The Strategic Implication of Monetary Control: An Empirical Investigation of the Indian Economy

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Main Conclusion:

The research shows that inflation in India is correlated to major economic variables which can be adjusted to targeted inflation while adopting a flexible and dynamic strategic policy framework.

Key Points:

- This paper investigates the strategic implication of Inflation Targeting Framework for an emerging economy—India
- The paper empirically shows the relationship between monetary aggregates and inflation; and how these aggregates can be adjusted to target inflation at a projected level
- The paper highlights a need for a dynamic and flexible strategic approach for a diverse economy

Implication of Monetary Control in Indian Economy

Abstract

Emerging economies have struggled hard to keep inflation low at the same time as facilitating high economic growth. These economies always attempt to execute strategic policy framework to curb inflation which in-turn affect the growth rate. This paper attempts to provide an overview of a monetary policy measure known as 'Inflation Targeting Framework' to target inflation at a projected level by manipulating other macroeconomic variables. The focus of the paper is to study inflationary situation in a vast and diverse emerging economy—India. Some parts of India are very affluent while others lack the basic amenities. This study, therefore, explores the implications of a strategic framework that is dynamic and flexible in nature and can be implemented with ease. The study empirically investigates the relationship between inflation and major economic aggregates. The findings show that inflation is highly correlated with interest rates, money supply, and real effective exchange rates. Thus, these variables can be adjusted to target inflation at a projected level. The outcome of this paper also provides suggestions for the implementation of a phase-wise flexible strategic policy framework.

Keywords: inflation targeting, emerging economy, strategic policy framework, monetary control

1. Introduction

In the current turbulent economic environment, countries across the globe are seeking ways to sustain a stable growth path. The monetary authorities try to execute strategies and follow policies that can sustain low inflation along with high economic growth. Economists, policymakers, bankers, and critics are continuously highlighting the costs associated with high and varying inflation. Some of the detrimental affects of varying inflation are: uncertainty for future profitability of any investment project, loss of country's international competitiveness by making exports relatively expensive, and distortion of borrowing and lending decisions. However, the monetary authorities of the emerging BRIC (Brazil, Russia, India, and China) economies continue to promote growth despite the threat of high inflation that will ultimately adversely impact their economic growth (Mallick and Sousa, 2012). Due to their low starting base, such economies continue to require a high level of public investment in infrastructure. Ensuring that this investment is in line with the economic needs of the country is critical at their stage of development.

This requires that countries put in place a carefully crafted economic strategy to ensure high growth without attendant high levels of inflation.

One measure that became popular in 1990s is known as ‘Inflation Targeting Framework’ and was adopted by many countries including the United Kingdom as a policy to control inflation and consequently helped them to control other economic indicators (Debelle et al., 1998). Similarly, countries like New Zealand, Canada, Sweden, Australia, and the Czech Republic adopted an inflation-targeting regime to stabilize economic disorder (Martínez, 2008; Bernanke and Mishkin, 1997). The objective of the central banks of these countries focussed more on attaining monetary stabilization, with inflation used as a monetary instrument to control all other economic variables.

Although inflation-targeting has been adopted by many countries, its approach has been customized in many ways (Bernanke and Mishkin, 1997). Since countries often differ in their stage of development, the strategy adopted by one country may not be appropriate for other countries. Therefore, some countries adopted an approach of a definite numerical value for inflation targeting; some adopted a range within which it should lie; while others specified its target for specific time horizon (Kim and Park, 2006; Svensson, 1997). Initially the announcement of inflation-targeting allows a gradual transition phase to the desired level of target. This regime has many properties of targeting inflation like fixed quantitative inflation target or explicit tolerance intervals around the inflation target. Interestingly such countries rarely have an intermediate target of money growth or exchange rate being adopted by the country following inflation targeting. However, Leiderman and Svensson (1995) argued that the intermediate targets are not inconsistent with an inflation target as long as the inflation target has priority if a conflict arises.

One of the important features of inflation targeting includes increased communication and transparency with the public about the plans and objectives of the policy makers around inflation targeting. This allows central banks to have increased power and accountability for attaining inflation

objectives. In most cases central banks publish periodic reports giving a detailed assessment of the inflationary situation in the country. Another major feature associated with inflation targeting is that inflation becomes the goal variable for the central banks, thus keeping exchange rate or any other variable as a secondary focus. This primarily means that in the case of conflict, inflation stability becomes a priority for the central bank or the government automatically. Furthermore, inflation-targeting as described by many economists contains a considerable degree of 'policy discretion' (Sherwin, 2000). Within the constraint imposed by medium-to-long-term inflation targets, central banks have considerable scope to respond to prevailing scenarios like unemployment, exchange rate, and interest rate (Bernanke and Mishkin, 1997).

Though adopted by many countries, research shows that inflation targeting faces some serious problems with regard to implementation and monitoring across countries as central banks have imperfect control over inflation (Svensson, 1997). Also, inflation is affected by many external disturbances that occur within the 'control lag' which makes monitoring and evaluation of monetary policy inherently difficult. For instance, with a control lag of 1.5-2 years, it appears that current monetary policy cannot be assessed until realized inflation has been observed 1.5-2 years later. Thus, measuring monetary policy performance is not straightforward. A central bank may argue that a particular deviation of realized inflation from the inflation target is due to factors outside its control, and that it should therefore not be held accountable for the deviation. Though, a study of each and every factor affecting inflation is beyond the scope of this study, this research will focus on a small number of monetary aggregates that appear to affect inflation.

This paper will look at the economic scenario of one of the emerging countries—India—and attempt to investigate if targeting or controlling of inflation could be a strategy to recommend for such a diverse country. Much research has been done recently on the feasibility of adoption of inflation targeting in India. However, research exploring potential impact of controlling inflation on other macroeconomic variables by looking at the extent to which

these variables affect inflation and vice versa is limited. This paper, therefore, attempts to fill this research gap and aims to empirically investigate the relationship between inflation and other monetary aggregates like real exchange rate, interest rate, Gross Domestic Product (GDP), and money supply for India. The focus of this paper is to assess the significance of controlled inflation and other economic variables.

The remainder of the paper is organized as follows: section two explores the literature around the relationship of inflation with other factors such as money supply, effective exchange rate and interest rate. Section 3 gives a brief overview of the Indian economy. This section also discusses the implementation of an inflation-targeting framework for the Indian economy. Section 4 proposes the economic model to be tested in this research. Thereafter, the data analysis and discussion is presented in section 5. Section 6 discusses the strategic implications and concludes this research.

2. Literature Review

Economists around the world have explored the theoretical and empirical relationship between inflation and monetary aggregates such as money supply, economic growth, real effective exchange rate, and interest rate (Constantinou and Ashta, 2011; Vinh and Fujita 2007; Ncube and Ndou, 2011; Gokal and Hanif, 2004). A vast literature in this field provides an understanding of the interdependence or correlation of these variables.

The relationship between monetary indicators has been the object of much empirical research. Tyrkalo and Adamyk (1999) considered relations between both money supply and inflation, and between money supply and gross domestic product (GDP). Their findings confirm a long-term relationship between money growth and inflation. The period of money expansion and high inflation in the decade of the 1990's was accompanied by contraction of output. Sowa and Kwakye (1993), in their study of inflationary trends and control in Ghana, indicated that monetary expansion exerts little influence on inflation. Studies have been conducted examining the impact of money supply

and exchange rate on inflation (Périlleux, 2013; Chinaemerem and Akujuobi 2012; Ncube and Ndou, 2011). Batini and Nelson (2001), drawing on Friedman's (1972) seminal research, showed that a lag of over a year exists between monetary policy actions and the response of inflation.

The impact of exchange rate movements on inflation and growth has been discussed in many empirical studies of developing countries (Klau, 1998; Ghosh et al., 1997). However, the findings from these studies differ making it difficult to generalize from the studies. Research confirmed that depreciation of nominal exchange rate is correlated with a temporary increase in consumer prices (Vinh and Fujita, 2007; Klau 1998). Ghosh et al. (1997) found evidence that the average rate of inflation was lower in countries with pegged exchange rate than in countries with a more flexible rate. However, Aghevli et al. (1991) noted that many countries with pegged exchange rate regimes have experienced high rates of inflation because of inappropriate fiscal policies.

The relationship between interest rates and inflation was first put forward by Fisher (1930) who claimed a one-to-one relationship between inflation and interest rates in a world of perfect foresight. Fisher suggests that real interest rates are unrelated to the expected rate of inflation and determined entirely by the real factors in an economy, such as the productivity of capital and investor time preference. He noted that the nominal interest rate in any period is equal to the sum of the real interest rate and the expected rate of inflation. Empirical studies in Latin American countries provide support for the existence of the Fisher effect (Phylaktis and Blake, 1993; Garcia 1993; Thornton 1996; Mendoza 1992). However, the same degree of consistency is not observed in respect of other developing countries. For example, the Johansen (1988) and Juselius (1990) co-integration approach indicated the presence of a long-run relationship between nominal interest rates and inflation for Sri Lanka, Malaysia Singapore, and Pakistan. A unit proportional relationship was found for Malaysia, Sri Lanka and Pakistan, while there was no evidence of a Fisher effect for Argentina, Fiji, India, Niger, and Thailand.

With regard to the relationship between growth and inflation, Gokal and Hanif (2004) found that a weak negative correlation exists in Fiji. Faria and Carneiro (2001) found that, for Brazil, inflation does not impact growth in the long-run, but in the short-run there exists a significant negative effect of inflation on output. One of the most widely used theoretical models in monetary policymaking is the theory of the Phillips curve – the relation between inflation and the output gap. The empirical studies on the Phillips curve could be used to guide monetary policy to achieve low and stable levels of inflation (Meade and Thornton, 2010). Recently, Gordon (2011) found that inflation and output gap is no longer positively correlated - although it could have a correlation depending on the relative importance of aggregate supply and demand shock.

Thus, it appears that the relation between inflation and monetary aggregates is open to argument. The relationship between these aggregates does not seem to be consistent worldwide. Countries at different stages of development have different relationships between their monetary aggregates. For example, recently Chinaemerem and Akujuobi (2012) observed that in the short run, variations in prices are mostly explained by their own shocks and not by other monetary aggregates in Nigeria and Ghana. Thus a flexible and dynamic approach is desirable to propel the real output growth in a country (Ncube and Ndou, 2011; Kim and Park, 2006). These issues and a lack of empirical evaluation of the recent inflationary situation in India prompted this study of the monetary aggregates of India and an assessment of the rationale for its monetary policies. The next section provides a background on the Indian economy and then builds a case for monetary policy assessment. The study aims to empirically explore the relationship between various economic variables in India and assess the eligibility of inflation to be a sole indicator of economic stability.

3. Overview of Indian Economy

After the 1991 economic liberalization, India has shown tremendous growth in its output and has become one of the fastest growing economies in the world.

India adopted free market principles and liberalized its international trade to a large extent. The economy has posted an average growth rate of more than 7 percent in the decade to the end of the 90s, reducing poverty by about 10 percentage points (Datt and Ravallion, 2002). For 2012, India's estimated rank for exports was 18th and for imports, it is 9th in the world according to *The World Facebook* of the CIA. This growth was primarily due to a huge increase in the size of the middle class consumer base, development of a large skilled work force, growth in the manufacturing sector due to rising education levels and engineering skills, and considerable foreign investments. The upcoming multinational establishments of technology firms like Microsoft, Google, IBM and Oracle in India are remarkable. The government aims to support these establishments either in terms of infrastructure or tax benefits. With this rapid growth, inflation is still a perennial problem in India, as in many other countries that are in a transition phase. As discussed in the literature review, inflation is associated with money supply and growth. However, as a country develops economically, other variables such as political scenario, exchange rate, and interest rate also appear to be influencing inflation and growth rates.

As the recession spread and inflation increased to 11 percent in 2010, the Reserve Bank of India (RBI) undertook policy measures to tighten the interest rate. A high interest rate means that the opportunity cost of holding money is high and so people lend money and earn high interest rather than spend that money on the consumption of goods. However, many analysts argue that this is a short-term phenomenon as high interest rates can attract foreign capital inflows which can affect the inflationary situation in a different way. Also the transmission mechanism for short-term interest rate is weak in the Indian financial system reducing the effectiveness of this intervention.

In an economic review, the RBI governor stated that supply side factors affecting inflation refer to the adverse supply shocks like the failure of kharif season[1] agricultural production in 2009-10 which led to cost-push inflation

[1] According to a government website kharif season starts from the first week of June and continues up to November-December. The main crops grown in the kharif season are cotton, ground-nut, bajra, tur, maize, paddy, etc.

(*RBI Annual Report*, 2010). Similarly, the Deputy Governor of RBI stressed food prices as the main factor contributing to high inflation, “Given the dominance of food price inflation in shaping the overall course of the inflation path, the policy challenge though is to address the supply constraints” (Gopinath, 2010). Apart from food price, the volatility of prices of selected commodities in global market like petroleum and gold also play an important role in determination of inflation in India.

In most countries like United States, New Zealand, Sweden, France, Australia, and United Kingdom; the Consumer Price Index (CPI) is a widely understood and recognised measure of inflation. It is available relatively frequently and it depicts the cost of a representative basket of goods and services consumed by an average urban/rural household. However, in India the RBI has focused more on the Wholesale Price Index (WPI) as an indicator of inflation. In India, the use of the CPI as a measure of inflation can be questioned for many reasons like the base year for calculating the CPI for agricultural and rural labourers is 1986-87. As the structure of the Indian economy has been changing rapidly, the assumption that the consumption basket of household has remained unchanged over the last two decades is unrealistic (Singh, 2012).

The WPI index also suffers from criticism and its use in determining economic policy has been a debated topic (Patnaik et al. 2011; Rakshit, 2011). As reflected in a study by Basu (2011), WPI does not account for price of services, which is contributing a major part to India’s value added GDP. However, since services form an important input for manufacturing and agricultural processes, it gets indirectly reflected in the WPI. While there is a significant divergence between the WPI and several other consumer price indices (CPIs) that India calculates, by and large inflation measured by these indices tends to converge over time. Basu (2011) argued that for a country like India that has so much of income and living-condition disparity, it is difficult to think of a meaningful consumer representative. Moreover, RBI has noted that inflation rate over and above a “minimum threshold” hampers growth rate and it considers that this rate is around 5 percent for India. So any

rate above this level would slow down the economy (*The Financial Express*, 2012). All these issues prompt a question: Does India need a dynamic framework of strategy which can help to overcome these challenges?

3.1 Inflation targeting: an option for Indian economy?

A controversial debate is raging on the validity of RBI monetary policy actions against the inflationary situation. In a recent speech, the RBI Governor said that inflation cannot be controlled without sacrificing some growth (*Bloomberg,* 2012). The Raghuram Rajan Committee (2009) on financial structure reforms recommended that the RBI should focus on a single objective of inflation control, i.e., it should try to maintain inflation close to a targeted rate in the medium term and move steadily to a single instrument, the short-term interest rate (repo and reverse repo) to achieve it. However, Acharya (2009) argued that given a frequent occurrence of supply shocks, a single objective of inflation control is not an appropriate choice for the RBI at this stage of development. Due to supply side shocks, monetary response to inflation becomes ineffective, and in such cases the RBI needs to opt for a trade-off between inflation and growth (Singh, 2012). Although food prices account for only 14 percent of the country's WPI, they influence the overall direction of inflation due to their volatile nature.

However, as relatively little empirical work has been carried out on inflation in India, it is difficult to compile a complete picture of the inflationary situation there. The RBI governor in a speech to the Central Bank Governance Group in Basel, said that 'Inflation targeting is neither feasible nor advisable in India for several reasons' (*Reuters*, 2012). He went on to explain that an emerging economy must take into account the larger context: it cannot focus exclusively on inflation. Structural bottlenecks and fast growth make the Indian economy vulnerable to inflation. He pointed out that the RBI 'cannot escape from the difficult challenge of weighing the growth-inflation trade off in determining its monetary policy stance.'

Economists have pointed out possible reasons for the inability of the RBI to contain inflation. Divergence in inflation trends reflected by the WPI and CPI may lead to a misreading of the seriousness of the inflationary situation. It has been suggested that a benchmark indicator, representing the inflationary situation in the best possible manner and with world-wide acceptance, may be useful. A second possible reason is the belief that monetary policy is not effective in controlling food inflation. Food production is uncertain due to its dependence on monsoon rains and its susceptibility to drought. A third possibility is due to political uncertainty and the difficulty of predicting global shocks such as economic and oil.

India has reached a stage in its economic development where the macro policy framework has to be significantly adapted to changing circumstances, both domestic and external. India needs a transparent and forward-looking strategic framework that is appropriate to a large and diverse country. Not every part of India is in the same stage of growth, some states are significantly more affluent than others. According to the 2010 expenditure survey of the Government of India's National Sample Survey Office (NSSO), Kerala is reported to be the richest in India and Bihar the poorest (*RTN*, 2011). Economic growth is evident in metropolitan cities such as Delhi, Mumbai, Hyderabad and Bangalore where tall buildings, malls, supermarkets and multinational company office buildings abound. Moreover, a large section of the Indian population is well educated and curious to know what is happening in their country so that they can make better investment decisions. The importance of education is recognised as a vital factor for both economic growth and prosperity. However, some cities are still facing challenges typical of the developing world: irregular supply of electricity and water, and transport and other basic infrastructure deficiencies.

India is gradually integrating with the world economy mainly due to its global approach. However, this may expose India to external economic shocks and lead to unpredictable inflation which could create some problems. Recently in September 2012, India approved a series of economic overhauls: foreign retailers such as Wal-Mart and Carrefour may now own up to 51 per cent of

local ventures; overseas airlines can hold up to 49 per cent in Indian carriers; foreign cable and satellite TV operators may own up to 74 per cent of local firms (*Wall Street Journal*, 2012). This is the first time that such a level of foreign investment has been allowed in India. With all these measures being undertaken, India can no longer remain aloof from the global turmoil. A systematic strategic framework could help India build a stronger presence in the world. The next section discusses an economic model to empirically test the relationship between the inflation rate and other economic variables.

4. Econometric Model

The econometric model under consideration suggests that inflation rate is a function of many economic variables such as money supply, interest rate, GDP, and exchange rate. The proposed model captures the essence of many policy-oriented macroeconomic models like QTM and Philips curve.

Economic model:

$IR^t = f (IR^{t-1}, IR^{t-2}, M3^{t-2}, INT^{t-2}, GDP^t, OTG^t, OTG^{t-1}, OTG^{t-2}, REER^t)$ … (1)

Where:

IR^t = Inflation Rate period t

IR^{t-1} = Inflation rate at period t-1

IR^{t-2} = Inflation rate at period t-2

$M3^{t-2}$ = Broad money at period t-2

INT^{t-2}= Interest rate at period t-2

GDP^t = Gross Domestic Product at period t

OTG^t= Output gap at period t

OTG^{t-1}= Output gap at period t-1

OTG^{t-2}= Output gap at period t-2

$REER^t$ = Real Effective Exchange Rate at period t

The model was tested using the empirical data set available from Reserve Bank of India (RBI) statistical repository for the duration 2004-2011. The detailed analysis and result discussions are presented in next section.

5. Data Analysis

This research aims to analyse the monthly time-series data on variables such as inflation rate, money supply, GDP, and real exchange rate from year 2004 to 2011 for India. The empirical analysis of monthly data for India from 2004 to 2011 was used to provide an overview of an interdependence of variables and their economic impact on inflation. The objective was to understand the relationship that various economic variables hold with the inflation rate. The initial findings suggested that some variables are highly correlated to inflation rates and thus controlling inflation. In this way, certain economic variables could be manipulated according to the inflation rate for attaining an optimal output. The research also attempted to analyse the current inflationary situation and to explore if there is any need to adopt a dynamic strategy framework that can work out better for a big and diverse economy like India. To execute this analysis a linear regression model was used for transparent and tractable investigation. SPSS 19 software was used to assess the model.

The descriptive analysis of the data is shown in Table 1. The linear regression analysis of the model revealed that the Adjusted R-Square value was 0.93 suggesting that the model has accounted for 93 percent of the variance in the inflation rate (Table 2). The findings of the ANOVA analysis (Table 3) was also significant ($p<0.05$).

[Insert Table 1 here]

[Insert Table 2 here]

[Insert Table 3 here]

The analysis of data shows (Table 4) that the inflation rate is highly correlated to period t-1 and t-2 inflation rate, being the effect of rational expectations of consumers based on past experiences. Thus, most of the inflation rate movement is explained by the last periods' rate.

[Insert Table 4 here]

Following a monetarist perspective, the inflation rate and money supply are highly correlated at 1 percent level of significance. The broad money (M3) is taken as a proxy for money supply in India. M3 comprises liquid instruments

as well as some less liquid instruments and thus represents the broadest measurement of money. In India, M3 includes net bank credit to the government in addition to bank credit to commercial sector plus net foreign exchange assets plus government currency liability to the public. According to the data, a one percent change in money supply will lead to 43.9 percent change in inflation.

As argued by many economists, any change in interest rate affects inflation rate with two lag periods (Batini and Nelson, 2001). Consistent with this proposition, our data shows that the last two month's interest rate (bank rate) negatively affect inflation. One percent increase in the last two month's interest rate would decrease the inflation rate by 48.7 percent.

According to the data, the inflation rate does not hold any relationship with GDP. Some economists have proposed that GDP affects the inflation rate only in the long-run which could explain our finding. The data also does not show any relationship between the inflation rate and output gap. This means that India did not follow the Expectations-Augmented Philips Curve during the period considered. The possible reason for this is that during the half of the period under consideration India was going through a recession with high inflation rate and low GDP growth. Also, the incorrect measurement of variables causes much difficulty in estimating the Phillips curve in India. The study by Singh et al. (2011) found that the Phillips curve existed but only after addressing the issues related to measuring the variables. The relationship with inflation rate and real effective exchange rate data is significant at 1 percent level. From table 4 it is evident that a one percent increase in real effective exchange rate can lead to 6.15 percent decrease in inflation rate. One of the most important factors that cannot be ignored here is that the financial markets should be sufficiently developed so that the global capital markets have sufficient confidence in them and that they facilitate the adoption of a flexible exchange rate regime (Jha, 2006). These findings show that inflation is strongly correlated with major economic variables like interest rate, money supply, real effective exchange rate, and past inflation rate. Thus, controlling inflation with the help of these economic variables could be an

important part of the monetary policy framework of India. The next section highlights the strategic implication of this research.

6. Strategic Implications and Conclusion

In the current economic climate, inflation has always been a challenge for emerging economies. To overcome this challenge a robust strategic policy framework is required to bring the economy to a sustained growth path. Therefore, in this study, an attempt has been made to provide an empirical overview of the inflationary situation in one of the emerging economies—India. A burgeoning problem of inflation and a need for dynamic and flexible strategic approach for India have been highlighted. Some of the inflation controlling approaches are suggested as solutions for the challenging situation. For instance, instead of going for strict inflation targeting, flexible and medium-run inflation targets and control of other economic variables could be a helpful approach. A phase-wise 'looking-at-everything' approach to implement a systematic framework could be helpful for controlling the major economic variables. Based on past experience, determining a medium-run inflation target can account for the lag effect. The inflation rate can be determined by taking into consideration the expected domestic and external market conditions. One way to do this is by allowing a flexibility of some predetermined unit, for e.g., inflation rate can vary between 4±1. As it is evident that different variables have different magnitude of impact on inflation, weights could be assigned to different variables according to the priority. The factors that are important and have high priority could have higher weights. Thus, inflation rate could be a weighted combination of effective variables.

Moreover, our analysis shows that inflation in India is correlated to major economic variables like interest rate, money supply, real effective exchange rate, and past inflation rate. Thus, the previous two year inflation rates are the significant determinants of current inflation rates, it is clear that inflation cycles could become virtuous or vicious. In a vicious cycle there is a real danger of inflation spiralling out of control. It is to avoid such a vicious cycle that monetary authorities and central banks pay much attention to a country's rate

of inflation. On the other hand, low rates of inflation beget continuing low rates of inflation into the future. A targeted inflation policy, where low rates of inflation are set as a defined target, could ensure a virtuous cycle of inflation for a country, encouraging ongoing economic stability. Thus, this research suggests that the adaption of the strategic policy framework focused on flexible inflation targeting can be a possibility for emerging economies like India to control inflation.

Monitoring the movements of variables plays a very important role at this stage of development. Regular publication of reports by the central banks as well as third party analysts could provide valuable insights. The targeted inflation rate could be gradually adjusted and effort should be made to keep the rate close to the target through open market operations. Looking at the wide and diverse nature of India, a conditional or adaptive approach could be useful to stabilize the economy. A transparent strategic policy framework is much needed in this scenario so that the authority should be accountable for its action and policy measures.

The study is limited to an empirical and country specific analysis, though insights provided in this research will be valuable while studying a different country in future. Future studies might focus on studying other emerging economies and investigate if a parallel can be drawn. Moreover, future studies can aim at assessing the weights on each economic variable while determining inflation rate according to the priority attached.

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