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GOVERNMENT SPENDING WITH PUBLIC DEBT, ECONOMIC GROWTH AND FISCAL BALANCE: EVIDENCES FROM INDIA

Abstract:

This paper has examined the impact of public expenditure on economic growth and viability of fiscal policy when the public expenditure is financed by public borrowing. The ratio of gross fiscal deficit to net national product and the ratio of gross fiscal deficit to total expenditure have been considered as indicators of solvency in fiscal balance. The study is based on theoretical framework and results of econometric analyses. The basic argument of this paper is that if public expenditure is financed by government borrowing, but expenditure fails to generate sufficient growth in income, it will be difficult to repay the loan and fiscal balance will deteriorate. As a result, the viability of the fiscal policy will be under question. The data in the Indian context show that revenue expenditure has increased significantly over time. Since revenue expenditure includes many non-developmental and less productive components, it may not be helpful for economic growth. The results of time series analysis show that the ratio of gross fiscal deficit to net national product (NNP) has increased with increase in total expenditure of the government indicating non-sustainability of fiscal balance. The study also shows that private capital has significant positive impact on NNP but the effect of fiscal deficit on economic growth is not clear.

Keywords:

government, budget, revenue expenditure, public debt, economic growth, fiscal deficit, interest payment, fiscal balance, sustainability

JEL Classification: H11, H50, H54

I. INTRODUCTION

The government expenditure has important role in infrastructure development, economic growth, health and education, employment generation and social welfare. The expenditure of the government can be broadly classified as expenditure for productive services and expenditure for consumption. Sometimes they are classified as revenue expenditure and capital expenditure also. The revenue expenditure includes salary and wages, pension, subsidy, interest payment on public debt and various allowances of the government. The capital expenditure, on the other hand, includes investment for long term growth. Both revenue and capital expenditures have developmental and non-developmental components. The government spending is financed mainly by tax revenue although there might be sources of non-tax revenue also. The tax is generally imposed on income, capital, human skill and consumption. If there is deficit in the budget, the government resorts to the policy of public borrowing. The net borrowing of the government is called fiscal deficit. If public expenditure is financed by public debt, then maintaining the sustainability of fiscal balance becomes important and it depends on the size of government spending, composition of public expenditure and productivity of various components of government spending. If the available funds in the budget are allocated to less productive or unproductive heads or the funds are used for distributive purposes, growth suffers and the tax revenue of the government declines. In effect, it becomes difficult to repay the public debt with interest and the fiscal balance is adversely affected. It may so happen that fresh loan is taken to repay the previous loan. So, growth is important for maintaining fiscal health and viability of fiscal policy.

Barro (1990) has determined in his endogenous growth model with government spending the optimal tax rate that maximizes growth rate. It is important for the government to determine optimal fiscal policy although it does not always means maximization of economic growth. Distributive politics plays an important role in the developing countries with democratic set up. How much the government will spend on productive purposes and how much on distributive heads may be political decisions in many cases. The government and the politicians may be interested in maximization of political gain rather than maximization of growth. If political gain from distributive expenditures is higher, the government will be inclined to spend more on distributive purposes at the cost of long term growth (Sasmal, 2011). In that case, the fiscal deficit will increase. Alesina and Rodrik (1994) and Persson and Tabellini (1994) have demonstrated that inequality is harmful for growth. Their explanation is that growth is driven by accumulation of capital and if the demand for redistribution of income becomes high, tax on capital and income will be also high. Then after-tax return on capital will decline and it will discourage investment and growth. If growth suffers, fiscal balance will deteriorate.

The common wisdom suggests that public expenditure on the development of infrastructure such as roads, highways and railways, power generation, irrigation and telecommunications accelerates economic growth specially in the developing

countries. The expenditures on health and education, social welfare and cultural activities may also increase productivity and growth but these effects are generally realised in the long run and at moderate rates. It is argued that the distributive expenditures like wages and salaries, allowances, pension, subsidies and direct transfers generally slow down growth because a major part of such spending is non-developmental in nature. Banerjee and Newman (1993) and Galor and Zeira (1993), however, demonstrate that if redistribution policies can enhance human capital, they can also accelerate growth. So, the nature of government spending is important for both economic growth and fiscal balance. Agenor (2008) demonstrates that government expenditure helps economic growth if human capital is formed in the process of government spending. The study of Marjit et al. (2013) in the Indian context, has shown that capital expenditure specially on infrastructure has significant positive impact on per capita income.

In any case, the nature of government spending and its impact on productivity and growth is important for maintaining fiscal balance because it has direct link with income and collection of tax revenue. Most of the growth models assume balanced budget government spending. But this paper has considered economic growth with deficit budget and the deficit is financed by public borrowing of the government. The objective of this study is to examine the impact of public expenditure on economic growth and fiscal balance when the public expenditure is financed by public debt. The main query is to examine the position of fiscal balance if the expenditures are financed by public borrowing. The model of Bruce and Turnnovsky (1999) has been used as analytical framework in this work. Bruce and Turnnovsky (1999) have considered a deficit budget growth model and examined the sustainability of fiscal balance in a balanced growth path. They have concluded on the basis of theoretical results that the fiscal balance will be sustainable in the long run if it can generate sufficient primary budget surplus to repay the initial outstanding debt of the government. If it fails to generate sufficient surplus in primary budget then the provision of lump-sum tax will be needed to repay the outstanding loans. Since the model has assumed a balanced growth path both income and public debt will grow at the same rate. So, there is no scope for making outstanding public debt zero unless there is sufficient surplus in primary budget or lump-sum taxes are collected from the people over time.

The collection of lump-sum tax to fill up the gap in fiscal balance is theoretically plausible but it may not be a feasible option. Taxes on consumption in addition to income tax can partially offset the deficit in the fiscal balance. Using the term 'dynamic scoring', Bruce and Turnnovsky (1999) have developed a sustainability index of fiscal policy, denoted by V. Their paper suggests that given the fiscal measures, such as tax rates and expenditure ratios, if the system can generate sufficient primary budget surplus along the balanced growth path, V will be equal to zero indicating that the fiscal policy is viable in the long run. If V is positive, then fiscal policy is unsustainable and in that case lump-sum tax will be necessary to maintain sustainability in the fiscal balance. It also indicates that if the government is running a primary deficit, it means

that the debt burden of the government is piling up. On the other hand, if primary budget deficit declines, the fiscal balance improves.

In this backdrop, this paper has examined alternative criteria for judging solvency in fiscal balance using the econometric results based on Indian data. Here, the ratio of gross fiscal deficit to net national product (NNP) and the ratio of gross fiscal deficit to total expenditure of the government have been taken as measures of fiscal health. If these ratios decline it will suggest that fiscal balance improves. If the ratio of gross fiscal deficit to NNP remains constant, it may be considered as a kind of sustainability in fiscal balance in the short run. Time series and Panel data analysis have been done in this study.

II. THE ANALYTICAL FRAMEWORK

The model of Bruce and Turnnovsky (1999) has been used in this paper to build up the analytical framework of the present study. Following Bruce and Turnovsky, here we have considered an economy where output Y is produced from private capital stock and productive service from government expenditure. In Cobb-Douglas form the production function is:

(1) $Y = G_P^\alpha K^{1-\alpha}$, where K is private capital and G_P is productive service from government expenditure. The production technology exhibits constant returns to scale (CRS) with diminishing returns.

The isoelastic intertemporal utility function of the representative household is :

(2) $u = \dfrac{1}{\gamma}\left(CG_C^\eta\right)^\gamma$ where C is private consumption, G$_C$ is consumption expenditure of the government, η is the measure of utility of the households from G$_C$ and γ is the measure of intertemporal utility. Here, $\eta > 0$ and $-\infty \langle \gamma \langle 1$.

The budget constraint of the household is :

(3) $\dot{B} + \dot{K} = (1-\tau)(Y + rB) - (1+\delta)C - T$ where τ is the tax rate on income, B is value of government debt and r is rate of interest on public debt. τ and δ are tax rates on income and consumption respectively. A lump-sum tax T is included in the model as a balancing factor and it is not related to the tax structure of the government.

The government follows a deficit budget expenditure policy and faces the following budget constraint:

(4) $\dot{B} = r(1-\tau)B + G - \tau Y - \delta C - T$

The difference between current spending and tax revenue in (4) is deficit in the budget which is financed by fresh borrowing of the government denoted by $\dot{B}$. G is the sum of expenditure on productive services, G_P and consumption expenditure, G_C, i.e., $G = G_P + G_C$. The given fiscal parameters are τ, δ, G_P and G_C. The saving of the household is divided into two parts – (i) accumulation of private capital and (ii) lending to the government by purchasing bonds. The return from these two types of assets is same.

The objective of the representative household is :

(5) $$Max\, U = \int_0^\infty \frac{1}{\gamma} \left(C\, G_C^\eta \right)^\gamma e^{-\rho t}\, dt$$

s.t. (3) and the given fiscal parameters.

ρ is the rate of discount of future utility. It is a dynamic optimization problem.

The solution to the problem in (5) gives the equilibrium growth path of consumption as

(6) $\dfrac{\dot{C}}{C} = \dfrac{r(1-\tau)-\rho}{1-\gamma(1+\eta)}$ where r is equal to marginal product of capital (MP_K). Here, $MP_K = (1-\alpha)(G_{P/K})^\alpha$

In balanced growth, all the variables grow at the same rate and then we get the growth rate

(7) $$\mu = \frac{\dot{C}}{C} = \frac{\dot{Y}}{Y} = \frac{\dot{K}}{K} = \frac{\dot{G}_P}{G_P} = \frac{\dot{G}_C}{G_C} = \frac{\dot{B}}{B} = \frac{r(1-\tau)-\rho}{1-\gamma(1+\eta)}$$

Since G_P and K will grow at the same rate and r is constant, it satisfies the requirement of endogenous growth. Given the tax rate τ, growth rate μ is also constant. G_P and G_C are constant at a particular point in time but they grow at the same rate with Y in balanced growth. Now we can express the ratios as follows:

$\dfrac{G_P}{Y} = g_P,\ \dfrac{G_C}{Y} = g_C$ where g_P and g_C are constant over time in balanced

growth. From the production function in (1) we can write $r = (1-\alpha)(g_P)^{\frac{\alpha}{1-\alpha}}$ as constant where g_p is also constant.

The differentiation of μ in (7) w.r.t. η gives

(8) $\quad \dfrac{\partial \mu}{\partial \eta} = \dfrac{r(1-\tau) - \rho}{-\gamma} \langle \ 0$

The implication of (8) is that if the households get higher utility from consumption expenditure of the government, a greater share of the fund will be allocated to such spending. As a result, expenditure share for long term investment and productive activities will decline with the result that growth rate will also decline having adverse impact on fiscal balance.

SUSTAINABILITY OF FISCAL BALANCE

The budget constraint of the government in (4) can be specified as

(9) $\quad \dfrac{\dot{B}'}{r} = (1-\tau) B' + \left\{ \dfrac{g_C + g_P - \tau}{1-\alpha} \right\} r \cdot K \cdot \delta \varphi K - T$

where B is value of public debt and B' is the member of perpetuities. Here, $B' = r \cdot B$.

It may be further mentioned that $\dfrac{Y}{K} = \dfrac{r}{1-\alpha}$. Again, $\dfrac{C}{K} = \varphi = r \left\{ \dfrac{1 - g_C - g_p}{1-\alpha} \right\} - \mu$. To derive the government's intertemporal (long-run) budget constraint equation (9) is integrated with transversality conditions.

After simplification it gives

(10) $\quad V = \dfrac{b_0}{r} + \dfrac{r \left\{ \dfrac{g_C + g_P - \tau}{1-\alpha} \right\} - \delta}{r(1-\tau) - \mu}$

where $V = \displaystyle\int_0^\infty \left(T(t) / K_0 \right) e^{-r(1-\tau)t} \cdot dt$ and $b_0 = \dfrac{B_0'}{K_0}$.

All values have been normalized with respect to K_0 (initial capital stock) for simplicity. The first term in (10) is initial outstanding stock of government debt and second term is the present value of primary budget deficit. If $V = 0$, primary budget surplus is equal to initial outstanding public debt. So, the fiscal policy is sustainable. So, there is no need of lump-sum tax. But if V is positive, it means that there is primary deficit in budget. So, fiscal balance is not sustainable. Similarly, if $V < 0$, fiscal balance improves.

One point to be clarified here is that if interest payment on public debt is excluded from revenue deficit, it is called primary deficit. In this paper interest payment on government loan has been considered separately (see equation (4)). So, for empirical analysis, the ratio of gross fiscal deficit to income (NNP) has been taken as a measure of viability of fiscal balance in the short run. The sustainability of fiscal balance has been examined empirically in the Indian context keeping in mind the theoretical arguments derived from Bruce and Turnovsky (1999).

III. EMPIRICAL EVIDENCES FROM INDIA

This section shows the share of revenue expenditure and capital expenditure in total expenditure of the government and the ratio of gross fiscal deficit (GFD) to NNP. These are time series annual data collected from Handbook of Statistics on the Indian Economy, Reserve Bank of India, 2010-11 and 2015-16.

The data in Table 1 show that the share of revenue expenditure (RE) in total expenditure of the Central Government of India has increased over time. It has increased from 55% to to nearly 90% during the period from 1970-71 to 2015-16. On the other hand, the share of capital expenditure has declined from 45% to 12% in the same period. The RE includes wages and salaries, interest payment on public debt, subsidy, pension etc. The interest payment, subsidy and pension are considered as non-developmental expenditures. Wages and salaries although included under RE are part of developmental expenditures. The share of interest payment on public debt in total revenue expenditure has increased from 10% to 30% during this period. The purpose of highlighting these figures is to indicate that the share of government expenditure on non-developmental or less productive heads has increased. This is important because the composition of government expenditure has important bearing not only on economic growth but also on fiscal balance. In Table 1 gross fiscal deficit (GFD) as percentage of NNP has exhibited an increasing trend over time although it has fluctuations at certain points of the period (see Figure 1). This is a reflection of unfavourable fiscal balance in the country. The theoretical argument in section II is that if $V > 0$, fiscal balance deteriorates because it indicates that primary deficit in budget is increasing. Here also, as gross fiscal deficit is increasing over time, it means that fiscal balance deteriorates. More clearly, according to the criterion of Bruce and Turnovsky (1999), the fiscal balance is gradually becoming unsustainable in the Indian context. Figure 2 shows that the annual growth rate of NNP at constant prices has fluctuations over the years and the growth rate ranges from 4-8% per year. The growth rate is not constant and neither it is same as the growth rates of other variables as indicated by balanced growth.

For the purpose of time series analysis among the variables, the tests of stationarity of the series of revenue expenditure (RE), capital expenditure (CE), growth rate of NNP at constant prices (GR_NNP), growth rate of the ratio of GFD to NNP at current prices (GR_GFD_NNP), growth rate of total expenditure at current prices (GR-TE_BN) and

growth rate of the ratio of private capital to NNP at current prices (GR_Pvt_Cap_NNP), have been done using Augmented Dickey-Fuller Unit Root Test. The test of cointegration between the variables have also been done using the methods as outlined in Enders (2004).

Table 1.   Major Heads of Expenditure of the Government of India over time.

Year	Revenue Expenditure (RE) as % of Total Expenditure	Capital Expenditure (CE) as % of Total Expenditure	Interest Payment on Loan as % of Revenue Expenditure	Gross Fiscal Deficit as % of NNP
(1)	(2)	(3)	(4)	(5)
1970-71	55	45	10.77	0.32
1971-72	57	43	9.72	0.39
1972-73	57	43	9.87	0.48
1973-74	58	42	10.73	0.37
1974-75	57	43	10.07	0.50
1975-76	56	44	9.92	0.55
1976-77	60	40	10.89	0.75
1977-78	58	42	10.61	0.66
1978-79	56	44	10.57	0.99
1979-80	62	38	11.43	1.16
1980-81	63	37	11.43	1.41
1981-82	60	40	12.64	1.40
1982-83	60	40	12.78	1.68
1983-84	62	38	13.49	1.91
1984-85	63	37	13.69	2.47
1985-86	64	36	14.26	2.97
1986-87	64	36	14.69	3.45
1987-88	67	33	16.48	3.43
1988-89	68	32	18.04	3.56
1989-90	69	31	19.11	3.87
1990-91	69	31	20.41	4.61
1991-92	73	27	23.87	3.72
1992-93	75	25	25.34	3.90
1993-94	76	24	25.90	5.53
1994-95	75	25	27.41	4.98
1995-96	78	22	28.07	4.84
1996-97	79	21	29.59	4.95
1997-98	77	23	28.28	6.33
1998-99	77	23	27.88	7.57
1999-00	83	17	30.27	6.59
2000-01	85	15	30.50	7.21
2001-02	83	17	29.65	8.08
2002-03	81	19	28.50	8.03
2003-04	76	24	26.33	6.28
2004-05	77	23	25.47	4.79
2005-06	86	14	26.20	5.10
2006-07	88	12	25.13	4.84
2007-08	83	17	24.82	4.37
2008-09	89	11	21.74	6.70
2009-10	89	11	20.79	7.24
2010-11	86	14	19.54	5.38
2011-12	87	13	20.39	6.41

2012-13	88	12	22.20	5.59
2013-14	87	13	23.99	5.06
2014-15	88	12	24.18	4.64
2015-16	86	14	24.79	4.47

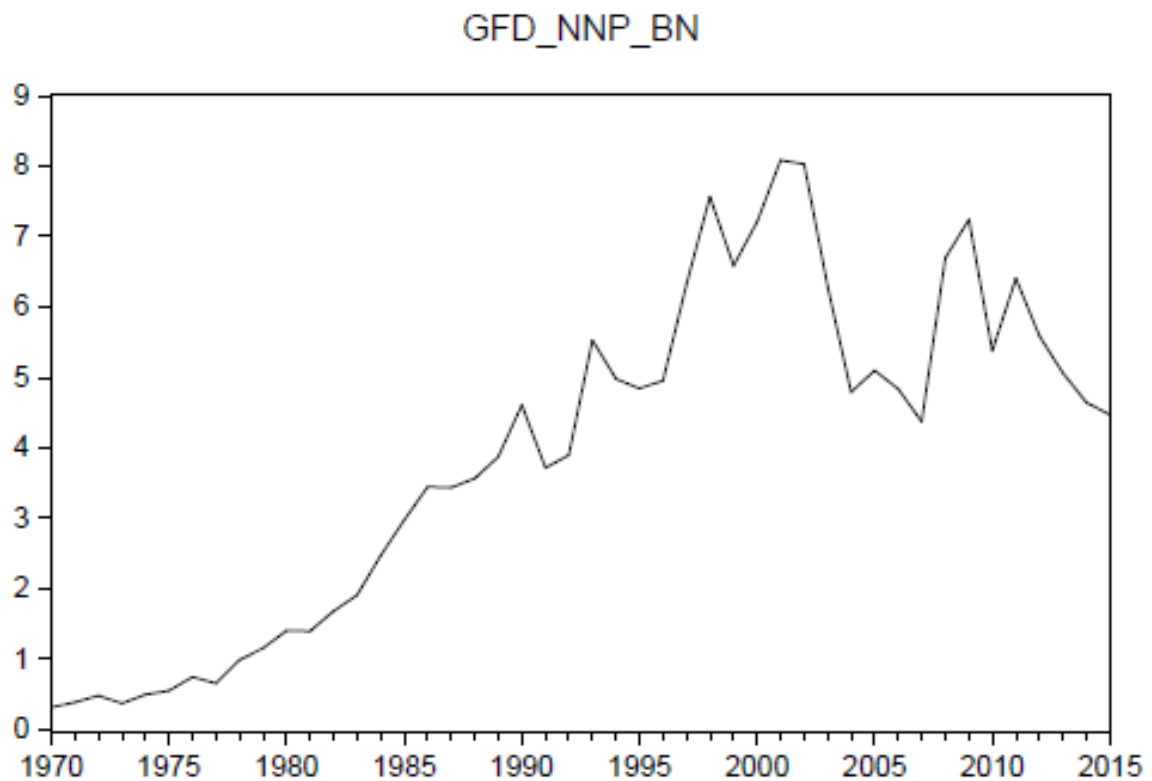*Source: Handbook of Statistics on the Indian Economy, Reserve Bank of India,   2010-11 and 2015-16.*

Figure 1:   Ratio of gross fiscal deficit (GFD) to net national product (NNP) at current prices.
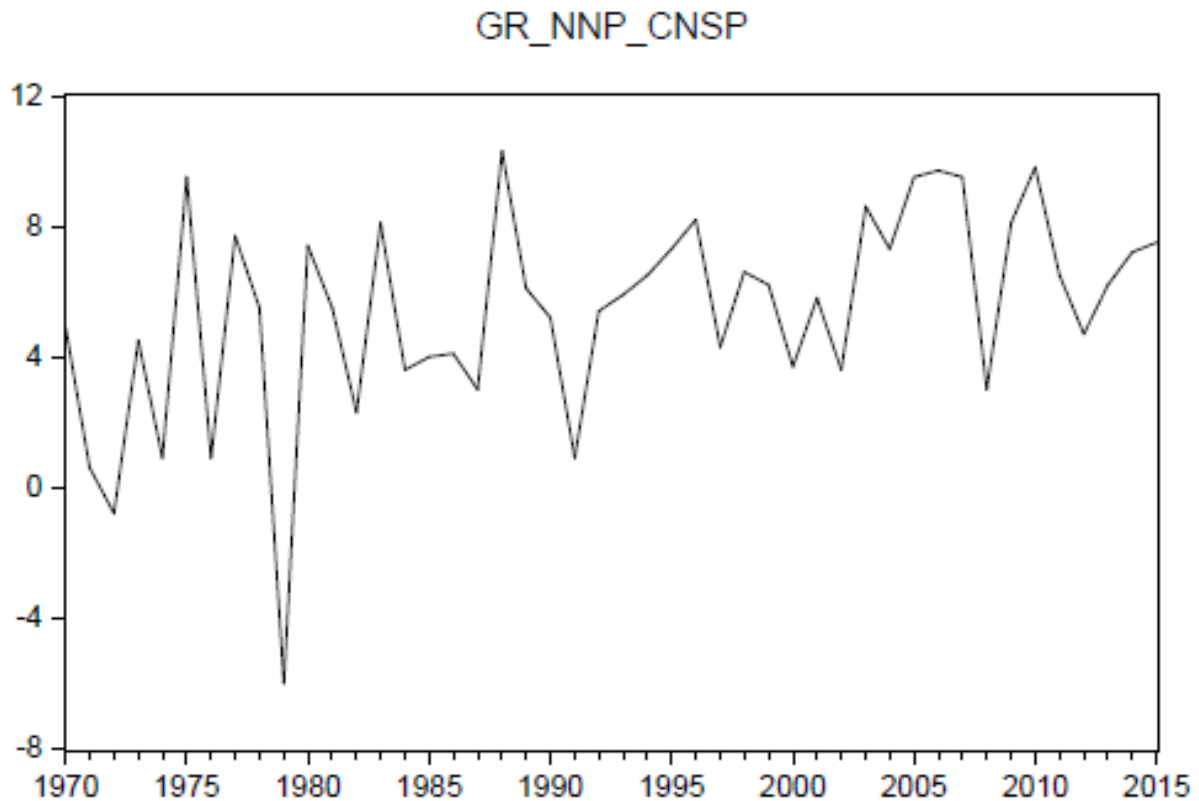
GR_NNP_CNSP

Figure 2:   Growth rate of NNP at constant prices over time.

Expenditure Pattern and its Impact on Economic Growth

So far as sustainability of fiscal balance is concerned the nature of government spending and its impact on GDP growth is important. In time series analysis, the share of revenue expenditure in total spending of the government (RE), the share of capital expenditure (CE) and net national product (NNP) are found to be stationary at 1st different in Augmented Dickey Fuller Unit Root Test. But they are not found to be cointegrated in Engle-Granger Cointegration Test. So, no meaningful relationship is found among them. It may be due to the fact that all components of RE or CE are not productive. So, econometric analysis using more disaggregated data may be helpful to capture the effect of various components of government spending on economic growth. So, Panel Regression has been done using state level data in the Indian context as an alternative exercise to find out the impact of government spending on growth. The results show that public expenditures on infrastructure (INF) and social sector development (SS) are found to have significant positive impact on state per capita income (see Table 2). The effect of INF on state per capita income is stronger than that of SS. This result is important for our study. The simple argument is that as the government makes spending with public borrowing, if the spending fails to increase income sufficiently, it will be difficult to repay the loan and the interest on the loan and as a result the condition of fiscal balance will deteriorate. The government

spends nearly 90% of the available fund on revenue expenditure which includes many non-development or less developmental heads. In such a situation, it becomes difficult to allocate sufficient fund for long term growth and in effect, economic growth and fiscal balance both are adversely affected. So, the nature of government spending and the composition of public expenditure are important for maintaining sustainability of fiscal balance.

Table 2.   Panel regression of per capita net state domestic product (at constant prices) on RE, CE, INF and SS.

Explanatory variable: RE, CE, INF, SS

No. of groups (state): 22

No. of observations: 88

Time period: 4

Exp. variable	Coefficient	t	$P > \lvert t \rvert$	R^2	Prob > F	F (21,62) test that all u_i = 0
Fixed effects	within regression					
Constant	53608.38	0.26	0.794	0.14	0.000	3.71
RE	- 61373.96	- 0.30	0.766			
CE	- 41167.80	- 0.20	0.841			
INF	38984.71	3.00 *	0.004			
SS	19126.50	1.95 *	0.054			

Exp. variable	Coefficient	Z	R^2	Chi 2 (1)	Prob > Chi 2
Random effects		GLS regression			
Constant	69864.52	0.34	0.12	21.90	0.0002
RE	- 71146.62	- 0.36			
CE	- 60467.58	- 0.30			
INF	44735.49	4.53 *			

SS	13317.22	1.48

Hausman test accepts Fixed effects

* indicates significant at 5% level.

Source: Sasmal and Sasmal (2016)

Time Series Analysis

Table 3.   Engle-Granger Cointegration Test between growth rate of the ratio of private capital to NNP (GR_Pvt_Cap_NNP) and growth rate of NNP (GR_NNP)

Series: GR_Pvt_Cap_NNP   GR_NNP

Sample (adjusted):   1971   2007

Observations: 37

Null hypothesis: Series are not cointegrated.

Dependent	tau_statistic	Prob *	Z-statistic	Prob *
GR_NNP	- 5.326	0.000	- 30.495	0.000
GR_Pvt_Cap_NNP	- 8.580	0.000	- 153.617	0.000

* Mackinnon (1996) p – values.

Table 3a.   OLS regression of GR_NNP on GR_Pvt_Cap_NNP

Variable	Coefficient	t – statistic	Prob
GR_Pvt_Cap_NNP	- 0.080	1.816 *	0.077
Constant	12.292	14.501*	0.000

$R^2 = 0.08$

* indicates significant at 5% level.

The results in Table 3 show that growth rate of the ratio of private capital to NNP at current prices and growth rate of NNP at constant prices are cointegrated. That means, there is meaningful long run relationship between them. It is evident from OLS regression in Table 3a that growth rate of private capital has significant positive impact on NNP growth rate. It follows from the results in Table 3 and 3a that growth in income is explained by private capital. But whether gross fiscal deficit (net borrowing of the government) has any significant effect on growth is not clear. If the fund from public borrowing is spent on non-productive purposes, it is not likely to help growth and fiscal balance.

Table 4.   Engle-Granger Cointegration Test between the growth rate of the ratio of gross fiscal deficit to NNP at current prices (GR_GFD_NNP) and growth rate of total expenditure of the government at current prices (GR_TE_BN)

Series: GR_TE_BN   GR_GFD_NNP

Sample (adjusted):   1971   2015

Observations: 45

Null hypothesis: Series are not cointegrated.

Dependent	tau_statistic	Prob *	Z-statistic	Prob *
GR_GFD_NNP	- 8.1130	0.000	- 53.232	0.000
GR_TE_BN	- 8.1371	0.000	- 53.229	0.000

* Mackinnon (1996) p – values.

Table 4a.   OLS regression of GR_GFD_NNP on GR_TE_BN

Dependent variable: GR_GFD_NNP

Sample (adjusted): 1971 – 2015

Observations: 45

Variable	Coefficient	t – statistic	Prob

GR_TE_BN	1.2923	3.7890 *	0.000
Constant	- 10.3059	- 1.9096 *	0.062

$R^2 = 0.25$

* indicates significant at 5% level.

The ratio of gross fiscal deficit to NNP (GFD_NNP) is a key indicator of the condition of fiscal balance. If GFD_NNP increases, debt burden of the government increases relative to income and it adversely affects the viability of the fiscal policy. On the other hand, if this ratio declines, fiscal balance improves. This is consistent with the theoretical arguments of section II.

Table 4 shows that growth rate of the ratio of gross fiscal deficit to NNP (GR_GFD_NNP) and the growth rate of total expenditure of the government at current prices (GR_TE_BN) are cointegrated. That means, there is a meaningful long run relationship between these two variables. So, OLS regression estimates will be efficient estimates. Interestingly, the effect of the growth rate of ratio of GFD and NNP on the growth rate of total expenditure is positive and statistically significant. That means, if total expenditure increases, it will increase the ratio of GFD to NNP indicating that if the government plans to increase total spending it has to depend more on public borrowing. As the ratio of GFD to NNP increases it implies that debt burden of the government with respect to income of the country is increasing and the fiscal position deteriorates.

IV. CONCLUSIONS

This paper has analysed the viability of fiscal policy using a number of criteria, in a situation when public expenditure is financed by government borrowing in addition to tax and non-tax revenues. The ratio of gross fiscal deficit to NNP (GFD_NNP), has been taken as an important indicator of fiscal balance in this study. The composition of public expenditure and its impact on economic growth and fiscal balance are very important for the viability of fiscal policy. The theoretical back up of the study has been taken from Bruce and Turnvovsky (1999) and the theoretical propositions have been empirically verified by econometric exercises based on Indian data. This study argues that if public expenditure is financed by public borrowing and it fails to generate sufficient income in the economy, it will be difficult to repay the loan and the interest on the loan. As a result, the condition of fiscal balance will deteriorate. The non-viability of such fiscal policy at least in the short-run will be reflected in increasing ratio of gross fiscal deficit to NNP, ratio of fiscal deficit to total expenditure and increasing share of interest payment in revenue expenditure of the government.

The empirical study in the Indian context has shown that the share of revenue expenditure in total expenditure of the government has increased significantly over time. Since many of the components of revenue expenditure such as subsidy, allowances and interest payment on previous loan are non-developmental in nature, the expenditure of the government is not found to have positive impact on economic growth and fiscal balance of the economy.

The results of time series analysis show that the growth rate of the ratio of gross fiscal deficit to NNP (GR_GFD_NNP) and the growth rate of total expenditure of the government (GR_TE_ BN) are cointegrated. That means, there is long run meaningful relationship between them. In OLS regression, it is found that total expenditure has significant positive impact on the ratio of gross fiscal deficit (GFD) to NND implying that if the government increases expenditure, fiscal deficit with respect to income increases. This is an indication of insolvency in fiscal position. If the government plans to spend more, it has to depend more on public borrowing. From time series analysis it is found that private capital has significant positive impact on the growth of NNP. But the effect of public borrowing on growth is not clear. Sometimes, fresh borrowing is required to repay the previous loans.

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