

The Impact of Tax Revenue on Economic Growth: An Empirical Analysis of Sri Lanka

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Introduction

It is important to analyze the impact of tax revenues on economic growth due to the fact that the state uses fiscal policy as an instrument to control the economy. A country's tax system is one of the determinants of other macroeconomic indices such as economic growth, public debt, fiscal deficit and inflation. Likewise, the macroeconomic status of a country has a major bearing on its tax structure. Specifically, there exists a relationship between the level of economic growth and development and the tax structure. Indeed, it has been argued that the level of economic development has a very strong impact on a country's tax base (Musgrave, 1969). Currently, Sri Lanka's fiscal and taxation system is at a critical juncture. While overall GDP as well as per capita income have been steadily increasing, total government revenue and tax revenue have been decreasing over time (Amirthalingam, 2013). The total revenue collection for the year, amounting to Rs.641,547 million shows an increase of Rs.81,124 million or 14.47% over that of the previous year. It amounted to a 38.02% contribution to total Government Revenue and 5.42% to GDP of the year (Department of Inland Revenue, 2016).

Domestic conflict in the north and the east of the country has severely affected Sri Lanka's economic growth. It can be seen that during the 1970s, per capita GDP growth was on average 5.6 percent and due to the civil war in the 1980s it fell down to only 1.6 percent. However, in spite of the impacts of civil war, economic growth has improved during the 1990s and later. Per capita GDP growth was on average 4 percent during the 1990s and in 2007 it

was 4.9 percent and then decreased to -1.5% in 2001 due to the ethnic conflict. However it was recorded as 7.3% in 2013. But GDP growth in 2016 was 5.4 percent (Central Bank of Sri Lanka, 2016).

There is a problem in Sri Lanka which is, tax revenue as a percentage of GDP has continuously declined. Direct taxes (mainly income taxes) as a percentage of GDP remained at an average of 2.5 per cent during 1990-2016 (Central Bank of Sri Lanka, 2016). It shows that the decline in the tax ratio is clearly due to a decline of indirect taxes as a percentage of GDP. There are two issues here. On the one hand, Sri Lanka could not prevent the declining trend of indirect tax revenue as a percentage of GDP, and on the other hand the country could not enhance the direct tax revenue as a percentage of GDP with a view to offsetting the decline of indirect tax revenue as a percentage of GDP.

The theoretical literature suggests that taxes have a negative effect on economic growth (Athukorala and Karunarathna, 2004). Thus, high tax rates diminish economic growth. The reason for this is that higher rates may be more distortionary and hence impact growth negatively while lower rates may generate revenues that are spent in productive ways. However, the empirical literature suggests both direct and inverse relationship between tax burden and rates of growth. Mashkoar *et al.* (2010) examine the association among tax revenues and the speed of economic growth, for Pakistan by taking annual data from 1973 to 2008 and applying an ARDL approach. Findings show that a high rate of direct taxes would augment real economic growth. Taha *et al.* (2011) examine the causal relationship between these two variables, both in the short run and the long run. Results show that there is a unidirectional connection between economic growth and tax revenues. In the Sri Lankan context there is no empirical study regarding the dynamic relationship between tax revenue and economic growth. Therefore, this study is intended to fill the study gap to help fiscal policy making in Sri Lanka.

Objective

The objective of the study is to examine the impact of tax revenue on economic growth of Sri Lanka.

Methodology

Annual data of Sri Lanka over the period of 1990-2016 have been used in this study. The data of LNRGDP (Real Gross Domestic Product) is a dependent variable, real GDP growth was bring into play as a substitute (proxy) for economic growth. It was collected from annual reports of the Central Bank of Sri Lanka (CBSL). LNTTR (total tax revenue) is a combination of direct and indirect taxes, PSE is school enrollment, secondary (gross), IMP represents imports of goods and services, FDI is foreign direct investment(net), CMD are customs and other import duties, LAF is Labour force participation (total), and were extracted from the World Development Indicator (WDI) database of the World Bank. Endogenous growth models developed by Barro (1990), Mendosa, Milesi-Ferreti and Asea (1997) predict that fiscal policy can affect the level of product and long run economic growth. Thus, we construct a regression model based on the above mentioned endogenous growth model. Model estimation begins with the analysis of the order of integration of each variable using Augmented Dickey Fuller (ADF) and Philips-Perron (PP) unit root tests for this analysis. The co-integration test was conducted using the Johansen approach to test for long run relationship between variables. The model can be described as:

$$\text{LNRGDP}_t = \alpha_0 + \alpha_1 \text{LNTTR}_t + \alpha_2 \text{LNSEE}_t + \alpha_3 \text{LNLAFT}_t + \alpha_4 \text{LNCMD}_t + \alpha_5 \text{LNFDT}_t + \alpha_6 \text{LNIMP}_t + u_t \quad (1)$$

The following error correction model (ECM) was employed to test for the short-run relationship between variables.

$$\Delta Y_t = \delta_0 + \Psi Y_{t-1} + \sum_{i=1}^{p-1} \gamma_i^* \Delta Y_{t-i} + \varepsilon_t \quad (2)$$

where, $\Psi = \alpha\beta'$. α : is the (7x1) vector of speed of adjustment co-efficient, β' : (1x7) vector of co-integrating coefficients and

$$Y_t = [\text{LNRGDP}_t, \text{LNTTR}_t, \text{LNSEE}_t, \text{LNLAFT}_t, \text{LNCMD}_t, \text{LNFDT}_t, \text{LNIMP}_t]$$

is a vector of endogenous variables, Y_{t-i} is the lagged value of the variables and ε_t is the white noise error term.

Results and Discussion

Based on the ADF and PP unit root tests, all variables of this study are stationary at level form. Therefore, this result also suggests that all eight variables are integrated in the same order, i.e. I(1). Once we established the order of integration, the study process requires the estimation of the long-run relationships among the variables included. However, before estimating this relationship we need to identify the optimal lag length of the model. Using VAR model, all the lag length selection criteria except AIC suggest the use of one lag as optimal lag length. Therefore, we included one lag in our model. Trace test statistics identified one co-integrating relation in the system of equations at 5% level of significance since we reject null hypothesis at rank 0 but we failed to reject null hypothesis at rank 1. Following equation shows the long run relationship of the Model.

$$\ln RGDPG_t = -58.41 - 1.11 \ln TTR_t + 2.75 \ln LAF_t + 0.54 \ln CMD_t + 0.13 \ln FDI_t + 13.36 \ln SEE_t + 0.36 \ln IMP_t \quad (3)$$

As shown in Equation 3, the results of all variables are significant at 5% level of significance in the long-run. Total tax revenues have a negative relationship with economic growth, while labour force, foreign direct investment, customs and other import duties, school enrollment and imports have a positive link with economic growth. Due to a one percent increase in total tax revenues, economic growth would be reduced by 1.11 percent in the long run. A negative and significant error correction coefficient (-0.016) of LNRGDP reveals that 1.6 % disequilibrium is corrected each year which implies that Real GDP growth moves downward towards long run equilibrium path.

Table 1: Results of Short Run Relationship

Regressors	D(lnGDP)
D(ln RGDP(-1))	0.495 [4.882]
D(ln TTR(-1))	-0.991 [-1.197]
D(ln CMD(-1))	1.544 [6.053]
D(ln LAF(-1))	-0.386 [-0.195]
D(ln IMP(-1))	0.646 [1.696]
D(ln FDI(-1))	0.318 [4.172]
D(lnSEE(-1))	12.204 [1.200]
C	-0.300 [-2.529]

Note: t statistics are given in the parenthesis

Table 1 shows the short-run negative relationship between RGDP growth and Total Tax Revenue. And also foreign direct investment, customs and other import duties and import have a positive impact on Real GDP growth. But other variables (LN LAF, LNSEE) do not have a significant impact on economic growth in the short run in models.

Conclusion

The major intention of this research is to investigate the association, involving total tax revenue and economic growth, over the period 1990-2016, in both long and short run. Total tax revenues have a negative and significant effect on economic growth in the long run. Due to a one percent increase in total taxes, economic growth would decrease by 1.113 percent. In the short run, total taxes revenue has a positive impact on economic growth.

There is also a need to augment the tax base/network and setting good precedence with improved tax administration. Therefore the research results show that total taxes have a negative impact on economic growth. Due to weaknesses in tax revenue administration, the level of tax collection continues to be lower than optimal in Sri Lanka (Waidyasekera, 2004). This could be the reason for negative impact of total tax revenue on economic growth. Political favoritism, political influence, and a lack of a clear cut political rationale on taxation have also adversely affected the tax revenue potential (Amirthalingam, 2010). Thus, special attention needs to be given by the government in order to promote RGDP growth rate and fiscal consolidation by reforming tax policy.

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