Inflation mechanisms, expectations and monetary policy

South African Reserve Bank

Abstract

This note identifies supply factors, particularly the exchange rate, as key drivers of inflation in South Africa. Demand factors play a negligible role, with a flat Phillips curve apparent since the inception of the country's inflation targeting regime. The Phillips curve flattened further with the Global Financial Crisis, which suggests that inflation is now even less responsive to demand factors. In addition, the note discusses the adaptive nature of the inflation expectations of price setters, which have eventually become well anchored towards the end of the sample, albeit at the upper bound of the official target band.

Keywords: Inflation, exchange rate pass-through, inflation expectations, Phillips curve

JEL classification: E31, E52, E58

South Africa follows a flexible inflation targeting (IT) monetary policy framework, with a dual mandate for price and financial stability in the interests of sustainable and balanced economic growth. As emerging market economies such as South Africa are largely dependent on imported capital goods to drive investment, inflation measurement is particularly affected by such economies' vulnerability to large exchange rate movements. Thus, the high level of dependency on imported goods feeds through to domestic price formation processes.

The SARB's target measure of inflation is the monthly consumer price index (CPI) for all urban areas, which covers price changes in all of the major metropolitan areas as well as the largest towns in each of the nine provinces of South Africa. Although the quarterly GDP deflator is an alternative measure of inflation, it reflects the prices of domestically produced goods only. The CPI basket includes prices of imported goods, which also play an essential role in the inflation process in an open emerging market economy such as South Africa. In addition, the quarterly frequency of the GDP deflator, together with its more volatile nature (relative to CPI), limits its suitability for monetary policy purposes since it would inter alia complicate the communication surrounding the inflation process and developments. Since the target measure of inflation is the CPI, the SARB, in the main, focuses most of its attention on analysing changes in the CPI.

In addition to the headline CPI, Statistics South Africa also publishes a number of underlying measures of inflation, with the SARB's preferred underlying measure for analytical purposes being the headline CPI excluding food and non-alcoholic beverages (with a weight of 15.41%), petrol (with a weight of 5.68%) and electricity (with a weight of 4.13%). Administered prices (with a weight of 18.48% in the CPI basket) play an important role in overall CPI inflation outcomes in South Africa. Administered price inflation has generally been above overall CPI inflation in South Africa, thus adding to overall inflationary pressures in the economy. Exacerbated by a fairly rigid labour market (despite a persistent high unemployment rate), administered price inflation has on numerous occasions been advanced as one of the reasons for elevated wage demands in recent years, which in turn have added to inflationary pressures.

South Africa has a fairly large informal sector, employing about 2.7 million people. However, the purchasing power of the informal sector is fairly small, implying that the informal sector's influence on the CPI weights is relatively small. Statistics South Africa does survey prices at some informal traders in metropolitan areas, with the main products being sold by these informal traders being food products and second-hand clothing. Subsidised municipal services in large parts of the country could complicate the measurement of inflation and lead to a distortion in relative prices. Those consumers not subject to these fast-rising administered prices can more easily divert their spending power towards other goods and services, impacting demand and supply equilibrium in factor and product markets.

South Africa's high unemployment rate (25.5%) has led to continued urbanisation. Although urbanisation drives up land values in metropolitan areas, house and land price inflation is not directly captured in the CPI. The CPI measures actual rental prices (with a weight of 4.76%) as well as owners' equivalent rent (with a weight of 11.42%). The higher weighting allocated to owners' equivalent rent reflects South Africans' traditional preference of home ownership to renting. However, three of the largest South African commercial banks do compile independent house price indices, which are monitored by the SARB.

Since the adoption of the IT framework, the SARB has largely left the domestic currency to float freely. The flexible exchange rate regime has contributed towards the increased volatility of the rand owing to the fact that South Africa is a small and open economy. The rand has been responsive to both domestic and external shocks and in some regards also acts as a shock absorber. As in most emerging market economies, the exchange rate is one of the key drivers of inflation in South Africa. The transmission mechanism operates through import prices. Hence, the magnitude and the speed of the transmission depends largely on the first-stage and the second-stage pass-through. The first-stage pass-through refers to the impact of exchange rate movement on import prices, while the second-stage pass-through points subsequently to the effects of the latter prices on overall consumer prices.

Studies show that both the first-stage and the second-stage pass-through change over time. First, from 2000 to 2009, the long-term first-stage pass-through was almost complete, at around 90%.[1] The pass-through has dropped sharply since the financial crisis, reaching a minimum of 63% in 2011, before rebounding to 70% in 2014. The decline in the first-stage pass-through is mainly attributed to the weakness in global demand coupled with the decline in energy and global food prices. Second, the second-stage effects have plummeted since the adoption of the IT regime to a long-term level of 21%. It is worth mentioning that the second-stage pass-through depends largely on the state the economy. It increased, from 19% to 33%, during the boom phase between 2004 and 2007, and then declined marginally to 31%. It would appear that firms are reluctant to pass the cost on to consumers when the economy contracts, and prefer reducing their margins. This is in line with the recent observation that the massive depreciation of the rand has not translated into higher inflation. Currently, the overall pass-through to the CPI in the short term is estimated at 10%.

It is evident from surveys that the inflation expectations of economic agents are heterogeneous, with the expectations of financial analysts being well anchored within the official target band but those of price setters (trade unions and businesses) at levels slightly above the upper bound of the target band. Note that the expectations of price setters are the most relevant for policymakers because they influence inflation directly. There is a strong positive relationship between the expectations of trade unions and those of businesses. The two series depict a correlation coefficient of 95%. This relationship is expected since firms form their expectations based on information revealed by wage setters on the future path of wage inflation.

To reduce inflation to a level consistent with the monetary policy objective, ie within the band of 3–6%, the SARB should aim to favourably influence the expectations of trade unions or the perceived target of this group to fall within the official target band in order to ensure that realised inflation converges to within the official target band. In such an environment the expectations should be flat or, in other words, they should not react to small shocks to realised inflation.

The expectations of wage setters closely follow inflation outcomes with a lag. This implies that wage setters may not always be primarily influenced by the central bank's objective, but rather they are likely to react to shocks on realised inflation. These agents are somewhat backward-looking and their perceived inflation targets are above the SARB's official target. In addition, the relationship between actual

[1] The pass-through was estimated using the mark-up model (see Kabundi, A and Mbelu, A (2016). "Has the Exchange Rate Pass-Through changed in South Africa?" forthcoming South African Reserve Bank Working Paper).

inflation and inflation expectations seem to be asymmetric. Expectations tend to rise rapidly with an increase in actual inflation, but display downward rigidity. The downward rigidity is evident in Q4 2002 following a sharp decline in actual inflation. The same pattern is observed in Q3 2008 when inflation plunged after the Great Recession, whereas expectations declined slowly and remained high and close to the upper bound of the target. The credibility of the central bank is enhanced when the perceived target of price setters is in line with its objectives.

This un-anchoring of expectations can be attributed to the expectation trap hypothesis, where trade unions are leaders in a strategic game that develops with the central bank. They determine wages with little consideration of the objective set by the central bank and with the view that they will not get punished with higher interest rates. Instead, they expect that the central bank will accommodate their demand for higher wages due to its fears of causing a recession. This finding is somewhat confirmed by the absence of a correlation between wage inflation and employment. When faced with higher inflation, the central bank increases interest rates, which slows economic activity and hence reduces demand for higher wages. However, the second transmission channel, ie from employment to wages, seems very weak in South Africa. This lack of a relationship is due to wage rigidity and an inflexible labour market. The trade unions demand wages that are often substantially above the actual inflation rate and not always consistent with productivity. Unfortunately, their demands are usually met. In such an environment, inflation is likely to exceed the central bank objective. Reducing inflation to a level consistent with the official target would first require a very conservative central bank, involving the risk of considerable output loss. Second, it would entail a more flexible labour market and less powerful labour unions.

The backward-looking behaviour of price setters in turn translates into high inflation persistence. This tendency is observed in the data from 2002 to 2007 with a persistence coefficient of 0.86.[2] This coefficient has declined considerably since the financial crisis, reaching 0.66 in 2013, due partly to a rise in the credibility of monetary policy and also to positive supply shocks such as declines in the price of oil and international food prices. Interestingly, the decline in inflation persistence coincided with the period where all inflation expectations were stable around the upper bound of the official target band.

In South Africa, demand factors have not always been key determinants of inflation dynamics. This implies a flat Phillips curve. Nevertheless it is worth mentioning that the relationship between the inflation gap and the unemployment gap is not constant, but changes with the business cycle. In the boom phase, the expansion of economic activity exerts pressure on domestic prices. For example, the slope of the Phillips curve increased moderately, from 0.16 in 1996 to 0.19 in 2002. It then jumped to 0.27 in 2003 and remained constant until 2008. And finally, it declined slightly to the current level of 0.25. The implication for disinflation policy is that the sacrifice ratio, which captures the increase in unemployment above the natural rate due to each percentage point decline in inflation, is increasing. This suggests that the SARB should focus on anchoring inflation expectations rather than seek to exploit any trade-off between inflation and unemployment.

[2] See Kabundi, A, Schaling, E, and Some, M (2016): "Estimating a Time-Varying Phillips Curve for South Africa," South African Reserve Bank Working Paper 1605.