Estimating the Relationship between Government Spending and Private Consumption in Sri Lanka

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Introduction

In general, government plays a vital role in the development process and contributes to ensure the social welfare of a country. In order to achieve a country's macroeconomic goals, the government intervenes in the economy in particular through fiscal policy. Government spending is a key component of fiscal policy which can be used to stabilize the economy over the course of the business cycle. Impacts of government spending on aggregate economic activity have been subject to vast discussion under different schools of thought. According to Keynes's Absolute Income Hypothesis, households' current consumption responds to current disposable income; thus an increase government spending leads to increase in output and employment (Athukorala and Karunarathna, 2004; Khan *et al.*, 2015). In contrast, under neoclassical theory and New Keynesian theories, expansion of government spending will crowd-out private consumption through negative wealth effect dominance (Agibaeva, 2015).

In the Sri Lankan context, although the government plays an important role in the economy, lack of fiscal discipline appears as one of the hurdles in accelerating economic growth due to a mismatch between government spending and revenue. Government expenditure, which consists of recurrent and capital expenditure shows an increasing trend while recurrent expenditure grew rapidly compared to the capital expenditure.. However, the government expects to stimulate economic activity with the help of engaging

in a large range of government spending. Meanwhile, economic growth shows a decreasing trend in recent years. Since private consumption is a major component of aggregate demand, it is important to find ways to boost private consumption for smoothening of economic performance especially when there is a weak growth.

Since the relationship between government spending and private consumption is a major concern of current academic discourse, a large number of empirical studies has focused on it and present mixed results. Khan *et al.* (2015) found government spending to have a positive impact on private consumption implying that government spending is a very good instrument to boost the economy. Similarly, an increase in government purchases leads to an increase in output and private consumption. The increase in labor remuneration induces households to sacrifice leisure in favor of consumption (Ravn et. al, 2007). Moreover, government spending increases or crowds-in private consumption following a spending shock because of the multiplier effect (Blanchard & Perotti, 2002; Athukorala and Karunarathna, 2004). This positive effect is also justified by the empirical studies of Ganelli & Tervala (2009) & Ihori (1990). In contrast, according to a study of OECD countries conducted by Ho (2001), the permanent income hypothesis is rejected and the crowding-out effect of government spending is supported. Moreover, there is substitutability between government spending and private consumption in the US economy (Kormendi, 1983).

Thus, findings of empirical studies contribute to broadening the existing knowledge on government spending and private investment in different scenarios. However, in the Sri Lankan context, research on government spending and private consumption is inadequate to trace the effects and contribute towards poliy formulation. Meanwhile, economic growth in Sri Lanka is required to accelerate, especially through inducing greater aggregate demand since the growth rate has slowed down. Hence, considering the current importance, this study attempts to fill the existing knowledge gap by investigating the nexus between government spending and private consumption in Sri Lanka.

Objectives

One objective of this study is to identify the impact of government spending on private consumption in Sri Lanka. The other objective is to contribute towards policy formulation to enhance the aggregate performance of the economy using selected variables.

Methodology

This study uses annual data covering the period 1980-2016 and data were extracted from Annual Reports of the Central Bank of Sri Lanka and from World Bank publications. A time series econometric method is employed for the study. The regression which was built using some selected variables following a study conducted by Khan et. al. (2015) is shown below.

$$LPC_t = \beta_0 + \beta_1 LGTS_t + \beta_2 LER_t + \beta_3 GDPR_t + u_t \qquad (1)$$

where, variables LPC, LGTS, LER and GDPR denote respectively logarithm of private consumption, logarithm of government spending, logarithm of exchange rate and growth rate of real GDP; u_t is a white noise error term, t = 1,2,…T. As the first step of the estimation, ADF and PP unit root tests were adopted to test the stationary property of data. When series are stationary at I(0) and I(1) Autoregressive Distributed Lag (ARDL) model which was developed by Pesaran *et al.* (2001) can be employed to find out the long-run and short-run relationship and long-run adjustment. The ARDL co-integration bound testing procedure is shown by Equation 2.

$$\Delta LPC_t = \rho_0 + \vartheta' LZ_{t-1} + \sum_{i=1}^{p} \eta_i \, \Delta LPC_{t-i} + \sum_{i=0}^{p} \pi_i' \, \Delta LZ_{t-i} + \varepsilon_t \qquad (2)$$

where, $\vartheta' = [\vartheta_1, \dots, \vartheta_4]$ refers to the long-run coefficients;

$LZ_{t-1} = [LPC_{t-1}, LGTS_{t-1}, LER_{t-1}, GDPR_{t-1}]$ is the vector of explanatory variables with lag one; $\eta_i \; and \; \pi_i' = [\pi_{1i,\dots}\pi_{3i}]$ refers to the short-run dynamic coefficients.

$\Delta LZ_{t-i} = [\Delta LPC_{t-i}, \Delta LGTS_{t-i}, \Delta LER_{t-i}, \Delta GDPR_{t-i}]$ denotes the vector of explanatory variables with lag i and ε_t is the white noise error term.The error correction version (ETC_{t-1}) of ARDL model is shown in Equation 3 as a transformation of Equation 2.

$$\Delta LPC_t = \beta_0 + \sum_{i=1}^{p} \eta_i \, \Delta LPC_{t-i} + \sum_{i=0}^{p} \pi_i' \, \Delta LZ_{t-i} + \gamma ETC_{t-1} + \varepsilon_t \quad (3)$$

Where γ is speed of adjustment which should be statistically significant and should have a negative sign. $\varepsilon_t$is a pure random error term. The first stage of the estimation bound testing procedure is employed in order to investigate the existence of long-run relationship. Meanwhile as this methodology considers both short-run and long-run relationships it facilitates policy making to attain expected changes of the economy through these variables.

Results and Discussion

According to the results of the ADF test, GDPR is stationary at level while the other variables of the model are stationary at 1st difference implying that variables are stationary at combination of I(0) and I(1) Thus, series are of different integrating orders, so that it is suggested to proceed with ARDL model. According to the lag length automatic selection following Akaike Information Criterion (AIC) the best model is ARDL (3,2,0,1) for the analysis. As a pre-requisite for accurate estimations, diagnostic tests were employed and results are given in Table 1

Table 1: The Results of Diagnostic Tests

Test	Probability
Normality Test (Jarque-Bera)	0.4537
Serial Correlation (BG LM test)	0.3927
Ramsey RESET test	0.1532
Heterockedasticity test (BPG)	0.9730

Results of above mentioned diagnostic tests confirm that residuals are distributed normally, residuals are not serially correlated, there is no specification error in the estimated model and disturbance term in the equation is homoscedastic, respectively. Meanwhile, recursive estimates

CUSUM plot lies within the upper and lower critical bound at 5% significant level so that it ensures the stability of parameters. As the next step of estimation, the results of bounds test show that F-statistic is 13.05 which exceeds the critical value of upper bound, 4.66 ensuring the presence of the long-run relationship.

Table 2: Results of ARDL (3,2,0,1) Model
Dependent Variable: LPC

Panel A: Long-run Coefficient Estimates				
Constant	LGTS	LER	GDPR	R^2
2.180	1.404*	-0.784*	0.145*	0.997
(0.000)	(6.401)	(-2.326)	(5.720)	
Panel B: Short-run Coefficient Estimates				
Lag Order	ΔLPC	ΔLGTS	ΔLER	ΔGDPR
0		0.020	-0.538***	0.009
		(0.224)	(-1.747)	(1.536)
1	-0.172	-0.148		0.009***
	(-1.143)	(-1.222)		(1.803)
2	0.171	0.105		
	(1.118)	(0.973)		
3	0.197			
	(1.059)			
Panel C: Error Correction Representation				
ETC(-1)	-0.152			
	(-1.885)***			

Note: t-statistics are given in parenthesis. *, **, *** show significant at 1%, 5% and 10% level respectively

According to the results all independent variables in the model are significant implying that variables affect the dependent variable, private consumption in the long-run. In line with one of the objectives of the study, government expenditure positively affects private consumption in the long-run, suggesting that government expenditure can be used as an influential instrument to boost the aggregate demand of the economy. Further, this finding is consistent with the findings of other empirical studies (Khan: 2015, Ravn et. al: 2007, Blanchard & Perotti: 2002). Moreover, GDPR has a

positive effect and ER a negative effect on private consumption in the long-run, implying that favorable economic growth is advantageous but, exchange rate depreciation is not advantageous for private consumption. Results of short-run relationship and long-run adjustment coefficients are represented in Panels B and C respectively. With regard to short-run relationship, one period lagged value of GDPR has a positive and significant impact on PC while LER has a negative and significant impact on PC in short-run. Meanwhile, ECT(-1) appears with negative sign and is significant, implying that the whole system can get back to the long-run equilibrium at the speed of 18.85% one period after the exogenous shock.

Conclusion

Empirical results show that government spending positively affects private investment in the long-run but not in the short-run. This ambivalence can be justified through government spending on wages which flow to households as income and then it leads to an increase in the level of private consumption. Thus, it is advisable to pay more attention to government spending in order to boost the economic performance of the country. Likewise, growth rate of real GDP positively affects private consumption implying that a higher level of growth stimulates the aggregate functioning of the economy. However, since exchange rate has a negative effect, the government should be aware of depreciation and take necessary action. Since there is no substantial impact related to the short-run, policy formulation should be focused on long-run adjustments of the variables.

References

Athukorala, W. and K.M.R. Karunarathna. (2004). The Impact of foreign direct investments on economic growth: evidence from Sri Lanka. *Sri Lanka Economic Journal*, 5(2): 97-134.

Ho, T. (2001). The government spending and private Consumption: A Panel Cointegration Analysis.*International Review of Economics and Finance*. 10: 95-108.

Ihori, T. 1990. Government Spending and Private Consumption. *The Canadian Journal of Economics*. 23(1): 60-69

Khan, K., F. E. I, Chen, Kamal, M. A., and B. N. Ashraf. (2015). Impact of government spending on private consumption using ARDL approach. *Asian Economic and Financial Review*. 5(2): 239-248.

Pesaran, M. H., Shin, Y. S. and J. Richard. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*. 5(3): 289-326.