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The properties of inflation expectations: Evidence for India

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Abstract

Empirical inferences about particular forms of agents' inflation expectations are crucial for the conduct of monetary policy. This paper is an attempt to explore the properties of the Reserve Bank of India's survey data of households' inflation expectations. The paper shows that survey respondents do not form expectations rationally, regardless of the reference measures of inflation used. Further, results indicate that inflation expectations are formed purely in backward-looking manner, suggesting that the Reserve Bank of India (RBI) has a low degree of credibility within the survey respondents. The study then formulates a model to identify individual elements of the backward-looking expectations in the data. The results suggest that the respondents' short term expectations for WPI inflation are purely naïve type of expectations, only influenced by respondents earlier period expectations. In the case of CPIIW inflation, the results however suggest that the short-term expectations are not purely naïve type, but also contain adaptive as well as a static forms of expectations. This means that respondents consider their previous forecast errors about CPIIW inflation and draw recent price developments in the CPIIW while forming their overall short-term inflation expectations. This finding provides some formal evidence that the CPI based inflation measure is better suited, than WPI inflation, as a nominal anchor in the RBI's recent transition to inflation targeting regime.

JEL classification: D84; E31; E52; E37

Keywords: Inflation; Inflation expectations; Survey data; Price index; Monetary policy; Forecasting

1. Introduction

"Inflation expectations are one of the main drivers of current inflation, because expected inflation influences current wage negotiations, price setting, and financial contracting for investment. Because of this link, central banks can affect current and future inflation by better anchoring agents' expectations of long-term inflation" (Cunningham et al., 2010, p.17). However, the existing literature identifies two forms of expectation formation hypotheses namely, forward-looking rational expectations and backward-looking expectations. The rational expectation hypothesis implies that economic agents form their inflation expectations after processing all available information and also considering the

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reaction function of the central bank. The backward-looking inflation expectations postulate that economic agents use only the information embodied in the history of the inflation.[1] Under forward looking monetary policy framework, a finding of rationality in inflation expectations implies that agents align their inflation expectations with central bank's inflation target, and hence its inflation objective. Rationality in expectations, thus, not only implies the agents' expectations are well-anchored and forward-looking but also suggests a high degree of central bank credibility among agents.[2] On the other hand, a finding of backward-looking inflation expectations indicates a low degree of central bank credibility. Fully backward-looking expectations imply that agents form their expectations looking only at past price development while ignoring the central bank's actions for achieving the inflation objective, on account of their disbelief in its efforts to achieve the inflation objective, which potentially impairs the efficacy of the central bank actions in anchoring agents' inflation expectation, and thus achieving its inflation objective.[3]

Despite the importance of finding about the process of expectation formation for the conduct of monetary policy, deriving true expectations is a difficult task as these are not directly observable. Two types of proxy measures of inflation expectations have been proposed in the literature namely, survey-based and market-based measure of inflation expectations. The market-based measures are derived indirectly through derivatives of some financial assets such as bond and swap. On the other hand, the survey based measures are, however, obtained directly from conducting the survey of economic agents, by adding questions about future inflation in the survey questionnaires. Since the survey measures of expectations directly provides agents' assessment with respect to the credibility of the central bank and its long-run inflation objective, many central banks have started conducting inflation expectations surveys regularly. Some important surveys on inflation expectations includes University of Michigan's consumer survey and Livingston surveys for the US, European Commission consumer survey for the Euro countries and Bank of England-GfK/NOP consumer survey, etc. A number of researchers have analyzed expectation properties from these survey data. Some prominent studies include Thomas (1999) and Mehra (2002) for US expectation survey data, Gerberding (2001), Forsells and Kenny (2002), Dias et al. (2010) and Łyziak (2012) for the European Union consumer survey data, Bakhshi and Yates (1998) for England's survey data; Razzak (1997) and Ranchhod (2003) for New Zealand survey data, and Bernanke (2007) for South Africa survey data. The empirical evidence of existing studies has been mixed about the extent to which expectations confirm to the forward looking-rational expectation hypothesis (REH). We therefore explore in this paper the question: to what extent inflation expectations are formed in forward-looking manner. Specifically, we evaluate the properties of forward-looking and backward-looking forms of expectations in the case of emerging market economy like India, which is the transition economy to inflation targeting regime. From this analysis, we draw inferences about likely expectation formation process in the case of India, which has remained neglected so far. It can provide some formal evidence about efficacy of the Reserve Bank of India's policy actions in anchoring public inflation expectations in the previous regime of multiple objective monetary policy framework.

The remainder of this paper is organized as follows: Section 2 deals with datasets and statistical descriptions of data. Section 3 presents the empirical analysis and the discussion of results. Section 4 presents the summary and conclusion.

2. Data

The Reserve Bank of India has started conducting inflation expectations survey of households since September 2005 on a quarterly basis. The survey seeks qualitative and quantitative responses of 5000 households using quota sampling on expectations of prices and inflation. Samples are collected from 16 cities across the four regions of the country. Quantitative responses of households are recorded on a quarterly basis in the month prior to the start of quarter to

[1] The difference between forward-looking and backward-looking forms of expectations is that the former implies agents do not make any systematic errors in forecasting while the latter concedes that possibility. The systematic errors in the expectations lead to a short-term trade-off between inflation and the real variable. However, most central banks assume in policy reaction function that expectations in long-run are rational that is the systematic error would disappear over the period of time. Are the expectations forward-looking over the period of time? The answer depends on the central bank's policy actions and its credibility in agents' perception in maintaining low and stable inflation. If the central bank exploits the short-term trade off, the credibility would be difficult to establish, the degree of credibility will continue to be paltry, and hence expectations would be consecutively formed in a backward-looking manner.

[2] Bernanke et al. (2001) argue that the survey data of agents' inflation expectations relative to the central bank's inflation target can provide information on credibility.

[3] Bernanke (2007) discusses that analytical framework of most central banks assumes economic agents are mainly forward-looking and rational.