



**Impact of public debts on inflation in Sri Lanka: A time series
analysis – 1977-2017**

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Abstract

Price stability is one of the fundamental macroeconomic goals of economies in both developed and developing countries in achieving sustained economic growth. This paper aimed to identify the long-run and short-run relationships between public debt and inflation in Sri Lanka by considering the open-economic policy phase (from 1977 to 2017) employing the time series econometric approach. The results of the study confirmed the positive relationship between public debt and inflation in Sri Lanka, and extending the existing knowledge-public debt is inflationary. It indicates that public debt has not adequately generated the growth benefits to the economy in the long-run and thereby aggregate supply is not increased in the economy. This has caused to establish a positive relationship between public debt and inflation in the economy in the long-run due to the supply deficits. Thus, the study suggests, if public debts are utilized to finance the budget deficit, the budget would be more economically growth-oriented, unless public debt would be inflationary in the long-run and debt sustainability will be a matter of the economy.

Keywords: *Aggregate demand, aggregate supply, inflation, public debt, Sri Lanka.*

1. Introduction

Price stability is one of the fundamental macroeconomic goals of economies in both developed and developing countries in achieving sustained economic growth. Inflation is mostly an economic policy-driven matter. The impact of the fiscal deficit on inflation is detrimental and profoundly discussed in academic literature (Fischer, Sahay & Vegh, 2002; Catao & Terrones, 2005; Kwon, McFarlane & Robinson, 2009; Mweni, Njuguna & Oketch, 2016; Veiga, Ferreira-Lopes & Sequeira, 2014; Romero & Marin, 2017). In

most developing countries, the fiscal deficit is relatively high and widening due to internal and external factors. This high and widening fiscal deficit in the economy leads creating a macroeconomic imbalance if sources of financing, primarily the public debt, are not suitably managed to achieve long-run sustain growth of the economy (Catao & Terrones, 2005). In majority of developing countries such as Sri Lanka, the fiscal deficit is due to, first, the expanding government expenditures in development-oriented fields. These productive and planned expenditures have a positive impact on economic growth. Second, the fiscal deficit is due to the governments' expenditures on growth destructive areas of the economy, e.g., financing the cost of unsustainable government business enterprises. Such expansionary fiscal deficit negatively influences the economic growth in short-run and long-run.

Public debt is one of the measures used to finance budget deficits. Theoretically, public debt is inflationary (Kwon, et al., 2009; Taghavi, 2000; Fischer, et al., 2002), but there is evidence on its positive impact on long-run economic growth (Nguyen, 2015; Veiga, et al., 2014). The quantity theory of money explains how an increase in money supply raises the price level of the economy via a change in the aggregated demand in the economy. In the long-run, the economy will stabilise since the increased aggregate demand creates an opportunity to increase the aggregate supply in the economy. Fiscal policies (Tax policy) adopted to increase government revenue also increase price levels of the economy.

In recent years, there was a contentious academic discussion on public debt and economic development in Sri Lanka. This is mainly due to the drastic increase of public debt during the last fifteen years. The country's total debts have nearly tripled during the last fifteen years, reaching LKR 10,313 billion in 2017 from LKR 2,222 billion in 2005 (Central Bank of Sri Lanka, 2017). The debt servicing commitment in the year 2019 is about USD 5 billion. Some argued that during the last decade, public debt was mainly utilized to develop infrastructure facilities in the country, which is essential for shifting the economy to the next structural cycle or address the issue of the so-called middle-income trap, and expects to generate growth benefits in the economy in the long-run (Prasanna, 2016). Another group argues that debts were primarily utilized to finance the deficit of the budget, which was heavily comprehended by the growth of destructive expenditure in the economy. The public debts were primarily utilized to finance the fiscal deficit in the economy. The fiscal deficit is vast, first, due to the delay in tax reforms required in addressing the deteriorating status of government revenue as a percentage of GDP. For instance, government revenue as a percentage of GDP declined from 19.6% in 1990 to 11.6% in 2014. Second, it is due to the finance of the cost of unsustainable government business enterprises, politically motivated decisions in the economy, and maintaining a relatively high public sector. Third, it is due to the increased government expenditures on large-scale development projects in the economy. Thus, the study of implications of public debts on the key macroeconomic variables in the economy is of paramount importance as it helps to formulate appropriate policies to make growth stability in the economy.

In this connection, the impact of public debt on inflation in the country is among the key research subjects, because theoretically, public debts are largely inflationary. Inflation erodes the purchasing power of money and thereby declines the value of real money balances of the people, affecting the contraction of the aggregate demand in the economy. Also, high inflation negatively affects macroeconomic stability. Thus, the maintenance of modest inflation in the economy is the key challenge to achieve sustained economic growth. In this background, the overall objective of this paper is to study whether there is any significant impact of public debts on inflation in Sri Lanka.

In this connection, the following specific points will be focused: 1) study the long-run relationship between public debt and inflation, and 2) examine the short-run dynamic relationship between public debt and inflation.

The paper was structured as follows: The first section establishes the theoretical discussion on the research subject followed by the debt issue in Sri Lanka. The second section reviews the results of previous studies in the field, and the third section explains the vital methodological steps of time series econometric analysis. Subsequently, the paper discusses the results and draws the concluding points for policy considerations.

2. Literature review

A vast body of theoretical and empirical literature exists and that attempts to study the nature of the impact of public debt on inflation because price stability is one of the main macroeconomic goals of a government. Public debts are mainly used to finance the budget deficits of the country, and thus, a strong link with economic growth is essential to maintain debt sustainability.

Using an extensive panel data set of 71 countries over 43 years, Kwon et al., (2009) investigated the relationship between the public debt, money supply, and inflation to test the hypothesis 'an increasing public debt typically inflationary in countries with large public debt'. The results of the study confirmed that the effects of public debt on inflation is strong in indebted developing countries and weak in developed countries; it had no significant effect in developed countries. The main concluding point of Kwon et al., (2009)'s study is the risk of experiencing the debt-inflation trap. Highly indebted countries have a significantly high level of debt-inflation and suggest the importance of adopting measures to establish the relationship between fiscal policy and inflation and thereby avoid inflationary effects of public debt on inflation in indebted developing countries.

Catao and Terrones (2005) tested the macroeconomic theory that hypothesises the persistent deficit is inflationary using data of 107 countries from 1960 to 2001 by employing the panel data technique. The study models the deficit – inflation relationship as an intrinsically dynamic and nonlinear in the inflation tax base. The results indicate a strong positive association between deficit and inflation among high-inflation and developing country groups.

Bildirici and Ersin (2007) also investigated the relationship between inflation and domestic debt by using three country groups – Mexico, Turkey, and Brazil, the countries with high inflation experiences, which result in increasing the cost of domestic debt; Belgium, Canada, and Japan with low inflation rate and low borrowings; and Portugal, Greece, and Spain with low inflation and high borrowings. The analytical model employed in the study is the Fully Modified OLS estimation and Vector Error Correction model. The results reveal that the rate of domestic debt/GDP ratio is not mattered, but the cost of borrowings and active fiscal regimes increase the vulnerability of emerging economies to the economic crisis.

Veiga et al., (2014) analysed the implications of public debt on economic growth and inflation by considering time series data of 52 African economies from 1950 to 2012. The findings of the study demonstrate the positive impact of public debt on inflation, indicating high public debt leads to higher economic inflation in the African region. Matin (2015) also provides supportive evidence to the positive impact of public debt on inflation by theoretically analysing the relationship between public debt and inflation.

Bon (2015) assessed the relationship between debt and inflation using the time series data of 60 developing countries in Asia, Latin America, and Africa. The period covered by the study is the 1990 – 2014 and the study employed the variables as real per capita GDP, private investment, labour force, government revenue, infrastructure, and trade openness as control variables. The results of the study confirm the unidirectional relationship between public debt to inflation and a positive and significant impact of debt on inflation. Further, the study confirms the significant and negative effect of inflation on public debt. Taghavi (2000) empirically tested the hypothesis ‘public debt has an adverse impact on investment, inflation, and economic growth in the large European economies’ by applying hybrid-co-integration and vector autoregressive (VAR) models. The study results indicate the inflationary effect of debt in the long-run.

The significant findings of selected studies of this review provide mixed results. Most studies recognise the inflationary effect of debts while some investigations give specific results, indicating the risk of having the debt-inflation trap by the developing countries where debt to GDP ratio is high. However, academic literature for Sri Lanka in the subject field is rare, even though the country experiences a drastic increase in public debt.

3. Methodology

3.1 Data and econometric model

The study used annual time series data of the period 1977 to 2017. Data on the variables, i.e., GDP deflator, public debt, per capita gross domestic product, and government revenue were obtained from the annual reports of the Central Bank of Sri Lanka and data on Trade Openness from the World Development Indicator (WDI) database. The time period considered for the study is 1977 to 2017, which is the unique period of open economic policy. It is the policy phase which mainly focuses on the economic growth-oriented policies and the period which considerably increases the public debt.

The econometric model was specified as follows to study the long-run relationship and short-run dynamics among the variables:

$$LGDPD_t = \beta_0 + \beta_1 \ln PD_t + \beta_2 \ln REV_t + \beta_3 \ln PCGDP_t + \beta_4 \ln TO_t + \varepsilon_t \quad (1)$$

Where $LGDPD$ represents the GDP deflator, PD is the public debt, REV is the government revenue, $PCGDP$ is per capita gross domestic product, TO is trade openness, ε is the stochastic error term, and β is parameters to be estimated. The variables REV , $PCGDP$ and TO , were employed as control variables in the model. All variables are in the logarithm form. The variables were transformed into a form of the natural logarithm as it reduces the problem of Heteroskedasticity because the transformation leads to reduce the scale. The explanatory variables in the econometric model were identified based on the theoretical literature in the field.

3.2 Unit root test

The recent development in time series econometrics has shown that most of the macroeconomic variables appear to be non-stationary. However, their first difference is stationary; if the series is found to be of the order $I = (1)$. It is generally true that any linear combination of these variables will also be in the $I(0)$ order. If the variables are non-stationary, estimating regression using the techniques of OLS can rise to the phenomenon of spurious regression (Granger & Newbold, 1974; Phillips, 1987; Gujarati, 2004). The formal method to test the stationary of a series is the unit root test. In econometrics, several tests check the stationary. Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are the most popular in academic literature. This study performed the ADF test to test the hypothesis of the presence of unit root. The ADF approach controls the higher-order correlation by adding lag difference terms of the dependent variable to the right-hand side of the regression. As indicated by Gujarati (2003), if the individual variable is y_t , the general form of the ADF test can be written as follows:

$$\Delta y_t = \alpha y_{t-1} + \sum_{i=1}^m \beta_i \Delta y_{t-i} + \delta + \gamma t + \varepsilon_t \rightarrow (2)$$

$$\Delta \Delta y_t = \alpha \Delta y_{t-1} + \sum_{i=1}^m \beta_i \Delta \Delta y_{t-i} + \delta + \gamma t + \varepsilon_t \rightarrow (3)$$

Where m is the number of lags and t is the time. The lag lengths (m) should be comparatively small to save degrees of freedom, but sufficiently large not to allow for the existence of autocorrelation in ε_t . The ε_t represents a sequence of uncorrelated stationary error terms with zero mean and constant variance. Having determined the appropriate value of significance, the hypothesis $H_0: \alpha = 0$ versus $H_1: \alpha < 0$. Rejection of H_0 means that y_t is $I(0)$ while the acceptance implies that it is integrated of order one. If the ADF statistics is larger than the critical value and the probability value is less than the 0.05, the series is stationary (Greene, 2007).

3.3 Cointegration test

After performing the stationarity test, the next step is to confirm whether there is a long-run equilibrium relationship between the variables incorporated in the model. The long-run relationship means that the variables move together over time so that short-run disturbances from the long-run trend will be corrected. In other words, a lack of cointegration indicates that such variables have no long-run relationship. The standard approach to investigate both the long-run relationship and the short-run dynamic between economic variables is the cointegration analysis and its error correction model representation. In this connection, Maximum-Likelihood cointegration test developed by Johansen, (1988) and Johansen & Juselius, (1990) was employed since it provides a unified framework for the estimation and testing of cointegration relations in the context of VAR error correction model.

Johansen (1988) has proposed two methods to decide the number r of cointegrating vectors which are the lambda – max test and trace test. The lambda-max test is based on the log-likelihood ratio $Ln[L_{max}(r)/L_{max}(r+1)]$ and is conducted sequentially for $r = 0, 1, \dots, k-1$. The test statistics involved is a maximum generalised Eigenvalue. This test tests the null hypothesis that the cointegration rank is equal to r against the alternative that the cointegration rank is equal to $r+1$. The trace test is based on the log likelihood ratio $Ln[L_{max}(r)/L_{max}(k)]$ and is conducted sequentially for $r = k-1, \dots, \dots, 1, 0$. The test statistics involved is the trace of a diagonal matrix of generalised eigenvalues. This test tests the null hypothesis that the cointegration rank is equal to r against the alternative that the cointegration rank is k .

3.4 Vector error correction model

If cointegration is proven to the existence of long-run relationship among the variables, then requires the construction of an error correction mechanism to estimate the dynamic relationship. The error correction model expects to specify the speed of adjustment from the short-run equilibrium to the long-run equilibrium position. The error correction model (ECM) can be formulated as follows;

$$\begin{aligned}
 LGDPD_t = & \sum_{i=1}^n \beta_0 RGDP_{t-i} + \sum_{i=1}^n \beta_1 LnPD_{t-i} + \sum_{i=1}^n \beta_2 LnREV_{t-i} + \sum_{i=1}^n \beta_3 LnPCGDP_{t-i} \\
 & + \sum_{i=1}^n \beta_4 LnTO_{t-i} + \delta_1 EC1_{t-1} + \varepsilon_{1t} \dots \dots (4)
 \end{aligned}$$

Where, n is the numbers of lags, $\beta_1, \beta_2, \beta_3,$ and β_4 are short-run coefficients to be estimated, $EC1_{t-1}$ represents the error correction term derived from the long-run cointegration relationship, and ε_{1t} the serially uncorrelated error term.

4. Results

4.1 Lag selection and unit root test

The study detects the optimal lag value and the stationary of time series data before the empirical analysis. Table 1 presents the results of the lag length selection criterions. According to the five criterions, the optimal lag value is three. Hence, the lag value 3 was used for further time series analysis.

Table 1
Results of lag length selection criterions

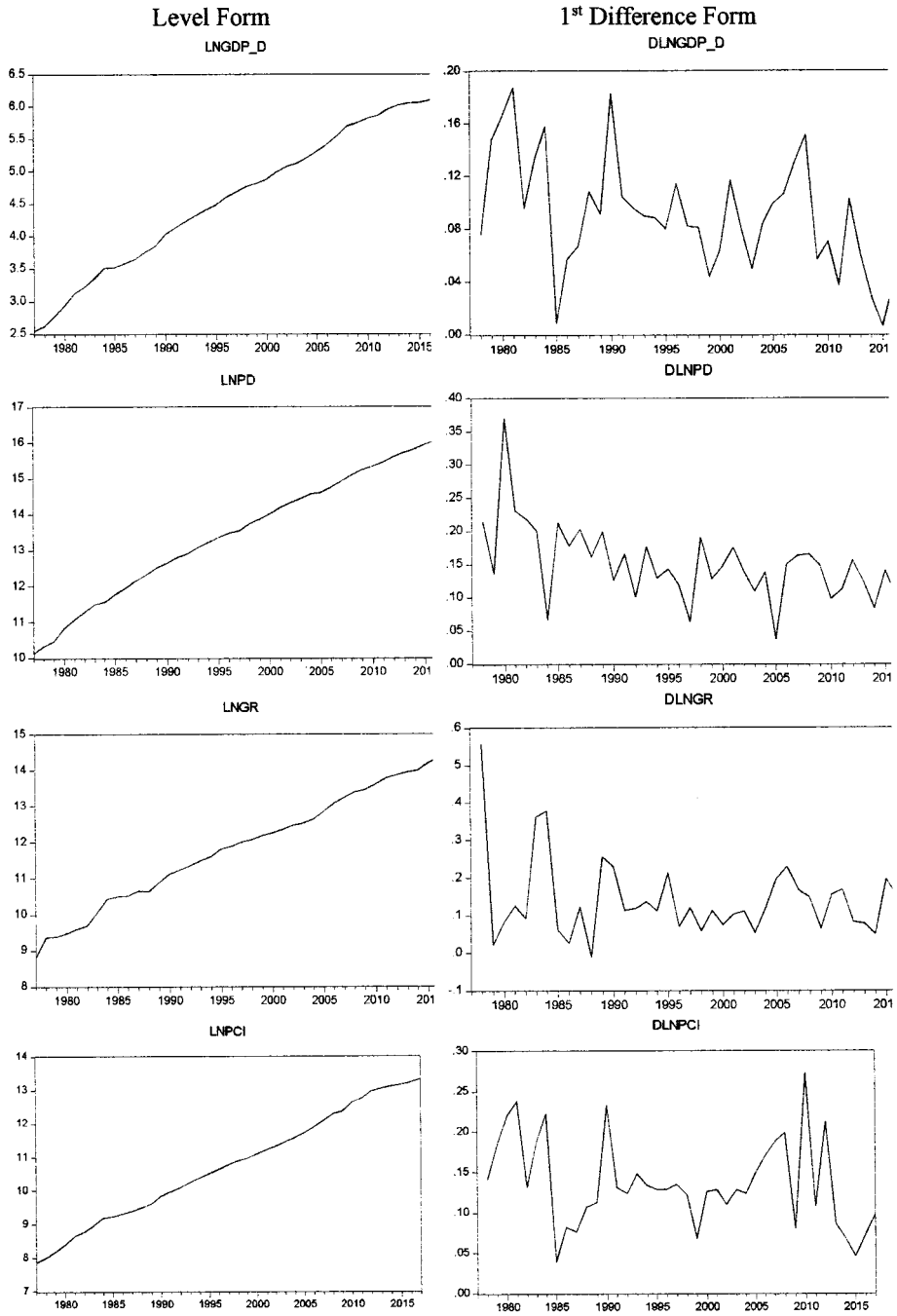
Lag	LogL	LR	FPE	AIC	SC	HQ
0	66.27721	NA	2.74e-08	-3.225116	-3.009644	-3.148453
1	313.1970	415.8650	2.35e-13	-14.90511	-11.22841	-14.44513*
2	342.5875	41.76542*	3.85e-13	-14.67596	-12.76599	-14.29289
3	358.8433	18.82249	2.00e-13*	-15.13618*	-13.61228*	-13.44935

Note: LR = sequential modified LR test statistic (each test at 5% level), FPE = Final prediction error, AIC = Akaike information criterion, SC = Schwarz information criterion, and HQ = Hannan-Quinn information criterion.

Table 2 presents the test results of the ADF test. It shows that all variables become stationary at their first deference form since three equations of ADF —trend, trend and intercept, and none – give significance levels at 5% level ($p < \alpha = 0.05$). It means ADF test does not reject unit root null hypothesis on the level and reject at 1st difference data. Thus, it was found that series are integrated order one $I(1)$. The graphical illustrations of the variables also show that all variables fluctuate around zero mean at their 1st difference form. Thus, all variables in the model transformed into the 1st difference form before performing the time series analysis as performing analysis using the variables on level lead to the problem of spurious regression.

Table 2
Results of Augmented Dickey-Fuller (ADF) test

Variables	Test Equations								
	Trend			Trend and Intercept			None		
	t- statistics	Critical Value (5%)	P Value	t- statistics	Critical Value (5%)	P Value	t- statistics	Critical Value (5%)	P Value
LNGDP_D	-3.2991	-2.936	0.021	-2.3786	-3.529	0.384	-2.3786	-3.529	0.3844
Δ LNGDP_D	-4.0436	-2.938	0.003	-4.9864	-3.529	0.001	-2.3362	-1.949	0.006
LNPD	-4.3200	-2.936	0.001	-2.6494	-3.526	0.262	1.49836	-1.949	0.964
Δ LNPD	-5.1050	-2.938	0.000	-6.8964	-3.529	0.000	-2.9510	-1.949	0.018
LNREV	-1.7789	-2.936	0.385	-2.2769	-3.529	0.436	7.61662	-1.949	1.000
Δ LNREV	-7.8112	-2.938	0.000	-7.6457	-3.529	0.000	-3.9852	-1.949	0.000
LNPCI	-1.6785	-2.936	0.434	-3.7368	-3.533	0.031	1.87106	-1.949	0.983
Δ LNPCI	-5.0708	-2.938	0.000	-5.3027	-3.529	0.000	-2.0861	-1.949	0.046
LNT0	-0.9358	-2.936	0.766	-1.7776	-3.526	0.696	-0.4960	-1.949	0.495
Δ LNT0	-5.6065	-2.938	0.000	-5.5240	-3.529	0.000	-5.6006	-1.949	0.000



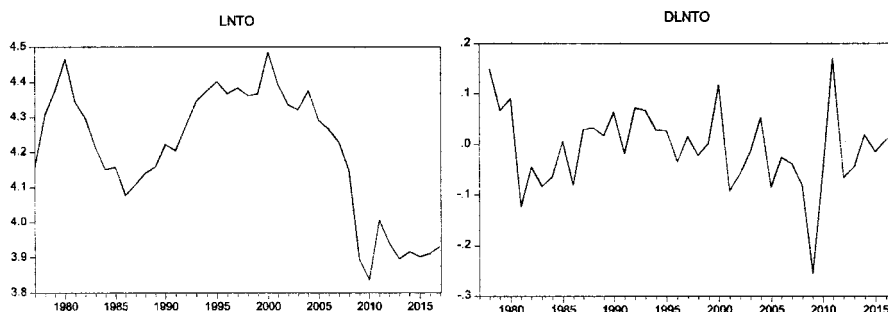


Figure 1 Graphical illustrations of variables employed in the model – at the level and at 1st difference level

4.2 Results of Johansen cointegration test

Both trace test and Maximum-Eigen statistics were used to identify the long-run relationship between the variables GDP deflator, public debt, government revenue, per capita gross domestic product, and trade openness ratio. Table 3 presents the test results. Accordingly, the study rejects the hypothesis that no cointegration exists, but fail to reject the hypothesis of the existence of more than one stationary linear combination. It means the variables used in the study are cointegrated or have a long-run association.

Table 3

Johansen cointegration test results

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.637226	83.04139	69.81889	0.0031
At most 1	0.389597	44.51032	47.85613	0.0997
At most 2	0.379808	25.75216	29.79707	0.1363
At most 3	0.153838	7.598535	15.49471	0.5093
At most 4	0.032381	1.250844	3.841466	0.2634

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.637226	38.53107	33.87687	0.0129
At most 1	0.389597	18.75816	27.58434	0.4334
At most 2	0.379808	18.15362	21.13162	0.1242
At most 3	0.153838	6.347691	14.26460	0.5690
At most 4	0.032381	1.250844	3.841466	0.2634

Note: * denotes rejection of the hypothesis at the 0.05 level and **MacKinnon-Haug-Michelis (1999) p-values.

The results of the Johansen cointegration test confirmed the long-run association among the variables. It indicates the close relationship between public debt and inflation in the long-run. The Trace test and Maximum Eigenvalue statistics confirm that there is one cointegrating equation, as presented below (see Appendix 1):

$$LNGDP_D_t = C_1(4.8377 + LNGDP_{D_{-1}} - 0.2897LNP_{D_{-1}} - 0.459LNGR_{-1} + 0.0655LNPCI_{-1} - 0.1824LNTO_{-1}) \text{-----} (5)$$

As shown in Appendix 1, the *CI* is the speed of adjustments towards long-run equilibrium, and it is significant at 1% significant level; the probability value is 0.0078. According to the results, the value of the speed of adjustment is -1.0322. Therefore, the long run equation can be re-arranged as follows.

$$LNGDP_D_t = -1.0322(4.8377 + LNGDP_{D_{-1}} - 0.2897LNP_{D_{-1}} - 0.459LNGR_{-1} + 0.0655LNPCI_{-1} - 0.1824LNTO_{-1}) \text{-----} (6)$$

$$LNGDP_D_t = -4.9935 - 1.0322LNGDP_{D_{-1}} + 0.299LNP_{D_{-1}} + 0.4738LNGR_{-1} - 0.0676LNPCI_{-1} + 0.1883LNTO_{-1} \text{-----} (7)$$

Finally, the results confirm the positive impact of public debt on inflation (*GDPD_t*) in the long-run. It indicates that a 1% increase of public debt leads to a rise of GDP deflator by 0.29% on the average in the long-run. Rest of the variables in the model also show a positive relationship with GDP deflator.

However, any short-run behaviour of the public debt deviating from this long-run equilibrium tends to adjust to the long-run equilibrium position over time. The presence of long-run association among variables leads to run Vector Error Correction Model (VECM) rather than Vector Auto-Regressive Model (VARM). As all the variables are cointegrated, the study used the VECM to assess the short-run impact of the independent variables on the dependent variable- inflation (*GDPD_t*). Table 4 presents the results of the VECM.

$$GDPD_t = -0.1204 + 0.8095LNGDP_{D_{t-1}} + 0.1676LNP_{D_{t-1}} - 0.3223LNGR_{t-2} + 0.0714LNPCI_{t-1} - 0.2103LNTO_{t-3} \text{-----} (7)$$

The results of the VECM show positive effect of public debt on inflation (*GDPD_t*) and the coefficient is statistically significant over the sampled period. The result indicates that a 1% increase in public debt leads to a rise in the value of GDP deflator by 0.16%. It designates that increased debt level in the economy leads to an increase in the price levels in the economy.

Table 4
Results of the vector error correction model

	Coefficient	Std. Error	t-Statistic	Prob.
<i>Intercept</i>	-0.120497	0.061378	-1.963176	0.0637*
<i>LNGDP_D_{t-1}</i>	0.809505	0.374788	2.159900	0.0431*
<i>LNGDP_D_{t-2}</i>	0.124409	0.347129	0.358395	0.7238
<i>LNGDP_D_{t-3}</i>	-0.131128	0.268895	-0.487655	0.6311
<i>LNPDI_{t-1}</i>	0.167662	0.150637	1.113019	0.0789**
<i>LNPDI_{t-2}</i>	0.002444	0.140551	0.017389	0.9863
<i>LNPDI_{t-3}</i>	0.194906	0.159031	1.225580	0.2346
<i>LNGR_{t-1}</i>	-0.084277	0.110485	-0.762792	0.4545
<i>LNGR_{t-2}</i>	-0.322388	0.100578	-3.205347	0.0044*
<i>LNGR_{t-3}</i>	-0.036169	0.073956	-0.489062	0.6301
<i>LNPCI_{t-1}</i>	0.071445	0.230654	0.309749	0.0600**
<i>LNPCI_{t-2}</i>	0.438003	0.268904	1.628847	0.1190
<i>LNPCI_{t-3}</i>	0.447898	0.262050	1.709210	0.1029
<i>LNTOI_{t-1}</i>	-0.097076	0.122787	-0.790606	0.4384
<i>LNTOI_{t-2}</i>	-0.176455	0.121762	-1.449181	0.1628
<i>LNTOI_{t-3}</i>	-0.210315	0.101710	-2.067795	0.0518*

Note: *Denotes significant at 0.05 probability level and **denotes significant at 0.1 significant level.

Table 5 presents the results of the validity tests of the model. It shows that 67.9% of the variability of the dependent variable – GDP deflator – is explained by the independent variables employed in the model. The F-test confirms the overall significance of the model. Since Durbin Watson statistic is close to 2 and Prob. chi-Sq. value is higher than 5%, this model does not suffer from serial correlation. As the Breusch-Pagan-Godfrey test statistics is higher than 5%, this model does not have Heteroskedasticity issue. The normality test confirms that the residuals of this model are normally distributed due to a higher p-value than the 5% level.

Table 5
Results of the validity tests of the model

Test	Statistics	
	Goodness of Fit	R-squared
Adjusted R-squared		0.422517
Overall Significance	Prob. (F-statistic)	0.020764
	F-statistic	2.646219
Durbin-Watson stat		2.220755
Breusch-Godfrey Serial Correlation LM Test	Obs*R-squared	3.860566
	Prob. Chi-Square	0.2769
Heteroskedasticity Test: Breusch-Pagan-Godfrey	Obs*R-squared	19.94912
	Prob. Chi-Square(20)	0.4611
Normality Test	Jarque-Bera Statistics	0.110502
	Probability	0.946248

5. Concluding remarks

This paper aimed to identify the long-run and short-run relationships between public debt and inflation in Sri Lanka by considering the open-economic policy phase (from 1977 to 2017). The study employed a time series econometric approach. The performed ADF test confirmed that all variables are stationary at their 1st difference level. The Johansen cointegration test revealed that there exists a long-run association between variables. The presence of a long-run association between variables leads to run the VECM and results indicated the short-run impact of the public debt on inflation (GDP deflator). The study results confirmed the positive relationship between public debt and inflation in Sri Lanka, and extending the existing knowledge—public debt is inflationary.

The key findings of this study draw several concluding points. The results suggest that the economy should have distinct measures to avoid the inflationary effect of public debt in the long-run. It indicates that public debt has not adequately generated the growth benefits to the economy in the long-run and thereby aggregate supply is not increased in the economy. This has caused to establish a positive relationship between public debt and inflation in the economy in the long-run due to the supply deficits. Further, it specifies the deficit between aggregate demand and aggregate supply, created by financing sources of the fiscal deficit, largely the public debt, in the economy largely filled by imports. Thus, the formulation of clear measures to establish a positive relationship between public debt and aggregate supply in the economy is crucial to reduce the inflationary effects of public debt in the long-run. It further means that Keynesian types of explanatory policies are less effective to induce the aggregate supply in the economy.

It is evident that the fiscal deficit, which is highly financed by the debts in the economy, is fundamentally due to the increased expenditures on unsustainable government business enterprises, politically motivated economic decisions, and the weak link of a debt-led infrastructure development project with production. For instance, in 2015, the government increased the salary about 1.4 million of public servants by LKR 10,000, making LKR 120 billion on the government budget (Ministry of Finance, 2015). This policy obviously resulted in an increase in aggregate demand in the economy and thereby created the supply deficit by providing the economy to the producers to induce their production. However, the policy failed to induce domestic output as expected, as the government did not properly analyse the immediate consumption steps of the middle-class workers, which is the vehicle. Thus, vehicle imports increased rapidly in 2015, making a heavy burden on the trade balance, the balance of payment, and depreciation of the rupee against major trade partner currencies. As Ranathilaka and Arachchi (2019) stated, the government annually spent over LKR 30 billion on fertilizer subsidy programme, but their relationship with productivity improvement in the rice sector is weak. Hence, they have suggested the need for improving the positive responsiveness of fertilizer subsidy on farm productivity. The expenses over loss-making public enterprises are another critical source of widening fiscal deficit in the country.

These typical examples on public expenditures provide clear evidence on the need of having appropriate measures, first, to link the public spending with production purposes

rather than the consumption purposes, second, to upgrade the efficiency and productivity of the economic activities, and third, to introduce appropriate economic reforms to the loss-making public enterprises.

Such measures will contribute to upgrade the aggregate production in the economy in the long-run and thereby minimise the inflationary effect of public debt resulted from expanding the fiscal deficit unless there is a risk in falling the economy into a debt-inflation trap. Particularly, if public debts are utilized to finance the budget deficit, the budget would be more economically growth-oriented, unless public debt would be inflationary in the long-run and debt sustainability will be a matter of the economy.

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