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Are all movements in food and energy prices transitory? Evidence from India

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Abstract

This paper seeks to answer two questions in the context of the Indian economy. First, are all movements in food and energy prices transitory? Second, is there a significant relationship between permanent and transitory shocks to different components of the aggregate price level? Using monthly price data for India and a multivariate correlated unobserved component model based on Morley et al. ((2003). *The Review of Economics and Statistics*, *85*(2): 235) and Bradley et al. (*forthcoming*), we find that both food and energy prices have significant permanent components. Further, we find a significant feedback effect between permanent components of food prices and manufacturing good prices. These findings suggest that neglecting food and energy prices may render the core inflation measure based solely on manufacturing prices a biased measure of long run inflation. Finally, using a forecasting experiment, we show that a measure of the trend inflation that explicitly accounts for long run price movements in food and energy prices provides a superior forecast of future inflation when compared with alternative measures of the trend inflation.

Keywords: Indian Inflation; Food Prices; Unobserved Component Model; Forecasting; Monetary Policy

1. Introduction

An important goal of monetary policy is to ensure price stability in the economy. In this context, accurate measurement of inflation is of importance for the policy makers in order to effectively

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monitor prices in the economy. One of the primary concerns with the measurement of inflation lies in separating out the long run trend in inflation (the permanent component) from short run fluctuations (the transitory component).

In the literature two measures of inflation are typically identified. The first measure is called the *headline inflation*, which in most countries is defined to be a percentage change in the consumer price index (CPI). The second measure is called the *core inflation*, which is computed with the objective of identifying and eliminating transitory fluctuations from the headline inflation measure. Most central banks emphasize targeting inflation based on core inflation which excludes food and energy prices, as this measure is viewed as capturing the underlying long run trend in inflation.

In this paper, we argue that an automatic exclusion of conventionally volatile components (food and energy prices) may lead to information loss, and depending on the structure of the economy may even lead to inaccurate measurement of the underlying long run trend in inflation. Our analysis is based on the monthly price data for the Indian economy. In the context of the Indian economy, understanding food and energy price dynamics, and their impact on overall inflation is of interest for two reasons. First, given the structure of the Indian economy, food and energy form a sizable part of household consumption basket and therefore are crucial in the formation of price expectations. Hence, it is reasonable to argue that food and energy prices will have a strong influence on the underlying inflation in the context of the Indian economy. Second, in recent years, in line with the global food and energy price movements, the Indian economy has also experienced significant food and energy price inflation[1]. From a policy perspective, understanding these price movements assumes importance due to their possible feedback effect on the overall inflation and the potential for persistence in food and energy price shocks at least in the medium term.

The Reserve Bank of India (RBI), the central bank of India, is not a pure inflation targeter but instead follows a multiple indicator approach which involves a flexible inflation objective over the medium-term[2]. Given the objective of containing inflation to achieve the medium term inflation target, measuring long run trend in price level is a pertinent issue for the policy makers in India. Unlike the U.S., India does not have an official measure of core inflation. However, manufacturing prices have been frequently suggested as a measure capturing the long run trend in the aggregate price level[3].

However, if food and energy price changes have significant permanent components then excluding these items from a measure of the long run trend in the aggregate price level may be erroneous. Similarly, if the shocks to manufacturing prices have significant transitory component, then it is not clear how such price movements provide an accurate description of the long run trend in inflation. Rather than making *a priori* assumptions about the permanence vs. impermanence of specific components of the aggregate price level, this paper proposes to decompose each price component into permanent and transitory components using a multivariate correlated unobserved components (UC) model based on Morley, Nelson, and Zivot (2003). This model has been applied recently to the U.S. data by Bradley, Jansen, and Sinclair (forthcoming). We believe that the possibility of a spillover from food and energy prices to a measure of core inflation is much higher in India than in developed countries. This is because the average amount of expenditure on these

[1] In recent decades, many economies around the world have experienced high level of food and energy price inflation. For example, for the decade of 2001–2010 food price inflation averaged 6% where as crude oil inflation averaged at 13%. (Source: FAO Cushing, OK Crude Oil Future Contract).

[2] The desirability of pure inflation targeting in the Indian context is an important discussion that we abstract from in this paper.

[3] Subbarao (2011).