FISCAL POLICY OF SRI LANKA, PAST AND FUTURE

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ABSTRACT

The internal conflict of Sri Lanka has seriously affected its fiscal stance and put it at the door of the bankruptcy through high fiscal deficits and sky rocketing public debt. The end of thirty years internal conflict in May, 2009 is a major turning point. The growth performance of Sri Lanka can boost up by gaining the confidence of investors and taking control over Northern Province. This study analyzes whether it has tried to minimize the welfare cost of revenue collection. It finds that, in spite of financing expenditure of internal conflicts, has been conducted in accordance to tax smoothing policy but not perfectly. Now, when the conflict is over reduction in the deficit can be attained if Sri Lanka finances its permanent expenditure by increasing the tax rate; and if there are transitory shocks to the expenditures or output these should be financed through creating public debt but this debt should be contingent. The rehabilitation in the internal conflict affected areas requires building infrastructure in those areas. So that conflict affected people should also get fruits of the development and come in the main stream and not indulge in anti state activities. For this purpose one of the options would be reduction in the defense expenditure which can be used for development.

INTRODUCTION

The government resources in Sri Lanka, like other developing countries, are sadly insufficient with persistent budget deficit to achieve socially desirable fiscal objectives. The internal conflict was the major reason of the high deficit. However, now the deficit can be corrected through fiscal adjustments and regulations in the shape of government spending cuts and/or tax increases. Another problem is the decision of sharing out the burden of fiscal adjustment between expenditure and tax revenue generation and the creation of public debt. This necessitates an assessment of the initial level of taxes and spending to decide whether to adjust them at the desired level is politically and economically realistic. Tax increases may be less problematic as compared to reducing expenditure if the current level of tax revenue is comparatively low based. However, considerations in the former case of the tax smoothing hypothesis acquires vital role. (Barro, 1979)

According to the Ricardian Equivalence Theorem, for a given amount of public expenditure, if taxes are lump-sum then the shifts between taxes and public debt to balance the budget would have no significant effect on real variables. Within the Ricardian framework,

approximation of non-lump-sum taxes is also economically valid. However, there is an important second order effect of the excess burden (welfare costs) of taxation over time. Non-lump-sum taxes (like sales tax, excise duties) distort economic incentives and impose what Musgrave (1958) called excess burden on the economy by changing the pattern of economic behavior. The changes in behavior caused by taxes create motivation for taxpayers to move out of taxed activities towards activities that are not being taxed, or are taxed at lower marginal rates. If the taxed activities are valued ones, the substitution effect reduces economic welfare. Because doing without taxes is entirely unfeasible, the dilemma for policy makers is how to finance indispensable government expenditure while keeping welfare cost of additional taxation comparatively low.

And yet the society would benefit if taxes are imposed in a way that minimize the welfare cost of taxation. As most of the time, the tax rate is increased to finance the increments in public expenditure, the changes in marginal rate of taxation consistent with the changes in public expenditure would have distortionary effects and increase the welfare cost of taxation. One way to minimize the welfare cost of taxation is to finance the fiscal imbalances by issuing bonds as an alternative to non-lump-sum taxes. That has the advantage of spreading the burden of these taxes over time. Several previous studies, particularly by Barro (1979, 1981), Sahasakul (1986) and others have analyzed the positive theory of optimal taxation over time.

This study recounts the recent literature in the area with a view to identifying the main line of research followed in this study. The focus is on to explore whether fiscal policies followed by Sri Lanka are consistent with the tax smoothing hypothesis (TSH) or not.

REVIEW OF LITERATURE

Barro (1979) originally used the tax smoothing hypothesis to determine the optimal level of debt. With regard to the level of debt, the argument is that if government spending requirements fluctuate over time, the government should keep tax rates almost invariable and let the level of debt fluctuate to absorb the fiscal impact of economic fluctuations. Regarding debt structure, the argument is that a government minimizing the welfare cost of fiscal policy should manage its debt with the intention of diminishing the risk caused by fluctuations in tax rate and change tax rate later on in response to economic state of affairs. Initially, Barro (1981) proposed the random walk test of tax rate series to check the presence of tax smoothing behavior. The random walk theory predicts that tax rate changes have the same distribution and are independent of each other, so the past movement or trend of tax rate cannot be used to predict its future movement. The unit test is conducted to see whether the changes in tax rate are predictable or not. There are many studies which focused only on the random walk test; however, the presence of tax smoothing behavior has been tested by Serletis and Schorn (1999), Cashin, Olekalns, and Sahay (1998), Cashin, Haque, and Olekalns (2003), Strazicich (2002), Adler (2006) etc. by applying the vector autoregressive approach (VAR) between tax rate and budget surplus of

Huang and Lin (1993) and Ghosh (1995). The VAR approach was considered an improvement on early tests of random walk which was considered sufficient for testing tax smoothing behavior. On the other hand, the VAR approach focused on the optimal path of budget surplus.

There are many reasons to proceed beyond the random walk test (Campbell, 1987). First of all, the random walk of the tax rate can also be caused by the behavior of the politicians, unrelated to the tax smoothing behavior. Secondly, it is difficult to assess the economic significance of statistical rejection of random walk. Thirdly, there are useful time-series proprieties that are not explored when focusing exclusively only on random walk test. In view of these reasons Campbell (1987), Campbell and Shiller (1987) and Bohn (1991) provided base for Huang and Lin (1993) and Ghosh (1995) to build a new test for testing the behavior of tax smoothing. In accordance with the VAR approach, the predicted time path of the budget surplus/deficit for a government is calculated. Afterwards the predicted budget surplus/deficit time series is compared to the actual budget surplus/deficit time series in order to visually assess the fit and the economic significance of the model. If the model is true then the two series should be identical. The theoretical properties of the tax smoothing hypothesis translate into cross-equation restrictions on the VAR. In this fashion, the standard statistical procedure can be applied as VAR to evaluate the tax smoothing hypothesis.

The model developed by Haung and Lin (1993) and Ghosh (1995) and used in most of the tax smoothing studies is essentially an indirect method of testing the tax smoothing hypothesis because it focuses on the budget surplus due to the difficulty of measuring the permanent government expenditures. However, Sahasakul (1986) uses the direct approach for testing the behavior of tax smoothing. He focuses on the behavior of tax rate and the government permanent expenditure rate. In this contrast, he considers non-defense expenditures as permanent expenditure. Later on, Abeysinghe and Jayawickrama (2006) conclude that long run relationship between permanent expenditure rate and tax rate is an economically plausible indication of tax smoothing behavior by the government.

There is a limited literature on examining the presence of tax smoothing behavior in developing countries. Cashin, Olekalns, and Sahay (1998), Cashin, Haque and Olekalns (1999), Rocha (2001), Cashin, Haque and Olekalns (2003) have analyzed data for India, Pakistan, Sri Lanka and Brazil for this purpose. All these studies have used the Ghosh (1995) approach to test the tax smoothing hypothesis for these countries. The findings are mixed e.g. the Inter-temporal tax smoothing model is successful in describing the fiscal behavior of India and Pakistan but not that of Sri Lanka and Brazil. Whereas, Padda (2009) used the approach of Sahasakul (1986) and Abeysinghe & Jayawickrama (2006) who findings are in the line of previous studies for India and Pakistan but not for Sri Lanka.

PUBLIC FINANCES OF SRI LANKA

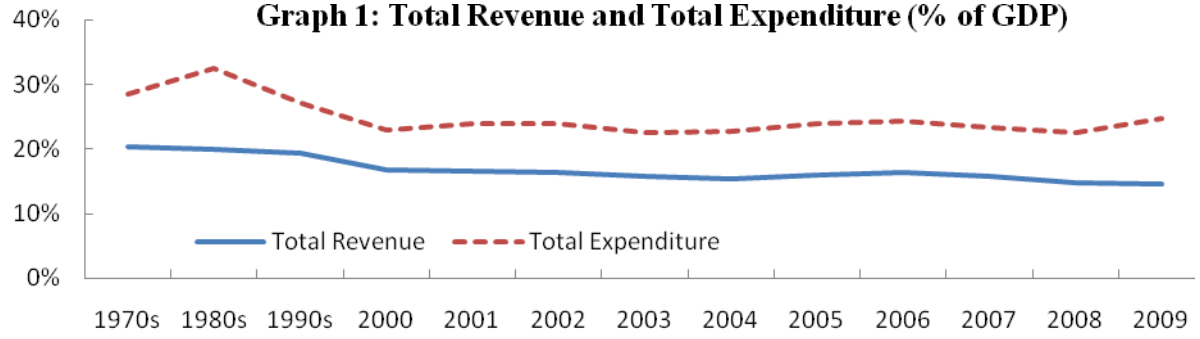
With an economy of US$43.323 billion in 2010, Sri Lanka is an important economy in the South-Asian region. It has been deregulating, privatizing, and opening the economy to international competition since 1977. Thirty years of internal conflict has seriously affected its spending and taxation decisions, especially the late 1980s. Economic growth has been uneven in the ensuing years as the economy faced a large number of global and domestic economic and political challenges. In 2001 to 2004, Sri Lanka faced bankruptcy with debt reaching more than 100% of GDP while it has declined to 82.9% of GDP in 2009. In 2002, the economy commenced a gradual recovery. The government has, however, been able to exert a modicum of fiscal control, and inflation trended down. However, the resumption of the internal conflict in 2005 had led to a steep increase defense expenditures. Fiscal robustness is an important pre-condition for achieving overall macroeconomic stability and economic growth. Sri Lanka have run large fiscal deficits and have faced adverse consequences in 1980s and 1990s on economic growth, partly because not much prudence has been shown in using public expenditure to accelerate economic growth. Higher fiscal deficit have also led to a sharp deterioration of almost all macro indicators like interest rate, GDP growth, current account deficit, public debt, etc. Fiscal deficit remained high because of the government's inability to mobilize additional resources and/or to curtail current expenditures. The deficit was more than 10% of GDP in 2001 and 2009.

The graph 1 shows that total revenue-to-GDP ratio of Sri Lanka was more than 20% per annum on average in the decade 1970s with declining trend it was 20% in 1980s and 19.34% during 1990s. Thereafter, it had sharp declining trend and was 14.6 % in 2009. The total expenditure-to-GDP ratio was 28.3% per annum on average in the decade of 1970s, 32.5% in 1980s and 27% in 1990s after that it has decreasing trend and in 2009 it is at 24.7% in 2007. The large and persistent fiscal deficits engendered considerable concerns about sustainability of the economic growth. There has been a consensus that the large and persistent deficit reduces economic growth (Romer, 2001). So it is the most alarming situation because the budget deficit of Sri Lanka never came below 6.7% of GDP, in spite of, having reasonable tax-to-GDP ratio. To meet such a situation Fiscal Management (responsibility) Act 2003 in Sri Lanka has aimed at ensuring that government’s financial strategy must based on principles of responsible fiscal management and facilitating public scrutiny of fiscal policy performance but the ground realities do not seem to ensure it.

In 2006 in Sri Lanka, public debt stood at 93% of the GDP which was 101% in 2001. The share of external debt is the major part of public debt. Like total public debt external debt has also decreasing trend as percentage of GDP. Its share decreased from 74 % of GDP in 1990 to 43 % in 2006. Its external debt-to-GDP ratio has a gradual declining trend is observed from a peak level of 62% in 1989 to 38% at end of 2007. However, the country’s total external debt-to-GDP ratio is still above the internationally accepted comfortable level. Development expenditures remained around 6% of GDP. It is dire need to increase development expenditure especially

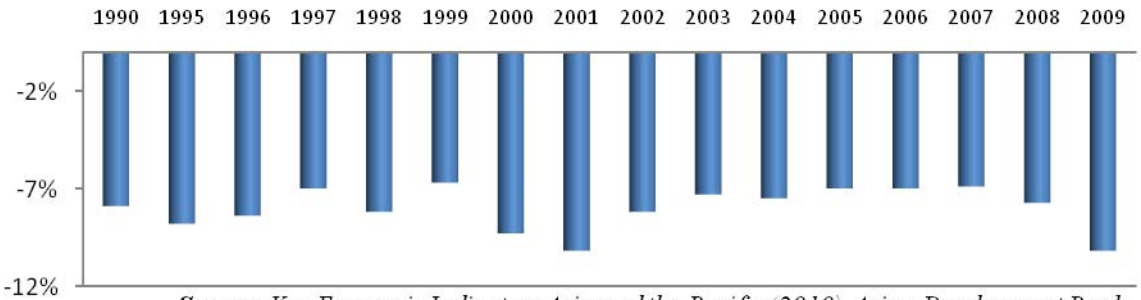
when internal conflict has ended. It would make incremental changes by building roads, highways, buildings, schools, and hospitals etc. especially in conflict affected areas of the Northern Province. Upsurge in the development spending would be a positive sign for infrastructure development and augmenting growth momentum.

Graph 1: Total Revenue and Total Expenditure (% of GDP)



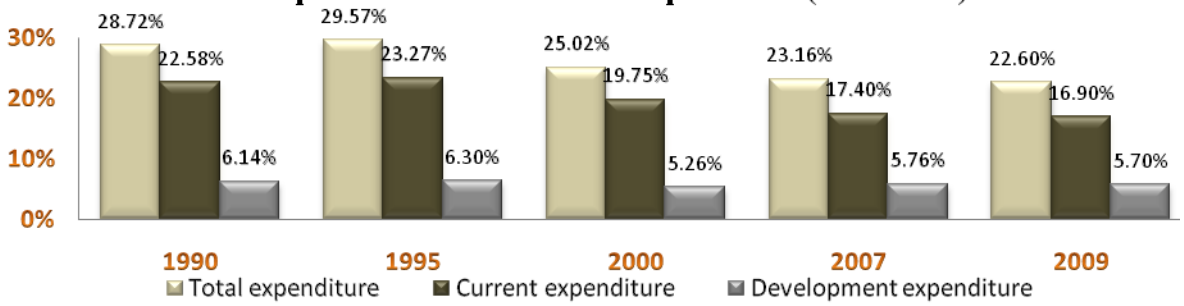
Source: *Key Indicators for Asia and the Pacific (2010) and World Development Indicators (2008)*

Graph 2: Fiscal Deficit (% of GDP)



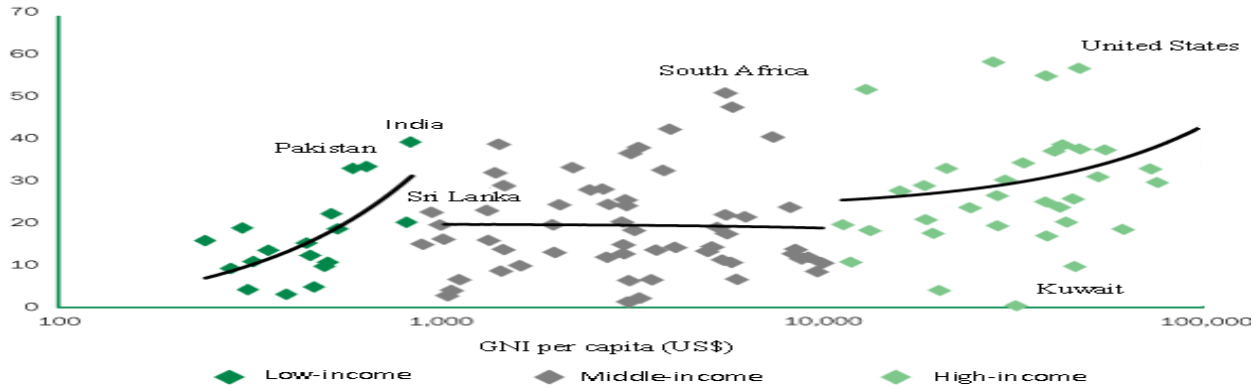
Source: *Key Economic Indicators Asia and the Pacific (2010), Asian Development Bank.*

Graph: 3 Structure of Total Expenditure (% of GDP)



Source: *Sources: Central Bank of Sri Lanka, Annual Reports.*

Graph: 4 Direct Taxes as a Share of Central Revenue in Sri Lanka and other Countries (2006)



Source: World Development Indicators (2008)

Sri Lanka continues to rely heavily on indirect taxes. In developed countries the share of direct taxes are much higher than indirect taxes. Graph 4 shows different patterns of tax structure in low-income, middle-income and high income countries. The reality is that high-income countries tend to tax income and property, whereas low-income countries tend to rely on indirect taxes on international trade and goods and services. The situation of Sri Lanka is alarming in this regard because, on one hand, it has high tax-to-GDP ratio, and yet it has highest share of indirect taxes in the tax revenue. Therefore, Sri Lanka needs to reform its fiscal policy so that the burden of taxation from the poor for equity and social justice is significantly reduced.

MODEL SPECIFICATION

This section sketches a model that outlines an optimal fiscal policy ---one that achieves a balance between additional taxation, and borrowing with a view to meeting its development requirements. The TSH assumes that the individuals' efforts to reduce their average tax burden impose social welfare costs on the society and that these costs would increase if not minimized by a policy of tax rate smoothing. The representative agent and the government share a common time horizon, and the agent's utility function remains unaltered by the provision of public goods. The government expenditures are exogenously given and distortion in taxes involves a social welfare loss such. The models of Bohn (1990), Ghosh (1995) and Abeysinghe & Jayawickrama (2006) assume that distortionary costs are approximately proportional to the square of the revenue raised. So the welfare cost of taxation per unit of output is defined as,

$$z(\tau_t) = \frac{\tau_t^2}{2} \qquad (1)$$

Where τ is the tax rate, the quadratic deadweight loss function assures that $z'(\tau_t) > 0$ and $z''(\tau_t) > 0$. In a stochastic environment, the deadweight loss is determined by the

expectations of future tax rates. Since a single tax rate is assumed for the whole economy, so the total dead-weight loss of the whole economy is obtained by multiplying (1) by income Y_t.

The government typically wants to minimize the present value of distortions of raising revenue subject to the constraint that the present value of its revenues be not less than some specific level. Because of increasing marginal distortionary costs of raising revenue through raising taxes, the government will choose a smooth path for taxes. The government's objective function is given as,

$$V = Min\frac{1}{2}\sum_{i=0}^{\infty}\rho^i E_t(\tau_{t+i}^2)Y_{t+i} \quad (2)$$

E_t represents expectations at time t. The dynamic budget constraint faced by government is as follows;

$$D_t = (1+r)D_{t-1} + G_t - T_t \quad (3)$$

Where "*r*", the real interest rate related to "ρ" discount rate as $\rho = \frac{1}{1+r}$, D_t is government debt, G_t is government non-interest expenditure and T_t is tax revenue.

When expectations and no-ponzi game condition which rules out unlimited lending or borrowing by the government are imposed then equation (3) gives

$$\sum_{i=0}^{\infty}\rho^i E_t(G_{t+i}) + D_{t-1} = \sum_{i=0}^{\infty}\rho^i E_t(T_{t+i}) \quad (4)$$

Dividing (2) and (4) by Y_{t+i} and solving the constrained optimization problem gives;

$$E_t\tau_{t+i} = \tau_t \quad for\ all\ t = 1, 2, 3, \ldots \quad (5)$$

This gives the time path of taxes that minimizes the present value of the welfare costs subject to the requirement that it satisfies the overall budget constraint. It states that changes in tax rate cannot be predicted. That is, tax rate follows a martingale (a martingale is a stochastic process (i.e., a sequence of random variables) such that the conditional expected value of an observation at some time is equal to the observation at that earlier time). It is the basic implication of TSH that its presence can be considered a necessary condition to analyze the presence of tax smoothing. To obtain a sufficient condition Gosh (1995) extends the model by putting expression (5) into (4) to obtain an optimal tax rate.

$$\tau_t = \left(\frac{1-\psi}{\psi}\right)d_t + \left(\frac{1-\psi}{\psi}\right)\sum_{i=0}^{\infty}\psi^i E_t g_{t+i} \quad (6)$$

Where $\psi = \left(\frac{(1+n)}{(1+r)}\right)$, and n represent long-run output growth rate and d_t, g_t and τ_t are debt, expenditure and tax rates respectively and, assuming $\psi < 1$. (i.e. $n < r$ which assures dynamic efficiency of an economy).

According to (6) the only martingale that satisfies the TSH is that which sets the tax rate exactly equal to the annuity value of the sum of government debt and the present discounted value of expected government expenditure. Its right hand side represents the constant flow of expenditure that is expected to sustain the remaining government's time horizon. It is made up of

all the long-run components of permanent government expenditure rate and is symbolized by g_t^p. So (6) becomes

$$\tau_t = g_t^p \quad (7)$$

Plugging (7) into (5) we get,

$$E_t(\tau_{t+1}) = g_t^p \quad (8)$$

It states that for perfect tax smoothing only permanent government expenditure should prompt additional taxes but in the reverse case there is no tax smoothing. If only changes in tax rate cause permanent expenditure then there would be no tax smoothing. Conversely there may be two additional situations: one, if both cause each other; and, second, when none of the two causes each other. In former situation, there is weak tax smoothing and in the latter it does not exist. However, if any other exogenous variable with permanent expenditure also has a significant effect on taxes then there will be a weak tax smoothing.

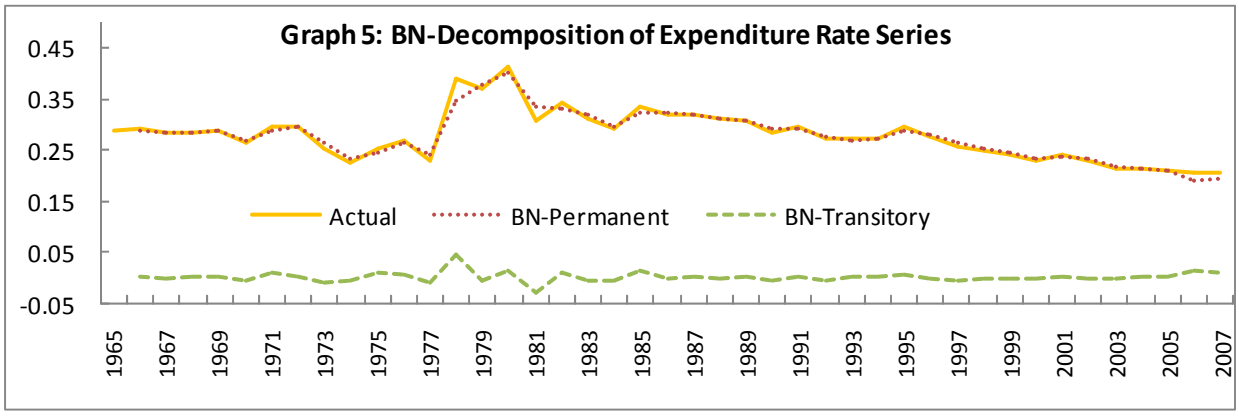
DATA AND ESTIMATION

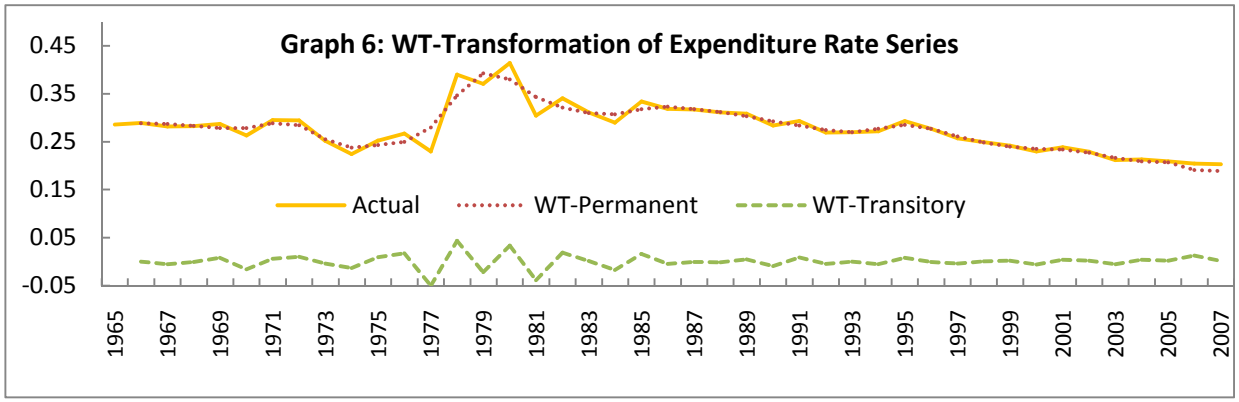
The Data

Depending on the data availability we selected sample period from 1965 to 2007. Data for Government Revenue, Government Expenditure, Gross Domestic Product (GDP) and Money is obtained from International Financial Statistics (IFS) and World Development Indicators (WDI). Revenue is cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent and income from property or sales. Grants are also considered as revenue but are excluded here. Expenditure is cash payments for operating activities of the government in providing goods and services. It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenditures such as rent and dividends. The series which are used for estimation are formed from the above main variables. The average marginal tax rate should be computed using changing weights. The computation of average marginal tax rate is difficult due to unavailability of data. The average tax rate, revenue-to-GDP ratio, would be a better proxy for the effective tax rate than a fixed-weighted average marginal tax rate. Ghosh (1995), Olekalns (1997), Ashworth and Evans (1998), Adler (2006) and many others consider the average tax rate calculated as total revenue-to-GDP ratio a better proxy for average marginal tax rate. Another reason to use revenue-to-GDP ratio is that governments are directly concerned to its total revenue, not the tax revenue alone, while deciding its expenditures. Therefore, this study uses the average tax rate in our exercise. The expenditure rate is average expenditure rate calculated as total government expenditure-to-GDP ratio. Permanent expenditure rate and transitory rate series are formed by decomposing the expenditure rate series by two different techniques namely; Baveridge-Nelson Decomposition and Wavelet Transformation.

Decomposition of Total Expenditure Rate Series

There is no unique way to decompose a series into permanent and transitory components. Main detrending techniques recently being used are: Hodrick-Prescott filter, Beveridge-Nelson decomposition, linear trend, segmented trend, first order differencing, unobservable components model, Band-Pass Filter (BP), Baxter-King (BK), and others. The survey articles by Harvey and Jaeger (1993) and Dupasquier, Guay, and St-Amant (1997), Canova (1998) explores the properties of the detrending techniques. The consensus is that, both quantitatively and qualitatively, decomposition of a time-series into permanent and transitory components varies widely since alternative detrending filters extract different types of information from the data. Also, all the structural time-series models suffer from significant deficiencies. Therefore, for roundness this study uses the Beveridge and Nelson (1981) (BN) decomposition method (a qualitative approach) and Wavelet transformation (WT) (a quantitative approach) to decompose the government expenditure rate series into permanent and transitory components.





The decomposed components of Sri Lankan government expenditure rate series with BN and WT techniques are presented in Graphs 5 and 6. The best fit ARIMA (p, d, q) model for BN-decomposition is ARIMA (1, 1, 0). The graphs show that Sri Lanka has faced considerable transitory shocks to its expenditure from mid-1970s to mid-1980s. There seems to be a considerable transitory component in the total expenditure as the internal conflict started during this period in Sri Lanka. The decomposed transitory part with Wavelet Transformation shows higher values than that of BN-decomposed series.

Descriptive Statistics

The study seeks to ascertain the fiscal behavior Sri Lanka. This section compares the average tax rates and average expenditure rate to form an idea of the fiscal adequacy of these countries. The tax-to-GDP and expenditure-to-GDP ratios are important for maximizing economic growth. The tax and expenditure rates are a lot lower in developing countries than in the developed ones, which in one form or other display characteristics of a welfare state. Mean value of tax rate and expenditure rate were 19.52% and 28.16% of GDP, respectively. The coefficients of variance, a comparative measure of volatility, show that tax rate has been more volatile as compare to expenditure rate.

Table 1: Descriptive Statistics

	Tax Rate	*Expenditure rate*
Mean	0.195275	0.281641
Median	0.197322	0.282056
Maximum	0.263565	0.413591
Minimum	0.153432	0.209402
Std. Dev.	0.042350	0.010490
Coef. of Var.	0.216874	0.037246

Source: Key Indicators for Asia and the Pacific (2008) and World Development Indicators (2008)

Sri Lanka has faced high fiscal deficits throughout its economic history. Mean value of tax-to-GDP ratio is almost at optimal level of other developing countries. The expenditure-to-GDP ratio is also in the given range of optimal level proposed by Tanzy and Schuknecht (1998). However, as noted in Section 3, the tax structure of Sri Lanka has been typically like other developing countries. The share of indirect taxes in the total central revenue in 2006 was 76% of GDP very high. This has affected its capacity to keep the social cost of taxation reasonably low and its tax-expenditure ratio at the socially desirable.

Estimation

As a first step, the necessary condition (of random walk in tax rate) for tax smoothing suggested in equation (5) is checked. The results show that the tax rate series is following a random walk. This indicates that changes in the tax rate have been permanent; however, random walk is only a sufficient condition. The findings of the unit root teat are similar to Cashin, Haque and Olekalns (1997) who argue for random walk in the tax rate series of Sri Lanka but could not find out tax smoothing using Vector Auto-regressive (VAR) process between tax rate and actual part of the budget balance.

Table 2: ADF Unit Root Test for Tax, Expenditure and Money Growth Rates

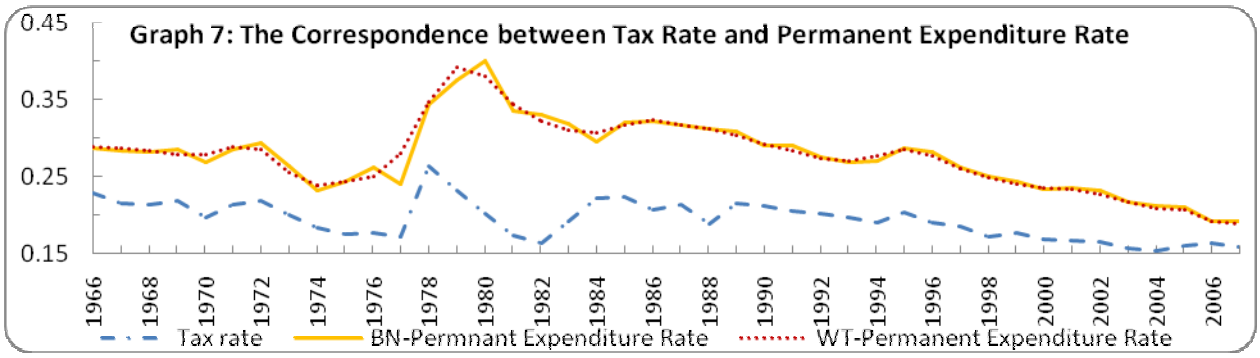
Unit Root Test in	*Exogenous*	*Tax rate*	*Expenditure rate*	*Money Growth rate*
Level	Constant	-2.956314	-2.459686	-4.794623*
	Const and Trend	-3.618188	-2.858643	-2.555234
	None	-0.837740	-0.664242	-0.199246
First Difference	Constant	-6.104672*	-9.081539*	---
	Const and Trend	-5.440512*	-9.066434*	---
	None	-6.001924*	-9.167377*	---

*Note: Null Hypothesis: The series has a unit root. * Null is rejected at 5% level.*

So, as a next step, the unit root test for expenditure rate series was carried out. The null hypothesis of non-stationarity could not be rejected for tax rate (as described earlier) and expenditure rate at level i.e. both the series are integrated at order one. However, the series of growth rate of money (M1) turned out to be stationary. The results reveal that all variables having unit root at level are stationary at first difference.

Graphical Analysis

Graph 7 shows the correspondence between tax rate series and both permanent parts of expenditure rate series i.e. BN and WT. The gap between the two series is the fiscal deficit. It widens in late 1970s and 1980s; the main reason being that Sri Lanka started privatization and deregulation in 1977 and faced internal conflict in 1980s. One of the main consequences of the deficit is the accumulation of huge public debt due to easy and concessional availability of external loans. Due to these reasons Sri Lanka enjoys the dubious distinction of being the highest indebted country in the region. Furthermore, its sky-rocketing debt became unsustainable in the beginning of this decade. However, things looked a little bit cheerful as the fiscal deficit started decreasing in 1990s and was at its lowest in 2006 but it could not be sustained as in 2009 it was 10.2% of GDP at its highest.



It is interesting to note that despite a big gap between tax rate and permanent expenditure rate series, indicating fiscal deficit, the graph 8 shows a close correspondence between them. The correspondence is almost perfect before and after 1980s. However, the decade of 1980s was very crucial when country faced an internal conflict. So naturally for this period the correspondence is not perfect. On the whole, the graph indicates that expected changes in permanent expenditure have been reflected in the changes in tax rate. The correspondence is moderately tight which suggests that Sri Lanka has tried to minimize the welfare cost of taxation.

Co-integration Analysis

The equation (8) presents sufficient condition of presence the TSH. As tax rate and permanent expenditure rate series for Sri Lanka are I(1). Therefore, cointegration analysis could be conducted between the two. Table 3 shows that residuals obtained from regression are stationary, which indicates that co-integration exists between the tax rate and expenditure rate series. The estimates of β are identical under both BN- and WT-measures of permanent expenditures at 0.68, implying that 68% of changes in permanent expenditures are reflected in the taxes, and that although there has been tax smoothing, it is not perfect (i.e. $\beta \neq 1$). The test also supports insights derived from unit root in tax rate and Graph 8 i.e. Sri Lanka is smoothing its tax rate overtime, though again not perfectly.

Error Correction Analysis

As the results with both type of decomposed series are similar so we precede the analysis with the WT-permanent expenditure rate component for further analysis based on the Error Correction Mechanism. This study also conducts the ECM analysis with BN-permanent expenditure which gives similar results, not presented here. The ECM is presented in Table 4 with tax rate and permanent expenditure rate as dependent variables. The error correction terms

(EC_{t-1}) have expected sign in both equations while it is significant only for tax equations. *This indicates that in long-run tax decisions in Sri Lanka have been made in the light of previous permanent expenditure decisions.* It reveals that in the short-run current taxes are also significantly affected by previous period's permanent expenditures and taxes. The current permanent expenditures are influenced by both previous period's permanent expenditures and taxes significantly. The results indicate that lagged difference variables of tax rate and permanent expenditure rate have significant effects on changes in tax rates. This reveals that tax decisions are being made in the light of previous expenditure and tax decisions--- and that the government of Sri Lanka is smoothing its tax rate over time. The estimated results reveal that error correction is happening in the model. The coefficient of feedback is -0.72, implying that approximately 72% of disequilibrium in previous year is corrected in the current year. The lagged difference variable of permanent expenditure is also significant in both cases implying that it also impacts on tax rate in the short-run.

Table 3: Co-integration Analysis for Sri Lanka (Dependent variable τ_t)		
	BN Unit Root Series	*WT Smooth Series*
θ^p_{t-1}	0.686174 (53.01)	0.686524 [54.34106]
DW statistics	0.595821	0.648686
Rho(ϱ)	0.681968	0.655866
ARCH	17.84558 [0.000150]	50.35472 [0.00000)
Serial Corr. LM F Test	17.16263 [0.000005]	13.71580 [0.000035]
ADF unit root test of residuals	-3.40435**	-3.608709**
*Note: DW values are greater than 1% critical value (0.511) indicating that the series are co-integrated. The ADF critical values are -3.92 at 5% and -3.38 at 10% level. ** denotes significance at 10% level.*		

The Error Correction Mechanism with additional transitory I(0) variables is presented in Table 4 with tax rate and permanent expenditure rate as dependent variables with additional I(0) variables (ECM-2). The error correction terms (EC_{t-1}) have expected signs in both equations, though significant only for tax equations. The results of ECM-2 are similar to that of ECM-1. But with additional I(0) exogenous variables of money and transitory expenditures the feedback coefficient (error correcting term) becomes weaker, implying that only 46% of disequilibrium is corrected. The coefficient of money has expected positive sign but insignificant in both models. However, the transitory part of government expenditure is significant. It may be noted that occurrence of such transitory effects does not violate the tax smoothing hypothesis. As we noted above, the transitory expenditures have significant impact on taxes. Therefore, it can be concluded that Sri Lanka has been financing internal conflict transitory expenditures through

higher fiscal deficits by getting concessional loans. These deficits have been accumulated in the form large public debt due to the availability of concessional loans from international sources. This easy approach to debt made the external debt of Sri Lanka unsustainable in 2001. (Chaudhary & Anconflict, 2000)

Table 4: Error Correction Test

Variable	ECM-1		ECM-2	
Dependent / *Explanatory*	$\Delta\tau_t$	Δg_t^P	$\Delta\tau_t$	Δg_t^P
	Coefficient [t-Statistic]	Coefficient [t-Statistic]	Coefficient [t-Statistic]	Coefficient [t-Statistic]
C	-0.00342 [-1.435633]	-0.00113 [-0.56868]	-0.00622 [-1.223042]	-0.0092* [-2.71328]
EC_{t-1}	-0.72397* [-4.588281]	0.068789 [0.589415]	-0.45927* [-2.80834]	0.030568 [0.280407]
Δg_{t-1}^P	0.997207* [4.040469]	1.278663* [6.142566]	0.773657* [3.651263]	1.308443* [9.263575]
$\Delta\tau_{t-1}$	-0.2995 [-1.814392]	-0.12595 [-0.899777]	-0.21448 [-1.467455]	-0.03375 [-0.34636]
m_{t-1}	----------	----------	0.020998 [0.617706]	0.05045* [2.22634]
g_{t-1}^P	----------	----------	-0.67374* [-3.563804]	-0.23917 [-1.8978]

*Note: Other lagged explanatory variables are also included in the ECM. * indicates significant a 5% level. See appendix for detailed results.*

The findings of our analysis are consistent with those of Narayan (2005), but are opposite to those of Cashin, Haque and Olekalns (1999). The latter have concluded that fiscal behavior of Sri Lanka is not consistent with the tax smoothing hypothesis. The main reason for our results being radically different from those of Cashin, Haque and Olekalns (1999) is the differeces in the estimation periods of the two studies. The sample period used in the Cashin et al study was 1964-1997 while the present study uses a much longer estimation period of 1965-2007. This is also clear from Graph 8 which shows a more close correspondence between the two series after 1980s than before. Another reason may be the use of different estimation techniques used in the two studies. Temporary increases in government expenditure (justified by natural shocks) tend to become enduring and lead to permanent tax increases required to finance them (Barro, 1979; Peacock & Wiseman (1979). Under such a situation the optimal solution to controlling the budget deficit is clearly expenditure cuts. But if expenditure reduction would not be possible then a combination of tax increases and bond financing should be feasible alternatives. In such a situation tax increases should not be in response to transitory increase in expenditures. Hence, keeping with our findings it can be concluded that Sri Lanka has, to some extent, tried to

minimize the welfare cost of taxation by smoothing the tax rate, though not perfectly, over the sample period.

CONCLUSION AND POLICY IMPLICATIONS

The present study has investigated whether fiscal policies adopted by Sri Lanka have been consistent with the tax smoothing hypothesis or not. And, if not, then how the tax and spend decisions have been made. Attention was then focused on the experience of public finances of Sri Lanka. It concludes that public finances of Sri Lanka have experienced severe fiscal deficits and sky-rocketing public debt which is unsustainable. It has faced such a situation due to prolonged internal conflict which prevailed over thirty years. The financing of the conflict expenditures was the major source of the deficit and the debt. Now, when the conflict is over, the current expenditure can be curtailed. However, the development expenditures have got crucial importance especially in the conflict affected area. The only way is to mobilize additional resources by generating a higher level of tax and non-tax revenue and cut down of unnecessary current expenditures. It need not be emphasized that there is an urgent need for well designed fiscal reforms to generate primary surpluses and reduce public debt burden. However, fiscal adjustment should not be achieved at the cost of the development expenditure; rather it should come from serious revenue mobilization efforts to increase domestic tax revenue. The end of the conflict has opened the door for reconstruction and development projects in the north and east. Funding these projects will be difficult, as the government already is faced with high debt interest payments, a bloated civil service, and high budget deficits. The rehabilitation in the internal conflict affected areas requires building infrastructure in those areas. So that conflict affected people should also get fruits of the development and come in the main stream and not indulge in anti state activities. For this purpose the defence expenditures should be reduced and these should be used as development expenditures.

The empirical findings of this study reveal that Sri Lanka have tried to minimize welfare cost of taxation but its fiscal behavior does not fully accord with the predictions of the tax smoothing theory. Keeping in view these findings a number of policy implications flow from them. Further, it stands to reason that, to some extent at least, the severe debt crises that Sri Lanka has faced can be attributed to their failure to do tax smoothing in a systematic fashion and to their inability to synchronize their spending and taxing and borrowing decisions. *It follows that Sri Lanka would probably be better off if it finances its permanent expenditure by increasing the tax rate; and if there are transitory shocks to the expenditures or output these should be financed through creating public debt.* However, such debt should be contingent. Secondly, the desired tax rate should be decided in such a way that the government's inter-temporal budget constraint is not violated and future generations are not affected. Thus, *to reduce budget deficit, government might increase taxes and now it has opportunity to cut down its defense expenditure.*

REFERENCES

Abeysinghe, T., & Jayawickrama, A. (2006). A Direct Test of Tax Smoothing: The Experience of Some OECD Economies. *July 2006, FEMES, Beijing and December 2006, NUS-Melbourne Symposium, Melbourne.*

Adler, J. (2006). The Tax smoothing Hypothesis: Evidence from Sweden, 1952–1999. *Scandinavian Journal of Economics, 108* (1), 81-95.

Asian Development Bank. (2010). *Key Indicators for Asia and the Pacific 2010.* Metro Manila, the Philippines.

Barro, R. J. (1979). On the Determination of the Public Debt. *Journal of Political Economy, 87* (5), 940–971.

Barro, R. J. (1981). On the Predictability of Tax-Rate Changes. *NBER Working Paper No. 636*.

Barro, R. J. (1986). U.S. Deficits since World War I. *Scandinavian Journal of Economics, 88* (1), 195-222.

Beveridge, S., & Nelson, C. R. (1981). A New Approach to Decomposition of Economic Time Series into Permanent and Transitory Components with Particular Attention to Measurement of the 'Business Cycle'. *Journal of Monetary Economics*, *7*, 151-174.

Bohn, H. (1990). Tax Smoothing with Financial Instruments. *The American Economic Review, 80* (5), 1217-1230.

Campbell, J. Y. (1987). Does Saving Anticipate Declining Labor Income? An Alternative Test of the Permanent Income Hypothesis. *Econometrica, 55* (6), 1249-1273.

Campbell, J. Y., & Shiller, R. (1987). Cointegration and Tests of Present Value Models. *Journal of Political Economy , 95* (5), 1062–1088.

Cashin, P., Haque, N., & Olekalns, N. (1999). Spend Now, Pay Later? Tax Smoothing and Fiscal Sustainability in South Asia. *International Monetary Fund,* Working Paper No. 63.

Cashin, P., Haque, N., & Olekalns, N. (2003). Tax Smoothing, Tax Tilting and Fiscal Sustainability in Pakistan. *Economic Modelling, 20* (1), 47-67.

Cashin, P., Olekalns, N., & Sahay, R. (1998). Tax Smoothing in a Financially Depressed Economy: Evidence from India. *International Monetary Fund,* Working Paper No. 122.

Chaudhary, M. A., & Anwar, S. (2000). Foreign Debt, Dependency, and Economic Growth in South Asia. *The Pakistan Development Review, 39* (4), 551–570.

Daubechies, I. (1992). Ten Lectures on Wavelets. *CBMS-NSF Regional Conference Series on Applied Mathematics. 61*. Philadelphia, PA: Society for Industrial and Applied Mathematics.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association, 74*, 427–431.

Engle, R. F. & Granger, C. W. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica, 55,* 251–276.

Ghosh, A. R. (1995). Intertemporal Tax Smoothing and Government Budget Surplus: Canada and the United States. *Journal of Money, Credit and Banking*, 1031- 1045.

Huang, C., & Lin, K. S. (1993). Deficits, Government Expenditure, and Tax Smoothing in the United States: 1929–1998. *Journal of Monetary Economics, 31*, 317–339.

Padda, Ihtsham Ul Haq. (2009). *Have Developing Countries been Seeking to Minimize the Welfare Cost of Taxation? Evidence from Barro's Tax Smoothing Hypothesis.* Unpublished doctoral dissertation. Islamabad: Federal Urdu University of Arts, Science and Technology.

Padda, Ihtsham Ul Haq, & Akram, N. (2010). Fiscal Policy and Growth Nexus: Scenario of Developing Economies. *The Empirical Economics Letters, 9*(4), 405-412.

Padda, Ihtsham Ul Haq. (2011). Decomposition of Expenditure Rate Series into Permanent and Transitory Parts *European Journal of Scientific Research,* 56 (1).

International Monetary Fund. (2009). *International Financial Statistics (CD- ROM)*, Washington, DC, International Monetary Fund.

Musgrave, R. A. (1959). *The Theory of Public Finance*. New York: McGraw Hill.

Narayan, P. K. (2005). The Government Revenue and Government Expenditure Nexus: Empirical Evidence from Nine Asian Countries. *Journal of Asian Economics, 15*, 1203-1218.

Sahasakul, C. (1986). The U.S. Evidence on Optimal Taxation over Time. *Journal of Monetary Economics, 18,* 251-275.

Serletis, A., & Schorn, R. (1999). International Evidence on the Tax- and Revenue-Smoothing Hypotheses. *Oxford Economic Papers 51*, 387-396.

Strazicich, M. C. (2002). International Evidence of Tax Smoothing in a Panel of Nineteen Industrial Countries. *Applied Economics, 34* (18), 2325-2331.

Trehan, B., & Walsh, C. E. (1988). Common Trends, The Government Budget Constraint, and Revenue Smoothing. *Journal of Economic Dynamics and Control, 12*, 425-444.

APPENDIX: Table A-1: Error Correction Test				
Variable	ECM-1		ECM-2	
Dependent / *Explanatory*	$\Delta\tau_t$	Δg_t^p	$\Delta\tau_t$	Δg_t^p
	Coefficient [t-Statistic]	Coefficient [t-Statistic]	Coefficient [t-Statistic]	Coefficient [t-Statistic]
C	-0.00342 [-1.435633]	-0.00113 [-0.56868]	-0.00622 [-1.223042]	-0.0092* [-2.71328]
EC_{t-1}	-0.72397* [-4.588281]	0.068789 [0.589415]	-0.45927* [-2.80834]	0.030568 [0.280407]
Δg_{t-1}^p	0.997207* [4.040469]	1.278663* [6.142566]	0.773657* [3.651263]	1.308443* [9.263575]
Δg_{t-2}^p	-1.54267* [-4.060171]	-0.84302* [-2.908262]	-0.82599* [-2.251281]	-1.17927* [-4.8217]
Δg_{t-3}^p	0.981204* [2.624466]	0.193118 [0.932295]	0.319271 [0.798618]	0.834576* [3.131661]
$\Delta\tau_{t-1}$	-0.2995 [-1.814392]	-0.12595 [-0.899777]	-0.21448 [-1.467455]	-0.03375 [-0.34636]
$\Delta\tau_{t-2}$	-0.28362 [-1.666578]	-0.11966 [-0.842291]	-0.46343 [-3.2057]	-0.27514* [-2.8551]
$\Delta\tau_{t-3}$	-0.341202* [-2.219347]	-0.00662 [-0.056287]	-0.16233 [-0.980845]	-0.09732 [-0.88216]
m_{t-1}	----------	----------	0.020998 [0.617706]	0.05045* [2.22634]
g_{t-1}^p	----------	----------	-0.67374* [-3.563804]	-0.23917 [-1.8978]
R-squared	0.70173	0.689251	0.830431	0.899632
SIC	-5.12748	-5.51893	-5.38747	-6.19857
DW stat	2.028314	1.749563	2.391095	1.772842
Normality test (Jarque-Bera)	1.065770 (0.586909)	5.233168 (0.073052)	1.082282 (0.582084)	1.340889 (0.511481)
Serial Corr. LM F Test	0.319671 (0.729433)	1.395828 (0.269677)	2.217875 (0.133701)	0.377438 (0.377438)
ARCH F Test	0.013639 (0.907759)	2.082958 (0.160454)	0.024526 (0.876538)	0.245838 (0.623409)
Heteroskedasticity F Test	1.648126 (0.153251)	2.033416 (0.068684)	1.361938 (0.294820)	2.984666 (0.026948)
*Note: The coefficient t values are given in brackets and diagnostic p-values are given in parentheses. *Indicates significance at 5% level. The lag selection criteria are adjusted R-square, AIC and SIC.*				