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2019-04

Series editors Dr Nicholas Rohde and Dr Athula Naranpanawa **ISSN** 1837-7750

Department of Accounting, Finance and Economics

Australia Awards
Fellowships

Griffith UNIVERSITY
Queensland, Australia

THE GENERAL TREASURY
MINISTRY OF FINANCE
Government of Sri Lanka

AND

GRIFFITH UNIVERSITY

TREASURY WORKING PAPERS

Revenue Based Fiscal Consolidation and Economic Growth in Sri Lanka*

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Abstract

In recent years, a large body of empirical literature has explored the influence of fiscal consolidation on the economic growth of nations. In this paper we attempt to explore the growth implications of revenue based fiscal consolidation measures - an area that has been rarely addressed in literature. More specifically, we intend to assess economic growth in response to revenue based fiscal measures (such as taxes, non-tax revenues and grants) and foreign financing of deficits within the context of a medium income country, Sri Lanka. Our results suggest that all revenue based measures and foreign financing have an expansionary effect on economic growth.

Key words: Fiscal policy; Economic growth; Revenue based fiscal measures

* This paper was written by the authors when they were visiting Griffith University, Australia, under Australia Awards Fellowship (AAF).The study was supervised by Dr Shyama Ratnasiri and Dr Tilak Susantha Liyanaarachchi of Department of Accounting Finance and Economics, Griffith Business School.

1. Introduction

Fiscal consolidation, generally referring to policy measures undertaken by governments to rectify fiscal imbalance or to stabilize the deficits, has had a renewed interest after the global financial crisis. The key approaches of fiscal consolidation involve either spending cuts or increased revenues. The relative contribution of these two components in a successful fiscal adjustment process has been debated over the recent past in macroeconomic literature. The fiscal adjustments manifested by a strong emphasis on expenditure cuts have often been assessed positively rather than by the increased revenue measures coming from the efficiency gains associated with them. The political economy considerations have also played a crucial role in fiscal consolidation through expenditure cuts. However, when further expenditure reductions are either economically infeasible or politically unwelcomed, fiscal consolidation measures require revenue increases to finance the fiscal deficits.

Sri Lanka, a country that had strong growth rates in the recent past, sets an example for this type of position where revenue based measures were proclaimed in the fiscal adjustment process as the country transitions to an upper-middle income country. Persistent low tax revenue, over several decades, and increased per capita GDP, motivated policymakers to consider revenue based measures as the country began focusing on medium and long term developmental challenges after the end of a three-decade civil war. Consequently, Sri Lanka is currently in a process of revising and implementing a fiscal consolidation program with a considerable emphasis on revenue based measures. A reduction in the overall fiscal deficit to 3.5 percent of GDP by 2020 is the main aim of current reform program (IMF Country Report No16/150 of Sri Lanka, 2016). According to the IMF recommendations, achieving this target involves rebuilding tax revenues through a comprehensive reform of taxation policy and administration process. One of the key reform discussed here is to implement a structural increase in revenue through implementation reforms, revenue mobilization, and public financial management reforms.

While this type of fiscal approach ensures fiscal balance, the question remains as to whether this type of revenue approach could affect the economic growth of the country. In this study we explore growth implications of the revenue based fiscal consolidation measures for Sri Lanka. The highest deficit was recorded in the early 1980s and as of 2016 the fiscal deficit in Sri Lanka, as represented by debt to GDP, was 5.4%. The major part of expenditure consists of recurrent expenditure (75%) defined by salaries and wages, subsidies, transfers, pensions and a notable 25% of interest payments loans. In terms of revenue, 87% is collected through taxes while the rest is non-tax revenue. The major component of tax revenue is excise tax (27%) while income tax is about 15% and value added tax (VAT) is 17% of the total tax revenue. According to the behavior of the budget deficit and the economic growth of Sri Lanka from 2000-2016, it could be conjectured that the healthier budget has positive implications for economic growth in Sri Lanka. Testing this relationship is the objective of this study. To this end, using time series data we attempt to explore the possible impacts of revenue based measures on economic growth in Sri Lanka.

This paper is structured as follows. Section 2 reviews the extant empirical research findings on the effect of fiscal consolidation on economic growth. Section 3 presents the econometric approach and results, and Section 4 concludes the paper with some policy relevant implications.

2. Literature survey

The section below presents a review of literature on the effects of fiscal policy on economic growth. This section is devoted to understanding the circumstances under which fiscal adjustments tend to deliver economic expansion in short and long run.

In view of the fiscal policy, it is the overall government expenditure, taxation and financing deficit which influence the macro economy by changing the level and composition of the aggregate demand and supply, and influencing the national savings and investments. Hence it is accepted that fiscal deficits resulting from low revenue or high expenditure need clear and sustainable policies to finance the deficit with a strong and durable fiscal consolidation programme supported by comprehensive economic reforms.

Most of the literature in this regard has explained both expenditure based and revenues based growth implications together. For example, Erceg and Linde (2013) investigated the effects of both tax-based and expenditure-based consolidations in the countries, which are under constraints of currency union membership. The article implies that tax-based consolidation has less adverse effects on outputs than expenditure-based consolidation in short-run, but it will become more costly in long-term. Furthermore, a fiscal consolidation mixed strategy is proposed, in which a sharp and temporary increase in taxes is combined with gradual decrease in expenditures. In order to evaluate the effects of fiscal consolidations in a situation that characterizes the Global financial crisis of 2008, Eggertsson (2011) found that cuts in labour tax and capital tax have contractionary effects. Meanwhile, other forms of tax cuts (such as cuts in sale tax or investment tax) and temporarily increasing government spending has much stronger effects than in normal circumstance. A similar idea was tested in a paper by Afonso and Furceri (2010) who analysed the effects in terms of size and volatility of government revenue and spending on growth in OECD and EU countries. The results suggest that both variables are detrimental to growth. In particular, indirect taxes, and expenditures that includes social contributions subsidies are having a significantly negative effect on growth. Furthermore, Alesina, Favero, and Giavazzi (2015) showed how fiscal adjustments based on spending cuts are different from tax-based ones. They conclude that spending cuts are much less costly in terms of output losses. Within a dynamic general equilibrium framework, Forni, Gerali, and Pisani (2010) assessed implications of reducing the public debt-to-GDP ratio in Euro area countries. Their results emphasized that tax distortions have a quantitatively significant impact and suggest that the best fiscal consolidation strategy entails permanently reducing both expenditures and tax rates. Yang, Fidrmuc, and Ghosh (2015) investigated the short-term effects of fiscal consolidation on economic activity in 20 OECD countries from 1970 to 2009. Their results propose that fiscal adjustments always have a contractionary effect on economic activity in the short-term. Furthermore they found that expenditure based fiscal consolidation leads to smaller output losses than tax-based measures.

In addition to studies that focus primarily on short-run influences of fiscal consolidations and impact of government expenditure cuts, Coenen, Mohr, and Straub (2008) examined long-run benefits and the short-run costs of alternative policies by adopting a two-country open-economy model of the Euro area. In relation to long-run benefits, both expenditure-based and revenue-based consolidation policies have had an economically significant impact on macroeconomic aggregates, but in different weight and direction. More specifically, revenue-based consolidations have had a positive effect on output, consumption, investment and hours worked while spending-based policies have had positive effects on the first two indicators and negative effects on others. In relation to short-run costs, the article indicates that both expenditure-based and revenue-based consolidation policies increase short-run adjustment costs.

Gray (2007) explores the public finance policies in the transition countries of Europe and Central Asia (ECA) and their likely effects on economic growth. They analysed broad questions such as the impact of fiscal deficits, government size, quality of public spending, and structure of taxation on economic growth within public spending and taxation in detail. The study found that the fiscal deficits matter for economic growth and that patterns of fiscal consolidation affect the sustainability of deficit reduction. Specifically, fiscal adjustments that lower fiscal deficits are followed by stronger economic growth and fiscal adjustments driven by expenditure reductions are likely to be more successful and sustainable than those driven by tax increases. Further evidence supports the findings that the high levels of spending in unproductive areas, most notably spending on public consumptions and transfers, can have a negative impact on growth while spending in productive areas, such as investment and social sector, can promote economic growth.

Gupta, Clements, Baldacci and Granados (2005) assessed the effects of fiscal consolidation and expenditure composition on economic growth in a sample of 39 low-income countries during the 1990s. Regressing the annual rate of real per capita GDP growth on a set of variables, including fiscal measures, they found that strong budgetary positions are generally associated with higher economic growth in both the short and long-terms. Further, the composition of public outlays also matters - countries where spending is concentrated on wages tend to have lower growth, while those that allocate higher shares to capital and non-wage goods and services enjoy faster output expansion. They also show that tilting the overall composition of public expenditure toward more productive uses is particularly important for boosting growth. Lastly, they emphasized that the countries where spending is more concentrated on wages tend to have lower growth while those that allocate higher shares on capital and non-wage goods and services enjoy faster output expansion.

In other research done by Gupta, Clements, Baldacci and Granados (2004 the effects of expenditure composition and other variables on the duration of fiscal adjustment episodes were examined in a sample of 29 developing countries using survival analysis. The study found that expenditure composition, size of the fiscal consolidation, and past performance on fiscal consolidation affect the persistence of adjustment. When fiscal consolidations are supported by accelerated revenue efforts, the probability of ending an adjustment is lower. In the context of developing countries – where revenue ratios to GDP are generally modest – higher tax revenue collection can be triggered by improvements in tax administration, elimination of exemptions, and curbing of tax evasion rather than an increase in tax rates. These factors are likely to have a positive effect both on the fiscal stance and on growth. The results of this research point to a significant relationship between the duration of fiscal adjustment and expenditure reforms. Thus, tilting the overall composition of public expenditure towards more productive uses is not only important for boosting growth, but also for achieving more sustained fiscal adjustments.

3. Methodology

Empirical estimation

The relationship between revenue based fiscal measures and growth is explored by regressing the annual rate of real GDP growth (Y_t), fiscal variables and other control variables. In the baseline regression, our revenue based variable is total government revenue (TR_t) that include tax, non-tax revenue and grants measured in terms of percentage of GDP. Foreign financing is measured again as the percentage of GDP (Ff_t). The baseline model is stated below:

$$Y_t = \beta_0 + \beta_1 TR_t + \beta_2 Ef_t + \sum_i^k \alpha_i X_i + \varepsilon_t$$

where, X_t is a vector of variables that includes total government expenditure, national savings, and investments, all measured in terms of percentage of GDP. The government expenditure is one of the major variables which derives the national output of an economy. This includes the government public investment and recurrent expenditure which represents the government consumption of the country. Therefore total expenditure has been taken as a major variable for our model. In addition, we have taken national savings and investment as two non-fiscal variables as they are have an impact on economic growth. We also have a trade openness measure in the model, which is the ratio of total trade (exports and imports) to GDP. The Sri Lankan economy is heavily dependent on trade especially with trading partners in the EU, Middle East and the USA.

To assess the impact of various components of tax revenues on economic growth, we have modified the baseline regression to include other forms of revenues in our estimation and rerun the model. In Model II, our revenue based measure is only the government tax revenue, which is measured as a percent of GDP. In this model we specifically test if Sri Lankan fiscal consolidation, in terms of policies aimed at increasing tax revenue, have an impact on GDP growth. The third model (Model III) and fourth model (Model IV) further investigate the tax revenue as indirect tax and direct tax revenue respectively. In the fifth model (Model V) we change the revenue measure as non-tax revenue which is measured as a percent of GDP. Although non-tax revenue is a small portion of total revenue, this model tests the impact on non-tax revenue to economic growth. The sixth model (Model VI) tests if total government revenue growth has an implication on expansionary economic performance.

Following this we include a model with an interaction term which is shown in the model below.

$$Y_t = \beta_0 + \beta_1 TR_t + \beta_2 Ef_t + \beta_3 (TR_t * BD_t) + \sum_i^k \alpha_i X_i + \varepsilon_t$$

Conceivably in the presence of higher budget deficit, the impact of revenues can have different growth implications compared to a situation with smaller or no budget deficit. This is tested by including an interaction term/s in the model. Each revenue based fiscal variable was put in an interaction term with budget deficit in each of the models to investigate the impact on economic growth.

4. Results and discussion

The typical outcome of fiscal consolidation is a reduction in expenditure growth by cutting down the government expenditure and increasing the tax revenue to reduce the budget deficit. In this analysis we focused on the fiscal consolidation process by the revenue front, if the government expenditure remains same.

The revenue based fiscal consolidation variables used in all models were significant with level of five percent and below. Consequently in all models estimated, revenue based measures which are total government revenue (includes grants), tax revenue, non-tax revenue and revenue growth, used in our analysis fiscal consolidation measures, have an expansionary impact on economic growth in Sri Lanka.

In Model I, total revenue and grants were taken as the revenue based variable and it was significant at five percent. This revealed a positive relationship with economic growth. We further disaggregate the total revenue into tax revenue and non-tax revenue and two models were setup on this basis. The tax revenue measured in Model II was highly significant and showed a positive relationship with the economic growth of Sri Lanka. This implies that if tax revenue, measured in terms of share of GDP, increased by one percent, the economic growth will be increased by 0.515 percent *ceteris peribus*. The non-tax revenue and economic growth relationship was estimated using Model III. A significant and positive coefficient implies that increased non-tax revenue that consists of levies and charges from government services, profit and dividend taken from state own enterprises and other government non-tax incomes has an expansionary impact on the economy.

Table 1: Results of Revenue based variable

VARIABLES	Model I	Model II	Model III	Model IV	Model V	Model VI
Total Revenue and Grant	0.407**					
	(0.183)					
Tax Revenue		0.515***				
		(0.166)				
Non-Tax Revenue			0.505***			
			(0.170)			
Indirect Tax				50.999***		
				(17.895)		
Direct Tax					70.847	
					(57.045)	
Revenue_Growth						0.044**
						(0.021)
Foreign Financing	0.727***	0.724***	0.780***	0.664***	0.774***	0.565**
	(0.227)	(0.217)	(0.221)	(0.220)	(0.242)	(0.237)
Total Expenditure	-0.559***	-0.535***	-0.572***	-0.498***	-0.355***	-0.337***
	(0.159)	(0.130)	(0.140)	(0.128)	(0.122)	(0.114)
National Saving	-0.146	-0.172*	-0.193*	-0.169*	-0.140	-0.190*
	(0.099)	(0.095)	(0.097)	(0.097)	(0.102)	(0.103)
Investment	0.150*	0.188**	0.227**	0.176**	0.077	0.099
	(0.085)	(0.083)	(0.092)	(0.083)	(0.079)	(0.078)
Trade Openness	0.069***	0.066***	0.071***	0.058**	0.076***	0.064**
	(0.025)	(0.024)	(0.024)	(0.024)	(0.027)	(0.025)
Constant	5.951	4.693	3.773	5.982*	7.568**	9.931***
	(3.603)	(3.471)	(3.668)	(3.385)	(3.657)	(3.297)
Observations	58	58	58	58	58	58
R-squared	0.376	0.425	0.417	0.410	0.336	0.367

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In the next step, we disaggregated the tax revenue data as direct tax and indirect tax. The indirect tax revenue measured in Model IV was highly significant where direct tax revenue was not significant in the Model V. The direct tax to indirect tax ratio is generally 20:80 in Sri Lanka. Consistent with this, the results of our exercise suggest that indirect taxes have a significant influence on economic expansion compared to direct taxes. The indirect tax revenue in Sri Lanka mainly consists of value added tax, excise tax, import related taxes including import duty and nation building tax. However, due to the unavailability of disaggregate data on those taxes for this time series analysis, we were unable to assess the impact of each tax revenue on economic growth of the country.

In the Model VI, we tested the relationship of revenue growth to economic growth. Again, it was positively significant at the level of five percent with the economic growth of Sri Lanka. It reveals that if the total revenue grow by one percent, the economic growth will increase by 0.04 percent subject to other factors remaining unchanged.

Table 2: Results of the models with interaction terms on revenue based variable

VARIABLES	Model VII	Model VIII	Model IX	Model X	Model XI
Total Revenue and Grant	0.450**				
	(0.200)				
Total Revenue (including grants) and Budget Deficit	-0.003				
	(0.005)				
Tax Revenue		0.535***			
		(0.170)			
Tax and Budget Deficit		-0.003			
		(0.005)			
Non-Tax Revenue			0.548***		
			(0.179)		
Non-Tax and Budget Deficit			-0.004		
			(0.005)		
Indirect Tax				52.074***	
				(18.200)	
Indirect Tax and Budget Deficit				-0.262	
				(0.590)	
Direct Tax					86.054
					(60.059)
Direct Tax and Budget Deficit					2.753
					(3.305)
Foreign Financing	0.732***	0.725***	0.790***	0.662***	0.768***
	(0.228)	(0.219)	(0.222)	(0.222)	(0.243)
Total Expenditure	-0.620***	-0.575***	-0.639***	-0.525***	-0.324**
	(0.194)	(0.147)	(0.164)	(0.143)	(0.128)
National Saving	-0.146	-0.174*	-0.201**	-0.171*	-0.146
	(0.099)	(0.096)	(0.098)	(0.098)	(0.102)
Investment	0.149*	0.185**	0.233**	0.173**	0.100
	(0.086)	(0.084)	(0.092)	(0.084)	(0.083)
Trade Openness	0.072***	0.068***	0.074***	0.059**	0.073**
	(0.026)	(0.024)	(0.025)	(0.028)	(0.025)
Constant	6.298*	5.123	6.383*	6.566*	4.100
	(3.680)	(3.566)	(3.529)	(3.861)	(3.705)
Observations	58	58	58	58	58
R-squared	0.380	0.429	0.412	0.345	0.424

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In all the models above, we included total government expenditure which consists of government recurrent expenditure (consumption and capital expenditure) and the public investment expenditure in Sri Lanka. The total expenditure was significant in all Models of I to IV and this measure has a negative implication on economic growth. Most of the literature discussing this relationship (i.e the size of government and economic growth) are in support of the notion that higher government expenditures have a detrimental effect on economic growth (See Ram, 1986; Barro, 1990). In the Sri Lankan context, the recurrent expenditure consisting of salaries and wages, good and services, interest payment and other subsidies and transfers was approximately 75 percent of the total expenditure - the rest consisted of the public investment which will directly impact on economic growth. Due to the unavailability of disaggregated data on recurrent expenditure for the time series analysis, we were unable to point out the most significant expenditure component which may drive the total expenditure to have a negative relationship with economic growth.

The deficit financing from foreign sources were also highly significant in all models and showed a positive influence on economic growth in Sri Lanka. In all models, national savings surprisingly imply a negative growth implication. The investment variable in all models, as expected and consistent with theory, has a positive and significant influence on economic growth in Sri Lanka. The trade openness variable also has a highly significant positive implication on economic growth.

In table 2, we present an extended version of our models. The revenue based fiscal consolidation variable was interacted with budget deficit to assess how budget deficit can moderate the impact of each fiscal measure on growth. As previously done, Models VII, VIII, IX, X and XI were created with different revenue variables.

In all models, the results were consistent with the previous results. In terms of the budget deficit interaction term, the results point to the conclusion that higher budget deficits weaken the effect of revenue variables on economic expansion albeit they are not significant. For example, in Model VII, total revenue, including grants which dominate the revenue based variable, was interacted with budget deficit and resulted a negative value of 0.00254. The interaction term for total tax revenue variable has also reported a negative relationship with economic growth with a coefficient value -0.003.

5. Conclusion

The revenue based fiscal consolidation variables were regressed with economic growth to assess the expansionary impact of these variable on the economy. In all models, revenue based measures (i.e. total revenue plus grants, tax revenue, non-tax revenue and revenue growth) show an expansionary impact on economic growth in Sri Lanka. Among all revenue measures, the total tax revenue draws attention for current policy debate. This variable, measured in terms of the share of GDP, showed a positive and significant influence on economic growth of Sri Lanka during the study period. Furthermore, indirect taxes appear to have more impact on economic growth than direct taxes during the study period.

The total expenditure in all models was significant and has a detrimental impact on economic growth in Sri Lanka during the study period. This expenditure consists of salaries and wages, goods and services, interest payment and other subsidies and transfers altogether accounting for approximately 75 percent while the rest was is public investment. Due to limitations imposed on expenditure by the disaggregated time series data, the current study did not examine the most significant expenditure component that has negative impact on economic growth. This could be an interesting direction for future research.

These two outcomes in combination points to the conclusion that fiscal consolidation either in the form of expenditure cuts or in the form of revenue increases, enables economic growth. Although the statistical estimates of the study of expenditure cuts (including the coefficient estimates and significance levels) remain higher than the revenue measures, additional research is needed to address what the relative contribution of these two components should be in a successful fiscal adjustment process to have sustainable growth prospects.

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