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# Monetary policy and the behaviour of inflation in India: Is there a need for institutional reform?

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ABSTRACT

Inflation rates in a number of developed countries follow a common trend over the past five decades: inflation starts out low in the 1950s, rises for a time before peaking in the 1970s, and then falls back to initial levels. Interestingly the behaviour of trend inflation in India broadly exhibits such a pattern. This similarity in the behaviour suggests that any explanation of inflation ought to apply across countries. To this end we construct a reduced-form inflation model for India that encompasses various well-known *policy mistake* theories as special cases. The restriction imposed by each of these theories on the behaviour of inflation is tested empirically. Reduced-form estimates lend support to all these theories. Although the reason for the inflation bias differs from one theory to the other, the mechanism at the heart of these theories are in fact quite similar. They all lay responsibility for inflation with the nature of monetary institutions. We use these results to interpret India's inflation experience over the past five decades and discuss the implications for institutional reform.

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## 1. Introduction

The Indian economy endured a persistent inflation episode that lasted from the early 1960s to the mid-1990s. In contrast her inflation record over the past decade has been far better. Not only has average inflation been lower, its variability has also been lower too.[1] From a policy perspective the critical question is: How did this shift come about? And, more importantly, under current institutional arrangements for conducting monetary policy in India, will it last?

To answer this requires identifying the *cause* of the rise and fall in inflation expectations. Theories about inflation (and inflation expectations) in OECD economies roughly fall into one of two categories: *policy mistake theories* (where the emphasis is on the institutional structure governing monetary policy), or *bad luck theories* (where the emphasis is on chance events outside the central bank's control). Among policy mistake theories the *time-inconsistency* problem highlighted by Kydland and Prescott (1977) and Barro and Gordon (1983) has often been cited as a possible reason for the rise and fall of

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[1] In a recent speech the Reserve Bank of India (RBI) Deputy Governor Rakesh Mohan (2007) drew attention to this so-called "Great Moderation" in inflation. He was referring to the sustained decline in inflation (and its volatility) in both developed and developing countries in the past 15 years, in sharp contrast to the period immediately preceding it. This similarity in the behaviour of inflation suggests that any explanation of inflation ought to apply across both developed and developing countries.

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inflation in OECD countries. In their model explanation for sub-optimal inflation relies on the presumption that policymakers use monetary policy to raise output (or employment) above its natural level.[2] This in turn generates a reduced-form in which inflation depends on the extent of supply-side distortions or other possible sources of 'temptation to reflate'. From an empirical standpoint this sub-optimal equilibrium imposes restrictions on the reduced-form inflation model which in turn has the potential to explain the dynamics of inflation over time (see Ireland, 1999; Parkin, 1993). Specifically, the time-inconsistency model implies that the higher (lower) the natural rate of unemployment is, the higher (lower) the equilibrium inflation rate is. This implication of the model can be tested for empirically.

Nevertheless, despite the time-inconsistency model's popularity it has been questioned by both policymakers as well as by some academics on the grounds of realism (Blinder, 1998; McCallum, 1997). Such questioning led to the emergence, since the late nineties, of a new body of literature that incorporates the possible existence of asymmetries in the objective functions of central banks—the new inflation bias hypothesis, exemplified by Ruge-Murcia (2003a, 2003b, 2004) and Cukierman and Gerlach (2003). More precisely, this literature demonstrates that when the central bank is also expected to engage in stabilization of output (or employment), some uncertainty about the future state of the economy and asymmetric concerns about positive and negative output gaps combine to create an inflation bias. Here, a bias arises in spite of policymakers targeting the natural rate of output. From an empirical standpoint the new inflation bias hypothesis implies that the slope parameter in a regression of inflation on the conditional variance of the supply shocks should be significant.

A different interpretation of the great inflation during the 1970s, such as those of Chari, Christiano, & Eichenbaum (1998) and Clarida, Galí, & Gertler (2000), suggest that a bad supply shock (e.g. increase in crude oil prices) triggered a jump in expected inflation, which then became transformed into permanently high inflation because of the nature of monetary regime in existence. This is the so-called *expectations trap hypothesis*. An interesting question that arises here is what caused inflationary expectations to rise in the first place? According to the expectations trap hypothesis, the cause lies with the nature of monetary institutions themselves. If, for example, the nature of those institutions is such that private agents cannot imagine a set of circumstances in which the central bank would accommodate a rise in inflation, then expectations traps just could not happen. From an empirical standpoint the expectations trap hypothesis suggests that if the policymaker does not find a way to credibly commit to not validating high inflation expectations, then the slope parameter in a regression of inflation on the level of supply shock should be significant.[3]

Finally, in contrast to policy mistake theories, bad luck theories or what Nelson (2005) calls *monetary policy neglect hypothesis* subscribe to the non-monetary view of inflation. According to this view, inflation is a purely non-monetary phenomenon: inflation is driven by ''cost-push'' factors, and these factors dominate its behaviour regardless of what course monetary policy takes.[4] Thus, the crucial difference between the expectations trap hypothesis and the monetary policy neglect hypothesis is that in the former supply shocks interacting with the monetary regime explain inflation dynamics while the later conveniently absolves the government from having any role in creating inflation.[5]

Our objective in this paper is to empirically evaluate whether any of these well-known policy mistake theories can account for the behaviour of inflation in India. To that end, we construct a model that encompasses several of these theories as special cases. The restriction imposed by each of these theories on the behaviour of inflation is tested for empirically. To anticipate our findings, our empirical results lend support to all these theories. Although the reason for the bias differs from one theory to the other, the mechanism at the heart of these theories are in fact quite similar. They all lay responsibility for inflation with the nature of monetary institutions. We use these results to interpret India's inflation experience over the past five decades and discuss the implications for institutional reform.

The remainder of this paper is organized as follows. Section 2 provides a brief overview of inflationary trends in India. We describe our model in Section 3 and solve for the implied inflation reduced-form. Section 4 describes the data and reports econometric results. Section 5 provides concluding remarks and discusses policy implications.

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[2] Other policy mistake theories emphasize policymakers' mistaken belief in an exploitable Phillips curve trade-off and its subsequent adoption explains why inflation started rising in the first place in the 1970 (see Sargent, 1999; Taylor, 1997). As DeLong (1997) argues the experience of the 1970s when rising U.S. inflation did not bring about the desired reduction in unemployment promised by the Phillips curve, forced policymakers to abandon the notion of an exploitable Phillips curve trade-off and pursue dis-inflationary policy by the 1980s. We note that this explanation for the rise and fall of inflation is consistent with the time-inconsistency story. In the time-inconsistency model sub-optimal inflation arises because of policymakers' mistaken belief in an exploitable Phillips curve trade-off. That is why they pursue discretionary policy in the first place.

[3] Still further explanations such as those of Orphanides (2003, 2004) suggest output gap mis-measurement as a plausible explanation for the 1970s inflation. According to this view policymakers did not intentionally target high inflation, but nevertheless pursued what *ex post* appears to be an excessively expansionary policy, because they were too optimistic about the economy's supply side.

[4] In fact, structuralist thinking has been, and still is, influential in India. In fact, many researchers felt that inflation was endemic in the process of economic growth and it was accordingly treated more as a consequence of structural imbalance than as a monetary phenomenon (see Balakrishnan, 1994 for example). In the past such thinking has prevailed in other countries too. For example, Nelson (2005) argues that in the 1970s policymakers in both the U.S. and U.K. erroneously subscribed to the non-monetary view of inflation which in turn rationalized their reliance on non-monetary devices, such as wage and price controls, in fighting inflation.

[5] The implication that non-monetary forces have only a transitory effect on inflation, in the absence of monetary accommodation, is consistent with much work in the New Keynesian literature (see Ball and Mankiw, 1995). They in fact emphasize that this channel exists because of downward nominal rigidity of non-oil prices when the oil price spikes; beyond the short run, this adjustment occurs and inflation returns to being a purely monetary phenomenon.

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