

THE IMPACT OF PUBLIC DEBT ON INFLATION: A CASE STUDY OF SRI LANKA

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ABSTRACT

This study examines the impact of Public Debt on Inflation in Sri Lanka over the period of time 1977 to 2015. The Augmented Dicky-Fuller (ADF), Phillips Perron (PP) and Ng-Perron unit root tests have used to test the order of integration. Akaike Information Criterion (AIC) is applied to determine the optimal lag length of each series. Error correction model (ECM) was employed to test the short-run relationship between variables as well as the long-run equilibrium of the variables. According to the findings of this study, the long run part of the results of ECM shows that public debt, real GDP per capita, trade openness and Government Revenue have significantly negative impact on inflation. Error correction coefficient of Inflation (-0.69) is negative and significant. It reveals that 69 percent disequilibrium is corrected each year which implies that Inflation moves downward towards long-run equilibrium. Therefore, special attention needs to be given by the government on reducing public debt in order to eradicate the inflation in Sri Lanka.

Keywords: co-integration, error correction model, inflation, public debt

INTRODUCTION

Inflation is a key macroeconomic indicator of a country. It is the continuous rise in the general price level of commodities. Maintaining inflation rate as low as possible is one of major objectives of macroeconomic goal. There are two types of inflation in the economy. Those are Demand-Pull Inflation and Cost-Push Inflation. Demand-pull inflation occurs when aggregate demand for goods and services rises more rapidly. One potential shock to aggregate demand might come from a central bank that rapidly increases the supply of money.

Sargent and Wallace (1981) states that the effectiveness of monetary policy in controlling inflation depends critically on its coordination with fiscal policy. Even though the traditional connection between money and the price level holds, tight monetary policy could lead to increases in inflation. This is due to the fact that, with the demand for government bonds given and in the absence of changes in future fiscal policy, a part of government obligations would have to be covered by seignorage at some point in the future. This not only focuses on seignorage financing, but also on traditional analysis of the fiscal impact, particularly on Keynesian aggregate demand-type factors, public wage spillovers to private-sector

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wages, and taxes affecting marginal costs and private consumption (Elmendor and Mankiw, 1999).

The fiscal theory of the price level identifies the wealth effect of government debt as an additional channel of fiscal influence on inflation. This theory explains that increased government debt adds to household wealth and, therefore, to demand for goods and services, leading to price pressures (Gordon and Leeper, 2002). The higher size of the debt also results in higher sovereign risk premiums being charged by government creditors, which can increase interest rates in the economy as a whole and unleash the well-known crowding out effect with its accompanying impact on macroeconomic stability.

In 2005, Sri Lanka's Debt to GDP ratio was very high as 91 percent. Through the process of sustained growth of economy, maintenance of the rupee increased local and foreign investment, reduction of interest rates, compression of the budget deficit and control of inflation, government reduce the debt to GDP ratio to 71 percent in 2015. Further, Government's debt stock has increased to 77.6 percent from 71.3 at end 2014 (Annual Report of Central Bank of Sri Lanka, 2005-2015).

High levels of public debt and recurring fiscal deficits in Sri Lanka might generate inflationary pressures under the reasoning mentioned above. Thus, in order to foster domestic stability, it is necessary to understand the impact of public debt on inflation. This study examines the impact of public debt on inflation in Sri Lanka from 1977 to 2015.

LITERATURE REVIEW

The significant number of existing literature also has identified the relationship between domestic debt and inflation. Such as the direction from public debt to inflation, public debt has a significantly positive effect on inflation while in the opposite direction, inflation has a significantly negative effect on public debt (Bon, 2015). Also (Ahmad & etc, 2012) have found that the effect of the volume of domestic debt and domestic debt servicing on price level is found to be positive and statistically significant. Harmon (2012) he has found weak positive relationship between the public debt and inflation while links between public debt – GDP growth as well as public debt – interest rates are negative.

And also Lopes et al. (2014) have found public debt has a positive impact on inflation. It means that high public debt leads to high inflation. As well as Martin (2015) also has found positive relationship between public debt and inflation. However, the quantitative assessment of the relationship between domestic debt and inflation is inadequate based on Sri Lanka. Thus, this study is a bridge to this gap by investigating the Public Debt and inflation in Sri Lanka. According to literature review these findings are mixed up as well as there is no previous study related to this topic in Sri Lanka.

METHODOLOGY

1.1 Data Collection

Annual data of Sri Lanka over the period of 1977-2015 has been used in this study. The data of, public debt (PD), Gross Domestic Product Per Capita (GDPPC), Government Revenue (REV), and Trade Openness (TO) were extracted from annual reports of Central Bank of Sri Lanka (CBSL) and was collected from the World Development Indicator (WDI) database.

1.2 Model Specification

The Augmented Dicky-Fuller (ADF), Phillips Perron (PP) and Ng- Perron unit root tests were conducted to test the order of integration. Akaike Information Criterion (AIC) is applied to determine the optimal lag length of each series. The long-run relationship between the variable as below:

$$INF_t = \beta_0 + \beta_1 PD_t + \beta_2 REV_t + \beta_3 GDPPC_t + \beta_4 TO_t + \varepsilon_t \quad (1)$$

Where ε_t is a white noise error term, $t = 1, 2, \dots, T$.

Error correction model (ECM) was employed to test the short-run relationship between variables as well as the long-run equilibrium of the variables using the following model:

$$\Delta Y_t = \beta_0 + \Pi Y_{t-1} + \sum_{i=1}^{p-1} \gamma_i^* \Delta Y_{t-i} + \varepsilon_t$$

where, $\Pi = \alpha\beta'$ where α is the error correction term, β' is the (1×5) vector of cointegrating coefficients, $Y_t = [INF_t, PD_t, REV_t, GDPPC_t, TO_t]'$ vector of dependent variables, Y_{t-i} lagged value of the variables and ε_t is the white noise error term.

RESULTS AND DISCUSSIONS

ADF and PP unit root tests confirmed that all the variables are stationary at their first difference, suggesting that all variables considered are integrated in order one. All lag length selection tests suggested the use one of lags as optimal lag length. The trace statistics of Johansen and Juselius co-integration technique identified one co-integrating relation in the system of equations at 5% level of significance. The long-run part of the results of ECM shows that public debt, real GDP per capita and trade openness and Government Revenue have significantly negative influences on inflation. It is given by the following equation.

$$INF_t = -81.75 + 0.14PD_t + 0.009GDPPC_t - 0.279REV_t - 60.30TO_t + \varepsilon_t$$

Indeed, the positive effect of public debt on inflation advocates the view of Sargent and Wallace (1981) that an increase in public debt typically leads to inflation in highly indebted countries. Bashir *et al.* (2011) and Gyebi & Boafu (2013) showed

that economic growth is one of the determinants of inflation in developing countries. According to them, high economic growth leads to high inflation.

In this study, trade openness has a negative influence on inflation. It supports the hypothesis first documented by Romer (1993) that inflation is lower in more open economies. Samimi *et al.* (2012) confirmed the negative impact of openness on inflation.

Table 1. ECM Results of the long run equilibrium

Error Correction:	D(INF)	D(GDPPC)	D(DEBT)	D(REV)	D(TO)
Cointegrating					
Equation	-0.697187	-10.58439	0.203936	-0.059106	-0.011882
	[-2.20788]	[-1.20123]	[0.56436]	[-0.87656]	[-4.51329]

Source: Computed in Eviews

Accordingly, A denotes the coefficients of the speed of adjustment, which explain how the above model adjusts towards long-run equilibrium. Error correction coefficient of Inflation (-0.69) is negative and significant. It reveals that 69% disequilibrium is corrected each year which implies that Inflation moves downward towards a long-run equilibrium.

CONCLUSION

This research attempts to identify impact of Public Debt on Inflation in Sri Lanka. ADF and PP unit root tests confirmed that all the variables are stationary at their first difference, suggesting that all variables considered are integrated in order one and all lag length selection tests suggested the use one of lags as optimal lag length. The trace statistics of Johansen technique identified one co-integrating relation in the system of equations at 5% level of significance. The long-run part of the results of ECM shows that public debt, real GDP per capita and trade openness and Government Revenue have significantly negative influences on inflation. Error correction coefficient of Inflation (-0.69) is negative and significant. It reveals that 69% disequilibrium is corrected each year which implies that Inflation moves downward towards a long-run equilibrium. Therefore, special attention needs to be given by the government on reducing public debt in order to eradicate the inflation in Sri Lanka.

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