FISCAL POLICY AND THE ECONOMIC GROWTH: A COMPARISON BETWEEN SRI LANKA AND INDIA

Manori Guruge[1], Achinthya Koswatta[2], and Suranga Silva[3]

Abstract

During the past decades, both India and Sri Lanka faced different public policy circumstances, a relatively short period of time, which resulted in a significant impact on the economic growth of both countries. This paper comparatively reviews the theoretical and empirical evidence on the effect of fiscal policy variables and government expenditure programs which focused on economic growth in India and Sri Lanka. The Estimated results confirm that in the long run using the Engel Granger Cointegration Test Total Government Spending will improve the GDP by 1% in Sri Lanka while Indian economy will improve by 59%. The total tax revenue will increase the GDP by 51% in Sri Lanka while in India, it will be 57%. In the short run there is no significant impact of fiscal policy variables on economic growth in Sri Lanka but Indian economy grows with the expansionary fiscal policy which was tested by the Error Correction Mechanism. According to obtained results, the Impulse Response Function strives when an external shock affects the total government spending level and the Sri Lankan economy does not adequately respond to such instances but Indian economy is strong enough to handle the external shocks which affect the country's spending level.

Keywords: Fiscal Policy, Recurrent Expenditure, Capital Expenditure, Direct Taxes, Indirect Taxes, Expansionary Policy

1. Introduction

Sri Lanka and India are two substantial economies linked geographically together, which are recognized as the leading economies in the South Asian region. The entire fiscal system of India includes the economic instruments consisting of taxes, spending, foreign and domestic loans, and transfers. The trend during the past few decades is that in Indian economy, the fiscal policy receives a significant importance towards the development activities of India. India's fiscal policy objectives include mobilizing adequate resources for

[1]Department of Social Studies, The Open University of Sri Lanka.
[2]Department of Economics, University of Colombo.
[3]Corresponding Author, Department of Economics, University of Colombo. E-mail: drsuranga@econ.cmb.ac.lk, drsuranga3@gmail.com

financing various programs and projects, to raise the savings and investment for increasing the rate of capital formation, to promote necessary development, etc. Therefore, Indian economy has articulated its fiscal policy incorporating the revenue, expenditure and public debt mechanisms in an inclusive manner. Sri Lankan economy has been overwhelmed with several challenges over the years. With regard to the fiscal policy in Sri Lanka, scholars have identified some of these challenges as: misappropriation of public funds, corruption and ineffective economic policies, lack of integration of macroeconomic plans and the absence of harmonization and coordination of fiscal policies, and inappropriate and ineffective policies.

This study attempted to investigate the impact of fiscal policy changes on economic growth in India and Sri Lanka separately and finally it attempted to compare the effectiveness of fiscal policy towards an accelerated economic boom. For this purpose, the study employed fiscal variables of both countries, including taxation, expenditure and debt levels of both countries and also its impact on Gross Domestic Product (GDP) for the period, 1990 to 2018.

2. Research Question and Hypotheses

The main research question in this study is:
"Is there any significant impact of Fiscal Policy variables on Economic Growth in Sri Lanka and India during the period from 1990 to 2018?"

The main hypotheses of this study are:
H0: There is no relationship between fiscal policy variables and economic growth in Sri Lanka and India during the study period.
H1: Fiscal Policy variables promote economic growth effectively.

3. Research Objectives

3.1 Main Objective

The main objective of this study is to examine the impact of fiscal policy changes on economic growth of Sri Lanka and India.

3.2 Specific Objectives

The specific objectives of this study can be identified as:

a) To understand the behavior of the expenditure and taxation policy instruments in Sri Lanka and India;
b) To measure the effectiveness of fiscal policy changes on economic growth and to compare Sri Lankan economy with Indian economy; and
c) To suggest some policy implications for implementing effective strategies for deficit reduction.

4. Literature Review

4.1 Empirical Studies from Sri Lanka

Amirthalingam (2013) has explained in his study titled "Importance and Issues of Taxation in Sri Lanka" that there are quite a few ways to finance the budget deficit in Sri Lanka and among those methods the tax revenue will be the best source which may consider the adverse repercussions of alternative sources such as money creation and debt. He further explained increasing share of tax revenue in GDP is an instrumental objective of economic development policy and Sri Lanka was not successful in raising adequate tax revenue to meet its public expenditure on general public services, social services, economic services, etc. In his paper, he has emphasized the need of enhancing tax revenue while analyzing the adverse repercussion of alternative deficit financing methods such as money creation and debt. He used secondary data published by the Central Bank of Sri Lanka, the Department of Inland Revenue, and the World Bank and illustrates its finding using graphs and tables. His suggestions included, reducing its dependency on money creation and debt, the country should take several measures including broadening the tax base, simplifying the tax rates, reducing the number of taxes, facilitating voluntary compliance, avoiding politically motivated tax amnesties and tax concessions, and avoiding political interferences and influences on tax administration to enhance tax revenue.

Dilrukshini (2009) conducted her study on "Public Expenditure and Economic Growth in Sri Lanka: Cointegration Analysis and Causality Testing" and her purpose of the study is to analyze the relationship between public expenditure and economic growth in Sri Lanka during 1952-2002. Her study tested the validity of Wagner's Law that there is a long-run tendency for public expenditure to grow relative to national income. This implies that public expenditure can be treated as an endogenous factor, not a cause of growth in national income. Further, she explains, Keynesian hypothesis treats public expenditure as an exogenous factor. According to Dilrukshini, in former approach, the causality runs from national income to the public expenditure while in the latter approach causality runs from public expenditure to national income. Finally, she found no empirical support either for the Wagner's Law or the Keynesian hypothesis, in the case of Sri Lanka.

4.2 Empirical Studies from India

Najaf (2016) conducted his study on "Impact of Fiscal Policy Shocks on the Indian Economy." The main objective of his study is to analyse the impact of fiscal policy on the economy of India. For this purpose, he has taken the data

from 1981 to 2010 and applied the Johansen co integration test, error correction model and variance decomposition model. His results are showing that there is long run association between GDP and other variables. He has attempted to identify the fiscal policy impact on monetary policy and other macroeconomic variables. He has identified the long run phenomena of the fiscal policy on the growth of the economy.

Yadav, Upadhyay, and Sharma (2010) in their paper titled "Impact of Fiscal Policy Shocks on the Indian Economy" analyzed the impact of fiscal shocks on the Indian economy using structural vector autoregression (SVAR) methodology. They used quarterly data for the period 1997Q1 to 2009Q2. Authors used two different identification schemes to assess the effects of shocks to government spending and tax revenues on output. Accordingly, the recursive scheme is based on the Cholesky decomposition and the second identification scheme Blanchard and Perrotti (1999) technique of using information on tax system to identify the SVAR model.

They found that the impulse responses obtained from both identification schemes behave in a similar manner, but the value of multipliers differs. In addition to that they identified that the shock to tax variable has a bigger impact on GDP than the government spending shock. Furthermore, they found in the extended four variable VAR model, the effects of fiscal shocks on private consumption were been assessed using the recursive identification scheme. Their findings indicate that the tax variable has larger impact on private consumption as compared to the government spending variable. They further explained that the short run the impact of expansionary fiscal shocks follow Keynesian tradition but the long run response is mixed.

4.3 Empirical Studies from the Globe

Hanusch, Chakraborty, and Khurana (2017), conducted their study on "Fiscal Policy, Economic Growth and Innovation: An Empirical Analysis of G20 Countries" and analyzed the effectiveness of public expenditures on economic growth within the analytical framework of comprehensive Neo-Schumpeterian economics. The authors used a fixed-effects model for G20 countries, and investigated the links between the specific categories of public expenditures and economic growth, apprehended in human capital formation, defense, infrastructure development, and technological innovation. They have found that the impact of innovation-related spending on economic growth is much higher than that of the other macro variables.

Rudolf (2015) led their study on "The Impact of Fiscal Policy on Economic Growth Depending on Institutional Conditions" and found the impact of fiscal policy on economic growth depending on the institutional conditions in the OECD countries over the time period 2000-2012. Their

analysis is based on the methods and tests of panel regression. From the analysis results they found that in the case of government spending there is (1) positive impact on economic growth in the countries with lower fiscal transparency; (2) negative impact in countries with higher fiscal transparency. Authors state that in less developed countries there is higher proportion of pro-growth spending within total government spending.

Andrei (2015) steered his study on "the fiscal consolidation consequences on economic growth in Romania" and found that in the context of the economic and financial crisis the modification of the fiscal policy coordinates they have seen either as a way to alleviate the impact of the crisis on the economic growth or as a necessity in order to reinsure fiscal sustainability. In both cases a correct estimation of the fiscal multipliers is crucial. His paper estimates the level of the fiscal multipliers for Romania in order to assess the impact on the economic growth generated by the fiscal consolidation process initiated in 2010. The results show that the levels of the fiscal multipliers are relatively low.

5 Methodology

To empirically analyze the impact of fiscal policy on economic growth in both India and Sri Lanka, the Engel Granger cointegration test specification was used to show the long-run relationships and dynamic interactions between public spending and revenue on economic growth. Specifically, to analyze the short run relationship, the Error Correction Mechanism (ECM) was employed. The Granger causality test was employed to test the direction of the causal effects. Finally, the study strived to test the response of external shocks due to the policy changes in Indian economy and Sri Lankan economy using the Impulse Response Function. In this study, annual data, spanning a period of thirty years, from 1988-2018 were obtained from various reports of the Central Bank of Sri Lanka, World Bank Data, Special Statistical Bulletin and IMF publications.

5.1 Data and Variables

To measure the economic growth, Gross Domestic Product (GDP) of both countries have been used. As the dependent variables taxation (T), Government Spending (G), Debt for India and Sri Lanka for the period 1990 to 2018 were used.

5.2 Analytical Tools

To understand the behavior of the variables graphical methods and summary statistics were used. To test for stationary of a series several procedures were developed. The most popular ones are Augmented Dickey Fuller (ADF) test. Then, Engel Granger co-integration test was employed to understand the

long run relationship. The Engel Granger co integration test was employed to understand the long run relationship. For the short run co-integrating relationship, the Error Correction Model was used.

In the short run, there may be disequilibrium. The Granger causation examines the causal relations among the variables employed in study used in the regression equation. Impulse Response Function was used to measure the trade balance behavior due to the external shocks. This represents the reactions of the variables to shocks hitting the system and this test was tested to identify the GDP behavior due to the external shocks to fiscal policy variables in Sri Lanka and India.

5.3 The Model

This study attempted to develop a similar model applied by Sylvia (2015) for Nigeria, that the economic growth (Real GDP) is a function of real value of taxation and real value of Government Expenditure for the time period 1990 -2018. A log-linear specification of the Sri Lankan model can be stated as follows:

$$GDP_{SL} = f(Texp_{SL}, Ttax_{SL}, Tdebt_{SL})$$

$$lnGDP_{SL} = \beta_0 + \beta_1 lnTexp_{SL} + \beta_4 lnTtax_{SL} + \beta_6 lnTdebt_{SL} \quad (1)$$

Where,

lnGDP$_{SL}$, implies logarithm of Gross Domestic Product of Sri Lanka
lnTexp$_{SL}$, implies the logarithm of real total expenditure of Sri Lanka
lnTtax$_{SL}$, implies the logarithm of real total tax of Sri Lanka
lnTdebt$_{SL}$, implies the logarithm of debt of Sri Lanka

Specifically a similar model was developed to identify the fiscal policy changes on economic growth in India which could be presented as follows:

$$GDP_{IND} = f(Texp_{IND}, Ttax_{IND}, Tdebt_{IND})$$

$$lnGDP_{IND} = \beta_0 + \beta_1 lnTexp_{IND} + \beta_4 lnTtax_{IND} + \beta_6 lnTdebt_{IND} \quad (2)$$

Where,

lnGDP$_{IND}$, implies logarithm of Gross Domestic Product of I
lnTexp$_{IND}$, implies the logarithm of real total expenditure of Sri Lanka
lnTtax$_{IND}$, implies the logarithm of real total tax of Sri Lanka
lnTdebt$_{IND}$, implies the logarithm of debt of Sri Lanka

6 Results and Discussion

This study endeavored to highlight the major moves in the economic policies in the face of the changing economic growth in Sri Lanka and India, which leads to a policy analysis and a comparison between two countries towards an effective fiscal policy recommendation.

6.1 Graphical Methods and Summary Statistics

The study was based on the annual time series data observed from 1990 to 2018 for twenty eight observations. The results of the impact of fiscal policy changes on Economic growth in Sri Lanka and India were compared. The discussion began by describing the data set and the results from the model selection procedure.

Table 1: **Descriptive Statistics**

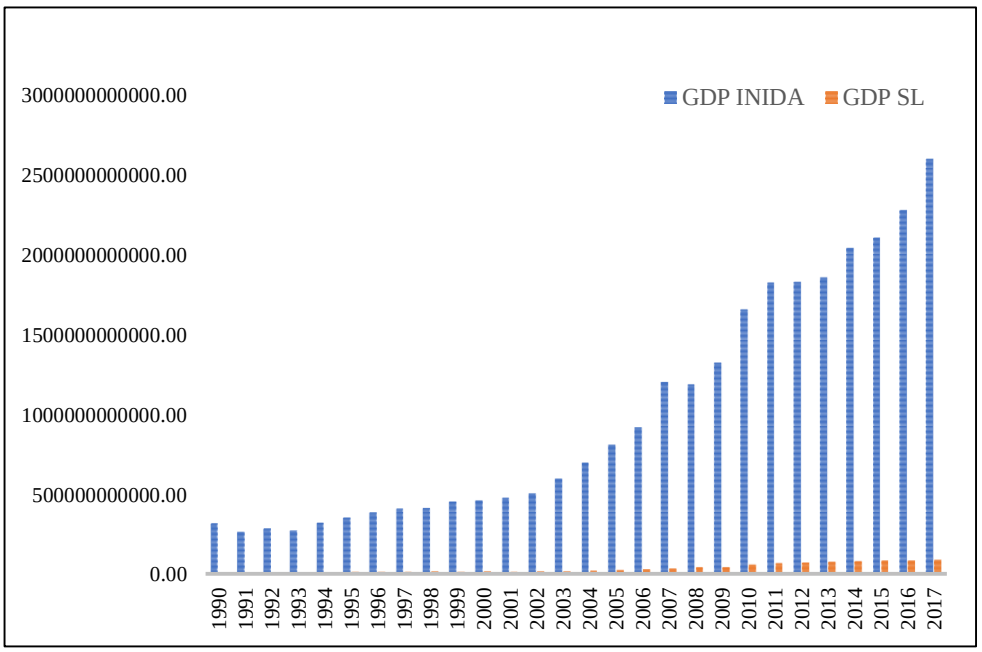
Description	**GDP (India)**	**GDP (Sri Lanka)**	**Debt (India)**	**Debt (Sri Lanka)**	**G (India)**	**G (Sri Lanka)**	**TAX (India)**	**Tax (Sri Lanka)**
Mean	9.95E+11	23.97116	5.07E+11	21.82282	1.33E+11	23.82963	1.02E+11	22.00749
Median	6.50E+11	23.70653	4.07E+11	21.76327	1.10E+11	23.72926	6.10E+10	21.67595
Maximum	2.60E+12	25.19118	1.06E+12	22.50769	2.85E+11	24.85984	2.62E+11	23.13373
Minimum	2.67E+11	22.80677	1.46E+11	21.04266	5.79E+10	22.77198	2.66E+10	21.14713
Std. Dev.	7.34E+11	0.787540	3.26E+11	0.473547	6.53E+10	0.666159	7.86E+10	0.630611
Skewness	0.721244	0.288700	0.362154	-0.143512	0.690478	0.164725	0.684938	0.410996
Kurtosis	2.083454	1.645131	1.538154	1.789136	2.413012	1.695906	1.986760	1.709388
Jarque-Bera	3.407633	2.530571	3.105216	1.806669	2.626858	2.110730	3.387086	2.731573
Probability	0.181988	0.282159	0.211695	0.405216	0.268896	0.348065	0.183867	0.255180
Sum	2.79E+13	671.1924	1.42E+13	611.0389	3.73E+12	667.2296	2.86E+12	616.2096
Sum Sq. Dev.	1.46E+25	16.74594	2.87E+24	6.054667	1.15E+23	11.98172	1.67E+23	10.73710
Observations	28	28	28	28	28	28	28	28

Source: Appended Table 1 and 2

Table 1 indicates the descriptive statistics of the main variables used in the study for India and Sri Lanka for the period of 28 years. According to that, it could be seen how big the Indian economy is in comparison to the Sri Lankan economy in terms of scale. Therefore, both countries should consider an outline of the budget that includes substantial reductions in government spending and also expanding its tax ratios in order to minimize the debt levels since both economies are following an expansionary fiscal policy

regime. The government should grow GDP and reduce deficits that are run every year and try to balance the debt portfolio. In order to simplify these relationships to identify the composite relationship we have used the other significant econometric tools as discussed below.

Figure 1: **GDP in India and Sri Lanka**

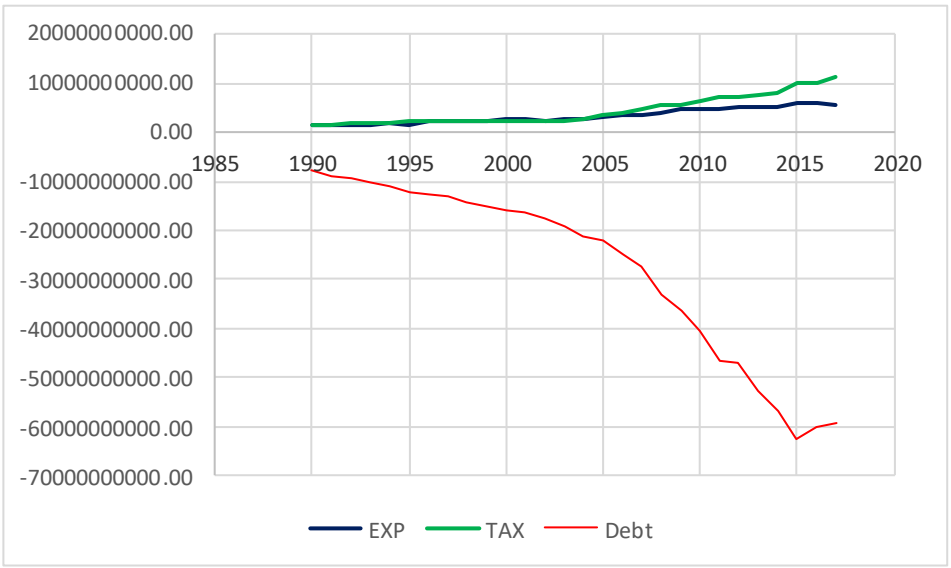


Source: Appended Table 1 and 2

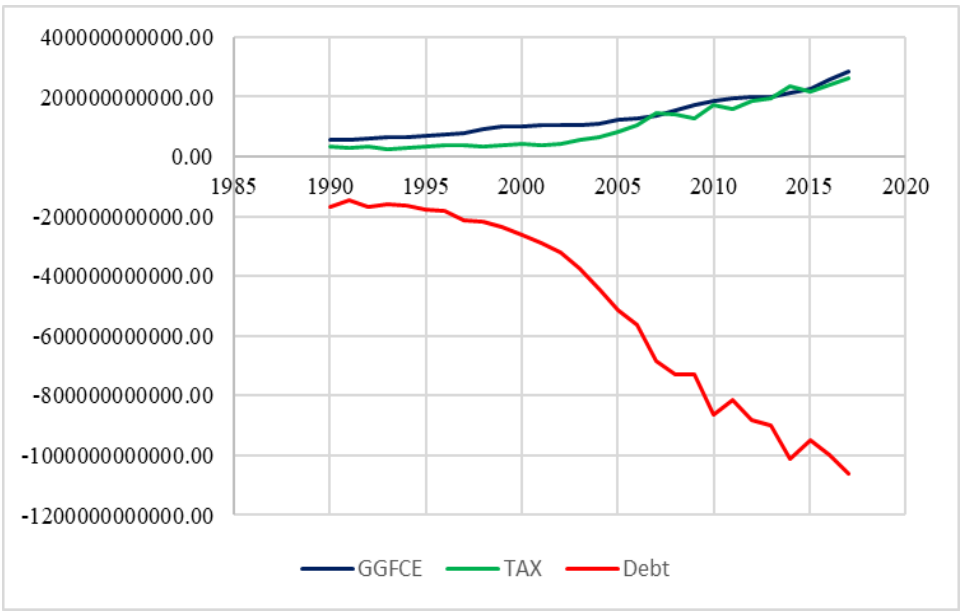
If we look at Figure 1, it could be seen how the GDP of India and Sri Lanka had grown over the study period. Both countries show the same pattern of GDP growth and the Indian GDP is extremely greater than Sri Lankan GDP as the Indian economy is more than 16 times greater than Sri Lankan economy.

Figure 2: **Taxation, Expenditure, and Debt (a) Sri Lanka (b) India**

a. Sri Lanka



b. India



Source: Appended Table 1 and 2

According to Figure 2, both countries recorded the same pattern of expansionary expenditure policy with higher debt levels. Since this budget deficit is widening continuously, the debt level is worsening as a chronic epidemic during the period.

6.2 Unit Root Test Results

In order to model the variable in a manner that captures the inherent characteristics of its time series, this study used the Akaike Information Criterion (AIC) to determine the lag structure of the series.

Once the maximum length of the lag is selected, Augmented Dickey-Fuller test was performed on each variable at level form and the results are shown in Table 2.

Table 2: **Unit Root Test Results**

Variable	**First difference Data (Sri Lanka)**	**First Difference Data (India)**
	ADF Test Statistic	
	Intercept and Trend	**Intercept and Trend**
Gross Domestic Product	-3.565 (0.031) [-3.622]	-5.411 (0.000) [-3.595]
Debt	-3.927 (0.025) [-3.622]	-6.589 (0.000) [-3.592]
Tax Revenue	-4.285 (0.011) [-3.595]	-5.285 (0.000) [-3.233]

Source: Appended Table 1 and 2

ADF unit root test with Mackinnon one-side p-values done for level data established the fact that all the level data in the variables used in this modal were non-stationary at 5% significant level and in with intercept and trend included in the equation. Therefore, developing a model based on non-stationary data series is not desirable. Hence, to make the research modal validated, the stationary could be tested in the first difference level and by performing a Engal – Granger co-integrating test it could be made sure that this research modal is valid as a result of the variables become stationary in first difference and the said variables co-integrated in long run making a long run relationship between the variables. The table shows the ADF results when the test was performed on 1st difference on each variable. ADF Unit root test of 1st difference data has been used to reject the null hypothesis and accept the alternative hypothesis. This made sure that all the variables concerned were stationary at difference level and their level of integration is I(1). If the variables were not stationary at level form, but stationary at first difference, then a valid long run relationship modal could be developed on level data provided that the series were co-integrated in the long run.

Engle and Granger (1987) established that "if each element of a vector of time series X_t is stationary only after differencing, but a linear combination $\propto' X_t$ needs not be differenced, the time series X_t have been defined to be co-integrated of order with co-integration vector $\propto$. Interpreting $\propto' X_t = 0$ as a long run equilibrium, co-integration implies that equilibrium holds except for a stationary, finite variance disturbance even though the series themselves are non-stationary and have finite variance." To test the co-integration, the Engle- Granger test on residual of the model should be run using level data. The long run relationship of the study for Sri Lanka is:

$lnGDP_{sl} = \beta_0 + lnTexp + \beta_2 lnTexp + \beta_3 lnTdebt + U_t$
Applied model is
$lnGDP_{sl} = \beta_0 + lnTexp + \beta_2 lnTexp + \beta_3 lnTdebt$
U = error term.
The long run relationship of the study for India is:
$lnGDP_I = \beta_0 + lnTexp + \beta_2 lnTexp + \beta_3 lnTdebt + U_t$

Applied model is:
$lnGDP_I = \beta_0 + lnTexp + \beta_2 lnTexp + \beta_3 lnTdebt$
GDP= Gross domestic production in India
Texp= Government Expenditure
Tdebt = Total debt
U is the residual of the modal and it is called as error correction term and to test the co-integrating property of the residual using Engle- Granger test was conducted. In Engle- Granger test hypothesis was:

H_0: Residual series has a unit root

H_1: Residual series does not have a unit root.

The R^2 is 0.9962 and the Durbin-Watson statistic is 1.2638. Since R^2<DW Statistic, the series is not spurious and suitable for regression. Also, calculating residual of this regression estimate was stationary at level form, the model was suitable for regression and to obtain log run relationship (Engle and Granger, 1987).

Since p-value for ADF was less than 0.05 (0.0329), it also supported to decide that the null hypothesis of the residual series had a unit root that can be rejected and accept the alternative hypothesis that the residual series had no unit root. The variables used in the model was non-stationary at level, but stationary at first difference. Then the residual series of the model was stationary at level. Therefore, the model co-integrated and could be considered as long run model.

The R^2 is 0.9960 and the Durbin-Watson statistic was 1.0920. Since R^2<DW Statistic, the series was not spurious and suitable for regression. Also, calculating residual of this regression estimate was stationary at level form, the model was suitable for regression and to obtain log run relationship (Engle and Granger, 1987). Since p value for ADF was less than 0.05 (0.0329), it also supported to decide that the null hypothesis of the residual series had a unit root could be rejected and accept the alternative hypothesis that the residual series had no unit root. The variables used in the model was non-stationary at level, but stationary at first difference. Then the residual series of the model was stationary at level. Therefore, the model co-integrated and could be considered as long run model.

6.3 Long Run Relationship

Engel Grager Cointegration between the levels variables, estimated through the OLS method for Sri Lanka as follows:

$$lnGDP = \beta_0 + lnTexp + \beta_2\, lnTexp + \beta_3\, lnTdebt$$

$$lnGDP_{SL} = -4.075993 + 0.01 lnTexp + 0.51 lnTtax - 0.68 lnTdebt \quad (3)$$

According to equation 3, estimated results confirms that in the long run following relationships exist:

a) 100% increase in Total Government Spending will improve the GDP only by 1% in the long run in Sri Lanka during the study period.
b) 100% increase in Total tax revenue will improve the GDP by 51% in the long run in Sri Lanka during the study period.
c) 100% increase in Total debt will reduce the GDP by 68% in the long run in Sri Lanka during the study period.

Engel Grager Cointegration between the levels variables, estimated through the OLS method for India as follows:

$$lnGDP = \beta_0 + lnTexp + \beta_2\, lnTexp + \beta_3\, lnTdebt$$

$$lnGDP_{IND} = -2.713388 + 0.59 lnTexp + 0.57 lnTtax - 0.01 lnTdebt \quad (4)$$

According to equation 4, estimated results confirmed that in the long run following relationships exist:

a) 100% increase in Total Government Spending will improve the GDP by 59% in the long run in India during the study period.
b) 100% increase in Total tax revenue will improve the GDP by 57% in the long run in India during the study period.
c) The impact of debt on economic growth in India is not significant as the probability value is (0.8301).

Therefore, according to the results, the main conclusion is that India's expenditure policy directly enhances countries economic growth (59%) while Sri Lanka's expenditure policy enhances growth only by less than 1%. Therefore, Sri Lanka also follows the investment oriented expenditure policy by increasing capital expenditure and reducing high scale of recurrent expenditure.

6.4 Short Run Relationship

In order to test for causality between the series GDP and fiscal policy tools through the ECM, it is necessary to verify if the two series are cointegrated. The following function represents Sri Lanka's short run relationship:

$$\Delta lnGDP = \beta_0 + \Delta lnTexp + \Delta\beta_2\, lnTtax + \Delta\beta_3\, lnTdebt$$
$$\Delta lnGDP_{SL} = 0.009626 + 0.01 lnTexp + 0.32 lnTtax - 0.73 lnTdebt \quad (5)$$

As shown in equation 5, estimated results confirms that in the short run following relationships are existing:

a) 100% increase in Total Government Spending will improve the GDP by 1% in the short run which is not significant in Sri Lanka.
b) 100% increase in Total tax revenue will increase the GDP by 32% in the short run during the study period in Sri Lanka.
c) 100% increase in Total debt will reduce the GDP by73% in the short run during the study period in Sri Lanka.

$$\Delta \ln GDP_{IND} = 0.004204 + 0.6\ \ln Texp + 0.59 \ln Tta + -0.01 \ln Tdebt \quad (6)$$

As shown in equation 6, estimated results confirmed that in the short run following relationships are existing:

a) 100% increase in Total Government Spending will improve the GDP by 60% in the short run in India.
b) 100% increase in Total tax revenue will increase the GDP by 59% in the short run during the study period in India.
c) 100% increase in Total debt will improve the GDP by 1% in the short run during the study period in India.

According to the estimated results for the short run relationship, India's fiscal policy is very effective in enhancing economic growth while Sri Lanka's fiscal policy does not make any significant impact in the short run except the taxation. Therefore, Sri Lanka should get her way out of prevailing ad hoc fiscal policies.

6.5 Causal Relationship

The above analysis suggests that there exists a long-run relationship between government revenue and expenditure in both countries. But, in the direction of determining which variable causes the other, Granger causality test was used. The Granger causality test results are presented in Table 3 for Sri Lanka.

Table 3: **Granger Causality Test Results for Sri Lanka**

Null Hypothesis:	Obs	F-Statistic	Prob.
LNGGFCE does not Granger Cause LNGDP	26	0.48059	0.6251
LNGDP does not Granger Cause LNGGFCE		1.73462	0.2008
LNTAX does not Granger Cause LNGDP	26	0.05286	0.9486
LNGDP does not Granger Cause LNTAX		1.01868	0.3782
LNDEBT does not Granger Cause LNGGFCE	26	2.92881	0.0755
LNGGFCE does not Granger Cause LNDEBT		1.05839	0.3648

Source: Appended Table 1 and 2

According to Table 3, the estimated results for bi-directional causality for the fiscal policy instruments on economic growth in Sri Lanka recorded a significant relationship for all the variables.

Table 4: **Granger Causality Test Results for India**

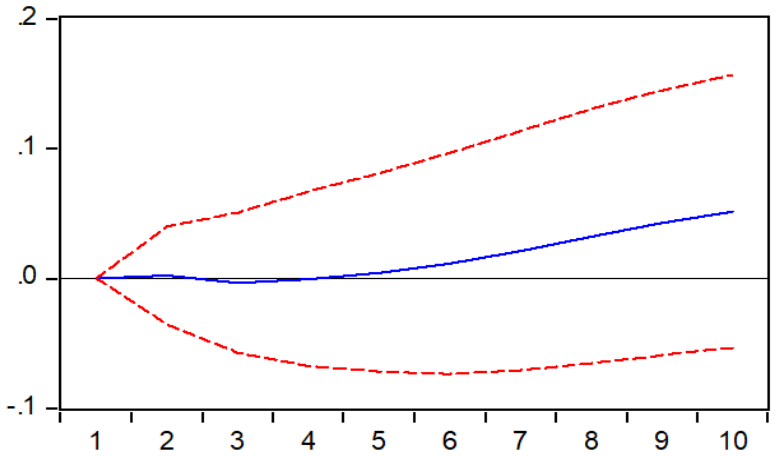
Null Hypothesis	**Obs**	**F-Statistic**	**Prob.**
LNGGFCE does not Granger Cause LNGDP	26	0.25079	0.7805
LNGDP does not Granger Cause LNGGFCE		2.00402	0.1598
LNTAX does not Granger Cause LNGDP	26	0.18267	0.8344
LNGDP does not Granger Cause LNTAX		1.82924	0.1852
LNDEBT does not Granger Cause LNGDP	26	7.20142	0.0042
LNGDP does not Granger Cause LNDEBT		3.08198	0.0670

Source: Appended Table 1 and 2

According to Table 4, the estimated results for bi-directional causality for the fiscal policy instruments on economic growth in India records a significant relationship for all the variables.

6.5 Impact of External Shocks (Impulse Response Function Results)

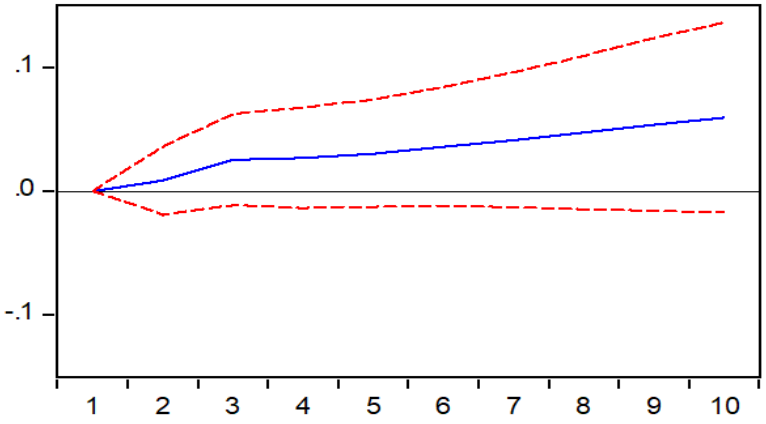
Figure 3: **Response of GDP due to the Shocks to the Government Spending in Sri Lanka**



Source: Appended Table 1 and 2

When there is a shock to the government spending, that will not generate any significant effect on the GDP during the first five years and then the shock will improve the GDP gradually in Sri Lanka.

Figure 4: **Response of GDP due to the Shocks to the Government Spending in India**



Source: Appended Table 1 and 2

When there is a shock to the Government Spending in India, that will positively affect the GDP and the GDP will improve sharply during the first three years because of the external shock. Then the impact will decay slowly.

According to the results obtained from the Impulse Response Function, it can be concluded that, the Indian economy is comparatively strong enough to handle external shocks with compared to Sri Lankan economy.

7. Conclusion

Overall, the theoretical framework discussed in this study was premised on the endogenous growth theory which analyses the nature of the relationship between fiscal policy variables and economic growth in the economies of Sri Lanka and India. With this, the relationship between output in the economies and the other variables to be used for this study are specified were tested. Estimated results confirm that in the long run following relationships exist; 100% increase in Total Government Spending will improve the GDP by 1% in Sri Lanka while Indian economy improves by 59%. Total tax revenue will increase the GDP by 51% while India's 57%. In the short run, there is no significant impact of fiscal policy variables on economic growth in Sri Lanka but Indian economy grows with the expansionary fiscal policy in the short run. According to the Impulse Response Function results, when an external shock affects the total government spending level, Sri Lankan economy does not adequately respond but Indian economy is strong enough to handle the external shocks which affect the country's spending level.

8. Policy Recommendations

There is overwhelming evidence that government spending is not effective in Sri Lanka compared to Indian economy and that Sri Lanka's economy could grow much faster if the burden of government was reduced. Taxes on goods and services and deficits are both harmful, but the real problem is that government is taking money from the private sector and spending it in ways that are often counterproductive in Sri Lankan context. Fiscal policy should focus on reducing the level of government spending on nonproductive purposes as Indian economy does, with particular emphasis on those programs that yield the lowest benefits or impose the highest costs. Therefore, shrinking the size of recurrent expenditures and enhancing capital expenditure should be a major goal for policymakers in Sri Lanka. If this is considered, the Sri Lankan economy certainly would perform better, and this would boost prosperity and make Sri Lanka more competitive. India also should continue this towards the "East Asian Model" of economic growth.

References

Amirthalingam, K. (2013). Importance and Issues in Taxation in Sri Lanka. *Colombo Business Journal, Vol. 4, No. 1*, Colombo.

Andrei, B. (2015). The Fiscal Consolidation Consequences on Economic Grwoth in Romania. *Journal of Economic Forecasting*.

Central Bank of Sri Lanka, *Annual Reports*, Various Years.

Dilrukshini, W. A. (2009). Public Expenditure and Economic Growth in Sri Lanka. *Staff Studies, 32*(1), 32. doi:10.2156/ss.v47i1.3210.

Hanusch, H., Chakraborty, L. S., and Khurana, S. (2017). Fiscal Policy, Economic Growth and Innovation: An Empirical Analysis of G20 Countries. *Levy Economics Institute of Brad College*. Working paper no. 883

Yadav, S., Upadhyaya, V., and Sharma, S. (2010). Impact of Fiscal Policy Shocks on the Indian Economy. *The Journal of Applied Economic Research (SAGE)*.213 -248

Sylvia, A. (2015). Fiscal Policy and Economic Growth in Nigeria. *Sage Open.* 113-124

Appendices

Table 1: **Variables in India**

INDIA				
	GDP	GGFCE	TAX	DEBT
1990	316697337894.51	57986433014.44	3289428571.43	167181142857.14
1991	266502281094.12	57889097922.40	29647007042.25	145773327464.79
1992	284363884080.10	59887311516.47	32850792253.52	166447623239.44
1993	275570363431.90	63441938514.13	26570007107.32	161127221037.67
1994	322909902308.89	64319850480.66	29402357438.67	162349792927.68
1995	355475984177.45	69339244204.33	34258392362.18	176332306744.69
1996	387656017798.60	72556990656.15	36250563063.06	179548423423.42
1997	410320300470.28	80721445535.65	38289053905.39	214052255225.52
1998	415730874171.13	90563350637.71	34790466973.14	215776917493.35
1999	452699998386.91	101228493960.20	39831168831.17	236788265306.12
2000	462146799337.70	102621260010.58	41894888888.89	261561777777.78
2001	478965491060.77	105036246931.59	39605970781.28	289309337285.62
2002	508068952065.90	104841668586.11	44480872069.11	320690867955.57
2003	599592902016.35	107751924990.15	54580686695.28	372677253218.88
2004	699688852930.28	112035851169.62	67349381625.44	440463780918.73
2005	808901077222.84	121987100238.73	83197455123.84	513552601681.44
2006	920316529729.75	126592187775.17	104782473998.67	561761009072.80
2007	1201111768410.27	138708510596.13	143967718446.60	683643203883.50
2008	1186952757636.11	153100199205.08	139437456807.19	727753973738.77
2009	1323940295874.06	174350535549.63	129248137417.22	728031870860.93
2010	1656617073124.71	184413340746.95	173728806133.63	862819277108.43
2011	1823049927772.05	197063742482.04	160521754829.39	813170247337.06
2012	1827637859136.23	198261940845.90	188558180227.47	881790026246.72
2013	1856722121394.42	199393834825.95	196419262555.63	898250158931.98
2014	2039127446299.30	214519083464.87	234608008075.37	1010001682368.78
2015	2102390808997.09	229001374041.58	217944003593.35	950247042970.51
2016	2274229710530.03	256841425530.38	241148454827.74	997475972201.69
2017	2597491162897.67	284936364638.75	262279334770.56	1063222513089.01

Table 2: **Variables in Sri Lanka**

SRI LANKA				
	GDP	GGFCE	TAX	DEBT
1990	8032551173.24	1376288478.53	1527858212.68	7757888167.75
1991	9000362581.58	1459546032.20	1647498187.09	8863862702.44
1992	9703011635.87	1534129004.95	1742026009.58	9252977412.73
1993	10338679635.76	1580380839.38	1806167218.54	10007615894.04
1994	11717604208.82	1773007072.35	2011675435.05	11114771347.63
1995	13029697560.98	1445477293.47	2313034146.34	12332585365.85
1996	13897738375.25	2196062335.93	2355762619.87	12833725348.29
1997	15091913883.71	2365379618.79	2415867096.12	12995033056.45
1998	15794972847.17	2448595842.03	2286547711.40	14088456167.57
1999	15656327859.57	2387205411.29	2350339750.85	14890444507.36
2000	16330814179.98	2845875344.07	2368419685.76	15825217504.22
2001	15749753804.83	2729690753.58	2302964869.10	16253143880.06
2002	16536535647.08	2457187763.13	2318482124.19	17450177712.73
2003	18881765437.22	2574423315.94	2400000000.00	19310515955.24
2004	20662525941.30	2812684976.12	2782409328.99	21143660440.76
2005	24405791044.78	3150433897.93	3351532338.31	22112845771.14
2006	28267410542.52	3452331979.48	4122596477.72	25085112116.25
2007	32351184234.32	3708034908.01	4600858795.88	27496700415.84
2008	40715240468.94	4070570032.73	5405898643.04	32904735530.32
2009	42067974595.44	4721860293.65	5384835566.38	36205167913.69
2010	56728002830.36	4796832949.76	6410282129.52	40608924464.89
2011	65289915890.39	4696164254.38	7349290042.51	46426426698.02
2012	68436230407.52	4980118059.44	7123126959.25	47022805642.63
2013	74294206490.59	4984779931.01	7793367939.88	52632284806.69
2014	79359306575.52	5282665114.10	8045054652.56	56609214154.41
2015	80554807486.39	5823386851.23	9978518737.60	62587958192.26
2016	81788375089.98	5956131250.66	10037641343.15	59882114936.22
2017	87174682200.43	5644789103.13	11139075044.79	59053891579.86