

DOES INTERNATIONAL FOOD PRICE INFLATION AFFECT DOMESTIC PRICE INFLATION DYNAMICS: EMPIRICAL EVIDENCE FROM SRI LANKA

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INTRODUCTION

The soaring of food prices can be devastating. It fuels inflation risks and affects the most vulnerable. It became the focus of widespread debate and policy. The people who spend a large share of their income on food will be mostly affected. The IMF's index of internationally traded food commodities prices increased 130 percent from January 2002 to June 2008 and 56 percent from January 2007 to June 2008. The risk of higher food prices was highlighted in a recent World Bank publication (Global Development Finance, 2007).

The global food prices have risen due to increase in global demand for food, declining supply on the international market, depreciation in US dollar, rising input cost (oil prices), increase in inflation expectation and rise in wage demands. Rapidly rising food prices pose important macroeconomic policy challenges for decision makers in emerging and developing countries.

Domestic food prices move with international food prices closely. These price movements lead to changes in local headline inflation, local food price inflation and inflation expectations either directly or through second round effects. The overall impact of food price increases on consumer inflation may not be proportional to the weight of food products in the consumption basket. It could be a direct and indirect price impact on overall inflation. The direct price effects are related to the weight of food in the consumer price index. Food prices have the largest weight, even now, around more than 40 percent in the average household's consumption basket in Sri Lanka. The food component counts around 67% in the Wholesale Price Index. Being an open and dependent economy, Sri Lanka is highly vulnerable to shocks in the international food prices since the food consumption basket has a large imported component (7.7% out of total imports in 2011). Recently the food share of total imports has increased. Therefore, food price increases will have a larger impact on inflation. Food has been a dominant contributor to overall inflation in the lower expenditure groups in Sri Lanka. Oosthuizen, (2007), Bhorat and Oosthuizen (2003) have also stated that food has been dominant contributor to headline inflation.

Changes in international food prices induce movements in local food, nonfood and headline prices through several channels. First, a rise in the price of international foods leads to a rise in the price of food imports. This is directly related to domestic food and headline price indices. Second, when the price of imported goods increases, consumers substitute them for local goods, due to inflation expectations. This causes inflationary pressures on local goods. Ultimately local producers focus their production for foreign market (exports) since they can sell at a higher price. Thus the supply of their goods to the local market falls. This shortage induces local prices to rise. Considering these transmission channels, several studies have empirically examined the

relationship between global food prices and domestic inflation: Shawarby and Selim (2012), Jalil and Zea (2011), Van Duyne (1982), Albers et al (2011) and El- sakka et al (2005).

While a vast literature has examined the determinants of inflation in Sri Lanka, they have not investigated the role of global food price inflation on domestic inflation in Sri Lanka in depth. There exists no in-depth empirical study on international food prices and domestic inflation in Sri Lanka. This study attempts to fill this gap in the literature by examining pass-through and spillover effects of international food prices to the domestic inflation in Sri Lanka. Therefore the main objective of this study is to investigate whether international food prices affects the domestic price inflation in Sri Lanka for the period of 2003 to 2011.

METHODOLOGY :

This study covers the period from 2003 to 2012. The study uses the year 2003 as the transition point. The post-2003 period appears to be remarkable in the magnitude of the food price inflation and in the persistence of the price increase. Monthly data for FAO food price index from FAO web site and Overall CPI index, Food CPI index and Non-food CPI index are collected from the Department of Census and Statistics, Sri Lanka. The underlying relationships and dynamic behavior of the variables are checked by line graph and confidence ellipse. Scatter with Kernel fit. Further, Engle-Granger two step residual based co-integration analysis is adopted to examine the long run equilibrium relationships and Error correction model is used to capture short run equilibrium relationships and to estimate feedback speed. Causal relationships between variables are investigated using Granger Causality test. The computer packages: E-views and Microsoft Excel are used to data analysis.

RESULTS AND DISCUSSION

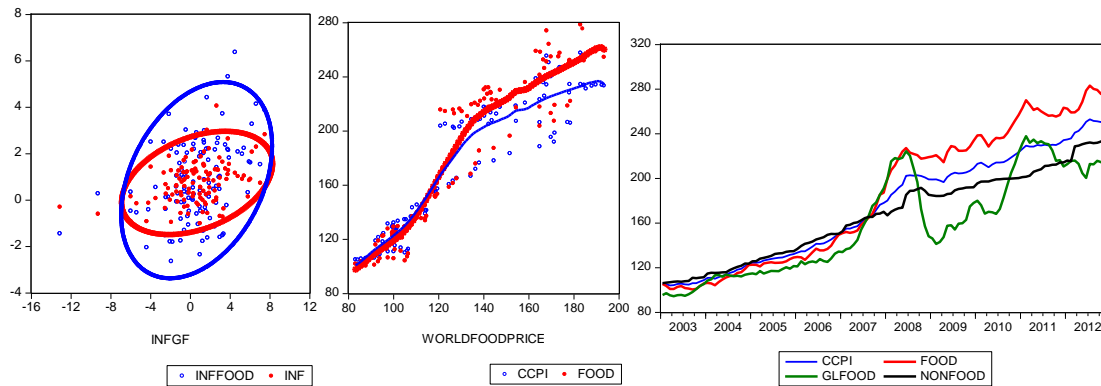


Figure1

Figure 2

Figure3

In Figure 1, the scatter diagram with confidence ellipse, shows that there is positive association between international food price inflation and local food price inflation and headline inflation. Figure 2 shows that the trend of the relationship between world food price, domestic food price index and domestic overall consumer price index. Figure 3 shows the upward trend behavior of the world food price, ccpi, local food price and local nonfood price during sample period. Global food price inflation has asymmetric effects on domestic food prices and overall price behaviour. All price series are nonlinear, non-stationary series with stochastic trend, $I(1)$. Domestic headline

inflation, food inflation and nonfood inflation have been accompanied by spikes in international food prices. Food consumption basket has a large imported component (rice, flour, fish, Milk products, sugar) it is around 7-10 % of total import expenditure. Since 2007, food imports share of total imports expenditure has increased. Therefore, international food prices have been claimed that it has been their main driving factor. Local food price has been higher and increasing trend compared to global food price dynamics. However, local food prices in Sri Lanka mirrored global food price movements. Figure 2 shows that local food prices increase in higher rate than overall CCPI prices due to global food price changes. Standard deviation of each inflation rate distribution dominates the mean value. The overall shape of the confidence ellipse indicates they are positively correlated.

Simple statistical correlation analysis confirms the observed strong positive correlation ($r=0.41$) between local food prices and the global food prices. Unit root tests of ADF test, PP test indicated that all these price series are non-stationary series and integrated order one, $I(1)$. The Engle-Granger two steps co-integration test results confirm that global food inflation, local headline inflation and domestic food inflation are co-integrated, having long run equilibrium. When global food inflation increases, headline inflation and domestic food inflation also increases by 0.10% and 1.95% respectively. These positive relationships are statistically significant different from zero at 5% level. Marginal contribution of world food price inflation to headline inflation is statistically significant and economically low contribution from world food inflation to headline inflation (0.04) compared to the effect of local food inflation (0.388) to headline inflation. The contribution of Global food inflation to local food inflation is (0.195) higher than the contribution to the headline inflation. World food inflation does not statistically influence non-food inflation immediately but does significantly influence in two months lag period with the marginal effect is 0.06 with p-value of 0.03.

Error correction model results show that, global food price has positive and statistically significant response on headline inflation (0.06%) and domestic food inflation (0.10%) in the short run. However, global food price does not influence statistically significantly nonfood price inflation in the short run. The coefficient of error correction term is statistically significant and has expected negative sign in the case of headline (-0.73), food inflation (-0.65) and non-food inflation (-0.99) equations. This indicates that global food price has long run causal relationship with headline inflation, domestic food inflation and nonfood inflation in the long run.

Domestic food inflation does not have statistically significant long run equilibrium relationship with nonfood inflation. However, it has statistically significant negative relationship in the short run. At the same time, domestic food inflation has statistically significant equilibrium relationship with headline inflation in the long run as well as in the short run. This implies that world food price inflation has statistically significant spillover (second round) effects on nonfood inflation in the short run not in the long run.

Granger causality analysis shows that world food inflation Granger cause local headline inflation with F statistics 7.03 and p value 0.001. world food inflation cause local food inflation with F statistic 4.37 and p value 0.014. it does not cause non-food inflation.

Pass-through of food price hikes is significantly higher than that of food price falls. Domestic price trends of food items have broadly mirrored global trends. However, while domestic prices rise in tandem with world food prices they do not tend to decline to the same extent that global food prices do. This may be owing to local market inefficiencies, domestic monopolies, and limited global trade integration.

The volatility of International food price inflation also statistically affects headline inflation the volatility series was generated using GARCH model. The coefficient of international food inflation volatility is 0.027 with probability value 0.0005. Therefore, international food price inflation not only mean level but also volatility of it affects headline inflation. The Cusum of Squares test from recursive residuals provides a plot that suggest the parameters stability in the equation during the sample period.

CONCLUSIONS AND POLICY RECOMMENDATION

The graphical analysis of this study show domestic headline inflation, food inflation and nonfood inflation have been accompanied very closely by international food prices. Local food prices increases at a higher rate than overall CCPI prices due to global food price changes. The Engle-Granger co-integration test results confirm that global food inflation, local headline inflation and domestic food inflation are co-integrated, having a long run equilibrium. Global food price does not influence statistically significantly nonfood price inflation in the short run as well as in long run. However, world food price inflation statistically influences domestic food inflation and headline inflation. Figure 3 shows that pass-through is asymmetric, i.e. the increases in global food prices generates increases in headline, domestic food inflation while falls in global food prices do not lead necessarily to falls (see line graph, beginning of 2008). Policy attention needs to shift toward efforts to increase food production and lower the vulnerability of the poor. The surge in food prices has created and may create future adverse effects in the economy. Therefore, the Sri Lankan government must also develop a safety net program for the poor. Safety net interventions need to be made consistent with a longer term poverty reduction strategy and fiscal sustainability.

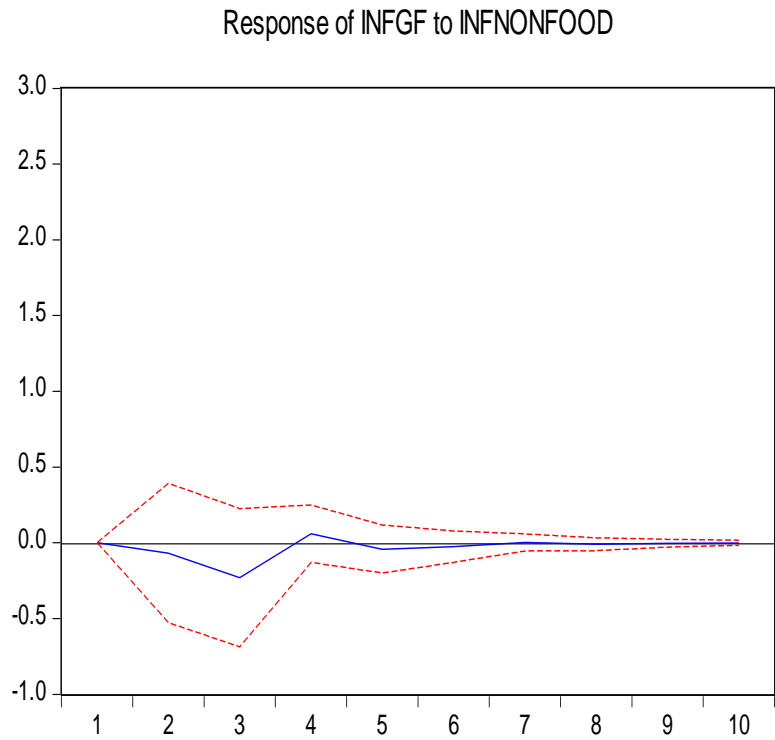
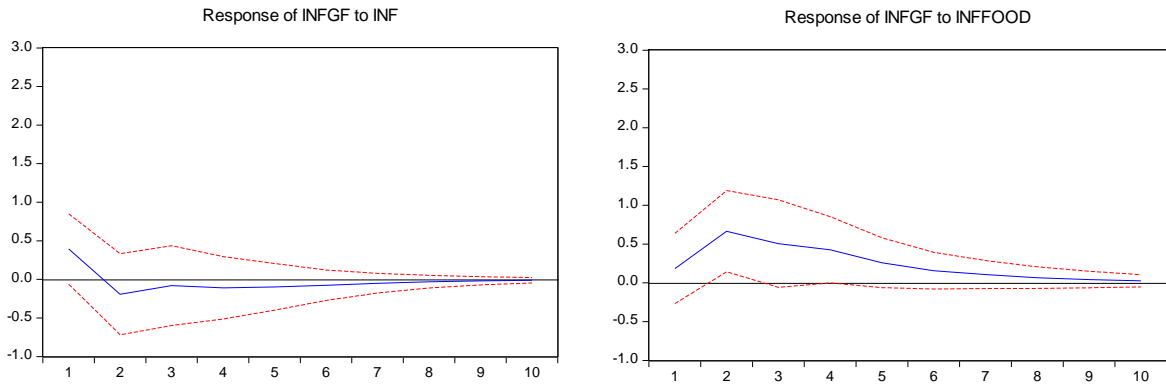
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Date: 07/29/13 Time: 21:47
Sample: 2003M01 2012M12
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INFFOOD does not Granger Cause INF	117	5.80041	0.0040
INF does not Granger Cause INFFOOD		0.21202	0.8093
INFGF does not Granger Cause INF	117	7.03526	0.0013
INF does not Granger Cause INFGF		0.73921	0.4798
INFNONFOOD does not Granger Cause INF	117	6.56380	0.0020
INF does not Granger Cause INFNONFOOD		2.18553	0.1172
INFGF does not Granger Cause INFFOOD	117	4.37612	0.0148
INFFOOD does not Granger Cause INFGF		0.24721	0.7814
INFNONFOOD does not Granger Cause INFFOOD	117	0.23234	0.7931
INFFOOD does not Granger Cause INFNONFOOD		1.59523	0.2074
INFNONFOOD does not Granger Cause INFGF	117	3.92269	0.0226
INFGF does not Granger Cause INFNONFOOD		2.45112	0.0908