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Jothi Sivagnanam K. and Naganathan M.

University of Madras

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M. Naganathan

Professor and Head, Department of Economics,
University of Madras, Chennai 600005.

K. Jothi Sivagnanam

Reader

Department of Economics
University of Madras, Chennai 600005
Email – jothsiva@nescape.net

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Planning Commission's
Chair and Unit on Planning and Development
Department of Economics
University of Madras
Chennai – 600 005

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**M. Naganathan
K. Jothi Sivagnanam**

Introduction

The federal grants create some fiscal effects on the budgets of the unit government. Though different types of grants create different effects, all grants in general increase the fiscal resources available to the unit government to finance public services or to lower their tax/revenue effort. Hence, the federal resource transfer policy in any multi-tier Government needs to be designed to strengthen the resource position of the sub-central units. The extent of own effort of a sub-central unit in meeting their expenditure requirements or the tax effort criterion must play a significant role in this regard. Theories on fiscal federalism argues that expenditure assignment must proceed tax assignment¹. 'This is because tax assignment would in general be guided by expenditure requirements and these can't be worked out in advance of expenditure assignment. However in India tax assignment was undertaken independently of expenditure assignment².

Moreover the basic framework of tax and expenditure assignment is based on the government of India Act 1935 which becomes irresponsive to meet the changing developmental needs of the States and suffer from relative inadequacy, inelasticity, stickiness and lack of buoyancy. The 1935 Act was designed to cater to the requirements of administrative consolidation than of developmental acceleration. Economic and Social Planning inaugurated in 1950 to accelerate the growth process in India. All the expanding developmental functions were assigned to the States. Different strategies have been followed during the plan era. Then liberalisation policy has been proposed and implemented since 1991. However, the Indian federal system assumes a fairly rigid bifurcation of power and resources between the Union and States curbing any flexibility to meet the changing requirements. Under such rigid institutional arrangement, there are three types of Union resource transfers to States, mainly to correct vertical and horizontal imbalances via., Finance Commission³, Planning Commission⁴ and discretionary transfers⁵ through various Union Ministries and agencies. While recommending the resource transfers from the Union to States, the statutory as well as non-statutory bodies like Finance Commission and Planning

All the Finance Commissions have laid emphasis on the tax efforts of the States. Fifth Finance Commission went to the extent

of measuring tax effort for devolution purpose and the Sixth Finance Commission went against the use of it and the rest showed their sincerity somewhere in between these two extremes.

The objective of this study is to highlight the impact of Union resource transfers on the tax effort of the States. The relationship between Union transfers and tax efforts of the States are interlinked in the sense that the transfer policies may encourage or discourage the tax efforts of the States.

This linkage can be in three ways. First, Union transfers may substitute the relative tax efforts of the States in relation to their tax potential, that is, the States are likely to impart fiscal imprudence in anticipation of assured share from the Union government. In other words, the Union transfers may dampen the tax efforts of the States because taxing the local people is politically unattractive. Hence, instead of tapping the excess tax potential, the State may substitute Union transfer to meet their expenditure needs. Secondly, Union transfers may directly encourage the tax efforts or it may encourage tax potential and hence tax efforts of the States. Thirdly, the effect may be neutral.

Union resource transfers recommended by Finance Commission are expected to play a positive role to offset the fiscal

disadvantages in the provision of public services. In this context, the transfer policy will have to be applied with utmost caution without sacrificing the fiscal responsibility of the States. It is argued that the States in India incur more unproductive expenditure and not effectively enhancing the tax base because of the resource transfers from the Union government.

Countries like India, where resources are scarce, mobilisation of additional resources especially by exploiting the surplus tax potential in order to finance economic development and to shoulder the tax burden equally among the States deserves serious concern. 'It may so happen that the Planning Commission or even the Finance Commission (or possibly a central ministry) may reward a rich State with a poor tax effort as against a relatively poor State with a good track record in mobilising tax revenues' (Oommen, 1987). Therefore, before effecting any resource transfers, the Union government must evaluate about the impact of such transfers on the tax efforts of the States. Studies (M. Naganathan (1994), Bajaj, Sinha and Agarwal (1985), Ansari(1983)) shows that the interstate imbalances have over the years widened instead of narrowing down, although the backward States have not lagged behind the centre or more developed States in tax efforts. Therefore empirical evidences and analysis on these lines may throw new insights on this problem and could provide the

form in which the future resource transfer policy of Union government should be in order to stimulate tax efforts or at least not to encourage laxity in the tax efforts of the States. In this context an attempt is made to evaluate the effect of Union resource transfer policies on the tax effort of the States. This has to be done in the light of literature in this area.

Scope and Limitations of the Study

To facilitate a medium term time series analysis, the choice of the period covers fifteen years from 1970-71 to 1984-85 for which comparable SDP data are available and it covers the transfers, made by three Finance Commissions (from 1969-70 to 1983-84). The choice of the States are also restricted to fourteen (Punjab, Rajasthan, Maharashtra, Uttar Pradesh, Orissa, West Bengal, Madhya Pradesh, Bihar, Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Gujarat and Haryana) for the sake of comparability.

The basic limitation of the present study is that it does not focus on the total Union-State resource transfers both on revenue and capital account by all Union Government agencies like Planning Commission, Union ministries etc. The present study deals only with the Finance Commission transfers. Another limitation is that the study concentrates only on the revenue side of the State finance.

Effects of Federal Grants on the Budgets of Receptient Government

The classification of grants by E.Gramlich⁶ is followed here for the sack of simplicity. He classified them in terms of open ended matching grant(A), unconditional grant(B) and closed-ended categorical grant(C). Open ended matching grant is theoretically assumed to alter the relative prices facing lower levels of government. (Thurow, 1966; Break, 1980). This price effect or the response of expenditures by lower level government in turn depends on the price elasticity of the demand for the aided good. These grants are most useful for correcting inefficiencies in the provision of those public goods that cause benefit spillovers. (Break, 1980; Breton, 1965).

The second type that is the unconditional grants are assumed to modify only the income available to the receiptent government budget and not the relative prices facing them. Unconditional grants do not stimulate local expenditure because it need not be spent on for a particular function and it does not change the relative prices of any services. Thus they exert income effect and may induce the receiptent government to reduce its own revenue raising activities. This type of transfers, mainly addressed to meet the vertical fiscal imbalance, safeguard the 'autonomy' of the unit government to some

extent and the unit government also prefers this type of transfers. In most of the developing countries unconditional grants or revenue sharing are often used to address multiple objectives namely equalisation, vertical fiscal imbalance, regional development etc. (Revenue sharing is treated here as unconditional grant due to reasons mentioned earlier).

However, one of the serious limitations of this grant is the fact that the grantor government bears the burden of imposing the taxes, while the recipient government decides how to utilise the money. This 'asymmetry' between the political 'unpopularity' of imposing taxes and the political 'popularity' of spending money is said to foster fiscal irresponsibility⁷. These grants, therefore, may not encourage the unit government to gather their own resources nor raise the standard of performance and may be used by them to reduce their own revenue raising efforts.⁸

Gramlich and Galpar (1973) calls the third type - closed-ended categorical grants-as a hybrid of the above two types in that the central government lower the price of aided services but limit the size of the grant. These grants are expected to effect both the relative prices and incomes facing the lower levels of government. These grants 'preserves local control over the relevant functional

category of expenditures but yet allows the central government to upgrade local spending. It doesn't, however, allow the local government as much freedom as it would have with an open-ended price reduction grant: the central government maintain control over its own budget by limiting the total amount of funds available to lower governments⁹. Thus the main disadvantage of this grant is that local priorities are distorted and the autonomy of the local government are eroded to some extent.

Empirical Studies

Empirical studies on the budgetary effects of federal grants are numerous particularly with regard to the US and they are familiarly known as 'determinant studies'¹⁰. These studies make an attempt to establish statistically the extent to which recipient governments expenditures are 'determined' by various factors, such as federal grants, income, population, etc. Most of these studies conducted during the sixties produced estimates that federal grants result in substantially larger increase in State and local expenditures than predicted by economic theory. Gramlich argues that this approach failed to provide reliable results.

However, the latter empirical studies¹¹ are more vigorous than these determinant studies. Most of these studies, especially in US, mostly confirms the theoretical hypothesis that closed ended

categorical grants are more stimulative¹² than open ended matching grant and that both have larger expenditure effects than the general unconditional grants and revenue sharing. The well known study by Gramlich and Galpar (1973) estimates that State and local expenditures increase by \$0.25 to \$0.43 for each dollar of unconditional (general purpose) fiscal assistance which means that the remaining grant amount is used to provide tax relief and/or to lower service charges below what they would otherwise have been. Another study¹³ conclude that the insignificant stimulative impact of federal revenue sharing implies that cities tend to use revenue sharing grants to lower their tax burdens not to increase their service levels.

Empirical Studies in India

Most of the studies conducted in foreign countries are of 'expenditure determinant' types as mentioned earlier and most of them have not examined the incentive effects on tax effort of the recipient government consequent upon the transfer of federal grants. To test the fiscal irresponsibility hypothesis it is necessary to examine the tax effort implications of the grant policy during a period besides examining the expenditure behavior in response to this policies¹⁴. Thus the fiscal impact of grant transfer has two

dimensions - revenue and expenditure and may cause variation both in tax efforts and expenditure decisions. However, the present study is not going to test the fiscal irresponsibility hypothesis as such rather it is an attempt to estimate exclusively the tax effort implications consequent upon the federal transfers in order to keep the study manageable and specific.

In India, D.T. Lakdawala (1967), A. Chanda (1965) and R.N.Bhargava (1974) first identified the issue of incentive effect. Having emphasised the significance of tax effort in the distribution of Union transfers K.N. Reddy (1975), R.J. Chelliah and N.Sinha (1982), G. Thimmaiah¹⁵ (1979), M.A. Oommen (1987) and J.V.M. Sarma (1989) have attempted only to measure a reliable indicator for relative tax efforts of the States. An empirical study by R.W. Bahl and V. Pillai being first of its nature rejected the fiscal irresponsibility hypothesis through a cross section model for 17 Indian States. However, the validity of this model to test fiscal irresponsibility hypothesis and the inference arrived was questioned on various grounds by M.G. Rao (1977), NIPFP (1981) and G. Thimmaiah (1981). Hemlata Rao (1981) used different analytical technique. Transfers of Finance Commission and Planning Commission were analysed by the multiple regression models. She concluded that both of them miserably failed to achieve their objective of augmenting State resources in an equitable manner.

But basically the study examined only the influence of tax effort on the resource distribution and not the impact of Union transfers on the tax effort of the States.

The impact of Union resource transfers on tax effort was specifically examined for the first time by a study team from NIPFP (1981) under the leadership of R. J. Chelliah. This study taken into account 15 major States for the period from 1965-66 to 1974-75. Keeping PCSDP, average per capita federal transfer and Finance Commission transfer as a percentage of total federal transfers as explanatory variables and tax-income ratio as the dependent variable by using pooled cross section data the study concluded that 'federal transfer as a whole seem to be having a dampening effect on the tax efforts of the States, though the effect may not be specifically attributed to the policies proposed by the Finance Commission'. Further "it is also not possible to assert that the latter have stimulated tax effort". This lack of authenticity and clarity with regard to Finance Commission transfers might be due to the use of aggregate method in which all States were taken together without accounting for the individual State effects. Further, keeping total federal transfers as one variable, the study used the percentage of Finance Commission transfer that is part of former, as another explanatory variable and this may result in the problem of 'multi-collinearity'. Lastly, NIPFP study used cross section data; but one

of the major problem faced by the empirical studies¹⁶ measuring the impact of federal grants is the question of whether or not time series or cross section data should be used¹⁷. To overcome this controversy and to get a comparative pictures the present study use both time series and cross-section data.

G.Thimmaiah (1980) and Ranjana (1984) made other attempts. Although these two studies have disaggregated the transfers they have not accounted for the inter temporal effect and the individual characteristics of different States which are of course heterogeneous in nature and may distort the results. Thus the following issues were identified from the above review. i) Considerable number of studies was conducted in foreign countries. ii) Some of the studies conducted in India have not focused their attention exclusively on the impact of Union transfers on the tax efforts of the States. iii) Some of the studies that examined the tax effort implications suffers from the aggregation bias and the econometric technique used by them are questionable one. Lastly there was no state-wise study to examine the variations in the relative tax effort of the States.

With this background the present study examines empirically the effect of Union transfers especially Finance Commission transfer on the revenue effort of the States both in a cross section and time

series framework. The revenue effort is a broader indicator than the tax effort because it includes non-tax, non-loan revenue of the State that are mainly from the service charges of State level public sector enterprises (SLPE). This SLPE charges/prices are treated here as tax revenue.

Data and its Limitation

Most of the data regarding the States' own tax revenue, non-tax, non-loan revenue, Finance Commission transfers,¹⁸ plan-grants¹⁹ and non-plan grants²⁰ on revenue account are obtained from the various issues of Reserve Bank of India (RBI) Bulletin. This Bulletin has been presenting an article on State finance right from its fourth volume in which a detailed state-wise data base is presented every year. To make them comparable RBI makes some adjustments²¹.

The RBI Bulletin followed old series up to 1966-67 and new series with modified classification since 1967-68²². Therefore no serious analysis can be attempted for the period preceding 1967-68 by using RBI data. The immediate next year 1968-69 is also avoided to make the first year of the study 1969-70 coincides with the beginning of Fifth Finance Commission and Fourth Plan²³. In this case also the break-ups are not available for plan transfers up to 1972-73 and these figures have been splitted by making

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The CSO has computed comparable SDP data (Though not in the strictest sense) by income originating method. Though it is felt that the income accruing method is the 'first best', absence of any other alternative forced to use the available 'second best'. This is one of the serious limitations in this area.

Methodology

Revenue income ratio (RIR) is used as a proxy for the dependent variable tax effort. It is explained by using Union transfers namely per capita Finance Commission transfers (PFC), per capita plan grants (PPG), per capita non-plan grants (PNPG) and per

capita State domestic product (PCSDP). The first three explanatory variables represent discretionary changes influencing revenue - income ratio and the PCSDP variable represents the automatic changes or the taxable capacity factors influencing RIR. The discretionary changes are brought about by the States in response to Union transfers such as Finance Commission transfers, plan and non-plan grants which are used as explanatory variables. Among these transfers Finance Commission transfers constitute a major influence because these transfers are 'preset' and hence assured. All these transfers are represented by lagged values with one year lag because it is not the current year transfers that should be considered for the purpose of explanation; the transfers made during the previous year are the relevant ones. The data consists of observations on the five variables mentioned above for fourteen major States over a period of fifteen years.

The following five models were formulated for the purpose of explaining the relationship under consideration keeping in view certain purposes as described below.

Model I

$$Y_i = \alpha_o + \sum_{h=1}^4 \alpha_h X_{hi} + u_i \quad i = 1, 2 \dots 210$$

Model II

$$Y_i = \alpha_o + \sum_{h=1}^4 \alpha_h X_{hi} + \sum_{s=2}^{14} \beta_s D_{si} + u_i$$

$i = 1, 2 \dots 210$

Model III

$$Y_i = \alpha_o + \sum_{h=1}^4 \alpha_h X_{hi} + \sum_{t=2}^{15} \beta_t D_{ti} + u_i$$

$i = 1, 2 \dots 210$

Model IV

$$Y_i = \gamma_o + \sum_{h=1}^4 \gamma_h X_{hts} + e_{ts}$$

14 equations one for every state

$t = 1, 2 \dots 15$

$s = 1, 2 \dots 14$

Model V

$$Y_i = y'_o + \sum_{h=1}^4 y'_h X_{hts} + e_{ts}$$

15 equations one for every year

$t = 1, 2 \dots 15$

Where y represents RIR, X represents an explanatory variable, D represents dummy variable, u and e represents disturbance terms and a , b and g represents parameters of the model.

Model I makes use of the entire set of data for estimating the regression of RIR on PCSDP, PFC, PPG and PNPG.

Model II considers the relationship giving explicit representation for inter-state differences in the intercept parameter with the help of thirteen (14-1) dummy variables.

Model III considers the relationship giving explicit representation for inter temporal differences in the intercept parameter with the help of fourteen (15-1) dummy variables.

Model IV gives the relationship for each and every State and it is estimated with the time series data for respective States.

Model V gives the relationship for each and every year and it is estimated with the cross section data for fourteen States.

Results

The estimated co-efficients for PFC is significantly negative at five per cent level and the estimate for PCSDP is significantly positive at the same level of significance. The estimated co-efficients for PNPG is negative and significant at ten per cent level. (Table 2). When model I is modified into model II by incorporating dummy variables for different States the estimates are significant for most of the parameters. (Table 3) However this model can't represent the overall national phenomenon as it is separating the intercept terms for different States. Hence the positive sign for the estimate of the parameter for PFC need not be taken seriously as indicating the overall national scene.

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Table 1 Regression Analysis of the Effect of Union Resource Transfers on the Tax Efforts (RIR) of the States (1969-1984)

Explanatory variables	R regression co-efficient	t-Statistic
Perrcapita State Domestic Product	.001692	6.249
Percapita Finance Commission Transfers	.017350	1.234
Percapita Plan Grant	.008354	0.333
Percapita Non plan Grant	- .075546	-2.810
Constant	6.530560	18.046
Number of Observations		210
F(4,205)		24.88
Adjusted R ²		.3137
Root MSE		.1095

**Table 2 Regression Analysis of the Effect of
Union Resource Transfers on the Tax Efforts (RIR) of the
States (With time dummies)**

Explanatory Variables	Regression Coefficient	t-statistic
Percapita SDP	.000921	2.490
Percapita FC Transfers	-.054166	-2.055
Percapita Plan Grant	-.009322	-0.316
Percapita Nonplan Grant	-.048421	-1.753
Time Dummy		
1970-71	.322430	0.419
1971-72	1.753524	2.247
1972-73	.871184	1.083
1973-74	1.56034	1.901
1974-75	3.024591	3.457
1975-76	3.733932	3.859
1976-77	3.219795	3.268
1977-78	4.041187	3.745
1978-79	4.407508	3.731
1979-80	5.014967	3.388
1980-81	5.718427	3.462
1981-82	6.036840	3.359
1982-83	5.947073	3.070
1983-84	6.357387	2.933
Constant	6.985892	9.076
Number of Observations		210
F(4,205)		7.64
Adjusted R ²		.3638
Root MSE		2.031

**Table 3 Regression Analysis of the Effect of
Union Resource Transfers on the Tax Efforts (RIR) of the
States (With State dummies)**

Explanatory Variables	Regression Coefficient	t-statistic
Percapita SDP	.000126	.415
Percapita FC Transfers	.065215	6.139
Percapita Plan Grant	.001797	.124
Percapita Nonplan Grant	-.035905	-2.396
State Dummy		
Karnataka	2.427633	5.978
Kerala	.895749	2.184
West Bengal	-3.285750	-7.956
Tamil Nadu	1.804536	4.465
Maharashtra	1.254788	2.740
Gujarat	.552003	1.259
Hariyana	1.916260	3.879
Punjab	.046873	0.083
Bihar	-3.852365	-9.214
Madya Predesh	.510551	1.262
Orissa	-3.065530	-6.848
Uttara Predesh	-2.651372	-6.580
Rajasthan	-1.182327	-2.908
Constant	7.077414	21.389
Number of Observations		210
F(4,205)		54.74
Adjusted R ²		.8138
Root MSE		1.0987

Hence the positive sign for the estimate of the parameter for PFC need not be taken seriously as indicating the overall national scene.

The estimate of model IV representing the relation for every State gives insignificant results for almost all the States taken individually.

The estimation of model V representing relation for every year, estimated with cross section data for the States, yield uniformly insignificant results for all the years.

Based on the above econometric investigation involving a variety of formulations of the relationship under consideration it is concluded that model III which is estimated with the entire data (pooled data) gives most satisfactory estimation and explanation of the relationship under investigation.

It may be concluded that the co-efficient of PFC (.054) is significantly negative and that PCSDP is significantly positive for the over all situation in the country. Of the other two transfers the parameter for PPG, though negative turned out to be insignificant while the parameter for PNPG is negative and significant at ten percent level.

Thus it is clear from the above that the Finance Commission transfers have discouraged the revenue efforts of the states. However, the existence of negative implication in itself may not be a cause for concern if there exists an efficient and equitable mechanism of intergovernmental transfers strongly linked to revenue/tax effort criterion to encourage the revenue mobilisation efforts of the states. The Eleventh Finance Commission should come out with some bold corrective measures, particularly by assigning considerable weightage for revenue effort factor in its devolution formula.

Notes and References

1. See Anwar Shah (1994).
2. This is also the case of most developing countries.
3. Finance commission is a semi-judicial body under Article 280 of the Indian constitution to be appointed by the President in every five years. The commission is charged with the responsibility of recommending i) on the distribution between the Union and the States, and between the states, of sharable taxes under Article 270 (income taxes other than corporation taxes). ii) to recommend grants-in-aid to States which may be 'in need of assistance' under Article 275 and iii) 'any other matters' which may be referred to the commission by the president 'in the interest of sound finance'.

4. Though there is no constitutional provision the Planning Commission, a non-statutory body is established by the Union government through a resolution dated March 15, 1950. Article 282 is meant for giving grants for 'any public purposes'. This Article has been used by the Planning Commission to make huge amount of discretionary transfers.
5. Non-plan discretionary transfers made by different Union government ministries and agencies for some general as well as specific purposes come under this category. These include transfers to meet relief and natural calamities, institutional finances from LIC, GIC, UTI etc., loans from small savings collection, schematic transfers from Union ministries and other miscellaneous loans and grants.
6. E. Gramlich (1969), (1977) and with H. Galper (1973).
7. B.R. Herber (1988).
8. Musgrave (1961).
9. Gramlich (1977).
10. For a detailed account of these studies see E. Gramlich (1969).
11. Gramlich and Galper (1973); Gramlich (1977).
12. A grant is characterised as being 'stimulative' if expenditures on the State and local service receiving the aid increase by an amount larger than the grant, i.e., if the grant impact exceeds Rs.1.00.
13. H.F. Ladd et. al. (1985).
14. M.G. Rao (1977).

15. This study has taken into account only four Southern States.
16. Gramlich (1969); Auld (1976).
17. The cross-section response refers to the average provincial governments response to changes in those variables under consideration, where in the time series, it is the response of the sum total of all those units in the sample.
18. Finance Commission transfer is the sum total of shared taxes and statutory grants.
19. Plan grants are the sum total of transfers made to meet the State Plan Schemes, Central Plan Schemes and centrally sponsored schemes.
20. The departmental transfers excluding Finance Commission and Planning Commission transfers.
21. The other sources of data are 'Combined Finance and Revenue Accounts of the Central and State Governments' in India and conspectus of the budgets of the Central, State and Union Territory Governments both published by the Ministry of Finance, Government of India. However these sources suffers from certain limitations like comparability, absence of necessary adjustment for economic analysis etc.
22. Starting with its volume 23, year 1969.
23. There was no objective criteria to determine the allocation of plan assistance before 1969-70. Since 1969-70 the share of each State is determined on the basis of a rational objective formula (called familiarly as Gadgil formula).

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