Impact of fiscal responsibility legislations on state finances in India

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Abstract. *The study aims to evaluate the impact of Fiscal Responsibility Legislations (FRLs) on state finances in India, considering the panel data for 28 states for the period 2000-01 to 2009-10. Fixed-effect and GLS for the random-effect model techniques are used to get regression coefficients. It is observed that the Fiscal Responsibility Legislations (FRLs) positively, affect the revenue receipts. The FRLs are effective in reducing the gross fiscal deficit and revenue deficit. The policy of FRBM is important to enhance states own revenues, check increasing expenditure and limit deficits under feasible targets. Furthermore, there is a need to develop institutional set up for effective monitoring of the fiscal performance of the state and review of Fiscal Responsibility and Budget Management targets.*

Keywords: State finance, fiscal policy, revenue, deficit, panel data model.

JEL Classification: E62, H62, C63.

Introduction

In the process of economic growth, state level fiscal management plays a vital role. Economic growth and government finances are interlinked with each other. In federal countries financial relationship among different layers of the government are defined in terms of functions and financial transfers to correct vertical and horizontal imbalance with a specified design of the inter-governmental transfers. However, there are various exogenous factors which influence a particular tier of the government in comparison to the other and it depends on the nature and process of the factors.

The state governments are responsible for the various activities like social services and infrastructural development in the states. The states are also responsible for maintaining the law and order. Thus a deteriorating state finances decrease the capability of the investment in lots of human development activities. The pressure has increased due to rise in population, the expenditure on various human development programmes and investment in the physical infrastructure of the state government. The states which were economically better off and had a responsible fiscal behavior in the past also depicted deteriorating finances. The expenditure increased but the revenue generation did not increase at the same pace. Hence, borrowing was the only way; it raised the debt of state governments in the latter part of 1990s. By 1998-1999 almost all states were facing the deteriorating state government finances.

There are various factors which influence the state fiscal management, such as, revenue, expenditure, deficit and change in macroeconomic policy. To control and manage the state government finances various policies have been undertaken, among them the Fiscal Responsibility and Budget Management (FRBM) legislation is one. Then the FRBM Act 2003 came into existence and thereon it was further amended. As ten years have been passed since implementation of FRBM. It is necessary to assess the impact of the FRBM on the expenditure, deficit and revenue indicators. It helps to understand the effectiveness of the FRBM Act.

In this context, the main objective of this study is to evaluate the impact of the fiscal responsibility legislations on state finances in India. This paper is organized as follows: Section 2 reviews the literature pertaining to study. The data, variables and estimation techniques are discussed in Section 3. Section 4 provides the empirical results and discussions. Finally, Section 5 provides conclusive remarks.

2. Review of literature

There are some important studies, which analyze the issues of state finances. Kurian (1999), Rao, Shand and Kalirajan (1999), Ahluwalia (2000) attempted to study different issues pertaining to state finances and they have observed that there are differences in terms of performance among different states.

In the context of fiscal responsibility and budget management act some selected studies are reviewed here. Rakshit (2001) tried to assess whether the fiscal responsibility and Budget Management Act likely to help or to hinder its basic objectives like, inter-generational equity, macroeconomic stabilization and growth. He analyzed the Fiscal Responsibility Act. (FRA) in different angles and found five different issues relating to it. Kopits (2001) assessed the utility of fiscal rules with the experience of other countries. He has discussed certain issues, which should be taken into consideration before the implementation of the FRA rules. Karnik (2002) evaluated the commitments of the FRBMA in the light of international experience of the New Zealand FRA of 1994. His discussion was based upon the FRBM bill introduced in the parliament in 2000. Sarma (2003) attempted to asses fiscal reform in Andhra Pradesh in order to find the measures and to form the strategies for fiscal correction. He concludes with the view that the macro-management of state's is not possible unless, there will not be adequate fiscal correction take place.

Majumdar and Rajaraman (2005) attempted to examine the aspects of recommendations of the Twelfth Finance commission and observed state should enact FRBM in order to qualify for the interest rate reduction on debt obtained from the Centre. Chelliah (2005) discussed causes of financial crisis mainly in states and suggested that the Fiscal Responsibility cannot be planned by the Centre; rather, the rules and regulations must be made so that it must be obeyed by states.

Zahir, Kaul and Ravishankar (2008) highlighted various fiscal correction measures used by the Centre and state government during 2000 to 2006. According to Reserve Bank of India assessment the fiscal deficits of all states reduced from 4.7 percent to 3.2 percent in 2005-2006. Panda and Murthy (2008) analyzed the patterns and determinant of Andhra Pradesh's revenues and selective state taxes and they had observed that the factors such as pressure of financing increased revenue expenditure and maintaining own revenues of the last year determines, increase in own revenues and taxes of state. EPWRF (2009) provided various reasons for the withdrawal of FRBM Act in their article. The FRBM Act is ineffective to achieve the goal of fiscal consolidation. This rule also restricted the fiscal deficit but expenditure acceleration is needed to face the economic crisis situation.

Panda (2009a) examined empirically, the incentive effects of federal transfers, on states own revenue and found that the per capita resource transfers from the Centre were significant and negatively associated with states own revenue, own tax revenue and own nontax revenue in per capita terms. Panda (2009b) analyzed the political economy of determining own tax revenue and selective state taxes of Andhra Pradesh, India. He found that in Andhra Pradesh economic and need based factors were determines own tax revenue and selective state taxes rather, than political factors. Mala Lalvani (2009) in a study argued that there is enough evidence for suggesting that the fiscal correction was wrong headed after the period of the FRBM Act. They suggested that there is an opportunity to make some second generation rules with experience from the period of

FRBM Act. EPWRF (2009) discussed about the fiscal consolidation. It is clear from the 2012-13 budgets that the fiscal consolidation of India is postponed as the budget did not come to the FRBM Act. Therefore, there is an indication that the fiscal deficit will be at a higher rate in the future. Rakshit (2010) discussed the nature and merits of the thirteenth finance commission. The thirteenth finance commission framed to reduce the effect of global crisis. Under the Fiscal Responsibility and Budget Management Act (FRBMA) the commission emphasized on allowing for macro stabilization and under fiscal stabilization programme, it raises both public and private investment. Panda and Nirmala (2013) attempted to examine the inducement effects of sub-national fiscal transfers on the expenditure in India. The results of fly paper effect in Indian context is validated, that the central transfers provides stimulatory effects as well as the disincentive effects on the states spending.

From the above discussion of literature, it is observed that there is deterioration of state finances and disincentives on states mobilizing larger own resources. As an option some of the studies suggested for implementation of FRBM. However, there is no exclusive empirical study that examines the impact of FRBM act on state finances after its implementation.

3. Data, variables and estimation techniques

3.1. Data and variables

The study is based on annual secondary data considering the period 2000-01 to 2009-10. The data are collected from various secondary sources for 28 states. The data for Andhra Pradesh has taken as undivided state because Andhra Pradesh was not divided by the time period under consideration. Our data are obtained from Centre for Monitoring Indian Economy (CMIE) and various issues of Reserve Bank of India State Finances-A Study of Budgets. Data related to urban population is obtained from Office of Registrar General and Census Commissioner of India.

State total expenditure, revenue expenditure, revenue receipts, fiscal deficit and revenue deficit are taken as the ratio of gross state domestic product and used as dependent variables to know the impact of the FRBM on these variables. We have used explanatory variables such as log of urban population, log of per capita gross state domestic product and FRBM dummy. The same explanatory variables are used for all regression models.

In order to analyse the impact of shifting from non-FRBM to FRBM on state finances, we have taken FRBM as a dummy independent variable. The control variable used for GSDP growth and urban population growth are remaining same for all the regression models. In the side of dependent variable we have taken from the category of spending ratio of educational expenditure, developmental expenditure and total expenditure to GSDP. From the category of receipts we have only taken the ratio of revenue receipts to GSDP and excluded capital receipts and total receipts. The reason behind this, is the

capital receipts have included some borrowing components so deficit may be compensated by the borrowing and the real effect cannot be properly known. Likewise, we also skipped the total receipts for the obvious reason that it includes the capital receipts component.

The standard practice to report for summary statistics is to present mean value, standard deviation, minimum and maximum is adopted. Table 1 represents variables used in the study with their abbreviation and summary statistics.

Table 1. *Summary statistics*

Variable	Abbreviation	Obs.	Mean	S.D	Min	Max
Ratio of Total Expenditure to GSDP	TESDPR	280	0.33166	0.2752866	0	1.680715
Ratio of Revenue Expenditure to GSDP	RESDPR	280	0.2610804	0.2108128	0	1.475512
Ratio Of Revenue Receipts to GSDP	RRSDPR	279	0.2696882	0.2409117	0.0433997	1.630624
Ratio Of Fiscal Deficit to GSDP	FDSDPR	280	0.0463332	0.385315	-0.0327076	0.2970408
Ratio Of Revenue Deficit to GSDP	RDSDPR	279	-0.0076781	0.0521959	-0.2223205	0.1337919
Log of Urban Population	LURBPOP	280	6.373919	0.7786315	4.11444	7.70602
Log of per capita GSDP	LPCGSDP	280	4.424779	0.2846955	3.362696	5.300354
Fiscal Responsibility and Budget Management	FRBM	280	0.4607143	0.4993467	0	1

Source: Calculated by the author (Basic data from various issues of RBI, Census and CMIE).

3.2. Model specification and estimation techniques

The most important things of analysis are to select the variables and also to use the method for analyzing the objectives. In our study panel data models are found to do better than the formal one dimensional model of either time series or cross-section of data. In panel data models the significant increase in degrees of freedom helps to gain the dependability of estimates. Further, the quality of the parameter estimates might be better as pooled sample permits to study the individual groups and also the individual states in the model. Keeping in mind these things, we have applied two way fixed effect models to analyze the impact of FRBM on state governments' finances. Overall fixed effect and GLS for the random effect techniques are used to get coefficients. To make a choice between these two coefficients of fixed and random effect models the Hausman test statistic has been used. The coefficients which are favored by Hausman test are only be reported.

Alternatively, we have regressed ratio of total expenditure, revenue expenditure, revenue receipts, revenue deficit and fiscal deficit to GSDP. Growth rate of Gross State Domestic Product (GSDP) is widely used as a substitute of variable as an indicator of states resource capacities. Similarly, the growth of urban population is used as a variable to represent the increase in the urban population also increases the expenditure on state's economy. The urban population growth can be taken as the more appropriate proxy to measure the need of the state as it gives weightage to both population in urban area and its growth.

In order to verify the multi-collinearity, cross correlation among the explanatory variables are computed and the results are reported in Table 2. The table shows no high correlation among the explanatory variables.

Table 2. *Correlation among explanatory variable*

Variables	LURBPOP	LPCGSDP	FRBM
LURBPOP	1.00		
LPCGSDP	0.075	1.00	
FRBM	0.3908	0.4124	1.00

In our study, we are using the fixed effect model and random effect model and to test which model is better Hausman test shall be done. The model used in the following form:

$$TESDPR = \beta_0 + \beta_1 LURBPOP + \beta_2 LPCGSDP + D_i(FRBM) + \lambda i + \mu_t + \varepsilon_{it} \quad (1)$$

$$RESDPR = \beta_0 + \beta_1 LURBPOP + \beta_2 LPCGSDP + D_i(FRBM) + \lambda i + \mu_t + \varepsilon_{it} \quad (2)$$

$$RRSDPR = \beta_0 + \beta_1 LURBPOP + \beta_2 LPCGSDP + D_i(FRBM) + \lambda i + \mu_t + \varepsilon_{it} \quad (3)$$

$$FDSDPR = \beta_0 + \beta_1 LURBPOP + \beta_2 LPCGSDP + D_i(FRBM) + \lambda i + \mu_t + \varepsilon_{it} \quad (4)$$

$$RDSDPR = \beta_0 + \beta_1 LURBPOP + \beta_2 LPCGSDP + D_i(FRBM) + \lambda i + \mu_t + \varepsilon_{it} \quad (5)$$

TESDPR = Ratio of Total Expenditure to Gross State Domestic Product
RESDPR= Ratio of Revenue Expenditure to Gross State Domestic Product
RRSDPR = Ratio of Revenue Receipt to Gross State Domestic Product
RDSDPR = Ratio of Revenue Deficit to Gross State Domestic Product.
FDSDPR = Ratio of Fiscal Deficit to Gross State Domestic Product.
LPCGSDP = Log of Gross State Domestic Product.
LURBPOP = Log of Urban Population
FRBM = Fiscal responsibility and budget management Act has been taken as a dummy variable. FRBM = 1, if there is fiscal variables corresponds to the time period after 2005, zero, otherwise. i =1,…, 28; t = time (1, 2, 3,…, 10); t = current year; i = state; ε = random error terms; λi = state specific effect; μt = time specific effect; $D i$ = coefficient of dummy variable ; $\beta 0$ = intercept coefficient; and βi = coefficients of explanatory variables.

The independent variable in the model may have both temporary and spatial differences. State specific dummies are included to control for time invariant and state specific unobservable explanatory variables like institutions and other factors. The unexplained variations in the regression are controlled by the error term ε_{it} and it also assumed to be normally distributed homoscedastic and independent across observations.

The GSDP data at current prices from 2000-2001 to 2009-2010 series are obtained from the CMIE. The *per capita* GSDP and urban population are transformed to logarithmic form. Further, these data are obtained by interpolation of census data for 2001 and 2011.The dependent variable are in per cent terms and independent variables such as LPCGSDP and LURBPOP are transformed as log.

4. Empirical results and discussion

The results based on the empirical model are outlined in the previous sections are presented in Table 3 and Table 4. The results of impact of the FRBM on states total expenditure, revenue expenditure and revenue receipts are reported in Table 3. The consequence of the Hausman test shows that the difference in coefficients between the random effect and fixed effect models is not systematic, and furnish the evidence in support of the random-effect coefficients for equation (1) and (4). Hausman test supports the fixed-effect model for equations (2), (3) and (5).

From the regression result shown in Table 3, it is seen that the variable of interest that is FRBM is insignificant for ratio of total expenditure to GSDP (TESDPR) at five percent level of significance. But *per capita* GSDP is significant for the total expenditure and it affects negatively. The negative sign of coefficients signifies that the *per capita* GSDP negatively affects the whole expenditure of states. This implies that the government has to try to reduce non-productive expenditure side. FRBM dummy has an impact on revenue receipts of the state government finances. The other control variables such as *per capita* GSDP growth and urban population growth are statistically significant for revenue expenditure and revenue receipts. The Urban population affects positively to the revenue expenditure and revenue receipts whereas, *per capita* GSDP affects negatively to total expenditure, revenue expenditure and revenue receipts. The sign of the coefficient of the variable of interest that is FRBM dummy has not obtained in desired lines for total expenditure and revenue expenditure. This may be due to the fact that governments did not strictly adhere to deficit targets by reducing expenditure for the whole period under study. Further, after few years of FRBM, due to the impact of Global Financial Crisis, public sector investment increases which makes expenditure to rise. FRBMA has a positive impact on the state revenue generation.

Table 3. *Panel regression results*

Dependent variable→	TESDPR	RESDPR	RRSDPR
Explanatory variable ↓	Random-Effect Model	Fixed-Effect Model	Fixed-Effect Model
LURBPOP	-0.0235	0.0894*	0.1511*
	(0.0318)	(0.0388)	(0.4165)
LPCGSDP	-0. 1511*	-0.3133*	-0. 3895*
	(0.0667)	(0.0747)	(0.7948)
FRBM	-0.0242	0.2027	0.0590*
	(0.0187)	(0.0152)	(0.0162)
Constant	1.1393*	1.0680*	1.0028*
	(0.2421)	(0.2033)	(0.2166)
Hausman test	2.01	96.30	10.41
(p-value)	(0.5700)	(0.000)	(0.0154)
Wald chi2	15.82*	-	-
R^2 Overall	0.2955	0.0163	0.0614
F test	-	8.74*	9.81*

Note: Standard errors are given in parentheses and * indicates statistical significance at 5 percent level.

The results of impact of the FRBM on states fiscal deficit and revenue deficit are depicted in Table 4. The results of Hausman test shows that the difference in coefficients between the random effect and fixed effect models is not systematic, and furnish the evidence in support of the random-effect coefficients for the fiscal deficit equation and vice versa for the revenue deficit equation.

From the regression result furnished in Table 4, it is observed that the variable of interest that is FRBM is significant for the ratio of gross fiscal deficit to GSDP (FDSDPR) and ratio of revenue deficit to GSDP at five percent level of significance. FRBM influences negatively to both the deficit of the state finances. Implementation of FRBM legislations accounts gross fiscal deficit to decline by 0.022 percent and 0.036 percent to revenue deficit. Therefore, FRBM legislations are effective in reducing both fiscal deficit and revenue deficit.

The other control variable like *per capita* GSDP is significant in case of revenue deficit and shows a positive relationship. Urban population emerged as significant for both the deficits and a negative impact has been observed.

Table 4. *Panel regression results*

Dependent variable→	FDSDPR	RDSDPR
Explanatory variable ↓	**Random-Effect Model**	**Fixed-Effect Model**
LURBPOP	-0.0120*	-0.0731*
	(0.0048)	(0.0175)
LPCGSDP	-0.0175	0.0849*
	(0.0122)	(0.0335)
FRBM	-0.0222*	-0.0369*
	(0.0051)	(0.0068)
Constant	0.2106	0.0998
	(0.0578)	(0.0913)
Hausman test	5.52	54.53
(P- value)	(0.1372)	(0.000)
Wald chi2	89.10*	-
R^2 Overall	0.2432	0.0289
F test	-	48.63*

Note: Standard errors are given in parentheses and * indicates statistical significance at 5 percent level.

6. Conclusion

The study investigates the impact of the FRBMA on state finances in India. From the empirical analysis it is observed that the Fiscal Responsibility Legislations (FRLs) affects positively to the revenue receipts. From the deficit side it is observed that the FRLs are effective in reducing gross fiscal deficit and revenue deficit. As public sector investments largely increased to neutralize the impact of Global Financial crises after 2009, the impact of FRBM on expenditure is not observed for the whole period under study. We recommend for the continuation of FRLs state finances for controlling the unproductive expenditure.

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