Long Memory of Food Inflation and its Dynamics: Empirical Evidence from Sri Lanka

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Abstract: This study examines the statistical properties of dynamic behaviour of food inflation. The data used in this study consist of monthly price indices for all variables from 2003 to 2010. They were obtained from the Census and Statistics Department, Sri Lanka. The empirical analysis are done using descriptive statistics, Confidence ellipse, autocorrelation function, Kernel density function, Box-plot, GARCH model, Granger causality test, co-integration test. The empirical results of ADF, PP test, KPSS test show that food, nonfood, overall CPI price series in Sri Lanka are nonlinear, non-stationary series with stochastic trend, I(1). Standard deviation of each inflation rate distribution dominates the mean value. ARFIMA model estimation shows that Food inflation, nonfood inflation and headline inflation series are fractionally integrated. Their long memory parameter estimates, d=0.374, 0.288, 0.389 are given respectively. They are less than 0.5. This result indicates that inflation series are said to be long memory stationary process. They are statistically significant different from zero. Each ACF decays hyperbolically. Food prices are relatively persistent than non-food prices. Food price inflation is not only more volatile but also on average higher than non-food inflation. The co-integration analysis shows that food and headline inflation series have long run relationship (co-integrated -EG test). Slope coefficient of food inflation is 0.4747 and its p-value is 0.000. Coefficient on the error correction term is negative (-0.86, p-value=0.000) and statistically significant. The negative sign is consistent with theory. Short run changes in the food inflation affect positively headline inflation. Granger causality test shows that food inflation Granger cause non-food inflation (P=0.013). Results show that there is statistical significant pass-through from food price inflation to non-food price inflation. The food inflation is highly persistent. GARCH analysis shows that ARCH and GARCH effects of food inflation are very high (0.866) which implies that shocks to the conditional variance will be highly persistent. The contribution of food prices to headline inflation in Sri Lanka has increased quite significantly since 2003 to date.The results of this study establish the importance of food prices in overall inflation in Sri Lanka. Therefore, results of this study have important implications for food policy and monetary makers.

Keywords: Food inflation, Persistence, Dynamics, Core Inflation