



Monetary policy and heterogeneous inflation expectations in South Africa[☆]



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ABSTRACT

This paper examines the relationship between inflation and inflation expectations of analysts, business, and trade unions in South Africa during the inflation targeting (IT) regime. We consider inflation expectations based on the Bureau of Economic Research (BER) quarterly survey observed from 2000Q1 to 2013Q1. We estimate inflation expectations of individual agents as the weighted average of lagged inflation and the inflation target. The results indicate that expectations are heterogeneous across agents. Expectations of price setters (business and unions) are closely related to each other and are higher than the upper bound of the official target band, while expectations of analysts are within the target band. In addition, expectations of price setters are somewhat related to lagged inflation and the opposite is true for analysts. The results reveal that the SARB has successfully anchored expectations of analysts but that price setters have not sufficiently used the focal point implicit in the inflation targeting regime. The implication is that the SARB may be pushed to accommodate private agents' expectations.

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1. Introduction

Prior to the recent financial crisis, many countries – advanced and emerging market economies – have adopted inflation targeting (IT) as a monetary policy strategy to address the breakdown of the relationship between money growth rates and inflation (New Zealand, Canada and South Africa), or the disappointment following the use of exchange rates as an intermediate target (United Kingdom, Sweden and Finland). Most of these countries experienced a sharp decline in inflation right after the adoption of IT. The success of IT is attributed to, among others, the ability of central banks to anchor expectations of agents around its set targets (see Demertzis and Viegi, 2008). To achieve this objective, the central bank should clearly communicate its policy and should aim at further increasing its credibility. It is only in such an environment that the public would believe that the central bank is resolute in steering inflation toward the official target. Then inflation expectations will also converge to the official target and are likely to remain unchanged even in the presence of negative supply shocks such as rise

in oil or food prices. In this instance, the public is convinced that the central bank will act to bring back inflation within the established target band. In that case inflation expectations will be tied closely to the target and the associated output cost of the disinflation will be lower. It is therefore crucial to analyse expectations formation of agents in an IT regime and determine the credibility of monetary policy.

Many studies have focused on the success of monetary policy in South Africa in curbing inflation in the IT era. For example, Gupta et al. (2010), Kabundi and Ngwenya (2011), Gumata et al. (2013), and Aron and Muellbauer (2007) found that the South African Reserve Bank (SARB) has been successful in decreasing inflation in the IT regime compared to pre-IT periods. The SARB has achieved single-digit inflation for more than a decade, even though there were two instances (2002 and 2008) where inflation has risen to more than 10% due to the depreciation of the Rand and a rise in food prices. Notice that in these two instances inflation has stayed above the upper bound of the target band for less than three years. However, all the aforementioned studies are silent about the role played by expectations in the IT regime, and whether this success was a result of the ability of the SARB in anchoring expectations within the target band.

The following questions are crucial in determining the role played by expectations: (i) How does the SARB shape expectations of agents? (ii) Are these expectations homogeneous? (iii) Are perceived targets of agents consistent with its objective? (iv) What explains the upward bias of inflation toward the upper bound of the target band? Kabundi and Shaling (2013, henceforth KS) attempt to answer these questions

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using a simple macroeconomic model which estimates inflation expectations as a linear function of inflation target and lagged inflation. They use aggregate (macroeconomic) inflation expectations obtained from the quarterly survey conducted by the Bureau of Economic Research (BER). Their results indicate that expectations formation of agents is backward-looking and that the implicit target of agents lies above the target band of 3 to 6%. This suggests that their expectations were not properly anchored. However, KS results can be somewhat misleading for two reasons. First, they assume that economic agents in South Africa are homogeneous. Aron and Muellbauer (2007) and Reid (2012), using the BER survey expectations and expectations obtained from Reuters, show that expectations of agents in South Africa are heterogeneous. The expectations of analysts adjust quickly to the official target band, while expectations of price setters (business and trade unions) adjust slowly. In general, price setters are somewhat backward-looking owing to the fact that wage setting in South Africa is backward-looking (Aron et al., 2004). Wage negotiation takes into account past inflation instead of future path in inflation. According to Aron and Muellbauer (2007), expectations of price setters eventually converge to those of analysts within the target band. They conclude that the SARB has been able to anchor expectations of all agents. Nevertheless, their study covers the sample period from 1994 to 2004, which misses important dynamics in inflation, such as the rise of 2008 due to exogenous shocks. Second, they work with current-year expectations.

In this paper we extend the KS analysis and decompose aggregate inflation expectations into individual expectations of three types of agents; businesses, trade unions and financial analysts. We use one-year and two-year ahead inflation expectations and a simple macroeconomic model with three key equations, namely, aggregate supply, monetary policy preferences, and inflation expectations. The expectations equation is estimated with a panel-data regression with fixed-effects approach where expectations of agents are linear functions of the inflation target and lagged inflation. The setting is appropriate to deal with heterogeneity observed in the intercepts and slopes, which in turn enables us to answer some key questions in determining the role of inflation expectations in the conduct of IT in South Africa. Those questions are: (i) Are inflation expectations different across agents (business, trade unions and analysts)? and (ii) To what extent do potentially diverging inflation expectations imply different perceptions of the credibility of South Africa's IT framework? The second question is important as a regime that is perceived as non-credible, say, by unions has different policy implications for the SARB than lack of buy-in from analysts. We also address the possible dilemma faced by a central bank that is confronted with non-anchored inflation expectations. Should it accommodate those or not? This is known in the literature as the *expectations trap*. We discuss this issue in the context of our model and suggest a way out.

The remainder of the paper is organized as follows. Section 2 presents an overview of the relationship between inflation and inflation expectations for the aggregate and each individual agent. It is based on graphical representation of these variables. Section 3 presents the model. We describe the data, their transformation and the estimation of the model in Section 4. We discuss anchoring of expectations by the SARB and an analysis of the heterogeneity of expectations in Section 5. Section 6 concludes the paper.

2. Inflation and inflation expectations in South Africa: an overview

Monetary authorities care about inflation expectations because realized inflation itself is partially driven by the public's expectations about future inflation. One channel is that nominal wages are partially set based on expected inflation. Inflation targeting was pioneered in New Zealand in 1990, and is now also in use by the central banks in the United Kingdom, Canada, Australia, South Korea, Egypt, South Africa, Iceland and Brazil, among other countries. The success of the regime depends largely on the behaviour of the public's inflation expectations. If inflation expectations are equal to a point target or within the

targeting band set by the central bank, the monetary policy regime is perfectly credible. But if the target or band – and thereby the IT framework – is imperfectly credible, long-term inflation expectations will be volatile and transitory shocks to inflation will also have an impact on inflation expectations. In a perfectly credible IT framework, long-term inflation expectations should be flat and tied to the central bank's inflation target level, or at least fluctuate inside the target band. In that case any adverse supply shock which increases the current inflation rate would have little effect on long-term inflation expectations because the public – and thereby wage setters – have confidence in the ability of the central bank to bring down inflation back to the target level – or into the band – over a certain time horizon, where the latter depends to what extent the central bank engages in flexible inflation targeting (this term was introduced by Svensson (1999)). It then appears that the presence of a strong correlation between long-term inflation expectations and the realized inflation rate is a sign of a lack of credibility of the IT regime. The latter is in line with the theoretical model put forward by King (1996). He emphasises the role of learning by the private sector and shows how the optimal speed of disinflation depends crucially on whether the private sector immediately believes in the new low inflation regime or not. If they do, the best strategy is to disinflate quickly, since the output costs are zero. If expectations are slower to adapt, disinflation should be more gradual as well. Learning by the central bank is addressed by Sargent (1999). He analyses how policy makers in the US after World War II learned to believe and act upon a version of the natural rate unemployment rate hypothesis and creates an econometric model of an adaptive monetary policy that can produce outcomes persistently better than the time-consistent one predicted by Kydland and Prescott (1977).

As common in countries who have adopted an IT framework, the SARB conducts a quarterly survey on inflation expectations to guide its policy. Fig. 1 plots the BER inflation expectations at different horizons along with the realized CPI inflation (year-on-year change) from 2000Q3 to 2012Q3. Clearly, inflation has fluctuated a lot in 2000Q3–2009Q3 with two big negative shocks in 2002Q4 (due to massive depreciation of the South African rand) and 2008Q3 (due to increase in global food price coupled with a rise in oil price and another depreciation of the South African rand) and a positive shock in 2004Q1 (an appreciation of the rand) before stabilising near the upper bound of the target (6%) during the financial crisis. Below we will look at inflation expectations of different agents, for now we look at the average across agents. Average inflation expectations series closely tracked actual inflation – seemingly with a lag – in 2000Q3–2009Q3 especially in periods when inflation exceeded the upper bound of the band. This suggests that during this period the shocks discussed above that increased inflation also drove up inflation expectations. Thus, from this graphical inspection, it seems that most of the time the Reserve Bank's monetary policy hardly anchors inflation expectations. However, after the financial crisis both inflation and inflation expectations have converged to the upper

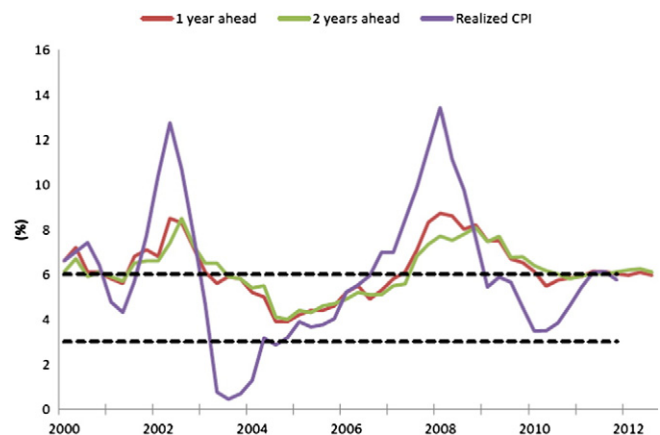


Fig. 1. Inflation and inflation expectations: aggregate.

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