

The SARB's pioneering experiment in nominal income targeting

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Abstract

The South African Reserve Bank (SARB) adopted a formal nominal anchor - in the form of a target range for broad money growth (M3) - on the recommendation of the De Kock Commission (1985). The episode is well known and regarded as one more example of the failure of broad money growth targets as an anchor for monetary policy. Here, as elsewhere, broad money targets proved impractical as a guide for the stance of monetary policy and were abandoned when Dr. Stals assumed the Governorship in August 1989.

But the actual experiment was more interesting. In this paper we show that the SARB implemented the first nominal income target in international experience instead of a broad money target from 1986 to 1989. When the SARB's target is understood as a nominal income target for this period, the evaluation of monetary policy from 1986 to 1989 is also more positive than previously held. We use evidence from SARB policy reports, from the De Kock Commission's report and the academic literature of the late seventies and eighties to show that the implementation of a nominal income target was a deliberate policy choice, not an ex post rationalization of failure with broad money targets. Macroeconomic data from the period is used to evaluate the nominal income target relative to the goals of: (i) successful disinflation, (ii) the stabilisation of output and inflation and (iii) transparency and accountability

The paper's contribution is three-fold: First, It provides a new interpretation of an important period in the history of monetary policy in South Africa. Second, the evaluation of the period's monetary policy is more favourable (especially given the economic and political background) than usually presented. Third, the paper provides a unique evaluation of a hitherto untested nominal anchor which has lately returned to the policy agenda.

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1. Introduction

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The collapse of the Bretton Woods system in the early 1970s marked the end of the post-War attempt to design a nominal anchor at the international level, through a planned system of fixed exchange rates and limits on capital flows (Rose 2007). The failure of this system caused much uncertainty for policy makers and central bankers as they grappled towards an alternative nominal anchor as the decade unfolded. These efforts were hampered by the difficult macroeconomic circumstances that followed the oil shocks and the slowdown in developed country productivity growth and, in most countries, the results in terms of macroeconomic stability were poor.

Arthur Burns captured the despondency associated with this poor policy performance poignantly in a lecture shortly after his retirement as chairperson of the Federal Reserve board.

In monetary policy central bankers have a potent means fostering stability of the general price level. By training, if not also by temperament, they are inclined to lay great stress on price stability, and their abhorrence of inflation is continually reinforced by contacts with one another and like-minded members of the private financial community. And yet, despite their antipathy to inflation and the powerful weapons they could wield against it, central bankers have failed so utterly in this mission in recent years. In this paradox lies the anguish of central banking (Burns 1979: 7).

One of the proposed solutions to this anguish of central banking was to design an explicit domestically based nominal anchor built around a relevant nominal target. Milton Friedman had long since advocated such a nominal target (e.g. Friedman 1959) and his proposal became a central element of the “monetarist” school in macroeconomics. But before Friedman there was an early experiment along similar with price-level targeting in Sweden during the 1930s (Berg and Jonung 1998), based on a much earlier proposal by Wicksell.

In his 1977 Nobel acceptance lecture James Meade (1978) proposed an alternative nominal anchor, based on a target for nominal income growth. The proposal soon generated a substantial literature and was much discussed internationally, including by the members of commission of enquiry, the so-called De Kock Commission (De Kock Commission 1978, De Kock Commission 1985) who investigated *inter alia*, a new nominal anchor for south African from august 1977 onwards.

In the wake of the international financial crisis, Meade’s proposal has resurfaced and received the support of prominent macroeconomists such as Jeffrey Frankel (2012, 2013), Simon Wren-Lewis (2013), Christina Romer (2011), and the Governor of the Bank of England, Mark Carney (Carney 2013), while more qualified and tentative support has been offered by Nobel laureate, Paul Krugman (2011), and leading monetary economist, Michael Woodford (2012). This renewed interest in nominal income targeting was specifically intended to improve on inflation targeting, the nominal anchor that

has come to dominate monetary policy internationally since the 1990s. Abandoning inflation targeting for a nominal income target was specifically considered in the South African literature by Hassan and Loewald (2013) and Du Plessis and Rietveld (2014), and in both cases rejected.

The recent proponents and critics of nominal income targets agree on one point though, i.e. that nominal income targeting has never been tried in practice (Bernanke, Laubach et al. 1999). It is the purpose of this paper to argue that there is at least one episode of nominal income targeting in modern economic history.

2. Nominal income targets and the De Kock Commission

Monetary policy in South Africa was in a state of flux during the 1970s. A number of exchange-rate based nominal anchors were tried (and failed) since the collapse of the Bretton Woods system. By the middle to late 1970s it was clear that responsibility had to be taken for a new monetary policy system and the De Kock Commission was appointed in 1977. Amongst its various recommendations the Commission argued for (i) an explicit nominal anchor and (ii) market oriented monetary policy (De Kock Commission 1985: 173 - 180).

A number of candidate nominal anchors were considered in this period, including: a nominal interest rate; an exchange rate; the growth of the money supply, inflation and the price level. But Friedman (1968) had already shown the weakness of an interest rate target by this time and collapse of the Bretton Woods system cast a shadow over the long-run suitability of an exchange rate target. A nominal anchor based on an inflation or a price level target was not seriously considered at this time either which left only Friedman's proposal for a monetary growth target, a system that had already been implemented with ostensible success by the German Bundesbank and the Swiss National Bank (Bernanke, Laubach et al. 1999).

It was at this point that James Meade (1978) proposed nominal income growth, or nominal GDP growth, as a rival nominal anchor for monetary policy. Meade used an early version of the "democratic deficit"³ argument to argue for a specific target for monetary policy in the form a target for nominal income growth (having rejected inflation targeting as an alternative). The case for a nominal income target was expanded by James Tobin (1980) who added the argument that a nominal income target would be a two-dimensional target for the substantive goals of stabilisation policy, i.e. inflation and

³ The democratic deficit of monetary policy refers to the tension which Freedman (1993: 92) described "...between the mechanisms needed to ensure the accountability of the central bank to government or parliament and the ability of the central bank to carry out its responsibility as an institution somewhat apart from government".

output stability. Such a two-dimensional goal would, Tobin argued, improve on (one-dimensional) money growth targets.

The merits of these two rival nominal anchors – money growth targets versus nominal income targets, soon generated a substantial literature⁴, including notable contributions by: Bean (1983), McCallum (1985), Hall (1986), and somewhat later Frankel and Chinn (1995). By the end of the 1980s a consensus had emerged on the (i) need for a nominal anchor in monetary policy and the strong case for (ii) a rules-based framework to implement the nominal anchor. And the disillusionment with the practical implementation of money growth target during the 1980s left the literature with what Hall and Mankiw called “...a reasonable professional consensus on the proposition that a good, if not precisely optimal, rule for monetary policy is to target nominal income” (Hall and Mankiw 1994: 77).

This debate unfolded during the long years of deliberation for the De Kock Commission. They published their final report in 1985 (De Kock Commission 1985) and included the recommendation for an explicit nominal anchor in the form of a target range for broad money growth (M3). Informed by the adverse experience of rigid money growth targets during the 1980s the Commission emphasised that these broad money targets for South Africa would be “low level” and implemented flexibly. Nevertheless, the announcement of this nominal anchor and the SARB’s intention to implement in raised considerable controversy.

3. Standard evaluation of the SARB’s broad money growth

The south African Reserve Bank (SARB), under the Governorship of Dr Gerhard de Kock, implemented the recommendation of a broad money growth target, starting in 1986 with a target range of 16-20%. Such a wide target range was meant to reflect the “flexible” approach to the nominal anchor mentioned above.

The histories of South African monetary policy in this period agree on the nature of the nominal anchor implemented by the SARB from 1986 onwards. For example Aron and Muellbauer (2007) describe the system as one where “Pre-announced monetary target ranges, which by then had already been abandoned by the UK and US, were used from 1986 for a broad definition of money (M3)”. Goedhuys’ (1994) early history of the period likewise aged that “The Reserve Bank chose M3, the

⁴ A separate debate from the specific nominal index that is targeted, considers whether the target should be specified in levels (e.g. the price level) or in rates of change (e.g. the inflation rate). Levels targets have the merit of (i) history dependence and (ii) in the theoretical models tend to dominate growth rate targets (Svensson 1999). Though level targets are usually preferred in the theoretical literature, we have little practical experience with them. This debate is not a part of the historical episode under discussion, but is part of the modern enthusiasm for nominal income targeting.

comprehensive aggregate, and defined the annual guideline as a three-months moving average within a tolerance range”. As a final example, two researchers at the SARB described the nominal anchor: “The strategy recommended by the De Kock Commission and followed by the South African Reserve Bank ... anchored monetary policy decisions to changes in the growth rate of the domestic M3 money supply” (Smal and De Jager 2001).

There is also consensus on the outcome of the experiment in the South African literature. Inflation was not stabilized during the years from 1986 to 1989, nor were target ranges for broad money growth reached. Small and de Jager (2001), for example, compared the actual M3 growth rates with the target ranges for the period to argue that the approach was ineffective both as a target for monetary growth and as an anchor for monetary policy.

4. Broad money targets as implemented by the SARB

While money growth targets and nominal income targets were the major rival nominal anchors in the literature of the 1980s, there are closely connected through one of the basic identities of macroeconomics, the equality of exchange (equation 1).

$$MV \equiv PY \tag{1}$$

Where:

M is the money stock

V is the velocity of money

P is the aggregate price level

Y is real income

The goal of stabilization policy is to stabilize nominal income (PY), which would be achieved when inflation is low and stable and real output remains close to potential output. To achieve this goal the policy maker could target nominal income directly. Alternatively, assuming that the velocity of money is fairly stable the policy maker could achieve the same result by targeting monetary growth. As Frankel and Chinn (1995) showed, the preference for a money target depends on a low variance for velocity, since the loss function under a nominal income (level) rule dominates the loss function under a money stock rule by a function of the variance of income velocity.

The De Kock Commission also considered the two rival nominal anchors, and they found in favour of broad money targets based on the following consideration:

[i]n recommending the setting of money supply targets, the Commission is in no way departing from its view that monetary policy operates mainly through its effects on aggregate monetary demand, i.e. the flow of actual spending. It merely accepts that aggregate demand as such does not lend itself to use as the intermediate target of monetary policy. On a practical level, reliable data concerning the strength of aggregate demand become available with too long a lag to allow effective countervailing action. On a more fundamental level, operating on the flow of spending (as measured by the product of the money supply and its velocity of circulation, MV) would not represent policy options to the monetary authorities that are not already contained in the alternative intermediate objectives available to them.

In other words, the Commission argued that there would be little gain from preferring nominal income (aggregate demand) as the nominal anchor and would present practical problems associated with data availability.

The SARB announced that it would implement the newly recommended nominal anchor starting with calendar year 1986 for which a target range was set at 16-20% for M3 growth. During this first year actual M3 growth fell considerably short of the target at 11%. When the SARB reported on the first year of the nominal anchor in its 1987 report, the Bank diverted attention away from M3 though and towards actual expenditure (another synonym for nominal income or aggregate demand). On pp 3 of the report the SARB wrote:

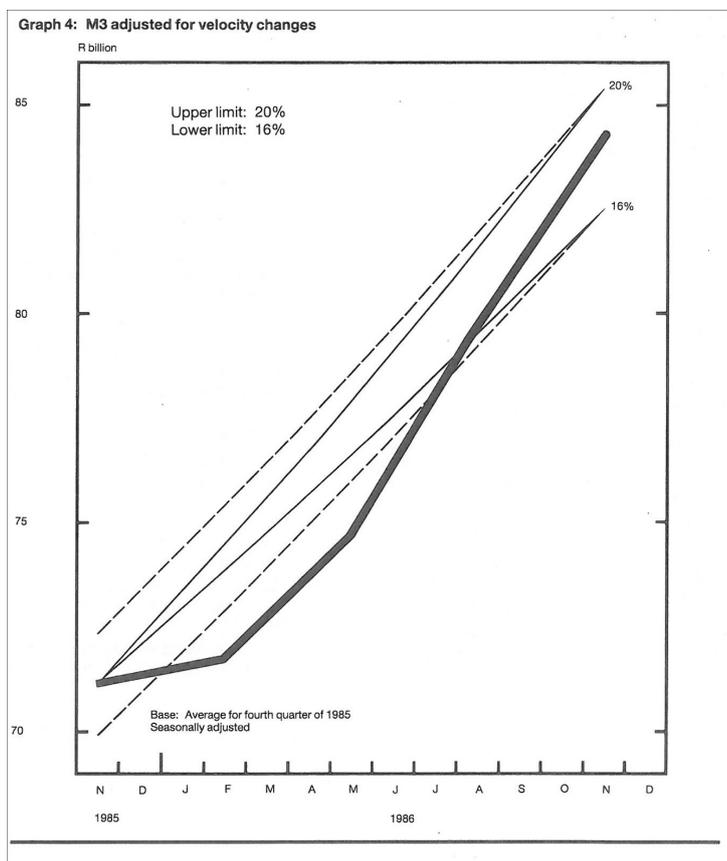
In considering whether policy adjustments are called for in such cases, the Bank will ...pay close attention to the behaviour of *actual expenditure* and output *thereby taking into account changes in the velocity of circulation of money* (pp. 3, our emphasis)

By taking into account the changes in the velocity of money in addition to the growth in broad money the SARB is in effect talking about the change in nominal income. This equality can be seen from equation 1 where the SARB analyses the behaviour in “actual expenditure PY” by adding to money growth changes in the velocity of circulation (MV). Further in the same report the SARB is explicit about this interpretation of their nominal anchor when it writes:

[t]otal spending and production responded favourably to these expansionary measures ... (and) ... the final outcome was an increase in nominal gross domestic product between the fourth quarter of 1985 and the fourth quarter of 1986 of 18,4 per cent ... this final outcome was most gratifying

In the SARB's evaluation, they attained their target in the first year. But the target was not for the growth in M, but the growth in M adjusted for changes in V, i.e. nominal income (PY). To make this interpretation clear the SARB published two graphs with the same data, but with different legends on the y-axis. These graphs are included here as figures 1 and 2.

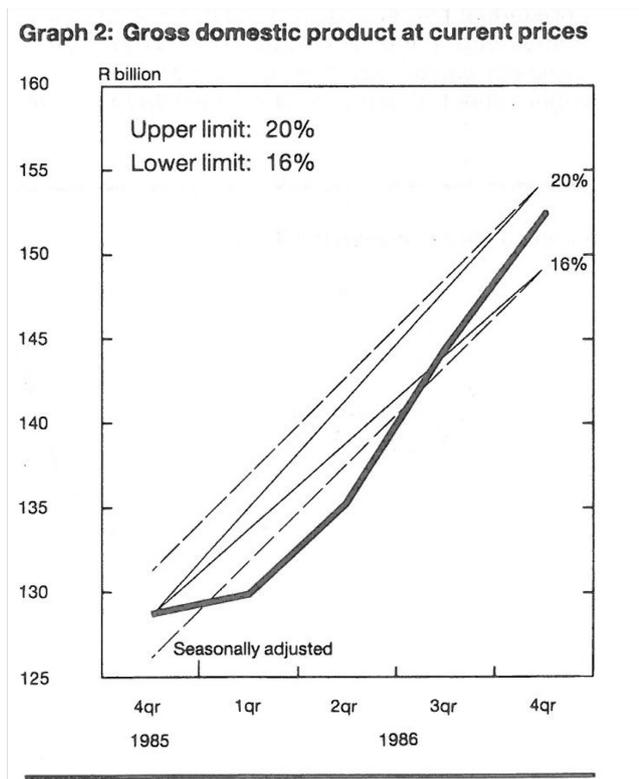
Figure 1 Money growth adjusted for changes in velocity during 1986



Source: SARB report 1987

These figures are identical. In once case the SARB showed the growth in MV compared with the target range for 1986 and in the other it shows the growth in nominal GDP (or PY) compared with the same target. From the SARB's perspective the result was "most gratifying". These figures were included in the subsequent reports until 1989.

Figure 2 Nominal income growth during 1986



The 1987 target range was lower; set at 14-18%. While M3 growth fell within this band at 15.5% the SARB continued in the 1988 report on the previous year's policy with the following analysis:

[T]he result was that effective broad money supply or MV, i.e. M3 *adjusted for changes in its velocity of circulation*, increased by 16.1% over this period, which was virtually in the middle of the targeted range for M3 (pp. 5, emphasis in the original)

Along the same lines the 1989 report mentioned that:

[T]he effective broad money supply or MV, i.e. M3 adjusted for changes in its velocity of circulation, increased by only 17,3 per cent over this period, compared with 26,5 per cent for the unadjusted M3. By definition this increase of 17,3 per cent is, of course, also the equivalent of the rate of increase of nominal gross domestic product over this period (pp. 5)

Of further interest in the 1989 report is the explicit discussion of their preference for MV as the actual nominal anchor for monetary policy.

[T]he argument has been put forward that since the Reserve Bank sets a target range for M3 it should not subsequently adjust this monetary aggregate for changes in the velocity of circulation in order to calculate the effective broad money supply....*the Reserve Bank rejects this view out of hand...* the Bank is more interested in the *actual spending of money than in the money supply itself...*This in no way implies any weakening of the resolve of the monetary authorities to control the *growth of the effective money supply* as the principal means of reducing inflation" (1989 report, pp. 7-8, our emphasis)

In this last report before Dr de Kock's untimely death the SARB arrives at a clear statement of its nominal anchor, i.e.:

1. The target variable is the "effective money supply" (or MV), which they also call the "actual spending of money" (or PY).
2. This nominal target was regarded as the "principal means of reducing inflation".

4. Evaluation of the SARB's nominal income target

To evaluate the SARB's nominal income (or effective money) target we must address two questions. The first is whether this was just a (perhaps) cynical attempt by the SARB to re-interpret a failed money growth target in terms that were more favourable.

From the literature, e.g. Frankel and Chinn (1995), it is well known that money targets will perform poorly when velocity is unstable. The classic interpretation of the failed monetary growth experiments of the 1980s is that the apparently stable velocity of money became unstable precisely when the central banks tried to exploit that stability of velocity. Goodhart's law – the claim that empirical regularities in economics will often break down when policy makers try to exploit them – was inspired by this very example.

Perhaps, then, the SARB's re-interpretation of the broad money target is just an example of side-stepping Goodhart's Law. This claim is easily testable though, by calculating the velocity of money during different monetary policy regimes in recent South African history. Figure 3 shows the comparative outcomes of the ratio of the standard deviation of M3 Velocity to the average value of M3 velocity in each period. It is clear that unstable velocity could not have been the motivation for the SARB's interpretation of its nominal anchor.

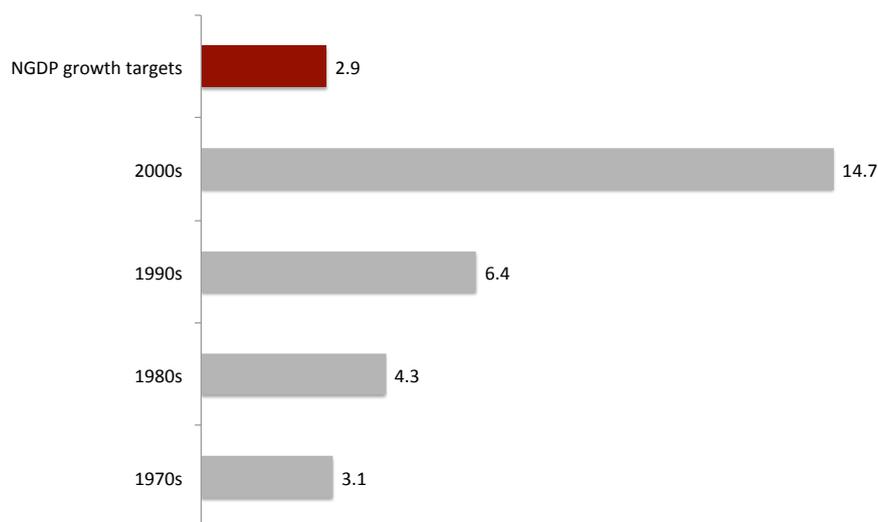
This brings us to the second task in the evaluation of the SARB's nominal income target, i.e. a comparison to relevant criteria of good performance for a nominal anchor. The period of evaluation will be 1986Q1 until 1989Q2. The proposed criteria are:

1. Accuracy
2. Successful disinflation
3. Stabilisation (output and inflation)
4. Transparency and Accountability

When the nominal income is compared with other monetary policy regimes in South African since 1980 we will use the following list:

1. Early float: 1980:Q1 until 1985:Q4
2. NGDP target: 1986:Q1 until 1989:Q2
3. Eclectic inflation target: 1989:Q3 until 1999:Q4
4. Inflation target: 2000:Q1 onwards

Figure 3 M3 velocity under different monetary policy regimes in South Africa



Where accuracy is concerned, table 1 reports on the target ranges and outcomes for the period of evaluation. The SARB's nominal income targeting was remarkably accurate in comparison with the SARB's inflation targeting system as well as the broader international experience.

Table 1 Outcomes versus targets

Year	Target	NGDP outcome
1986	16-20%	18.4%
1987	14-18%	16.1%
1988	12-16%	17.1%
1989	14-18%	14.5%

On the criterion of disinflation we compare the experience under different regimes in table 2.

Table 3 *Disinflation under different regimes*

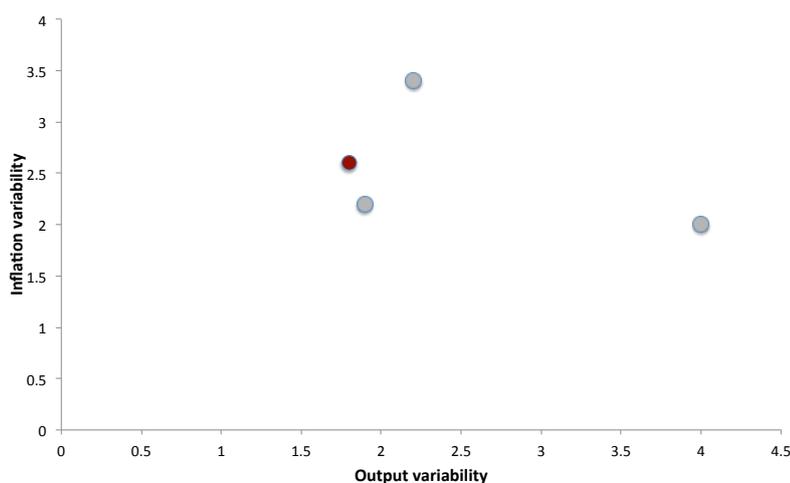
Nominal anchor	Average (CPI) inflation rate	Extent of disinflation*
Early float	14%	-3%
NGDP target	15.7%	3.5%
Eclectic inflation target	10.4%	5.9%
Inflation target	6.4%	1.2%

*Average inflation in the year preceding the anchor minus the average inflation in the last year of the anchor

From the data in table 3 it is evident that disinflation did occur during the nominal income target, though admittedly from a very high base.

Where stabilisation is concerned the question is how successfully macro stability was achieved under different policy regimes. Figure 4 provides a graphical answer with a cross plot of the standard deviations of real output growth and inflation by monetary policy regime.

Figure 4 Macro stability under different monetary policy regimes



Finally, on the goal of transparency the nominal income regime score very low on account of the considerable misunderstanding it caused at the time and still causes.

5. Conclusion

The lesson we draw from this evaluation are:

1. The SARB had a fair amount of success in hitting their nominal GDP targets
2. The stabilisation outcome was reasonably good (in a difficult period)

However, despite these successes:

1. The nominal income target target did not anchor inflation expectations credibly
2. On the contrary, the targets were adjusted to meet the still unanchored inflation expectations
3. The SARB struggled with the challenge of formulating an appropriate real growth target to accompany the inflation target

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