

## Is Food price Inflation Transitory or Persistent? Empirical Evidence From Sri Lanka

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**Key words:** *Food inflation, Persistence, Dynamics, Core inflation, Long memory.*

### Introduction

Food price inflation not only threatens macroeconomic stability but also decreases the welfare levels of most households. Monetary policy can only control inflation emanating from rising demand but food inflation is largely because of supply side constraints. In terms of volatility and average level, food inflation play important role in Sri Lanka.

Is food inflation transitory or persistent? Reserve Bank of India has been highlighting the persistence of high food inflation in numerous policy statements. An automatic exclusion of food and energy prices may lead to information loss, leading to higher inflationary expectations, a downward bias to forecasts of future inflation and lags in policy responses. The core inflation systematically underestimates headline inflation when persistent food inflation is excluded from in its estimations.

Food inflation in Sri Lanka has not been received much attention in the literature. There exists no in-depth technical analysis on its dynamic behavior and statistical properties on food inflation in Sri Lanka. This study intends to fill this gap in the literature and provide an in-depth analysis and empirical evidence.

Cecchetti (2007) argued that ignoring food and energy prices particularly in recent times when they have consistently been rising faster than other prices, could lead to biased estimates of medium-term inflation. As emphasised in the studies (Bradley et al (2009)<sup>1</sup>, Kar (2010), food and energy prices may spill over to headline inflation, and all movements in these prices may not be temporary.

International influences and domestic influences affect domestic food prices. The direct price effects are related to the weight of food in the consumer price index. The indirect effects (second round impacts) of food inflation can come through inflation expectations, rise in wage demands, and increase in prices of other products. Net overall impact of food price inflation on headline inflation is not solely dependent on the share of food in the consumption basket, but also on the inter-linkage effects between food and non-food prices.

An in-depth empirical analysis of dynamic behavior of food inflation in Sri Lanka might provide useful insight for effective food and monetary policies as well as regarding direction of future research.

### Objectives

The main objective of this study is to examine the following question: *Is food price inflation transitory?*

The specific objectives are

- to investigate and describe the (stylized facts) statistical properties of dynamic behaviour of food inflation, non-food inflation and headline inflation in Sri Lanka during 2003-2011
- to study the pass-through effects of foreign food inflation on domestic food price inflation
- to study the spill-over effects of domestic food inflation into non-food inflation
- to introduce the reader to some new insights provided by methods based on new econometric techniques

### Methodology

Colombo consumer's price indices for all items and "Food and non Alcoholic Beverages" are collected from the website of Department of Census and Statistics, Sri Lanka. Wholesale price indices for food were collected from Central Bank Annual Report 2011. World food price index and world fuel price index are obtained from IMF website. Excel, Eviews7 and Stata12 computer softwares were used for data analysis.

Graphical displays are used to identify the underlying features of inflation dynamics. Time series statistical properties of inflation and CPI were examined using unit root tests. Co-integration analysis, Error correction model are adopted to study the adjustment speed, short and long run behavior of the inflation series. Volatility persistence in the inflation series is captured using the GARCH (1,1) model (Bollerslev,1986). Granger Causality test is used to study causal relationship between inflation series. The ARFIMA model is used for estimation of the long memory parameter. The shock is identified as transitory when the effects of a shock die out with time. However, when the effect of a shock does not die out over time, the shock is said to be persistent (permanent).

## Empirical Results

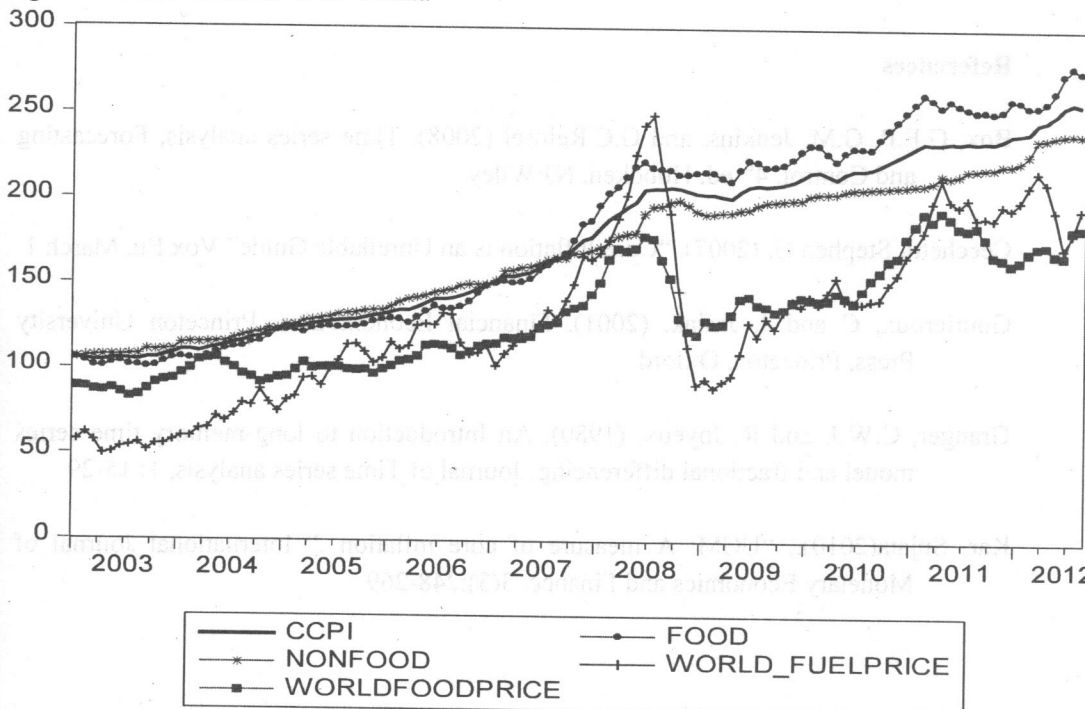
The line graph (Figure 1 below) shows the trends in food, non-food, overall (CPI) prices, world food price, and world fuel price, for the period between 2003 - 2012. The above graph indicates the presence of a strong correlation between movements in overall CPI and food CPI. Food CPI has exceeded overall CPI and non-food price CPI since 2007.

The relative food price inflation (food to non-food) average is above unity (1.79). Food inflation is much more volatile than non-food inflation and headline inflation. ( $SD_{\text{finf}}=1.65$ ,  $SD_{\text{nonfinf}}=0.96$ ,  $SD_{\text{INF}}=1.003$ ).

Domestic and global food price inflation rates are positively correlated ( $r=0.41$ ). The long run pass-through from international food price to domestic food price is estimated as  $= 0.167$ .

The relative contribution of food inflation to headline inflation is 1.12 and non-food inflation contribution to the headline inflation is 0.86. Food items contributed more than their weight in CPI basket. Piece-wise regression analysis shows that there has been a positive relationship between slope coefficient values and time.

Figure 1: Price behavior in Sri Lanka



Co-integration analysis shows that food inflation and headline inflation have a long run equilibrium relationship. Granger causality test shows that food inflation Granger causes non-food inflation and also headline inflation.

Persistence estimate is high (0.46) for food inflation compared to non-food inflation (0.18). Long run response is 1.85 for food and 1.26 for non-food. Long memory parameter estimate for food inflation ( $d=0.37$ ) indicates the long range dependence of food inflation behavior. ARCH and GARCH effects (0.866) imply that shocks to the conditional variance are highly persistent (Brooks, 2002).

### Conclusion and Policy Recommendations

The results indicate that food prices are relatively persistent than non food prices. Food price inflation is not only more volatile ( $SD=1.63>0.81$ ) but also on average higher ( $0.99>0.66$ ) than non-food inflation. The causality test shows that food inflation granger cause non-food inflation and headline inflation. Wholesale food price inflation with lag 3 Granger causes food consumer inflation.

Policy makers should therefore not assume that excluding food inflation will provide a clearer picture of underlying inflation trends than headline inflation.

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