Fiscal Deficit and Inflation Dynamics in Sri Lanka: An Empirical Investigation of Causal Relationships

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Introduction

In Less Developed Countries, including Sri Lanka, the fiscal deficit has been blamed for much of the economic problems such as high inflation, debt, etc. During the last few decades, Sri Lanka has faced an upward trend in the general price level and expansion of its budget deficit. The relationship between inflation and fiscal deficit is important and controversial, one of the most widely debated topics among academics as well as among economics policy makers in both developed and developing countries. Good understanding of the dynamic relationship between inflation and fiscal deficit is important in policy planning. In-depth empirical analysis of dynamic linkages between these variables in Sri Lanka will provide useful directions for future research.

Several studies have examined the interrelationship between these variables related to developed countries and developing countries except for Sri Lanka. Fiscal based theories of inflation have been especially prominent in the developing countries' literature (Alesina and Allen, 1991) Further, Metin (1998) argues that there is a positive relationship between the budget deficit and Inflation. Contrary to the above, Sahan and Bektasoglu (2010) have showed a negative relationship in some countries. Chimobi and Igwe (2010) find bidirectional causal relationships between both variables.

However, in Sri Lanka, this dynamic relationship has not received much attention in the literature. Very few studies have attempted to study about inflation determination. There exists no in-depth technical analysis on dynamic behavior and its statistical properties of the dynamic relationship in Sri Lanka. The current study intends to fill this gap in the literature and

provide an in-depth analysis. This paper empirically tests whether the time path of the government budget deficit in Sri Lanka has an impact on inflation.

Objectives

The main objective of this paper is to empirically investigate the dynamic linkages between inflation and fiscal deficit in Sri Lanka. The objective is achieved by studying the long run relationship and the causal relationship between the variables for the period 1960-2011. The dynamic relationship between these variables is important for fiscal and monetary policy planning in the country.

Methodology

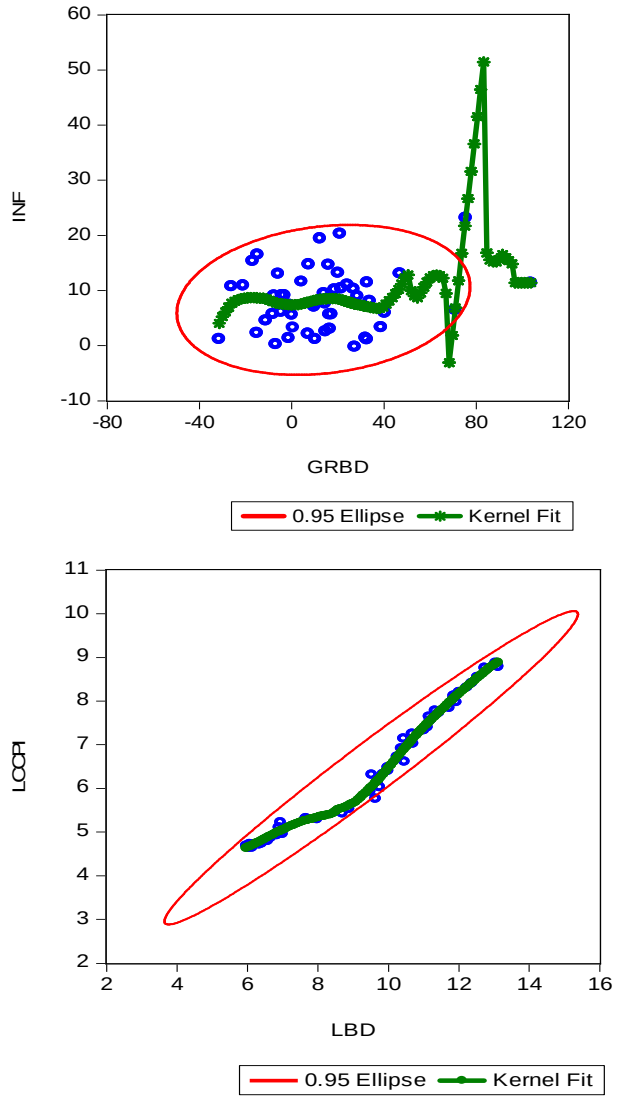
The variables used in this study are inflation and budget deficit. The data were taken from the Central Bank of Sri Lanka, Annual Report 2011. The study period was 1960-2011.

Graphical analysis (scatter plot, line graph, confidence ellipse, kernel fit) was used to identify the basic features of the variables and to identify the relationship between selected variables. ADF, KPSS, PP tests were used to test for the stationarity of the series. The null hypothesis was framed as "there exists no long run relation between fiscal deficit and inflation". To test this hypothesis, we employed co-integration technique and error correction model in order to study the long run equilibrium relationship and short run disequilibrium dynamics. In addition, Granger causality method is used to assess the ability of budget deficit to predict inflation.

Results

The graphical analysis shows a positive relationship and increasing trends in both variables. Unit Root tests prove that the series are non-stationary, I (1), in level form. But all are stationary in first difference. The following confidence ellipses show a positive relationship between log of Colombo consumer price index (LCCPI) and log of budget deficit (LBD) and also a positive relationship between Inflation(INF) and growth of budget deficit (GRBD).

Figure 1: Association between LBD VS LCCPI and INF VS GRBD



According to the results in Table 1, LBD influences inflation positively. Since the residual series of the co-integration equation is stationary, (ADF test statistic=-4.54), LBD and inflation are co-integrated. Error correction coefficient is statistically significant and describes the speed of adjustment back to equilibrium.

Table 1: Results of Co-integration Test

Independent Variable IMF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBD	0.010120	0.003022	3.348692	0.0016
C	-0.013760	0.029749	-0.462517	0.6458

R-squared	0.186232	Mean dependent var	0.083167
Adjusted R-squared	0.169625	S.D. dependent var	0.053863
S.E. of regression	0.049082	Akaike info criterion	-3.152206
Sum squared resid	0.118045	Schwarz criterion	-3.076448
Log likelihood	82.38126	Hannan-Quinn criter.	-3.123257
F-statistic	11.21374	Durbin-Watson stat	1.230712
Prob(F-statistic)	0.001568		

The estimated error correction coefficient had a negative value (-0.628) which indicates a downward adjustment of inflation in the direction of equilibrium. 63 percent of the disequilibrium error is being corrected each year. The Granger causality test shows that Fiscal deficit (LBD) causes LCCPI (inflation) as indicated by F test (P value 0.002) and not vice versa. The significance of the error correction term coefficient (coefficient of the co-integrating vector lag) implies that there is causality in the long run. Impulse response analysis indicates that there is a positive impact on inflation from fiscal deficit shocks and the impact initially increases, then effectively dissipates.

Conclusion and Policy Recommendations

Econometric results and graphical analysis show that the fiscal deficit bears a positive and statistically significant long run relationship with inflation. These results have empirically confirmed the relationships explained in Keynesian theory. Granger causality test results showed that fiscal deficit causes inflation. It is recommended that the Sri Lankan fiscal deficit must be financed based on noninflationary financing sources.

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