PLANNING HORIZON, LIQUIDITY CONSTRAINTS AND RICARDIAN EQUIVALENCE

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1. INTRODUCTION

The impact of debt versus tax finance budget deficit has been a controversial issue, particularly, since nineteen seventies. While most of the economists are of the view that this kind of fiscal policy affects consumption and thereby aggregate demand, prices, interest rate etc, yet there are strong theoretical reasons and empirical evidences to believe on neutral effects of debt taxes.

In the conventional views future taxation, required for to financing needs for the servicing and retirement of the current debt, is assumed to have no effect on consumption decisions, and households are assumed to be unable to perceive the future tax obligations of a current debt expansion. The concept of Ricardian Equivalence is entirely different. According to Ricardian Equivalence, for a given path of government spending, a deficit financed tax cut has no real effect on economy. Deficit merely postpones taxes. A reduction in current taxes requires higher taxes in future, which has the same present value as the initial cut. If individuals behave rationally, they will expect higher tax in future and will not respond to the current tax cut by increasing consumption. This can also be explained through intertemporal budget constraint of the government. If government issues new debt and decreases taxes in current year, then it has to repay interest on this debt plus principal in the later period. For equilibrium, government expenditures must be equal to its revenue, so government will levy exactly the same amount of taxes to meet the interest payments on debt and its principal value. An increase in current government debt, therefore, merely shifts the timing of tax collection from the current period to future period.

Barro (1974) verified the same idea of neutrality for the government bonds. Bonds are assets for the owners on the one hand but these are liability on the other hand for taxpayers. As a whole, no net wealth will be created in the economy by pursuing a debt- financed tax cut policy. Consumption and thereby aggregate demand will remain the same.

Since nineteen seventies, a lot of empirical investigations are carried out to test Ricardian Equivalence. In the beginning researchers, tried to investigate the impact of fiscal variables like, income, wealth, social security, government spending, tax revenue, government transfer to individuals, government debt, government budget deficit, retained earnings, interest payment and subsidies on private consumption without deriving their estimable equation from the well defined utility maximization behavior of the individuals. Later on researchers like

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Ashauer (1985), Haque (1988), derived their estimable equation from the utility maximization behavior of the individuals. However, they only tested differences in planning horizons between government and individuals as a source of deviation from Ricardian Equivalence. Moreover, in these studies consumers are assumed to take into account government budget constraint while making their consumption-saving decisions. But they did not explicitly incorporate the government budget constraint into the consumers' intertemporal consumption choice.

In this paper we will try to test not only the differences in the planning horizon between government and individuals as a source of deviation from Ricardian Equivalence but also will test the presence of liquidity constraint individuals. Moreover, using Brunila (1997), we will explicitly incorporate the government intertemporal budget constraint of the individuals while making their consumption saving decisions.

Rest of the paper is organized as in section II theoretical model is discussed. In section II.i this model is extended by incorporating excess sensitivity hypothesis into the model. In section II.ii the model is extended by incorporating government consolidated sector into the intertemporal budget constraint of the consumers. In section III empirical results are discussed while in section IV conclusions are given.[1]

II. Generalized Permanent Income Model

The model suggested by Brunila (1997), is used in this paper for the empirical testing of Ricardian Equivalence proposition. Each consumer is assumed to maximize his lifetime discounted expected utility at time t as:

$$Max E_t \sum_{i=0}^{\infty} (\gamma\beta)^i U(C_{t+i}^T) \quad \ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where: E_t is the expectation operator, conditioned upon information available at time t, γ^i is the probability of surviving until time $_{t+i}$, β is the subjective discount factor and is equal to $(1/1+\delta)$, where δ is the subjective rate of time preference and is assumed to be constant. C_t^T is total effective consumption. Bailly (1971) and Aschauer (1985) suggested total effective consumption is a linear combination of private consumption C_t^p and a portion θ of government consumption g_t. That is:

[1] Like Kochin (1974), Barro (1978), find results in favor of Ricardian Equivalence. While, Buchanan (1976), Feldstein (1978, 1979, 1982), Tobin and Buiter (1980), Blinder and Deaton (1985) and Kazmi (1992, 1994) produce results against the Ricardian Equivalence

$$C_t^T = C_t^p + \theta g_t \qquad \theta \gtrless 0 \quad \ldots\ldots\ldots\ldots \qquad 2$$

Consumer maximizes equation (1) subject to his life time budget constraint:

$$C_t^T = Y_t + TR_t - T_t - a_a + \left(\frac{1+r}{\gamma}\right) a_{t-1} + \theta g_t \quad \ldots\ldots \qquad 3$$

Where: Y_t is real labour income before tax of consumer at time t, TR_t is period t real government transfers (lump sum), T_t is real tax (lump sum), a_t is real nonlabour assets (debt if negative) including government bonds, a_{t-1} is real assets accumulated or debt incurred in period t-1, g_t is real government consumption in period t, r is the constant real interest rate and, $\frac{1+r}{\gamma}$ is the risk adjusted rate of return on nonlabour assets.

Transversality condition, in the presence of no binding constraint, is given as: $E_t \lim_{i\to\infty}\left(\frac{\gamma}{1+r}\right)^i a_{t+i} = 0$. This condition prevents infinite consumption and an ever-increasing debt to be financed by new loans in each period. Given this transversality condition, the expected value of the lifetime budget constraint of consumer can be written as:

$$E_t \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i C_{t+i}^T = E_t \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i \left(h_{t+i} + \theta g_{+it}\right) + \frac{1+r}{\gamma} a_{t-1} \quad \ldots\ldots 4$$

Where $h_t = Y_t = TR_t - T_t$ is disposable income. For simplicity Equation (4) can be written as:

$$E_t C_t^T = E_t H_t + \theta EG + \frac{1+r}{\gamma} a_{t-i} \quad or \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

$$EtC_t^T = E_t W_t$$

Where

$$E_t C_t^T = E_t \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i C_{t+i}, E_t H_t = E_t \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i h_t, \theta E_t G_t = \theta E_t \sum_{i=o}^{\infty} \left(\frac{\gamma}{1+r}\right)^i g_{t+i}$$

Equation (5) states that expected present value of the total effective consumption. $E_t C^T{}_t$, at time t equals the expected present value of total wealth

E_tW_t at time t. In this specification consumer is constrained to the life time income. So consumption can be adjusted through borrowing and lending according to the fluctuation in income.

The first order necessary condition for the consumer's intertemporal optimisation problem gives the Euler equation:

$$E_t U'\left(C_{t+1}^T\right) = \left[\beta(1+r)\right]^{-1} U'\left(C_t^T\right) \quad \ldots\ldots 6$$

Equation (6) implies that to choose optimal path for effective consumption, an individual cannot improve his welfare by reducing effective consumption in one period and increasing effective consumption during another period. In order to achieve closed form solution, quadratic utility function is assumed like Hall (1978), Aschauer (1985) and Chakraborty, that is;

$$U\left(C_t^T\right) = -\frac{1}{2}\left(\overline{C} - C_t^T\right) \quad \ldots\ldots 7$$

Where $\overline{C}$ is the bliss level of effective consumption. The Euler equation derived from equation (7) can be written as:

$$E_t C_{t+1}^T = \frac{r-\delta}{1+r}\overline{C} + \frac{1+\delta}{1+r} C_t^T \quad \ldots\ldots 8$$

Putting equation (8) into the consumers' lifetime budget constraint (4) we have:

$$C_t^T = \beta_0 + \beta_1\left(E_t H_t + \theta E_t G_t + \frac{1+r}{\gamma} a_{t-1}\right) \quad \ldots\ldots 9$$

$$= \beta_0 + \beta_1 E_t W_t$$

Where: $\beta_0 = \left[\frac{\gamma(\delta - r)}{(1+r)(1+r-\gamma}\right]\overline{C}$ *and* $\beta_1 = 1 - \frac{\gamma(1+\delta)}{(1+r)^2}$

Splitting effective consumption into private and government consumption and rearranging we have consumption function in terms of private consumption as:

$$C_t^P = \beta_0 + \beta_1\left(E_t H_t + \theta E_t G_t + \frac{1+r}{\gamma} a_{t-1}\right) - \theta g_t \quad \ldots\ldots 10$$

$$= \beta_0 + \beta_1 E_t W_t - \theta g_t$$

Where β_1 is the marginal propensity to consume out of expected wealth.

The consumption function derived so far is an individual consumption function. In order to derive an aggregate consumption for the whole society, we have to sum up individual consumption across all generations. For this prupose population is normalized so that the initial size of each generation is one. Fraction, γ of consumers in each generation survives each period. There are γ^a consumers aged "a" in each period. Total population is given by the summation of all generations:

$$\sum_{a=0}^{\infty}\gamma^a = \frac{1}{1-\gamma} \quad \ldots\ldots 11$$

Per capita private consumption can be obtained by dividing private consumption by population size:

$$C_t^P = (1-\lambda)\sum_{a=0}^{\infty}\gamma^a C_t^P \quad \ldots\ldots 12$$

Similarly we obtain expected aggregate per capita wealth in period t by dividing the discounted sum of expected total wealth of all consumers in all generations by total population size.

$$E_t W_t = (1-\gamma)\sum_{a=0}^{\infty}\gamma^a E_t W_t \quad \ldots\ldots 13$$

Aggregate per capita private consumption now can be written as a function of expected aggregate per capita wealth:

$$C_t^p = \beta_0 + \beta_t E_t W_t - \theta g_t \quad \ldots\ldots 14$$

Where now E_tW_t is equal to $(1-\gamma)\sum_{a=0}^{\infty}\gamma^a E_t W_t$. Equation (14) can be solved to obtain.

$$C_t^p = -r\beta_0 + (1+r)(1-\beta_1)C_{t-1}^p + \beta_1(1-\gamma)E_t H_t + \beta_1\theta(1-\gamma)E_t G_t - \theta g_t + (1+r)(1-\beta_1)\theta g_{t-1} + \beta_1\gamma(e_{It} + \theta e_{Gt}) + u_t \quad \ldots 15$$

Where:

$$e_{Ht} = (E_t - E_{t-1}) \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r} \right)^i h_{t+i} \text{ and, } e_{Gt} = (E_t - E_{t-1}) \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r} \right)^i g_{t+i}$$

are error terms and reflect revisions of expectations about h_{t+i} and g_{t+i} made by consumers when new information about future labour income, taxes, transfers and government consumption becomes available.

Equation (15) shows that unexpected change in private consumption from period t-1 to period t is related to changes in expected wealth resulting from unexpected changes in disposable income and government consumption.

The important parameters in equation (15) are γ and θ. If γ equals unity, forward looking rational consumers will behave as if they will infinitely live. They will consider today's deficit financing as tomorrow's tax liabilities. Individuals will consider debt, as a deferment of taxes and debt financed budget deficit will not their affect consumption. On the other hand, if γ is less than unity, then individual will consider government bonds (debt) as net wealth.

If θ is positive, this means that government consumption is a substitute for private consumption and will diminish the marginal utility of private consumption if government consumption increases. Thus private consumption will decline with the increase in government consumption according to the value of θ. On the other hand, if θ is negative it will indicate that both government and private consumption are complements. Increase in government consumption will raise the marginal utility of private consumption. Thus, increase in government consumption will increase the private consumption. As long as $0 < \theta < 1$ aggregate demand will rise by fraction of $(1-\theta)$ of an increase in government consumption. If $\theta = 1$, that is government consumption is perfect substitute for private consumption in this case, private consumption will be completely crowded out and fiscal policy will be neutral (Feldstein 1982).

Equation (15) cannot be estimated due to the presence of unobservable variables i.e. expected disposable income Eh_{t+i} and expected government expenditure Eg_{t+i}. In order to get rid of unobservable variables, method followed by Hayashi (1982), Leiderman and Razin (1988) is used. In this method difference equations that show changes in expected values of variables from period t-I to period t is determined by the present value of period t_i of variables and unexpected changes in these variables. That is

$$E_t H_t - \frac{1+r}{\gamma} E_{t-1} H_{t-1} = -\frac{1+r}{\gamma} h_{t-1} + e_{Ht} \qquad (a)$$

$$E_t G_t - \frac{1+r}{\gamma} E_{t-1} G_{t-1} = -\frac{1+r}{\gamma} g_{t-1} + e_{Gt} \qquad (b)$$

Equations (a) and (b) show that changes in the expected value of disposable labour income and government consumption from period t-1 to period t are determined by the present value of period t-1, disposable income $\frac{1+r}{\gamma} h_{t-1}$, government consumption $\frac{1+r}{\gamma} g_{t-1}$ and unexpected changes in these variables e_{ht} and e_{Gt}. Thus per capita private consumption function can be written in terms of observable variables as[2]:

$$C_t^P = \beta_0 + \left[(1+r)(1-\beta_1) + \frac{1+r}{\gamma}\right] C_{t-1}^P - (1-\beta_1)\frac{(1+r)^2}{\gamma} C_{t-2}^P$$

$$-\beta_1(1-\gamma)\frac{1+r}{\gamma} h_{t-1} - \theta g_t + \theta(1-\beta_1+\gamma)\frac{1+r}{\gamma} g_{t-1} \qquad \text{.....16}$$

$$-\theta(1-\beta_1)\frac{(1+r)^2}{\gamma} g_{t-2} + v_t$$

Where: $\beta_0 = \left[\frac{r(\delta - r)}{1+r}\right]\overline{C}$, $\beta_1 = 1 - \left[\frac{\gamma(1+\delta)}{(1+r)^2}\right]$ *and*

$$V_t = \beta_1(e_{Ht} + \theta e_{Gt}) - \beta_1(1+r)(e_{Ht-1} + \theta e_{Gt-1}) + U_t - \frac{1+r}{\gamma} u_{t-1}$$

In equation (16) C_t^P is private consumption expenditure at time t, While $C^P{}_{t-1}$ and $C^P{}_{t-2}$ show first and second lags of private consumption. h_{t-1} is the first lag disposable income, g_t is the government consumption expenditure at time t, and g_{t-1} and g_{t-2} are the first and second lags of government expenditure respectively.

II.i Excess Sensitivity of Consumption

Consumers are liquidity constrained if they face quantity constraints on the amount of borrowing or if the loan rates available to them are higher than the rate which they could lend. In USA, 12% to 18% households are liquidity constraint (Seator 1933 and Heathcote1999) and is more common in developing countries

(Leiderman and Bleger 1988). Due to the presence of liquidity constraint, consumers cannot smooth out their consumption. Liquidity constraint prohibits consumers from consuming today the proceeds from supplying labour income. Therefore, when government cuts taxes, they will increase consumption. Liquidity constraint prohibits consumers from consuming today the proceeds from supplying labour in future. Thus, to optimise utility, consumers use available current disposable income. Therefore, when government cuts taxes, they will increase consumption.

Bewley (1977) shows that an economy where individuals have infinite planning horizon with uncertainty about income and rate of time preference and interest rate are zero, individual will accumulate wealth and eventually they will act as there is no borrowing constraint. But in a world where there are large number of consumers and many of them would have only finite initial wealth. So a time will come in which some consumers will fall into the position where they will be subject to liquidity constraint.

Zeldes (1989) examined the impact of liquidity constraint on consumption of USA consumers and found that borrowing constraint affects the consumption. Jappelli and Pagano (1989) tested the excess sensitivity of consumption to the current income and found that the countries characterized by high excess sensitivity of consumption to the current income are those where consumers borrow less. The results showed that capital market imperfection was a major cause of excess sensitivity of consumption to the current income.

Due to imperfect capital market, consumers cannot smooth out their consumption over transitory fluctuations in income. In this case consumption and transitory income will be positively correlated. Moreover, it is assumed that liquidity constraint individuals have no assets. Thus, the best they can do is to consume all of their current disposable income. In this case the behavior of consumers may not be optimal. In this case debt financed budget deficit will have real effects even if some consumers have infinite planning horizon. So in order to derive aggregate per capita consumption, it is assumed that fraction λ of income goes to liquidity constrained consumers.

As liquidity constraint individuals cannot borrow nor they have non-labour assets (by assumption), their consumption depends upon the available current disposable income. Therefore their consumption C_t^{λ} is equal to their disposable income:

$$C_t^{\lambda} = \lambda h_t \qquad \text{.....17}$$

Where $h_t = Y_t^{\lambda} + TR_t^{\lambda} - T_t^{\lambda}$

In this case when government changes taxes or transfers, it will affect the disposable income. As there are no expectational elements in the consumption function of the liquidity constraint individuals, it will change their consumption.

As fraction λ of income goes to liquidity constraint individuals the remaining $(1-\lambda)$ of income goes to permanent income consumers. They are assumed to maximize their intertemporal utility and behave according to the following consumption function:

$$C_t^P = \beta_0 + \beta_1\left[(1-\lambda)E_tH_t + \theta(1-\lambda)E_tG_t + (1+r)a_{t-1}\right] - \theta(1-\lambda)g_t \quad \ldots.18$$

Where $\beta_0 = \left[\frac{\gamma(\delta - r)}{(1+r)(1+r-\gamma)}\right]\overline{C}$ *and* $\beta_1 = 1 - \left[\frac{\gamma(1+\delta)}{(1+r)^2}\right]$

As assumed above that liquidity constraint individuals do not have non-labour assets, therefore all of the non-labour assets (a_t) are held by the permanent income consumers.

Aggregating over liquidity constraint and permanent income consumers, the extended per capita consumption function becomes:

$$C_t^P = \beta_0 + \lambda h_t + \beta_1\left[(1-\lambda)E_tH_t + \theta(1-\lambda)E_tG_t + (1+r)a_{t-1}\right] - \theta(1-\lambda)g_t \quad .19$$

Following the same procedure as adopted in the derivation of equation (16), equation (19) can be written as:

$$\begin{aligned} C_t^P = {} & -r\beta_0 + (1+r)(1-\beta_1)C_{t-1}^P + \lambda_{ht} - \lambda(1+r)(1-\beta_t)h_{t-1} \\ & -\theta(1-\lambda)g_t + \theta(1+r)(1-\beta_1)(1-\lambda)g_{t-1} \\ & + \beta_1(1-\gamma)(1-\lambda)E_tH_t + B_t(1-\gamma)(1-\lambda)\theta E_tG_t \\ & + \beta_1(1-\lambda)\varepsilon_t + U_t \end{aligned} \quad \ldots\ldots\ldots\ldots.20$$

In terms of observable variable equation (20) can be written as:

$$\begin{aligned} C_t^P = {} & \beta_0 + \left[(1+r)(1-\beta_1) + \frac{1+r}{\gamma}\right]C_{t-1}^P - \frac{(1+r)^2}{\gamma}(1-\beta_1)C_{t-2}^P \\ & + \lambda h_t - \frac{(1+r)}{\gamma}(\lambda(1+\gamma) + \beta_1(1-\lambda-\gamma)h_{t-1} \\ & + \lambda\frac{(1+r)^2}{\gamma}(1-\beta_1)h_{t-2} - \theta(1-\lambda)g_t + \frac{1+r}{\gamma}\theta(1-\lambda)(1+\gamma-\beta_1)g_{t-1} \\ & - \frac{(1+r^2)}{\gamma}\theta(1-\beta_1)(1-\lambda)g_{t-2} + V_t \end{aligned} \quad \ldots21$$

where $\beta_0 = \left[\frac{r(\delta - r)}{1+r}\right]\overline{C}, \qquad \beta_1 = 1 - \left[\frac{\gamma(1+\delta)}{(1+r)^2}\right]$ and

$$V_t = \beta_1(1-\lambda)(e_{Ht} + \theta e_{Gt}) - \beta_1(1-\lambda)(1+r)(e_{Ht-1} + e_{Gt-1}) + (1-\lambda)U_t - (1-\lambda)\frac{1+r}{\gamma}U_{t-1}$$

For Ricardian Equivalence to hold γ should be equal to unity and λ should be zero. If λ is positive it will show the presence of liquidity constraint individuals. In this case debt financed budget deficit fiscal policy will affect consumption and debt will not be neutral even if the fraction of the consumers $(1-\lambda)$ are rational and have infinite planning horizons $(\gamma = 1)$.

II.ii. A Permanent Income Model with a Consolidated Government Sector

Ricardian Equivalence predicts that rational forward-looking consumers take into account the future implications of the current financing decisions of the government while making their own consumption-saving decisions. For long run sustainable government fiscal policy, it is required that government cannot run Ponzi-games[3]. Thus possibility of ever increasing debt is ruled out. This condition requires that tax reduction today must be offset by tax increase in future. So rational consumers take into account government solvency in their optimisation problem.

Government budget constraint is given by following equation:

$$T_t = g_t + TR_t - b_t + (1+r)b_{t-1} \qquad \text{.....22}$$

TR_t is period t real per capita government transfers, T_t is period t real per capita government tax receipts, b_t is real per capita government debt in period t, b_{t-1} is real per capita government debt in period t-1, g_t is real government consumption in period t. r is the constant real interest rate, Government taxes and transfers are assumed to be lump sum. Intertemporal government budget constraint can be written as:

$$E_t\sum_{i=0}^{\infty}(1+r)^{-i}T_{t+1} = E_t\sum_{i=0}^{\infty}(1+r)^{-i}g_{t+1} + E_t\sum_{i=0}^{\infty}(1+r)^{-i}TR_{t+1} + (1+r)b_{t-1} - \lim_{i\to\infty}\left(\frac{1}{1+r}\right)^i b_{t+i}$$

.....23

Where $E_t\sum_{i=0}^{\infty}(1+r)^{-i}T_{t+i}$ is the expected present value of the government tax receipts at time t,

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[3] Charles Ponzi (1877-1949) raised a considerable amount of money for a high rate of return i.e. he promised 50% return for 45 days and 100% return for 90 days. He was able to repay the previous debt as long as he was able to generate the new debt by attracting the new lenders by his offer. Within eight month he had 10 million dollars of certificates and 14 million dollars of debt.

$E_t \sum_{i=0}^{\infty} (1+r)^{-i} g_{t+i}$ is the expected present value of the government consumption at time t,

$Et \sum_{i=0}^{\infty} (1+r)^{-i} TR_{t+i}$ is the expected present value of the government transfers at time t.

As planning horizon of the government is infinite that is γ equal to one, therefore the factor with which future values are discounted is (1/1+r) instead of $(\gamma / 1+r)$.

It is assumed that government can run for a short to medium term deficit, but in the long run they cannot play a Ponzi game. Imposing no Ponzi game condition $(E_t \lim_{i \to \infty} \left(\frac{1}{1+r} \right)^i b_{t+1} = 0)$, the government intertemporal budget constraint can be written as:

$$E_t T_t = E_t G_t + E_t TR_t + (1+r) b_{t-1} \quad \text{.....24}$$

Where

$$E_t T_t = E \sum_{t=0}^{\infty} (1+r)^{-i} t_{t+1}, \; E_t G_t = E_t \sum_{i=0}^{\infty} (1+r)^{-i} g_{t+1} \; and E_t TR_t = E_t \sum_{i=0}^{\infty} (1+r)^{-i} TR_{t+1}$$

Equation (24) is the intertemporal government budget constraint which states that present value of expected tax receipts equal to the initial government debt plus the present value of expected government consumption and government transfer payments.

According to this equation debt financed today leads to a higher future tax, which has the same expected present value as the present tax cut.

Putting value of tax from equation (24) into private consumption function (15) to yield the following consolidated equation:

$$\begin{aligned} C_t^P &= -r\beta_0 + (1+r)(1-\beta_1) C_{t-1}^p + \beta_1 (1-\gamma) E_t Y_t \\ &+ \beta_1 (1-\gamma)(\theta - 1) E_t G_t - \theta g_t + (1+r)(1-\beta_1)\theta g_{t-1} \quad \text{.....25} \\ &- \beta_1 (1+r)(1-\gamma) b_{t-1} + \beta_1 \varepsilon_t + U_t \end{aligned}$$

Where $\left[E_t Y_t = E_t \sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r} \right)^i y_{t+i} \right]$ is the discounted value of expected future labour income.

$\varepsilon_t = (\gamma e_{yt} + \gamma\theta e_{Gt})$ is the expectations revisions arising from unexpected changes in labour income and government consumption from period t-1 to period t.

Equation (25) shows that private consumption depends upon the expected present value of real resources available to consumers minus initial value of government debt. If γ equals unity neither taxes nor government subsequent borrowing have any effect on consumer's wealth and thereby consumption. However if consumers have shorter horizon than government i.e. $0 < \gamma < 1$, they discount taxes, government transfers and government consumption at the rate $\gamma/1+r$ instead of 1/1+r, which means that these variables have smaller present value for the consumers than government. So in this case consumers will give smaller weight to the future values of taxes, transfers and government consumption. Consumers will respond to the current tax cut by increasing their consumption.

Using same procedure as was used in derivation of equation (16), we can write equation (25) in terms of observable form as:

$$C_t^P = \beta_0 + \left[(1+r)(1-\beta_1) + \frac{1+r}{\gamma}\right] C_{t-1}^{Pe}(1-\beta_1)\frac{(1+r)^2}{\gamma} C_{t-2}^P$$
$$- \beta_1(1-\gamma)\frac{1+r}{\gamma}\gamma_{t-1} - \theta g_t + \theta\left[1 - \beta_1\left(\frac{\gamma-1}{\theta}+1\right) + \gamma\right]\frac{1+r}{\gamma} g_{t-1} \quad \text{.....26}$$
$$- \theta(1-\beta_1)\frac{(1+r)^2}{\gamma} g_{t-2} - \beta_1(1-\gamma)(1+r)b_{t-1}$$
$$+ \beta_1(1-\gamma)\frac{(1+r)^2}{\gamma} b_{t-2} + V_t$$

Where: $\beta_0 = \left[\frac{r(\delta - r)}{1+r}\right]\overline{C}, \beta_1 = 1 - \left[\frac{\gamma(1+\delta)}{(1+r)^2}\right]$ *and*

$$V_t = \beta_1(ey_t + \theta e_{Gt}) - \beta_1(1+r)(ey_{t-1} + \theta e_{Gt-1}) + U_t - \frac{1+r}{\gamma} U_{t-1}$$

The terms

$$ey_t = (E_t - E_{t-1})\sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i y_{t+i} \text{ and } e_{Gt} = (E_t - E_{t-1})\sum_{i=0}^{\infty} \left(\frac{\gamma}{1+r}\right)^i g_{t+1}$$

reflect revisions in the expectations about the sequence of y_{t+i} *and* g_{t+i}.

Again the key parameters are γ and θ. In case γ equal to unity, consumers and government will have the same planning horizon and debt will be considered as neutral. And if γ is less than unity consumers will have shorter horizon than government and debt will be considered as net wealth. Similarly for Ricardian Equivalence to hold, condition requires that $\theta \neq 0$. Negative value of θ implies that marginal utility of private consumption rises with increase in government consumption while on the hand positive value of θ implies that marginal utility of private consumption diminishes with increase in government consumption.

In the presence of excess sensitivity consumers, equation (25) can be written as:

$$\begin{aligned} C_t^P = & -r\beta_0 + [(1+r)(1-\beta_1)]C_{t-1}^P + \beta_1(1-\lambda)E_tY_t \\ & + \beta_1(1-\gamma)(\theta-1)(1-\lambda)E_tG_t + \lambda h_t - \lambda(1+r)(1-\beta_1)h_{t-1} \\ & -\theta(1-\lambda)g_t + (1+r)(1-\beta_1)\theta(1-\lambda)g_{t-1} \\ & -\beta_1(1+r)(1-\gamma)(1-\lambda)b_{t-1} + \beta_1(1-\lambda)\varepsilon_t + V_t \end{aligned} \quad \text{.....27}$$

If there is no liquidity constraint $\lambda = 0$ and equation (27) reduces to equation (25).

To get rid of unobservable variables the same procedure as was used for derivation of equation (16), is applied over here to get the following equation:

$$\begin{aligned} C_t^P = & \beta_0 + \left[(1+r)(1-\beta_1) + \frac{1+r}{\gamma}\right]C_{t-1}^P - (1-B_t)\frac{(1+r)^2}{r}C_{t-2}^P + \lambda_{ht} \\ & -\lambda\left[(1+r)(1-\beta_1) + \frac{1+r}{\gamma}\right]h_{t-1} + \lambda(1-\beta_1)\frac{(1+r)^2}{\gamma}h_{t-2} - \beta_1(1-\gamma)r\frac{1+r}{\gamma}Y_{t-1} \\ & -\theta(1-\lambda)g_t + \theta\frac{1+r}{\gamma}\left[1+\gamma - \frac{\beta_1(\theta+\gamma-1)}{\theta}\right]g_{t-1} - \theta\frac{(1+r)^2}{\gamma}(1-\beta_1)(1-\lambda)g_{t-2} \\ & -\beta_1(1+r)(1-\gamma)(1-\lambda)\left(b_{t-1} - \frac{1+r}{\gamma}b_{t-2}\right) + v_t \end{aligned} \quad \text{.....28}$$

Where $\beta_0 = \left[\frac{r(\delta - r)}{1+r}\right]\overline{C}, \beta_1 = 1 - \left[\frac{\gamma(1+\delta)}{(1+r)^2}\right]$ *and*

$$V_t = \beta_1(1-\lambda)_1(ey_t + \theta e_{Gt}) - \beta_1(1-\lambda)(1+r)(ey_{t-1} + \theta e_{Gt-1}) + U_t(1-\lambda) - (1-\lambda)\frac{1+r}{\gamma}U_{t-1}$$

Again for debt neutrality to hold, not only γ required being equal to unity but also λ should be zero.

III. Empirical Results

After confirming that there exists a long run relationship among the variables that is they are co-integrated, we apply GMM estimation to the level form of the data. Using time series data from 1960 to 1999, GMM estimates of equation (16) for Pakistan, India and Srilanka are given below in table 1.

Table:1

Country	β_1	γ	θ	J test	Wald test
Pakistan					
Unrestricted	0.661**	0.96*	0.587	1.273	
	(2.020)	(24.763)	(1.171)		
Restricted					
$\gamma = 1$	0.59*		0.275	3.524	1.7
	(2.68)		(0.637)		(0.20)
$\theta = 0$	0.56*	0.961*		3.532	1.37
	(2.530)	(25.50)			(0.241)
$\gamma = 1, \theta = 0$	0.52*			3.730	2.525
	(2.68)				(0.282)
India					
Unrestricted	0.522*	0.891*	-1.202	5.22	
	(5.226)	(23.90)	(0.392)		
Restricted					
$\gamma = 1$	0.195*		0.246	5.07	8.529
	(3.289)		(0.119)		(0.003)
$\theta = 0$	0.454*	0.886*		4.60	0.153
	(4.978)	(36.960)			(0.694)
$\gamma = 1, \theta = 0$	0.205*			5.07	22.817
	(5.82)				(0.000)
Srilanka					
Unrestricted	0.424*	1.054*	0.274	3.276	
	(4.518)	(22.07)	(0.203)		
Restricted					
$\gamma = 1$	0.477*		1.123	3.132	1.286
	(3.598)		(0.782)		(0.256)
$\theta = 0$	0.584*	1.028*		4.536	0.041
	(3,.110)	(22.662)			(0.839)
$\gamma = 1, \theta = 0$	0.578*			5.22	1.288
	(3.422)				(0.525)

Initial value used for β, γ *and* θ are 0.5, 0.6 and 0.3 respectively *,**,*** Significant at 1%, 5% and 10% respectively.

Table1 shows country specific estimates of B_1, γ *and* θ with their autocorrelation heteroscedasticity consistent t-values in parenthesis[4].The J test is shown in the fifth column, which tests the over identifying restrictions. The J test shows that model performs satisfactory for all the three countries. Overidentifying restrictions do not reject the model. Wald test is shown in the sixth column, which

is used for the validity of the imposed restrictions. Levels of significance for Wald test are given in the parenthesis.

The unrestricted estimate of γ close to unity and satistically significant at the one per cent level of significance for Pakistan and Srilanka and the hypothesis of an infinite planning horizon $(\gamma = 1)$ cannot be rejected for these countries. For India the estimate of γ is lower and the hypothesis of infinite planning horizon $(\gamma = 1)$ is rejected by the Wald test. Under the restriction $\theta = 0$, the values of γ are consistent with the unrestricted ones.

The unrestricted as well as restricted estimates of θ are not statistically different from zero, which shows that government consumption and private consumption are not related. The restriction $\theta = 0$ cannot be rejected by Wald test for all the three countries. Moreover, the joint hypothesis of infinite planning horizon and independence of private and government consumption $(\gamma = 1, \theta = 0)$ cannot be rejected for Pakistan and Srilanka and is rejected for India.

Finally, estimates of β_1 are statistically significant for both the restricted and unrestricted versions of the model for all the three countries.

The above results show that debt neutrality hypothesis cannot be rejected for Pakistan and Srilanka. So debt financed budget deficit fiscal policy is neutral in these two countries. When government runs budget deficit and this deficit is financed through debt consumers will not consider this debt as a wealth, so their consumption, aggregate demand and other real variables will not change in these two countries. Consumer will save to meet the future repayment of debt and interest on that debt. However in the case of India debt financed fiscal policy is not neutral. It will affect the private consumption aggregate demand and other real variables. So debt financed budget deficit can be used as a tool of stabilization policy.

However, as mentioned in chapter two and chapter three that differences in planning horizon between government and individuals are not the only source of deviation from debt neutrality, presence of liquidity constraint individuals can also lead to invalidate debt neutrality hypothesis. Taking this into account, equation (21) has been estimated. Results of equation (21) are given in table 2.

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[4] Estimations are carried out by assuming that r= δ . Due to this assumption constant term β_0 drops out of the equation.

Table: 2

Country	β_1	γ	θ	λ	J test	Wald test
Pakistan						
Unrestricted	0.792*	0.991*	1.032***	0.263**	1.740	
	(6.673)	(75.375)	(1.824)	(2.424)		
Restricted						
$\gamma = 1$	0.784*		1.349*	0.329*	3.178	0.425
	(10.205)		(3.032)	(5.048)		(0.514)
$\theta = 0$	0.693*	0.992*		0.223***	4.955	5.327
	(5.063)	(135.16)		(1.951)		(0.048)
$\lambda = 0$	0.685**	1.006*	0.242		2.892	5.879
	(4.775)	(113.78)	(0.550)			(0.015)
$\gamma = 1, \theta = 0, \lambda = 0$	0.816*				4.788	20.01
	(10.839)					(0.000)
India						
Unrestricted	0.786*	1.046*	16.354	0.886*	2.16	
	(3.207)	(49.38)	(0.330)	(2.637)		
Restricted						
$\gamma = 1$	0.769*		-0.447	0.354*	5.12	2.770
	(7.780)		(-0.130)	(6.538)		(0.128)
$\theta = 0$	0.833*	1.05*		0.934*	3.96	0.109
	(4.980)	(144.03)		(5.835)		(0.741)
$\lambda = 0$	0.639*	0.929*	- 1.860		5.27	6.954
	(5.515)	(33.45)	(-0.537)			(0.008)
$\gamma = 1, \theta = 0, \lambda = 0$	0.206*				5.22	220.579
	(5.797)					(0.000)
Srilanka						
Unrestricted	0.837*	1.04*	0.52**	-0.225*	3.187	
	(6.940)	(130.39)	(2.251)	(3.017)		
Restricted						
$\gamma = 1$	0.661*		0.49**	-0.121***	4.659	1.909
	(2.828)		(2.12)	(1.727)		(0.167)
$\theta = 0$	0.819*	1.039*		-0.199*	5.096	0.899
	(6.68)	(70.58)		(3.508)		(0.342)
$\lambda = 0$	0.491*	1.039*	.20**		5.066	9.107
	(3.981)	(33.809)	(2.25)			(0.0025)
$\gamma = 1, \theta = 0, \lambda = 0$	0.645*				5.389	61.55
	(6.785)					(0.000)

Initial value used for $\beta, \gamma, \lambda, and\ \theta\ are\ 0.5, 0.6, 0.4\ and\ 0.3,\ respectively$

*,**,*** Significant at 1%, 5% and 10% respectively.

The results of J test, shown in the sixth column of the table 2, do not reject the extended permanent income model. Both restricted and unrestricted forms of the model are valid and perform well.

The unrestricted estimates of γ turn out to be close to unity for all the three countries and are highly significant. The restriction of infinite planning horizon $(\gamma = 1)$ cannot be rejected by Wald test for all the three countries. Which

implies that infinite planning horizon for the consumers be rejected for all the three countries. Thus consumers and government have the same planning horizon. The estimate of γ is sensitive to the restriction of absence of excess sensitivity of consumption to the current income $(\lambda = 0)$ in case of India while its value remains same when restriction $\theta = 0$ is imposed. However estimates of γ roughly remains of the same magnitude as were in unrestricted form for Pakistan and Srilanka in case of both the restrictions[5].

Estimates of λ are significantly different from zero for all the three countries. The effect of current income on consumption is lowest in Srilanka (0.22) and highest in India (0.88). In the case of Pakistan the value of λ is 0.26. The estimates of λ are significant and roughly same under the infinite planning horizon $(\gamma = 1)$ hypothesis and under the restriction $\theta = 0$. Moreover the hypothesis of the absence of excess sensitivity to current consumption $(\lambda = 0)$ is strongly rejected by the Wald test for all the three countries. These results show the failure of Ricardian Debt Neutrality in all the three countries. However, one problem, related to the λ. is that it takes the wrong sign (negative) for Srilanka[6].

The unrestricted estimates of θ became significant in the case of Pakistan and Srilanka while in case of India it remained insignificant. The restriction that private and government consumption are independent $(\theta = 0)$ can be rejected for Srilanka and Pakistan. However this restriction can not be rejected for India.

Both restricted and unrestricted estimates of β_1 are statistically different from zero. When restriction $\lambda = 0$ is imposed the estimates of β_1 tends to be roughly of the same magnitude as that obtained in the specification where liquidity constraint individuals were ignored.

Finally, the joint hypothesis of infinite planning horizon, independence of private consumption and government consumption and absence of liquidity constraint $(\gamma = 1, \theta = 0, \lambda = 0)$ can be rejected for all the three countries.

In short, overall results obtained in the presence of liquidity constraint individuals (excess sensitivity hypothesis) suggest that budget deficit and thereby debt is non-neutral in the selected Asian countries. Moreover, deviation from debt neutrality arises due to the presence of liquidity constraint individuals rather than from a shorter planning horizon of the consumers than the government. Moreover, the estimates of θ indicate that government consumption is a substitute for private consumption in case of Pakistan and Srilanka. While in case of India both are independent. Which means that when government spending is

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[5] i) $\lambda = 0$ and ii) $\theta = 0$

[6] This problem does not exist in the extended form of the model where consumers incorporate intertemporal budget constrain of the government into their own intertemporal optimisation problem. The results are given in table 4.

increased, it will crowd out private consumption in case of Pakistan and Srilanka. While in case of India it will not affect private consumption. Thus fiscal policy via change through government spending will be more effective in the case of India than in the case of Pakistan and Srilanka.

The problem with the above model is that in this specification consumers do not explicitly take into account the intertemporal government budget constraint in making their consumption-saving decisions. Since rational consumers take into account government intertemporal budget constraint and solvency in their optimisation behavior, therefore, government and private sector can be consolidated. Taking this into account, equation (26) has been estimated by using the same procedure. The results are summarized in table 3.

Table:3

Country	β_1	γ	θ	J test	Wald test
Pakistan					
Unrestricted	1.196*	0.948*	-0.386	3.257	
	(22.82)	(80.41)	(1.286)		
Restricted					
$\gamma = 1$	0.828*		1.806*	5.348	19.309
	(12.97)		(22.046)		(0.000)
$\theta = 0$	1.143*	1.005*		5..309	1.655
	(5.829)	(175.68)			(0.198)
$\gamma = 1, \theta = 0$	1.190*			5.41	20.344
	(21.295)				(0.000)
India					
Unrestricted	0.881*	0.961*	-6.421*	4.758	
	(7.971)	(14.51)	(8.001)		
Restricted					
$\gamma = 1$	0.794*		-1.870*	5.496	0.537
	(20.38)		(26.068)		(0.463)
$\theta = 0$	0.719*	0.886*		4.390	64.030
	(8.921)	(47.181)			(0.000)
$\gamma = 1, \theta = 0$	0.340*			4.984	73.306
	(10.598)				(0.000)
Srilanka					
Unrestricted	0.875*	0.990*	-0.612*	2.23	
	(23.538)	(18.921)	(18.11)		
Restricted					
$\gamma = 1$	0.745*		1.717*	3.764	0.593
	(8.595)		(9.642)		(0.440)
$\theta = 0$	0.632*	0.992*		5.460	328.2
	(9.031)	(43.63)			(0.000)
$\gamma = 1, \theta = 0$	0.630*			0.146	810.5
	(9.547)				(0.000)

*,**,*** Significant at 1%, 5% and 10% respectively.

Results of table 3 show that over- identifying restrictions do not reject the model for all the countries. Unrestricted estimates of γ are close to unity in case of India and Srilanka and the restriction of infinite planning $\lambda(\gamma = 1)$ cannot be rejected for these countries. However, in the case of Pakistan estimate of γ is

less than unity and the restriction of infinite planning $\lambda(\gamma = 1)$ is rejected by Wald test. However when restriction $\theta = 0$ is imposed, estimates of γ remain same for Srilanka while it becomes close to unity (1.005) in the case of Pakistan and less than unity (0.886) in case of India which are converse to unrestricted estimates.

Unrestricted estimates of θ are negative for all the three countries. And are statistically significant for India and Srilanka, indicating that government consumption and Private consumption are complement in these countries. The restriction $\theta = 0$ is rejected for India and Srilanka, However the estimate of θ is not significantly different from zero in case of Pakistan and the restriction $\theta = 0$ cannot be rejected for Pakistan. The joint hypothesis of infinite planning horizon and independence of government and private consumption $(\gamma = 1, \theta = 0)$ can be rejected for all the three countries.

Finally, unrestricted and resticted estimates of β_1 are significant for all the three countries.

To sum up the results obtained by consolidated approach indicate that debt neutrality hypothesis cannot be rejected for India and Srilanka on the basis of planning horizon. Consumers and government have the same planning horizon, which means that debt financed budget deficit policy will not effect the consumption. Therefore, this type of fiscal policy will be ineffective in these countries. However, in the case of Pakistan consumers have shorter planning horizon than the government and debt neutrality hypothesis does not hold for it.

Table: 4

Country	β_1	γ	θ	λ	J test	Wald test
Pakistan						
Unrestricted	0.860*	0.923*	0.452*	0.270*	4.724	
	(13.77)	(97.547)	(6.222)	(6.868)		
Restricted						
$\gamma = 1$	0.742*		0.033*	0.210*	4.668	64.89
	(9.309)		(0.819)	92.235		(0.000)
$\theta = 0$	0.769*	0.982*		0.169	4.899	38.721
	(3.149)	(39.829)		(0.810)		(0.000)
$\lambda = 0$	0.038*	0.914*	-0.966*		2.69	47.176
	(12.02)	(146.18)	(10.734)			(0.000)
$\gamma = 1, \theta = 0, \lambda = 0$	0.816*				4.788	73.301
	(10.83)					(0.000)
India						
Unrestricted	0.842*	1.095*	-0.073***	0.864*	5.449	
	(7.114)	(6.33)	(1.407)	(14.135)		
Restricted						
$\gamma = 1$	0.613*		-0.005	0.962*	4.214	3.432
	(9.368)		(0.335)	(10.13)		(0.163)
$\theta = 0$	0.269***	1.068*		0.767*	3.838	1.981
	(1.988)	(14.85)		(9.831)		(0.159)
$\lambda = 0$	0.082*	2.958*	0.014		5.112	199.8
	(3.948)	(9.042)	(0.266)			(0.000)
$\gamma = 1, \theta = 0, \lambda = 0$	0.242*				5.33	813.7
	(20.56)					(0.000)
Srilanka						
Unrestricted	0.846*	0.97*	0.325**	(0.263)*	4.081	
	(12.67)	(43.37)	(4.42)	(3.891)		
Restricted						
$\gamma = 1$	0.882*		0.44*	0.186*	4.800	2.58
	(12.09)		(3.22)	(4.353)		(0.108)
$\theta = 0$	0.774*	0.976*		-0.053*		10.957
	(37.58)	(332.25)		(4.313)	2.66	(0.000)
$\lambda = 0$	0.095*	0.870*	-0.270*		4.917	20.99
	(4.752)	(15.93)	(2.673)			(0.000)
$\gamma = 1, \theta = 0, \lambda = 0$	0.724*				2.55	26.86
	(24.32)					(0.000)

*,**,*** Significant at 1%, 5% and 10% respectively.

Table 4 shows that the value of γ is close to unity and the restriction of infinite planning horizon $(\gamma = 1)$ cannot be rejected for India and Srilanka[5] While in the case of Pakistan the value of γ is less than unity and based on Wald test the restriction of infinite planning horizon $(\gamma = 1)$ can be rejected.

[5] In case of Srilanka the restriction of infinite planning horizon can be rejected only at 10 percent level of significance.

The unrestricted estimates of λ are statistically significant and are of the expected sign for all the three countries. The restriction $\lambda = 0$ is rejected by Wald test for all the three countries.

The above results suggest that government and individuals have the same planning horizon in the case of Srilanka and India. Therefore on the basis of planning horizon Ricardian Equivalence cannot be rejected in these two countries. While in the case of Pakistan individuals have the shorter planning horizon than the government. Therefore Ricardian Equivalence is rejected. However due to the presence of excess sensitivity consumers Ricardian equivalence does not hold in all the three countries.

Estimates of θ are positive for Pakistan and Srilanka and negative for India. However, it is significant for India only at 10 percent level of significance. While in case of Pakistan and Srilanka it is significant at 1 percent level of significance. The restriction of independence of government consumption and private consumption $(\theta = 0)$ is rejected both for Pakistan and Srilanka. However it cannot be rejected for India. Finally the joint restriction of infinite planning horizon, absence of excess sensitivity and independence of private and government consumption $(\gamma = 1, \theta = 0, \lambda = 0)$ is rejected for all the three countries.

General conclusions, drawn from the results based on more general permanent income model, where consumers consolidate intertemporal government budget constraint into their intertemporal optimisation problem, are that deviation from Ricardian debt neutrality is caused due to shorter planning horizon and the presence of liquidity constraint individuals in the case of Pakistan. While in the case of Srilanka and India it is not the planning horizon that causes deviation from debt neutrality, debt neutrality hypothesis does not hold in these countries because of the presence of liquidity constraint individuals. Owing to these results, Fiscal policy can affect the consumption and thereby aggregate demand in these countries. Moreover, increase in government consumption crowds out the private consumption in case of Pakistan and Srilanka, while it will not affect the consumption of consumers in the case of India. Thus effect of government consumption on aggregate demand will be less in case of Pakistan and Srilanka than India.

IV. Conclusion

This paper attempts to test whether Ricardian Equivalence holds for Pakistan, Srilanka and India or not. Time series data was utilized to test the validity of Ricardian Equivalence. Differences in planning horizon between consumers and government and presence of excess sensitivity to consumption have been tested as a source of deviation from Ricardian Equivalence.

First Ricardian Equivalence was tested in a generalized permanent income model with finite planning horizon. The results of this model show that infinite planning horizon cannot be rejected for Pakistan and Srilanka. However,

in the case of India, results indicate that consumers have shorter planning horizon than government. Moreover, results also indicate that government consumption and private consumption are not interdependent. Thus in this case government consumption does not tend to crowd out or crowd in private consumption.

Generalized Permanent Income Model was then extended to nest liquidity constraint (excess sensitivity hypothesis) consumers into it. The results of the extended model show that consumers and government have same planning horizon in all the three countries. However findings from this model show that private consumption not only responds to expected lifetime income but also depends upon the changes in current income. Therefore, private consumption (consumption of the liquidity constraint individuals) varies with changes in government taxes and transfers. This causes the failure of Ricardian Equivalence proposition. Thus when government increases its deficit by reducing taxes and finances this deficit by debt will affect the private consumption and thereby aggregate demand. Moreover, results also indicate that government consumption and private consumption are substitutes in the case of Pakistan and Srilanka. In the case of India, both are independent. In case of Pakistan the substitutability parameter is equal to one, which shows complete crowding out of private consumption. Thus, fiscal policy via increase in government consumption will not affect the real variables in case of Pakistan.

Finally, results of the Consolidated Generalized Permanent Income Model show that consumers and government have same planning horizon in the case of India and Srilanka. While in the case of Pakistan, the planning horizon of the consumers is shorter than government. However, it has been found that the presence of excess sensitivity to current income cannot be rejected for all the three countries. Thus, Ricardian neutrality does not hold in these countries. Moreover, results also suggest that government consumption and private consumption turn out to be substitute in case of Pakistan and Srilanka, while in the case of India both are found to be complements to each other, but not statistically significant in the case of India at conventional level of significance.

In brief, our results of the more general model suggest that debt is non-neutral in the selected South Asian countries. And this debt non-neutrality is due to the shorter planning horizon of the consumers than the government and the presence of excess sensitivity of consumption to the current income in the case of Pakistan. In the ease of India and Srilanka, it is not the differences in the planning horizon between the consumers and government, which causes debt non-neutrality, but due to the presence of liquidity constraint individuals, debt neutrality hypothesis does not hold here. So, when government is running deficits by decreasing taxes (or increasing transfers), it will affect private consumption. Moreover, our results also suggest that government can use change in government consumption as a tool of fiscal policy. In the case of India it will he more effective where government and private consumptions are complements. While, in the case of Pakistan and Srilanka, government consumption crowds out private consumption up to some extent, so change in government consumption fiscal policy will be relatively less effective than India.

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