Public debt and economic growth: Evidence from Sri Lanka

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Introduction

Public debt has been widely recognized as a necessary supportive component for expediting the economic development process of developing countries. If borrowed funds are utilized by the public sector productively and efficiently it will be favorable to the economy. Along with this argument, the governments of those countries have tended to raise loans vastly from available internal and external sources. The debt cycle theory provides a rational for debt which contributes to enhance the economic growth of a country. Chaudhary and Anwar (2000) pointed out that a country borrows in the first stage, generates additional resources and is able to stand on its own feet in the second stage. If it continues to borrow the country will emerge as surplus of resources and it can repay the loans in the third stage. However, the literature emphasizes the relevance of country-specific factors in explaining the empirical relationship between public debt and growth (Panizza & Presbitero, 2012).

Inefficient utilization of public debt may have impact on macroeconomic fundamentals adversely. Public debt from domestic banking sources would lead to the inflationary pressures and credit rationing and crowding out of private sector investment. Along with these effects high level of debt servicing payments, making tough conditions related to borrowings and difficulties of fiscal balance would affect the economy harmfully. Therefore, public debt explores an important policy question that needs investigating empirically (Panizza & Prebitero, 2012).

With the introduction of liberalization economic policy in 1977, Sri Lanka underwent outstanding fiscal policy reforms. The government tended to get more foreign loans in order to implement long-term development projects and to ease the difficulties of balance of payments. As a result, the total public debt as a percentage of GDP was 72.5 in 1978 and it increased up to 103 percent in 2001. In recent years, it has gradually decreased especially in 2016 making total public debt 79.3 percent which comprises 45.1 percent domestic debt and 34.2 percent foreign debt (CBSL, 2016). Meanwhile, higher debt service payment made Sri Lankan economy face difficulties in debt management

Sri Lankan economy has recorded a considerable higher level of economic growth on average within the last four decades. So that the behavior of economic growth of Sri Lanka, apparently has been accelerated through the government

initiatives for infrastructure development. Nevertheless the debate is continuing as to know whether the public debt has really impacted on growth or used loan funds for mere consumption and extravagant privileges of the politicians or bureaucrats. Therefore, the reasoning for this argument is an important research problem that has not been studied adequately regarding the Sri Lankan context. Hence, this research focuses on investigating the empirical relationship between public debt and economic growth.

The primary objective of the study is to identify whether public debt affects the economic growth in short run and long run in Sri Lanka considering the period 1980 - 2016. The secondary objective is to identify the importance of selected macroeconomic and demographic variables among other determinants of economic growth in Sri Lanka.

Methodology

The theoretical framework constructed by Al-Zeaud and Ali (2014) has studied public debt and economic growth using Ordinary Least Squares (OLS) econometric model including other factors (investment rate, population growth rate, inflation rate, terms of trade rate, the rate of fiscal balance to GDP, trade openness, rate of public debt to GDP, debt service payment) that determining the economic growth in Jordan. With some modifications and improvements we used Vector Error Correction Model in the study.

$$GRGDP_{it} = \beta_0 + \beta_1\, PD_{it} + \beta_2\, INT_{it} + \beta_3 TO_{it} + \beta_4 PG_{it} + \varepsilon_t$$

Where; GRGDP is growth rate of GDP, PD is Public Debt as a percentage of GDP, INF is inflation rate, TO is trade openness as a percentage of GDP, PG is population growth rate. ε is the error term and, t is the time period (1980-2016).

Data were extracted from annual reports of Central Bank of Sri Lanka. Unit Root tests namely, Augmented Dickey Fuller (ADF) and Philip and Peron (PP) tests were conducted to test the stationary property of time series data and, Johenson Cointegrating and Vector Error Correction Model were used in the analysis to examine the long-run and short-run relationship of the variables.

Results and discussion

According to the results of unit root tests all variables are stationary at first difference suggesting that they are integrated in order [I(1)](see Table 1 in Appendix). In order to identify the lag length of variables SIC, LR, FRE, AIC and HQ criteria were used. The results of all these criteria suggest that one lag length (see Table 2 in Appendix). It is used for all the other tests of the study. After that Johanson Cointegration test was carried out in order to ensure that whether there is a long-run relationship between variables. According to the test,

one integrating equation is identified at 5 percent significant level. Thus, there is a long-run relationship between variables (see Table 1).

Table 1 Results of the Johanson Cointegration test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.539763	73.65685	69.81889	0.0239
At most 1	0.418054	46.49640	47.85613	0.0667
At most 2	0.393558	27.54820	29.79707	0.0889
At most 3	0.209803	10.04305	15.49471	0.2774
At most 4	0.050169	1.801490	3.841466	0.1795

*Trace test indicates 1 cointegrating eqn(s) at the 0.05 level, * denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values*

$$GRGDP_t = -0.026 + 0.0138PD + 0.029TO - 1.186PG - 0.103NF \quad \ldots\ldots\ldots\ldots (1)$$
$$[1.695] \quad [2.196] \quad [-2.982] \quad [-8.809]$$

The results (Equation 1) show that coefficients for public debt (PD), trade openness (TO), population growth rate (PG) and inflation (INF) are significant. By supporting to the primary objective of the study, the result shows that public debt has a positive impact on economic growth in long-run. Thus, government can utilize the borrowed funds in efficient ways to boost the economic growth in long-run. However, the positive impact is trivial and weakly significant, indicating that as public debt in Sri Lanka is at a higher level and it is difficult for the economy to bear the debt burden. This result is very much consistent with the findings of Panizza and Prebitero (2012). As TO, PG and INF variables which are included into the model are significant, they also affect the economic growth in long-run. Trade openness affects positively while inflation and population growth rate affect negatively for economic growth in Sri Lanka as important determinants of economic growth.

In order to find out the long -run adjustment and short- run relationship Vector Error Correction Model is used (see Table 2).

Table 2 Result of Vector Error Correction

D(PD(-1))	D(TO(-1))	D(PG(-1))	D(INF(-1))
0.007108	-0.012415	-0.157926	0.026841
(0.01016)	(0.01274)	(0.40601)	(0.01092)
[0.69938]	[-0.97457]	[-0.38897]	[2.45882]

Above results show that there is no impact of public debt on economic growth in short-run since PD variable is not statistically significant. It reveals that previous year public debt does not affect the current year economic growth. It takes time to enhance economic growth through public debt because it is a long-term process in which returns can be gained after some time lags. Similarly, trade openness

and population growth do not affect the economic growth in short-run. However, as INF variable is significant at 1 percent, it infers that inflation affects the economic growth in short run. Meanwhile, long -run adjustment does not exist in the model.

Conclusion and policy recommendations

The empirical results show that public debt has positive and significant effect on economic growth of Sri Lanka in the long-run but not in the short-run. Trade openness, population growth and inflation are found to be the factors which affect the economic growth in long-run. Thus, in order to ensure the long run economic growth, government should use public debt in efficient and effective manner. However, higher level of public debt may be a burden and decelerates the economic growth. Therefore, public debt should be maintained at optimum level and policy makers should deliberately make effort to manage public debt to accelerate the economic growth. Along with public debt, government can pay attention on foreign trade for better market environment; maintaining a moderate inflation rate and enhancing the quality of labor force to accelerate the economic growth in Sri Lanka.

Keywords: Economic growth, inflation, population growth, public debt, trade oppress.

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Appendices

Table 1 Results of unit root tests (1st difference)

Variable	Intercept		Trend and Intercept	
	ADF	PP	ADF	PP
GRGDP	0.0000	0.0000	0.0000	0.0000
PD	0.0000	0.0000	0.0002	0.0000
INF	0.0000	0.0000	0.0000	0.0000
TO	0.0000	0.0000	0.0001	0.0001
PG	0.0000	0.0000	0.0000	0.0000

*All variables are significant at 1% significant level

Table 2 Lag length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-347.309	NA	380.9565	20.1319	20.3541	20.20869
1	-275.431	119.112*	26.6011*	17.4532*	18.7860*	17.91345*
2	-260.983	19.814	53.352	18.0562	20.50034	18.89993

* indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.