

The Impact of Public Debt on Inflation: A Case Study of Sri Lanka

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Introduction

Inflation is one of the key macroeconomic indicators of a country. It is the continuous rise in the general price level of commodities. Maintaining a low rate of inflation is one of the major macroeconomic objectives. 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 than aggregate supply. One potential shock to aggregate demand might come from a central bank that rapidly increases the supply of money.

Public debt is one of the major economic issues threatening the countries which are facing fiscal deficits. Public debt includes domestic and external debt. Domestic debt is a fundamental tool used by governments to finance internal and external deficits. Domestic debt is derived from different sources such as central bank, commercial banks and non-bank financial institutions. Among these three sources, borrowing from the Central Bank and non-bank financial institutions (NBFIs) carry a serious effect of inflation due to increase in money supply. If the NBFIs invest by purchasing government securities and face a shortage of liquidity, they have no option but to turn to the central bank. Also there would be no inflationary effect in the case where government borrows directly from commercial banks. When the debt is utilized efficiently it enhances productive capacity and economic growth through development related projects. Contrastingly when the debt is not effectively utilized and managed, it creates problems for the economy. Here we can sum up it that there is a direct relationship between domestic debt and inflation.

There is a significant literature which has identified the relationship between domestic debt and inflation. These include the direction from public debt to inflation, where 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). According to previous studies, Ahmad *et al.* (2012) have found that the volume of domestic debt and domestic debt servicing have significantly positive effects on price level. Harmon (2012) has found a 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. Also Lopes *et al.* (2014) have found public debt having a positive impact on inflation. Martin (2015) has also found a positive relationship between public debt and inflation. However, according to the literature review these findings are mixed up. It means that an exact relationship between public debt and inflation has not been identified. This motivated me to do the quantitative analysis between these two variables.

Objective

The main objective of this study was to identify the impact of public debt on inflation in Sri Lanka.

Methodology

Annual data of Sri Lanka from 1990 to 2015 was used for this study. Data on inflation (INF), public debt (PD), Gross Domestic Product Per Capita (GDPPC), Revenue (REV) are collected from the Annual Report of the Central Bank of Sri Lanka whereas Trade Openness (TO) was collected from the World Development Indicator (WDI) data base. Augmented Dicky-Fuller (ADF) and Phillips Peron (PP) unit root tests were conducted to test the order of integration. Akaike Information Criterion (AIC) was adapted to determine the optimal lag length of each series. The long-run relationship between the variables is shown below:

$$\text{LINF}_t = \beta_0 + \beta_1 \text{PD}_t + \beta_2 \text{REV}_t + \beta_3 \text{GDPPC}_t + \beta_4 \text{TO}_t + \varepsilon_t \dots \dots (1)$$

Where, ε_t is a white noise error term and t refers the period of time. We used Error Correction Model (ECM) to identify the short-run relationship among the variables. The model is given below:

$$\Delta Y_t = \beta_0 + \Pi Y_{t-1} + \sum_{i=1}^{p-1} \gamma_i^* \Delta Y_{t-i} + \varepsilon_t \quad (2)$$

where, $\Pi = \alpha\beta$ where α is the (5x1) vector of speed of adjustment coefficients, β is the (1 × 5) vector of co-integrating coefficients, $Y_t = [INF_t, PD_t, REV_t, GDPPC_t, TO_t]'$ vector of dependent variables, Y_{t-i} : lagged value of the Y_t and ε_t is the white noise error term.

Results and Discussion

The ADF and PP unit root tests confirmed that all the variables are stationary at their first difference and lag length selection criteria suggested the use of one lag 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 ECM results confirmed long-run positive and significant relationships between inflation (INF) and public debt (PD), and inflation (INF) and real GDP per capita (GDPPC), a negative and significant relationship between inflation (INF) and tradeopenness (TO), and inflation (INF) and Government Revenue (REV). It is given by the following equation.

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

Indeed, the positive effect of public debt on inflation supports 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 & Bofo (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. Further, ECM results show the coefficient of speed of adjustment and it explains how the above model adjusts towards long run equilibrium. There was a negative and significant error correction coefficient (-0.69) of inflation. It indicates that 69% of the disequilibrium is corrected each year which implies that inflation moves towards long run equilibrium.

Conclusion

This study attempts to identify the relationship between public debt and inflation in Sri Lanka. The 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 lag length selection criteria suggested to use one lag 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 ECM results confirmed a long-run positive and significant relationship between inflation (INF) and public debt (PD), inflation (INF) and real GDP per capita (GDPPC), a negative and significant relationship between inflation (INF) and tradeopenness (TO), inflation (INF) and Government Revenue (REV) in the long-run. There was a negative and significant error correction coefficient (-0.69) of inflation. It reveals that 69% disequilibrium is corrected each year which implies that Inflation moves towards long run equilibrium. This study confirms that the public debt has a significant impact on inflation in short-run and long-run. Therefore, special attention needs to be given by the government on reducing public debt in order to eradicate the inflation in Sri Lanka. From the policy perspective, governments should manage public debt in a right way to ensure stable economic development and prevent inflation in future.

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