an inflation targeting regime with the same target inflation rate, with the same rate of average output growth, in the long-run.² Proponents also claim that this will be achieved with lower output volatility, but the theoretic literature on this is mixed, with the possibility of more instability in both output and inflation. The theoretical results are sensitive to how the Phillips

¹Nominal income targeting can also be viewed as a form of monetarist “k-percent rule”, applied to growth in nominal income (which was the target) rather than a monetary aggregate (which the monetary authority has better control of). See McCallum (1999, 2011), Woodford (2012).

²See Ball (1999), McCallum (1999), Svensson (1999).

curve is specified, while the real-world outcome would depend on how the relationship between output and inflation actually plays itself out. There is however no evident reason to expect inflation to be more stable under nominal income targeting, than under inflation targeting. These are of course all theoretic arguments – we have little or no direct historical experience to verify them.³ The closest real-life example of how this might work might be the US economy and experience over the long-term. The Taylor rule reflects US monetary policy behavior consistent with interest rates changing in response to deviations of output trend and an implicit inflation target. Depending on the weighting of output and inflation deviations applied by the authorities, the Taylor Rule can represent a NGDP target (+50% weight on output), a strict inflation target (lower weight on output) and anything in-between. A casual assessment of US inflation suggests considerable variability in inflation outcomes and a poor track record if there had been an explicit inflation target, suggesting that policy makers have at certain times desired stronger nominal GDP growth to make up for recessions.

What follows is a more practically oriented listing of attractions and disadvantages of nominal income targeting.

2.1 Attractions

2.1.1 Responding to supply shocks

Aggregate supply shocks pose a well-understood difficulty with inflation targeting.⁴ Consider a sharp increase in oil prices, the classic example, leading to higher forecasted inflation. Under inflation targeting, the central bank may have to increase interest rates to dampen the increase in the overall price index. Doing so normally requires reducing the rate of increase in the prices of non-oil related domestically produced goods to get the overall CPI back to target. The reduction (or lower increase) in prices of goods produced domestically, coupled with nominal wage rigidity, reduces profitability and employment. In practice, this disadvantage can and normally is dealt with, for example by excluding first-round effects of certain supply shocks, usually energy and food prices, from the measure of targeted inflation, or designing and targeting core inflation as such. This solution is not without disadvantages, since energy prices affect the prices of numerous other goods.

³See for example Bernanke, Laubach, Mishkin and Posen (1999), Sumner (2012).

⁴See for example Bernanke, Laubach, Mishkin and Posen (1999), Sumner (2012).

Under nominal GDP targeting the policy rate need not be increased, or not as aggressively, provided the forecasted increase in inflation (due to the oil shock) is not sufficiently high for the sum of inflation and real growth to breach the nominal income target. We will argue below that, to some extent, setting a moving point target within the inflation target range may permit a comparable degree of responsiveness within the inflation targeting regime.

2.1.2 Targeting growth and employment

NGDP growth targeting accommodates the concerns with both price stability and output growth explicitly within the monetary policy framework, in one target. But as noted by one of its earliest proponents, to focus on nominal GDP growth is only one way of taking into account both inflation and real output considerations (...)” (McCallum (2011, p.2)). Another is of course flexible inflation targeting, which also leaves room for short-term output stabilization. There is no evident reason why in practice NGDP targeting will prove automatically superior to flexible inflation targeting in achieving output stabilization, within a general environment of macroeconomic stability.⁵

And it is quite likely that nominal income targeting could generate a range of operational problems in its implementation in South Africa (and largely elsewhere).

2.2 Operational difficulties

2.2.1 The target value

Nominal GDP growth is real GDP growth plus inflation. Transparent operation of an NGDP target would require publication of the central bank’s estimates of potential or long-term trend output growth; and justification for changes over time in this estimate. Changes in estimates of potential growth, due say to the impact of recession on use of labour and capital, might result in changes to the nominal income target to keep inflation expectations stable. Discrepancies between potential or trend output, used for monetary policy,

⁵From the theoretic viewpoint, it not clear that the implicit equal weighting to output and inflation, in NGDP targeting, is socially optimal. The potential proximity to theoretic optimality, in the sense of maximization of social welfare, of inflation targeting (compactly summarised by an interest rate rule obeying the Taylor principle) is well-established. See Hall and Mankiw (1994), Woodford (2003).

and government's growth targets, would pose challenges for articulation of the monetary policy stance.

Suppose the output growth target component (of the NGDP target) is set to match the highest rate of real output growth experienced recently whilst inflation was within the target range in South Africa: approximately 5.5%, between 2006 and 2007. Add the midpoint of the SARB's current inflation target range. This gives a nominal income growth target of 10%. For any real GDP growth rate at or below 4%, the implied inflation target will be at or above 6%. This poses an the further risk of a permanent increase in inflationary expectations.

Suppose instead the output growth component of the target is set at potential real output growth, say 3.5%, giving a nominal income growth target for South Africa of 8%. Once output growth reaches 5%, the implied inflation target will be at or below 3%, which may require severe policy tightening, threatening (and directly targeting) much needed employment creation – unless of course, the authorities revise the estimate of potential output and raise the target, which may again threaten credibility.

2.2.2 Real-time decision making with data uncertainty

Nominal income targeting will compound the real time difficulties faced by decision makers, due to data and model uncertainty.⁶ Inflation statistics are produced more frequently, and subject to less revision than national income statistics. Both the low frequency of national income statistics, and the frequency and scale of revisions, will complicate the real-time implementation of NGDP targeting. This problem might be reduced by choosing a different proxy of nominal income, one observed at a higher frequency, and subject to smaller revisions but it is not clear what this proxy should be. Moreover, and partly due to the above, forecasting nominal income growth in South Africa might prove to be more difficult than forecasting inflation.

⁶Such difficulties already complicate inflation targeting. Orphanides (2003) points to poor policy due largely to errors in estimating the output gap as an argument for nominal output targeting. However, Rudebusch (2002) compares the performance of nominal output targeting rules to a simple Taylor rule, allowing for real-time uncertainty about the output gap, and shows that the simple Taylor rule performs better, under various specifications for inflation.

2.2.3 Asynchronous monetary transmission lags

Real output tends to respond faster to monetary policy than inflation, especially if inflation expectations are largely driven by realized inflation. NGDP targeting implies responding equally to both and so ignores this difference in transmission lags.⁷

3 Limitations of inflation targeting

The recent interest in revisiting the monetary policy framework is partly due to the limitations of inflation targeting, some specific to emerging economies, others common to advanced and emerging economies. We turn to these next, and observe that there are no evident reasons to expect nominal income targeting to resolve them.

3.1 Capital flows and exchange rate volatility

International financial contagion appears to have become a permanent feature of the global landscape, especially since the Russian and Asian crises of the late 1990s. Many emerging market economies have responded to the challenge by adopting monetary policy approaches that focus on final rather than intermediate targets, inflation rather than exchange rates or money supply, and allowing exchange rates to adjust to the shocks. This partially insulates the real economy from the contagion, particularly where foreign currency liabilities are low. The exception to this is where inflation is concerned, and in a strict inflation targeting framework, volatile currency adjustment would have significant implications for policy. While flexible inflation forecast targeting allows the authorities to look through the first round of price pressures caused by a currency movement (e.g., Bernanke, Laubach, Mishkin and Posen (1999), Svensson (1999)), NGDP targeting may not have similar latitude. Depending on how (in)flexibly and forecast-driven an NGDP growth target can be pursued, NGDP targeting could require more forceful policy intervention to address inflation arising from currency volatility. In such a framework, a temporary deviation in inflation from the target could impact more on fundamentals and require larger policy reactions.

⁷Ball (1999) and Svensson (1999) show that if monetary policy affects real output faster than inflation, under adaptive expectations, NGDP targeting leads to instability - infinite variances for output and inflation. See also Rudebusch (2002).

Large capital inflows can also cause excessive currency appreciation, and in some economies at least, overheating and asset price bubbles. Under inflation targeting, the monetary authority may have to respond to overheating by increasing interest rates. But such action tends to attract further inflows. It is not clear how nominal income targeting will address this limitation of inflation targeting. As opposed to Turkey, Korea and Brazil for example, South Africa has not had an obvious problem of inflow-led overheating, although it has had symptoms of over valuation in the form of a large current account deficit.⁸

3.2 Financial stability and asset price bubbles

Another critique of inflation targeting is that policy-makers ignored and may have helped cause asset price bubbles, through overly accommodative monetary policy at a time of subdued inflation.⁹ It is not at all clear that NGDP targeting, per se, would prevent the build-up of asset price bubbles. There is a generally positive association between income growth and asset bubbles. But the increase in US nominal income was moderate during the technology-stocks bubble of the late 1990s, and the housing bubble leading to the 2007 crisis. The capitalization of the JSE has risen rapidly over the past few months, without a marked increase in nominal GDP.

Deviations of asset prices away from fundamentals are not necessarily a source of policy concern per se. The concern is their potential to cause financial instability (and of course, asset prices affect the monetary policy transmission, but this is irrespective of the existence of bubbles). Nominal income targeting will certainly not remove the need for policies for the maintenance of financial stability. These are complementary to either regime, inflation targeting or NGDP targeting. No monetary policy framework will, nor should be expected to, substitute for poor regulation, or poor enforcement of existing regulation.

⁸This is caused primarily by a combination of sustained public demand for imported capital goods, weaker export prices and volumes, and stronger net income payments in the current account.

⁹See Sumner (2012) and Frankel (2012a, 2012b).

3.3 Summary

In summary, NGDP targeting is not necessarily preferable to flexible inflation targeting for ensuring that economic growth is accounted for in monetary decision-making. NGDP is likely to pose a range of operational challenges. Perhaps most importantly, its benefit in permitting a more robust response to aggregate supply shocks can be at least partly and possibly wholly accommodated within the framework of flexible inflation targeting. Moreover, other limitations of inflation targeting are not addressed by NGDP targeting. The case for adopting the latter and abandoning the former seems weak.

Why then, the recent interest?

4 Recent upsurge in interest

4.1 Policy rates at the lower bound

Interest rates cannot be cut further in the main advanced economies, specifically in the United States, the European Union and Japan; yet economic activity remains subdued and unemployment high. For some advanced economies, especially the UK and in the European Union, inflation has remained relatively high and sticky. If inflation targeting prevents further monetary accommodation due to persistent inflation concerns, an alternative monetary policy regime may be required in order to restore pre-crisis aggregate income levels, relatively fast. Hence the current resurrection of nominal GDP targeting as a monetary policy framework.

Recent calls for either the adoption or tentative consideration of nominal GDP targeting include, from academia: Romer (2011), Krugman (2011), Frankel (2012a, 2012b), Woodford (tentatively) (2012); from financial sector institutions: Hatzius, Pandl, Philips, Stehn, Tilton, Wu and Acosta-Cruz (2011); and, with caveats, from policy makers: Carney (2011), Derviş (2012).¹⁰ The academic literature precedes the current policy discussions, and started at least in the 1980s.¹¹ The widespread adoption of inflation

¹⁰Mark Carney's comments generated substantial press and commentary (and some misquotes). These were exaggerated. His suggestion (subsequently reversed in favour of flexible inflation targeting), though perhaps ill-judged, was tentative; and far from an unqualified endorsement of NGDP targeting. See Carney (2011, p.6-7).

¹¹See for example Hall and Mankiw (1994), McCallum and Nelson (1999), Rudebusch (2002), and earlier references in Frankel (2012a, 2012b).

targeting over the past two decades or so put the topic to rest, until recently.

Many of the proposals are thin on detail, especially regarding operational issues, and leave many questions unanswered – regarding for example the need for complementary action to address impediments to long-term growth and employment outside the control of central banks.¹²

The case is made in some detail in a widely circulated paper by Goldman Sachs economists (Hatzius et al., 2011), which includes an attempt at simulating outcomes for the United States, with tentatively favourable outcomes.¹³ The authors assume policy credibility, and the channel of implementation is further quantitative easing, assumed effective.

These are two strong assumptions – especially from a policy-making perspective. In particular, the issue of credibility is critical to the efficacy of the approach and matters greatly in the transition from one framework to another. Assuming policy credibility means assuming that inflation and nominal GDP are anchored from the start and expectations align to the level of the target. Many of the early adopters of inflation targeting implemented the framework after some success in reducing inflation, and in demonstrating some capacity to meet the targets.¹⁴ Subsequent introduction of the inflation target helps anchor expectations, which in turn help maintain inflation close to target and minimized output costs of any further disinflation.

Assuming quantitative easing is effective in moving nominal GDP is similarly critical to the outcomes in Hatzius et al.(2011). In the US, asset purchases for quantitative easing are likely to have had a positive effect on nominal GDP, but this is not easy to judge. The US Federal Reserve spent 2.3 trillion US dollars buying fixed-income securities between late 2008 and mid-2011.¹⁵ The estimated cumulative total effect in the term structure was a reduction of between 80 and 120 basis points in ten-year government bond yields.¹⁶ Unemployment continued to increase through the period though, to about 9%. Of course, there is the inescapable counter-factual – we don't know how worse the problem would be without them. But there might be limits to the effectiveness of further quantitative easing – e.g., due to the

¹²El-Erian (2012), Dervis (2012), Velasco (2012), Goodhart, Baker, and Ashworth (2013), and the interview with Adair Turner in the Financial Times (2013).

¹³See also Rudebusch (2002).

¹⁴See Bernanke, Laubach, Mishkin and Posen (1999).

¹⁵Yellen (2013).

¹⁶See Bernanke (2012). The purchases are also very likely to have pushed stock market prices up.

composition of borrowing-led consumption.¹⁷

Hence, it is not obvious that the adoption of NGDP targeting will mimic the documented successes with the introduction of inflation targeting. If there is no compelling reason for the private sector to expect the monetary authority will succeed in meeting its nominal income target, interest rates cannot be reduced further, and the effectiveness of further quantitative easing and asset purchases (at the zero bound) becomes uncertain, then there is no evident operational channel or set of actions through which an NGDP target can be successfully met within a short to medium time horizon.

4.2 Commitment: resolving a time inconsistency problem

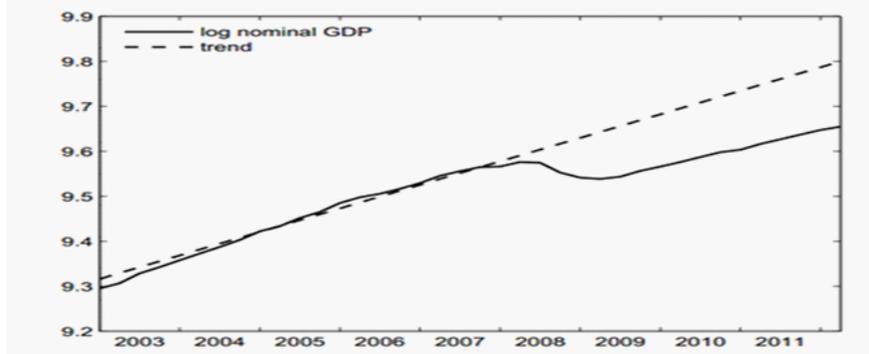
Arguably the most compelling recent case for nominal income (level) targeting is made by Woodford (2012), in the paper that formed the basis for his Jackson Hole presentation in late 2012. It is not claimed that NGDP targeting is an optimal framework (or necessarily better than inflation targeting), nor that it will restore pre-crisis output and/or employment levels with any immediacy. Rather, the point (which is also relevant for discussions on forward guidance) is the following. The US monetary authorities wish to stimulate the economy beyond what has been achieved so far, and given that nominal interest rates are already near zero. One way to do this, as proposed by Evans (2011), is to commit to keep interest rates very low, even once inflation and output rise. If this commitment is credible, long-term interest rates should, hopefully, also stay low (through current expectations of low future short-term rates), stimulating aggregate demand.¹⁸ Forward guidance, when credible, is designed to achieve this.

The problem is that the commitment might not be credible – what will happen once a recovery is under way, and forecast inflation passes the in-

¹⁷Monetary stimulus is general, yet some segments are disproportionately affected by credit booms and busts – e.g., construction, automobiles, and items that low income consumers can only afford by borrowing. These will not return to the pre-crisis bubble levels of activity soon. Some of the labour force in the most affected sectors and geographic areas will have to be absorbed elsewhere. These are supply-side adjustments which will take time. General stimulus to demand softens the pain and can shorten this adjustment period (when it does not lengthen it by helping sustain unviable businesses for too long), but cannot eliminate it. See Evans (2011) and Rajan (2013).

¹⁸Notice the reliance on an empirically fragile assumption about the term structure of interest rates.

Figure 1: Nominal Income in the United States (Woodford (2012))



flation target? In a recent speech, referring to forward guidance about a near-future path of low interest rates in the US, Bernanke (2012, p. 9-10) notes that “this guidance is not an unconditional promise; rather it is a statement about the FOMC’s collective judgement regarding the path of policy that is likely to prove appropriate, given the Committee’s objectives and its outlook for the economy.” Outlooks change. And which outlook might trigger a change in stance: the outlook for growth, for inflation, for the role of monetary policy? Bernanke’s position and policy credibility depends on the FOMC convincing the markets that the FOMC will believe the path will remain appropriate over time even if conditions change.¹⁹

This uncertainty might preclude the expansionary effect of the promise to keep rates low. Adopting a nominal income target, set at, say, a pre-crisis level, is a mechanism to turn that promise into a credible commitment. The channel through which the policy framework will affect output remains low or negative real interest rates; the nominal income target is a mechanism to “unblock” that channel.²⁰

South Africa would benefit from a similar measure, if it could restore the pre-crisis pace of growth and job creation. But it is not clear to what extent the impediments to domestic growth would be unblocked in this way. Nor is it clear that the loss of an anchor for moderately low inflation (a

¹⁹See also Yellen (2013).

²⁰It is not entirely clear whether the authority pursuing such a course of action could not, or should not, return to inflation targeting thereafter. Indeed, communication from the US Fed after September 2012 suggests some degree of temporary and implicit nominal income level targeting. See Yellen (2013).

distinct possibility if a similar measure were adopted in South Africa) would be consistent with stable long-term growth.

If our main concern, due to particular economic circumstances, is to provide sufficient support to economic growth, then maintaining a flexible inflation targeting framework should suffice. Flexibility of the framework to achieve that end might be enhanced by setting and moving the point target within the target range depending on forecast output growth or by setting a point target outright. These appear to be better options than adopting an NGDP target that increases the risk of inflation rising too far and becoming entrenched.

Several studies (e.g., Klein (2012), Kabundi and Schaling (2013)) have made the case that the SARB's implicit target has shifted up to the top of the current band in recent times, which suggests that in practice, an adjustment to the point target (within the official target band) has already occurred. But perhaps more importantly, it is not clear that South Africans should be indifferent to a nominal GDP composed of more inflation and less real growth than vice versa. One reason for this lack of indifference is the rigidity of prices in the South African economy, which suggests that prolonged deviations of inflation from a particular range will result in a permanent increase in inflation and future disinflation costs.

5 Concluding remarks and recommendations

Any defensible policy framework which may help stimulate growth and employment has to be given due consideration, especially in South Africa, given the painful scale and persistence of the unemployment problem. It is not however clear that abandoning a carefully managed flexible inflation targeting framework to adopt nominal income targeting would necessarily permit a closer alignment of monetary policy with employment creation; nor that it would represent a general improvement in the management of the South African economy.

Inflation targeting has limitations as a monetary policy framework, some specific to emerging economies, others common to advanced and emerging economies. Most of these limitations (e.g., preventing the build-up of asset price bubbles, managing capital flows, exchange rate volatility) are not resolved by changing the framework from inflation targeting to nominal GDP targeting. Moreover, abandoning one monetary policy regime for another,

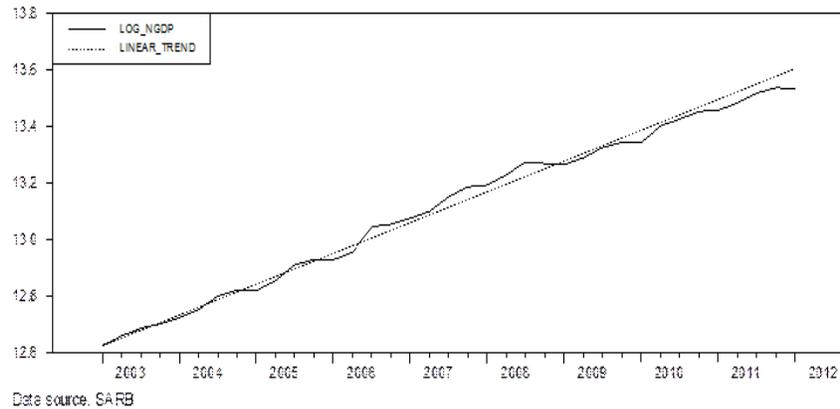
without sufficiently clear benefits from such a shift, is likely to increase perceptions of policy uncertainty, and reduce the credibility of the monetary authority. This will weaken the authorities' ability to pursue any coherent policy framework.

The attractions of NGDP targeting, relative to inflation targeting, are the automatic weight given to growth (for a low growth economy), and responsiveness to supply shocks. The clear operational disadvantages are many, as discussed in the paper. There are three reasons why, given its disadvantages, the advantages are not sufficiently compelling to justify a change in monetary policy framework in South Africa. First, the automatic weight given to growth is of course muted, if not inapplicable, when low growth is due to poor competitiveness, negative supply shocks, or weak productivity, rather than insufficient demand. Second, there is some scope for maintaining a credible inflation targeting regime (up to a point), with occasional misses due to unexpected supply shocks, if carefully articulated to the public – for example by excluding first-round effects of certain supply shocks from the measure of targeted inflation. Third, responding to supply shocks as well as promoting output growth can be at least partly accommodated within the flexible inflation targeting regime.

One scheme to accomplish this (i.e. responding to supply shocks and taking output growth into explicit consideration), using our relatively wide target range, would work as follows. The authorities aim to keep the inflation rate close to the midpoint of the target range as a long-term objective, or as a medium to long-term average; and vary the point target, whilst keeping it within the range, depending on deviations of output growth from an implicit target; and/or in response to supply shocks. Such a scheme is consistent with the policy stance (advocated for example in Evans (2011)) of keeping interest rates very low, for as long as output growth remains below some target, provided forecast inflation does not exceed the upper bound of the target range.

Observation of the SARB's MPC recent decisions suggests some proximity of actual decision-making to this scheme. So does observation of nominal income in South Africa (See Figure 2). There was a temporary halt in 2008. But it resumed the pre-crisis long-term path relatively rapidly. Flexible inflation targeting did not impede resumption of the long-term path of growth in nominal income; and this was achieved while preserving the inflation anchor.

Figure 2: Nominal Income in South Africa



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