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**The Political Economy of Center-State  
Fiscal Transfers in India**

by

**M. Govinda Rao\***  
**Nirvikar Singh\*\***

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Stanford University  
579 Serra Mall @ Galvez, Landau Economics Building, Room 153  
Stanford, CA 94305-6015

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\* Director, Institute for Social and Economic Change, Bangalore, India

\*\* Professor, Department of Economics, University of California, Santa Cruz

# **The Political Economy of Center-State Fiscal Transfers in India\***

**M. Govinda Rao and Nirvikar Singh<sup>+</sup>**

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## **Abstract**

India's federal system is distinguished by tax and expenditure assignments that result in large vertical fiscal imbalances, and consequent transfers from the central government to the state governments. Several channels are used for these transfers: the Finance Commission, the Planning Commission, and central government ministries. The transfers include statutory tax sharing as well as various categorical and block grants. While predetermined formulas are used for some transfers, there is considerable discretion in allocating other classes of transfers. In this paper, we use panel data on center-state transfers to examine two broad classes of hypotheses: (i) the economic importance of the states, measured by the state domestic product, influences the level and the composition of per capita transfers to the states; (ii) the political importance of the states, measured by their importance in the ruling coalition, and by whether the ruling party at the central and state levels is the same, influences the level and the composition of per capita transfers to the states. We control for variables such as population and per capita income in the panel regressions, and for state fixed effects, although population can also be considered a measure of political importance. We do find evidence supporting the bargaining view of federalism, as manifested in the result that states with indications of greater bargaining power seem to receive larger per capita transfers.

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<sup>+</sup> Respective affiliations: Rao - Director, Institute for Social and Economic Change, Bangalore, India; Singh - Professor of Economics, University of California at Santa Cruz, Santa Cruz, CA 95064.  
Contact information: Nirvikar Singh, Ph: (831) 459-4093, Fax: (831) 459-5900, email: boxjenk@cats.ucsc.edu

## I Introduction

William Riker, one of the most influential writers on federalism, advances an unequivocally instrumental view of the institution. He dismisses “ideological” reasons in favor of federalism<sup>1</sup>, and strongly argues for understanding federalism as “a constitutional bargain among politicians”, with the motives being “military and diplomatic defense or aggression” (Riker, 1975, pp. 113-114). One may not accept the dismissal of noninstrumental motives, and instrumental motives realistically should also include broader economic concerns. However, the characterization of “a constitutional bargain” provides our starting point for examining the political economy of center-state fiscal transfers in India. While India is not the result of an explicit voluntary combination of its constituent parts, and while it is more centralized than many other federal systems, the functioning of India’s federal system does reflect implicit and explicit bargaining between the center and the states that make up the Indian Union.

Center-state fiscal transfers are a particular, quantifiable expression of the complex relationship between the national and subnational governments in India. These transfers are governed by a complicated mix of constitutional assignments, institutional precedents, discretion and negotiation. The result is therefore often difficult to understand or interpret. Analysts and policy-makers in India often focus on minutiae of formulas that govern various components of center-state transfers, or bargain behind closed doors over discretionary transfers. While detailed analysis of transfer formulas has normative significance, our approach in this paper, and our goal, are radically different. We take a positive approach, and we attempt to abstract from institutional details in our empirical exercise.

Specifically, we seek to examine the hypothesis that the political and economic influence or importance of the states affect the transfers they receive from the center. We do this with pooled cross-section time-series regressions, controlling parsimoniously for other factors that would affect transfers. We consider a simple measure of economic importance, the overall economic size of the state, as measured by State Domestic Product. We also consider demographic size (population) as a political variable. We also consider two alternative, more explicit measures of political influence. We do find some evidence to support the hypothesis that states with greater political and economic influence or importance receive higher per capita transfers. This is broadly consistent with the view of federalism as “a constitutional bargain among politicians”, even though the Indian system is not the result of an explicit joining of its constituent parts.

The structure of the paper is as follows. Section II fleshes out our hypotheses a little more, and includes a sketch of some additional literature that complements and extends Riker’s view of federalism. We also note the limitations of our empirical exercise with respect to the hypotheses that we are able to examine. Since many will not be familiar with the Indian institutional context, we next review, in Sections III-V, some of the key features of Indian fiscal

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<sup>1</sup>Riker (1975, pp. 156-158) discusses three arguments: that federalism promotes democratic polity, that it promotes democracy by promoting an interest in subnational government, and that it maintains individual freedom, and tends to dismiss them as “absurd”.

federalism and the system of center-state transfers.<sup>2</sup> Section III summarizes some aspects of tax and expenditure assignments in India. We describe the constitutional assignments, and the constitutional provisions for center-state transfers, the need for which is substantially driven by the vertical fiscal imbalance created by the assignments. We explain the limited role of borrowing by the states, which helps increase their reliance on transfers.

Sections IV and V examine in more detail the institutions governing various kinds of center-state transfers. In Section IV, we give an overview of the institutions and their role in attempting to offset vertical fiscal imbalances. We discuss basic issues in the design of transfers, describe the volume and composition of transfers in India, and briefly examine the equity consequences of the transfer system. We also discuss the possible consequences of the tax sharing arrangements for tax effort. In Section V, we examine the Finance Commission, the Planning Commission, and the role of the central government through its various ministries in making transfers. We particularly analyze the functioning of the Finance Commission, because of its constitutional status, and the importance of its tax-sharing rules.

In Section VI, we present our empirical framework and results. We use panel data on center-state transfers to examine two broad classes of hypotheses: (i) the economic importance of the states, measured by the state domestic product, influences the level and the composition of per capita transfers to the states; (ii) the political importance of the states, measured by their population, their importance in the ruling coalition, and by whether the ruling party at the central and state levels is the same, influences the level and the composition of per capita transfers to the states. We control for variables such as per capita income in the panel regressions, and for state fixed effects.

We find evidence supporting the bargaining view of federalism. Overall, the regressions suggest that, even with a very simple specification, variables that we believe measure bargaining power of the states, as components of the Indian federal system, are important. This conclusion is based on the positive estimated effect of economic and demographic size of the states on some components of per capita intergovernmental transfers, and of the lagged effect of a match between the state and central ruling parties on another component of transfers. In some specifications, there is also a positive effect of the proportion of ruling party/coalition MPs on per capita statutory transfers, again with a lag. Even for categories of transfers that are ostensibly governed by formulas, the pattern of transfers suggests that political bargaining factors are at work. This result is not surprising to anyone broadly in sympathy with Riker's view of federalism, or the many other political economy models of federalism, sampled in Section II. Nor are our results inconsistent with casual empiricism or political commentary on Indian federalism. However, we believe our work is the first systematic empirical treatment and positive evidence for these perspectives with respect to India. Section VII concludes with a summary of our results and a discussion of further empirical work that is required.

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<sup>2</sup> Sections III-V of the paper draw on Rao and Singh (1998a-d).

## II Political Economy Models of Federalism

We began this paper with Riker's uncompromising view of federalism as a constitutional bargain. Modelling this idea in full is daunting, but one can indicate some of its implications quite simply. Consider a simple Nash bargaining framework, where the constituents of the federation are the bargainers, and joining in the federation represents the cooperative outcome. The threat points are, naturally, the welfare levels achieved in the absence of federation. Suppose for simplicity of exposition that there are only two constituent units, and that utility is transferable, so that total welfare from cooperation is independent of the distribution of the gains from doing so. Let  $u_i$  be the utility (welfare) that constituent  $i$  gets from joining the federation, and  $d_i$  the disagreement payoff, or threat point. Let  $C$  be the total welfare of the federation. We may also allow bargaining power to be different across units, and it is denoted by  $\lambda_i$ . In this case, it is easy to show that the Generalized Nash Bargaining Solution is given by:

$$(1) \quad u_1 = \lambda_1(C - d_2) + \lambda_2 d_1,$$

$$(2) \quad u_2 = \lambda_1 d_2 + \lambda_2(C - d_1).$$

If we normalize so that  $\lambda_1 + \lambda_2 = 1$ , then the gains from federation for the two units are given by:

$$(3) \quad u_1 - d_1 = \lambda_1(C - d_1 - d_2),$$

$$(4) \quad u_2 - d_2 = \lambda_2(C - d_1 - d_2).$$

We may view the rules of the federation as the practical means by which the final outcome in (3) and (4) is implemented. Intergovernmental transfers are only one aspect of this allocation of rules. In particular, tax and expenditure assignments, location decisions with respect to centrally controlled economic activity, and explicit and implicit subsidies all affect the final distribution of the benefits of the federal bargain. Unfortunately, there is no way that we can imagine implementing a comprehensive empirical model that would test the full impact of this complex of initial conditions and policies. Neither can we estimate the total surplus. Instead, we view the observed pattern of intergovernmental transfers as one channel for distributing the surplus created by federation. We consider the economic and political variables in the regressions as proxies for, or determinants of, the threat points,  $d_i$ , and the bargaining powers,  $\lambda_i$ . Note that the Nash bargaining model can be viewed as a normative outcome, determined by a set of axioms. However, it may also be thought of as an approximate prediction of the outcome of a strategic bargaining game. The only normative dimension that enters our empirical work is the consideration of equity objectives (though they could also be conceivably driven by instrumental concerns). These have received the most attention in writing on center-state fiscal transfers in India, and we allow for them by including per capita income of the subnational units in the regressions.

The above formalism is, of course, too simple in several respects. It does not explicate the institutional structures and rules that govern the sharing of the surplus created by cooperation. Also, it neglects the fact that the structures laid down at the time of federation can not specify fully how the surplus will be shared as it is generated over time. Finally, in a point that follows

from the second one, federation creates a central authority that has the power to affect the distribution of the surplus across the constituent units of the federation, as well as an interest in preserving its power and the rewards that come with it. The analysis of such behavior of a central authority is part of a much more general strand of political economy, that examines rent-seeking, interest group behavior, and so on. We briefly describe how some of these issues are tackled in the literature, and the relevance for our empirical approach, which will, in the end, test a combination of hypotheses, not just the pure Rikerian postulate.

One strand of literature examines the economic determinants of nation formation, though not necessarily in the context of explicit *ex post* federations. An early contribution by Buchanan and Faith (1987) examines secession threats as a limit on taxation of groups within a jurisdiction. This is quite close to the Riker concept. Taxation is used for providing public goods as well as for redistributing surplus from those out of power to those in power. Only those in power receive transfers. The possibility of secession reduces the overall tax rate and the level of redistribution from what they would be in its absence. However, this analysis does not look at disparities within the ruling coalition, and how they affect transfers. Alesina and Spolaore (1997) examine nation formation as determined by a tradeoff between scale economies and costs of heterogeneity. They also examine compensation schemes to preserve or alter the boundaries of nations, but find that their assumptions rule out such schemes in equilibrium. Bolton and Roland (1997) also consider the potential breakup of nations, with an explicit focus on conflicts over redistribution. Since they allow for regions with heterogeneous preferences, they find that (unlike in the case of Buchanan and Faith's model) poorer regions that receive transfers might still want to secede. In other words, the overall pattern of benefits and costs of federation matter, not just one component of redistribution. Finally, Warneryd (1998) examines the endogenous formation of jurisdictions in a rent-seeking model, and explicitly compares federalism, with hierarchical rent-seeking, to a centralized structure. These papers are only illustrative: Bolton, Roland and Spolaore (1996) provide a survey of this literature.

An alternative, but related, branch of literature examines distribution and redistribution in the context of existing nations, without the threat of secession or breakup being considered. Again, bargaining perspectives are important in this genre of models. Inman and Rubinfeld (1997) provide a transactions cost analysis of the federal provision of public goods. Their particular focus is on the role of legislative structures in determining this allocation. Given a clear assignment of tasks, a level of representation, and legislative institutions, one can compare the economic efficiency of different combinations of these three institutional variables. Building on the work of Breton and Scott (1978) and Baron and Ferejohn (1989), they make this comparison based on an assessment of different types of transactions costs. They do not explicitly treat intergovernmental transfers in their analysis. Kletzer and Singh (1997, 2000) analyze a median voter model of a federation with taxation, representative government, and intergovernmental transfers. In their model, the constituent units of the federation realize that transfers have to be financed by taxes, and so they care about net transfers. They show in an example how coalitions may form to determine the winners and losers from transfers, based on factors such as income and agenda-setting power.

The analysis of Dixit and Londregan (1998) is the most complete treatment of fiscal federalism in the context of distributive concerns. They also provide an excellent survey of some of the literature in this area. In the Dixit-Londregan model, voters can belong to groups. They care about their private consumption as well as having ideological positions. They allow for political parties, and different political power of groups. The parties determine policies, including ideological positions as well as taxes and transfers. The political power of groups is positively affected by a greater willingness to compromise ideology for private consumption, and greater demographic importance at pivotal points in the preference distribution. Groups with greater power, measured in this way, are therefore predicted to do better in a federal system.

The models of distributive politics in an ongoing federation, whether they consider secession possibilities or not, are mostly positive, in the sense that the central government, as well as constituent units and individual voters, maximizes its own welfare. This is a feature of Buchanan and Faith's model, as well as Dixit and Londregan's paper. Kletzer and Singh do not explicitly model the central government's preferences, but assume that its goal is to stay in power, and it therefore responds to the median voter. Inman and Rubinfeld, on the other hand, provide a mix of positive and normative analysis. The important point is that no actor, including the central government, is assumed to be automatically benevolent in its objectives. This is the perspective in our paper, though we do provide critical comments on the efficiency of India's current institutions governing center-state transfers.

What is the import of the above models for our empirical analysis? We believe that basic factors such as economic and political size matter for the kinds of distributive issues that are tied to the formation and continued existence of the federation, as we outlined simply in equations (3) and (4). Here marginal political power, or being pivotal in the ruling coalition, are less significant than basic bargaining power. In our empirical work, we attempt to capture this power through the impacts of the economic and demographic importance of states on per capita transfers. However, even where secession is not an issue, perhaps being too costly, the framework of federal institutions and rules provides an arena in which bargaining over distribution takes place. In this case, explicitly political variables that we consider, such as the proportion of the ruling party that comes from a state, or whether a state's ruling party matches the party in power at the center, come into play. Thus our empirical work gets at both kinds of issues, albeit in an approximate way. The Dixit-Londregan type of analysis suggests that ideally, we would like to have data on the pivotal nature of parliamentary constituencies, aggregated by state. This data is available in raw form, but constructing the appropriate series will require considerable effort.

### **III Tax and Expenditure Assignments**

#### **Constitutional Assignments**

The Indian Constitution, in its seventh schedule, assigns the powers and functions of the center and the states. The schedule specifies the exclusive powers of the center in the Union list; exclusive powers of the states in the State list; and those falling under the joint jurisdiction are

placed in the Concurrent list. All residuary powers are assigned to the center. The nature of the assignments is typical of federal nations. The functions of the central government are those required to maintain macroeconomic stability, international trade and relations and those having implications for more than one state. The major subjects assigned to the states comprise public order, police, public health, agriculture, irrigation, land rights, fisheries and industries and minor minerals. Subjects like public health, agriculture and irrigation involve considerable governmental expenditures. The states, being closer to constituents, also assume a significant role for subjects in the concurrent list like education and transportation, social security and social insurance.

The assignment of tax powers, however, is based on the principle of separation, i.e., tax categories are exclusively assigned either to the center or to the states (Appendix, Table A1). Most broad-based taxes have been assigned to the center, including taxes on income and wealth from non-agricultural sources, corporation tax, taxes on production (excluding those on alcoholic liquors) and customs duty. A long list of taxes is assigned to the states. However, only the tax on the sale and purchase of goods has been significant for state revenues. The center has also been assigned all residual powers, which implies that the taxes not mentioned in any of the lists automatically fall into its domain.

### **Constitutional Provisions for Center-State Transfers**

The Constitution recognizes that its assignment of tax powers and expenditure functions would create imbalances between expenditure needs and abilities to raise revenue. The imbalances could be both vertical, among different levels of government, and horizontal, among different units within a sub-central level. Therefore, the constitution provides for the assignment of revenues (as contrasted to assignment of tax powers), sharing of the proceeds of certain centrally levied taxes with the states, and making grants to the states from the Consolidated Fund of India. The assignment of tax revenues includes those taxes levied by the center, but with the proceeds assigned entirely to the states (Articles 268 and 269 of the Constitution). In one case (taxes on sale and purchase in the course of inter-state trade), the states have been allowed to collect the tax subject to a ceiling rate specified by the center.

The Constitution also provides for the compulsory sharing of the net revenue from non-corporate income tax (Article 270), and optional sharing of the proceeds of Union excise duty (Article 272). The shares of the center and the states and their allocation among different states of both the taxes are to be determined by the Finance Commission (see Section III, below) appointed by the President of India every five years, or earlier as needed. In addition to tax devolution, the Finance Commission is also required to recommend grants to the states in need of assistance under Article 275.

### **Revenue and Expenditure Shares**

The actual role of the central and state governments in revenue raising is summarized in Table 1. In 1997-98, the states on average raised about 31 per cent of total revenues, but incurred about 57 per cent of total expenditures. The revenues derived from exclusive central taxes constitute about 24 per cent, those from exclusive state taxes 37 per cent, from shareable sources



28 per cent and the remaining 14 per cent consists of non-tax revenues. The major taxes levied exclusively by the center consist of customs duty (15 per cent of total tax revenue) and corporation tax (8 per cent). Among the state taxes, the revenue from sales tax constitutes almost 17 per cent.

While the expenditure shares of central and state governments suggest a fairly high degree of decentralization, states' control over expenditure policies is less than the figures indicate. About 15 per cent of states' expenditures was on central sector and centrally sponsored schemes, which are specific purpose transfer schemes administered by various central ministries. States' expenditures on these schemes have actually shown an increasing trend, from about 7 per cent of total expenditures in 1985-86 to 15 per cent in 1995-96.

Over the last decade, while the share of the states in raising revenues has remained constant, their expenditure share has shown a steady increase, particularly since 1991, by about five percentage points. This has occurred because fiscal reforms initiated in 1991 have led to a deceleration in the growth of central government expenditures, but not so much in central transfers to states. Consequently, state expenditures have continued to increase even as central government expenditures decelerated.

### **State Borrowing**

Article 293 of the Constitution does allow the states to borrow from the market. However, it stipulates that when a state is indebted to the center, it has to obtain the center's permission for market borrowing. As all the state governments are indebted to the center, states have no discretion. In practice, the Planning Commission, in consultation with the Union Finance Ministry and the Reserve Bank of India (RBI), has determined the total quantity of states' borrowing, and allocated the shares of each state.

Although in each state the overall transactions in a year should match revenues and expenditures, there are variations in daily and monthly positions. The cash balance position, or the "ways and means" position of the states is maintained by the Central Accounts Section of the Reserve Bank of India. States can also take overdrafts up to the limits stipulated by the RBI, by agreement with the state government. Any borrowing beyond this limit is called an 'unauthorized overdraft'. Until 1985, the states could resort to this means rather liberally. Further, when the overdraft position reached very high levels, from time to time, the center simply cleared the overdrafts by converting them into medium term loans. In January, 1985, an overdraft regulation scheme was introduced, which stipulated that if the states continued to have the overdrafts with the RBI for more than seven continuous working days, the RBI was not obliged to honor the checks of such states.<sup>3</sup> This measure has vested the center with more effective control over state borrowing powers, and at the same time has introduced harder budget constraints for the states.

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<sup>3</sup>The states reacted to this measure by resorting to short term borrowing from the private sector, or from their own enterprises. The West Bengal government, for example, took short term loans from Peerless Insurance Company, a private sector financial firm.

## **IV Intergovernmental Transfers: Overview**

Economic arguments for intergovernmental transfers have been made in terms of (a) offsetting fiscal imbalances or closing fiscal gaps; (b) establishing horizontal equity across the federation and (c) offsetting inter-jurisdictional cost and benefit spillovers. In addition, transfers may also be given to carry out some agency functions for the central government. We focus here on the first of these arguments, in the Indian context.

### **Offsetting Fiscal Imbalances**

“Vertical fiscal imbalance” refers to the difference between expenditures and revenues at different levels of government. Vertical fiscal imbalances are a feature common to all multilevel governmental systems. Even when assignments of functional responsibilities and revenue powers are efficient, imbalances are bound to occur. This is because the efficient expenditure assignment does not typically match with the efficient tax assignment. The central government has a comparative advantage in raising revenues and monitoring intergovernmental competition to control “free-riding” whereas sub-central governments are better placed to provide public services efficiently corresponding to varying preferences of people of different jurisdictions (Breton, 1987, 1996). Therefore, assignments according to comparative advantage result in vertical fiscal imbalance. Of course, actual assignments are the result of many non-economic considerations and these can contribute to vertical fiscal imbalances as well.

Vertical fiscal imbalances can also be caused by factors other than assignments. At the sub-national level, intergovernmental tax competition can result in lower tax rates, but competition to provide public services can enhance expenditure levels, thereby accentuating vertical fiscal imbalance. In addition, variations in fiscal management in terms of tax effort and expenditure economy among different levels of government can also contribute to the degree of vertical fiscal imbalance. For example, the states have failed to exercise their option of imposing an agricultural income tax.

Although the concept is intuitively clear, numerical measurement of the coefficient of vertical fiscal imbalance is problematic, because it is difficult to judge the degree of independence of various sources of revenue. For example, some types of tax revenue collected by a state government might be subject to restrictions on the base and rates imposed by the higher level government. Here, we measure vertical fiscal imbalance in India by taking only the own revenues in the current account as the states’ independent revenue source. There was a clearly increasing trend in vertical fiscal imbalances: the ability of the states to finance their current expenditures from their own sources of revenues has shown a decline from 69 per cent in 1955-56 to around 55 per cent in the 1990s (Table 2). During this period, the states’ shares of current expenditures as well as current revenues have remained more or less constant, but the measure of vertical balance shows a decline. This apparent paradox is due to the fact that an increasing proportion of expenditure of central and state governments over the years has been financed from borrowing. Thus, the declining share of the states’ own revenues to their current expenditures shown in column 4 actually reflects an increasing tendency to divert capital receipts to meet current expenditures.

Increasing centralization and imbalance are not entirely reflected in the quantitative indicators. The states' control over expenditure decisions has also eroded because the proportion of specific purpose, matching transfers for Central Sector and Centrally Sponsored Schemes in total state expenditures has increased, from 12 per cent in the fifth Plan (1969-74) to 18 per cent in the seventh Plan (1985-90) and, more recently, almost 15 per cent. Such transfers also have a longer term effect, when transfers under the schemes are no longer available, as the states can get locked into these centrally initiated schemes.<sup>4</sup>

The filling the "fiscal gap" rationale for intergovernmental transfers extends to horizontal fiscal imbalances as well. Horizontal fiscal imbalances refer to the mismatch between revenues and expenditures of governmental units within a level of government. In the Indian context, they refer to an excess of expenditures over revenues of different state governments. From the national point of view, the persistence of large horizontal imbalances has been considered improper, and these imbalances have been sought to be corrected through equalizing transfers from the center, which automatically implies the existence of some degree of vertical imbalance as well.

Horizontal fiscal imbalances can arise from revenue or expenditure differences between the states. Revenue differences can be due to either differences in fiscal capacity or in effort. Similarly, expenditure differences between states may be due to either differences in the quantity or quality of public services provided or differences in the unit cost (either due to factors beyond the control of the states or differences in fiscal management). Therefore, horizontal imbalances are not exogenous to the states' fiscal management, and do not, by themselves, provide a rationale for intergovernmental transfers.

Table 3 presents differences in per capita incomes, revenues and expenditures as well as poverty levels among the 25 states in the Indian federation. To facilitate meaningful comparisons the states have been classified first in terms of 15 relatively homogeneous ones and 10 'Special Category' states (seven North-Eastern States, Sikkim, Jammu & Kashmir and Himachal Pradesh). The former are again classified into high income, middle income and low income categories. The differences in revenues and expenditures presented in Table 3 bring out a number of features. First, there are wide variations in revenues between different categories of states, as well as among the states within each of the categories. Second, these variations indicate both inter-state differences in revenue capacity and in efforts to raise revenues. Thus, the variation in per capita taxes is much higher than that of per capita SDP. Also, some of the richer states have revenue - SDP ratios lower than middle and low income states in spite of the fact that the richer states have an advantage in exporting the tax burden to poorer states (as argued in Rao and Singh, 1998a). Third, per capita expenditure variations among the general category states (if the small state of Goa is excluded)<sup>5</sup> are lower than the variations in per capita SDP. Fourth, the tax-SDP ratios in the special category states are lower than in the general

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<sup>4</sup> However, as John McLaren has pointed out to us, central control of these transfers can be interpreted as disguised central expenditure, which is another way of reducing the vertical fiscal imbalance created by the constitutional assignments.

<sup>5</sup> There are valid reasons for excluding Goa from such comparisons. Besides its small size, until the late 1980s, it was a Union Territory and required substantial initial spending to reach the status of a state.

category states in spite of their higher per capita GDP, partly because their GDP is derived mainly from government administration, outside the tax base. Finally, generally, the fiscal dependence of the states on the center was not only high, but also varied inversely with per capita GDP.

## **Design of Transfers**

As mentioned, the fiscal imbalance argument does not exclude considering the actual fiscal behavior of the states. Designing transfers to offset fiscal imbalances can adversely affect incentives for own-revenue raising and for spending control (Wilde, 1971, Gramlich, 1977), and these disincentive effects ideally should be minimized. General purpose transfers are given to enable the sub-national governments to offset the fiscal disadvantages arising from a lower revenue capacity and a higher unit cost of providing public services. This can be achieved by giving unconditional transfers in a variety of ways, but the least distorting way is to give transfers equivalent to the recipient's "need-revenue" gap (Bradbury, et. al., 1984). The need-revenue gap measures the difference between what a state ought to spend to provide specified levels of public services and the revenue it can raise at a given standard level of tax effort. In addition to avoiding incentives for fiscal laxity, a formula for intergovernmental transfers should be equitable, simple, transparent, and perceived to be objective. However, such ideal transfer systems do not exist in practice. In the actual design of transfers, historical, political, and cultural factors can play important roles, so that simple normative criteria, even if agreed upon, may not easily translate into transfer systems that achieve the objectives. Trying to pick up the effect of some of these factors is, of course, the goal of our empirical exercise.

## **Volume and Composition of Transfers to States**

Transfers from the central government contribute significantly to state finances (Table 4). In per capita terms at constant (1981-82) prices, central transfers to the states increased by over 2.5 times, from Rs.77 in 1975-76 to Rs. 194 in 1993-94, declining marginally thereafter owing to fiscal compression. Also, until 1993-94, the growth of transfers was faster than both the center's and the states' own revenues. Thus, the share of transfers in central revenues increased from 32 per cent in 1970-71 to 44 per cent in 1993-94, and then declined to 39 per cent in 1995-96. Similarly, the share of transfers in state revenues increased from 39 per cent to 44 per cent and declined to 38 per cent in 1995-96. State expenditures increased even faster during this period, so that the share of transfers in state expenditures declined steadily. However, they still finance almost a third of state expenditures.

A notable feature of India's federal fiscal arrangements is the existence of multiple channels of transfers from the center to the states. First, as mentioned earlier, the Finance Commission decides on tax shares and makes grants. Second, the Planning Commission makes grants and loans for implementing development plans. Finally, various ministries give grants to their counterparts in the states for specified projects either wholly funded by the center (central sector projects) or requiring the states to share a proportion of the cost (centrally sponsored schemes).

Historically, as development planning gained emphasis, the Planning Commission became a major dispenser of funds to the states. As there is no specific provision in the constitution for plan transfers, the central government channeled them under the miscellaneous and ostensibly limited provisions of Article 282<sup>6</sup>. Before 1969, plan transfers were project-based.

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<sup>6</sup> The legitimacy of these transfers has been seriously questioned. Some constitutional experts argue that transferring

Since then, the distribution has been done on the basis of a consensus formula decided by the National Development Council (NDC)<sup>7</sup>. However, various central ministries still felt the need to influence states' outlays on selected items of expenditure through specific purpose transfers with or without varying matching requirements: these are monitored by the Planning Commission.

The relative shares of the three channels of central transfers to states since the Fourth Plan, presented in Table 5, bring out some important features. First, there has been an increase in the *discretionary element* of transfers. The proportion of transfers recommended by the Finance Commission (statutory transfers to total current transfers) declined from 65 per cent during the Fourth Plan (1969-74) to less than 60 per cent during the Eighth Plan (1991-95). Formula based transfers from the Finance and Planning Commissions together have also tended to decrease relative to discretionary transfers, going from about 85 per cent of total transfers in the Fifth Plan period to 78 per cent during the Seventh Plan period. Specific purpose transfers for central sector and centrally sponsored schemes, constitute the bulk of discretionary transfers. The share of these transfers increased steadily, from less than 12 per cent in the Fourth and Fifth Plan periods, to about 20 per cent in 1994-95. Most of these schemes require matching contributions from the states. Thus, there is clear evidence of an increase in the discretionary element in transfers to the states, as one of the most significant political economy features of the intergovernmental transfer system in India.

Second, within statutory transfers, the proportion of tax devolution, which had already been high, has shown a steady increase while that of grants has declined. Thus, even as the share of statutory transfers declined from about 67 per cent during the fifth plan to about 57 per cent in 1993-94, the share of tax devolution increased from 50 per cent to 53 per cent. Tax devolution constituted 84 per cent of statutory transfers during the Fourth Plan, but increased to almost 90 per cent during the Eighth Plan. Much of the increase in real per capita transfers (at constant prices), shown in Table 1, was from the increase in tax devolution. This may be explained by the fact that, while the Finance Commissions since the Seventh attempted to impart greater progressivity in tax devolution, this was done subject to the constraint of protecting the transfers of the better off states in absolute real terms. In the event, both tax devolution and overall per capita transfers showed a significant increase.

### **Progressivity of Transfers**

While theoretical considerations require that intergovernmental transfers should be designed to offset revenue and cost disabilities fully, actual transfer systems fall far short of this ideal. In practice, historical and political factors are at least as important as economic considerations in determining the transfer system. Thus, the volume of transfers made, the form and composition of the transfers, and the degree of progressivity in their distribution are all determined as a compromise between economic considerations and the constraints imposed by

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funDS to the states under Article 282 is unconstitutional. Others consider that though this is permissible, channelling large amounts under this article is not in keeping with the spirit of the Constitution (See, NIPFP, 1993).

<sup>7</sup> The NDC is chaired by the Prime Minister and its members include all cabinet ministers at the center, Chief Ministers of the states, and members of the Planning Commission.

non-economic factors. We briefly focus on the equity objective.

The correlation coefficients and the cross-section income elasticity of different types of transfers with per capita SDP, beginning with the Sixth Finance Commission, are presented in Table 6. Several insights emerge. First, per capita transfers are inversely related to per capita SDP from 1979-80 onward. The absolute value of the (negative) correlation coefficients, and their significance levels, however, are higher in more recent years. Second, Finance Commission transfers had the highest progressivity. In fact, it is only since the recommendations of the Seventh Commission in 1979-80, that Finance Commission transfers and, consequently, total transfers, have had a significant negative correlation with per capita SDP. This is explained by the increased weight given to the backwardness factor in tax devolution by Commissions since the Seventh, as discussed below.

## **V Intergovernmental Transfers: Institutions**

### **Finance Commission Transfers**

So far, ten Finance Commissions have made recommendations and, barring a few exceptions, these have been accepted by the central government. However, the working of these Commissions, their design of the transfer system, and the approach and methodology adopted by them have come in for criticism. The main criticisms are (i) those relating to attempts to restrict the scope of the Finance Commissions through the Presidential terms of reference; and (ii) those on the approach and methodology employed by the Commissions and the equity and incentive consequences of the transfer scheme evolved by them.

India's adoption of a planned development strategy with a pronounced socialist bias concentrated economic power in the hands of the center and, within the central government, the Planning Commission. The increased dominance of the Planning Commission in allocative decisions, and its empowerment to dispense assistance to the states to finance their developmental activities, curtailed the Finance Commission's role in making intergovernmental transfers. Although the Constitution makes no distinction between Plan and non-Plan sides of the budget, and puts transfers under Articles 270 (income tax), 272 (excise duty) and 275 (grants) entirely within the jurisdiction of the Finance Commissions, Presidential terms of reference have confined the Finance Commissions to making transfers only to meet the non-Plan requirements of the states. The conflict in the jurisdictions of the two Commissions surfaced for the first time when the Third Finance Commission made its recommendations. Although its majority recommended inclusion of 75 per cent of the plan requirements of the states, the central government rejected this recommendation and accepted the recommendation of the Member-Secretary to avoid the plan side of the states' fiscal requirements altogether. For the subsequent Commissions (until the Ninth) the terms of reference themselves excluded the plan side from their scope. Even when the terms of reference did not impose any restrictions, as in the case of Ninth Finance Commission, the convention of assessing the non-plan side separately from the plan side was continued by precedent.

The restriction of the Finance Commissions to the non-plan side of the budget has led to a number of problems. First, larger transfers through the Planning Commission have significantly reduced the ability of the Finance Commission to achieve redistribution for fiscal equity. Second, it has prevented a comprehensive periodic review of state finances. Third, conceptually, the plan and non-plan distinction is unsound. Besides poor co-ordination, the separate treatment of plan and non-plan expenditure needs, and the emphasis on having large plans have led to inadequate provision for, and maintenance of, assets created under previous plans. From the states' point of view, separate plan and non-plan assessments gave them the opportunity to submit different projections to the two Commissions - an overestimated non-plan budgetary gap to the Finance Commission and overestimated saving in the non-plan account to the Planning Commission.

The Finance Commissions' approach consists of (i) assessing overall budgetary requirements of the center and states to determine the volume of resources available to the center for transfer, and required by individual states; (ii) projecting states' own revenues and non-plan current expenditures; (iii) distributing assigned taxes, broadly on the basis of origin; (iv) distributing sharable taxes; and (v) making up the deficit between projected expenditures and revenues after tax devolution with grants.<sup>8</sup> This is popularly known as the "gap-filling" approach.

Assigned taxes are distributed according to the principle of origin and there are no serious problems associated with them, though the states contend that the center has not exhausted the potential of Article 269 taxes (levied by the center but with proceeds assigned to the states). For shared taxes, the basic issue is that, as the center gives away large shares to states, it concentrates on non-sharable revenue sources which not only creates horizontal inequities and relative price distortions, but also distorts the tax structure.

In the evolution of the system of tax devolution over the years, some important features are notable. First, states have always preferred tax devolution to grants, due to its inherent responsiveness to price and income increases. Second, the Finance Commissions, in response to criticism that their transfers promoted laxity in the states' fiscal management, have preferred to increase tax devolution rather than "gap-filling" grants. For these reasons, tax devolution has shown a significant increase both in absolute terms and in relation to grants, with the states' share of income tax increasing to 87.5 per cent and that of Union excise duties increasing to 47.5 per cent under the recommendation of the Tenth Finance Commission. These shares are distributed to the states mainly on the basis of general economic indicators like population, per capita SDP, other indicators of backwardness, collection and tax effort. In the final step, Article 275 grants fill "fiscal gaps".

The shareable portion of the two taxes, and the criteria for their distribution among the states adopted by the ten Finance Commissions, are summarized in Appendix Tables A2 and A3.

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<sup>8</sup> The grants ( $G_i$ ) receivable by the  $i^{\text{th}}$  state are given by,  $G_i = E_i - (R_{oi} + R_{ai} + R_{si})$ , if the right hand side is positive, where  $E_i$  denotes projected non-plan current expenditures of the  $i^{\text{th}}$  state;  $R_{oi}$  = Projected own revenues of the  $i^{\text{th}}$  state,  $R_{ai}$  = Projected share of assigned revenues of the  $i^{\text{th}}$  state; and  $R_{si}$  = Projected shared taxes of the  $i^{\text{th}}$  state.



As already mentioned, tax devolution was made on the basis of general economic indicators like population and backwardness and not on the basis of fiscal disadvantages *per se*. Until 1989-90, tax devolution was not linked to the fiscal needs of the states as measured by the Finance Commissions at all. The Ninth Finance Commission, however, felt the need to link tax devolution to estimated deficits, but assigned this factor only 5 per cent weight. The Tenth Finance Commission increased this weight to 7.5 per cent. Of course all the Commissions assigned weights to population, which broadly represents expenditure need, but in doing this, the Finance Commissions were mandated to use the 1971 population figures, to provide an incentive to those states succeeding in controlling population growth. In the process, states that had higher population growth due to immigration, and not just higher birth rates, were also penalized.

Assigning weights to contradictory factors like ‘collection’ and ‘backwardness’ in the same formula for distribution has rendered the achievement of the overall objective of transfers difficult. While the objective of basing transfers on general economic indicators was to keep the devolution package simple and transparent, the purpose was lost when the Finance Commissions used multiple variables with different exponential powers, as was done in the case of inverse and distance forms of per capita SDP. The “backwardness” criterion included five variables in the Fifth Finance Commission. The Ninth Commission’s second report used three overlapping variables: scheduled caste and scheduled tribe population, agricultural laborers, and people below the poverty line.

Grants recommended by the Finance Commissions (Article 275) are determined on the basis of projected gaps between non-plan current expenditures and post-tax devolution revenues. Some of the Commissions moderated the “gaps” by taking account of normative growth rates of revenues and expenditures in projections, and taking the returns from public undertakings on a normative basis. Some of the Commissions (particularly after the Sixth) also attempted to enhance outlays on specified services in the states by making closed-ended, specific purpose non-matching grants. However, these attempts were selective and limited. The Ninth Finance Commission was the first to attempt and comprehensively adopt the normative approach and determine the gaps between revenue capacities and expenditure needs, but since the bulk of the transfers was given through tax devolution based on general economic indicators, the effectiveness of this approach was dissipated. The Tenth Finance Commission reverted to the old methodology, on the grounds that it was not mandated to follow the “normative” approach in its terms of reference.

The “gap-filling” approach suffers from a number of shortcomings. First, Finance Commissions have made judgments about tax shares without evolving objective criteria for evaluating the center’s needs. Second, as noted earlier, the separate workings of the Planning and Finance Commissions have prevented an integrated view of the states’ fiscal needs, and distorted their behavior. A third weakness of Finance Commission transfer schemes is their lack of clear purpose. They have not been designed to meet the major theoretical objective of unconditional transfers, offsetting fiscal disadvantages of the states. Tax devolution was decided on different considerations from those of grants-in-aid, and the criteria for distributing the income tax were different from those for excise duties. Fourth, although successive Commissions assigned higher weights to backwardness in the tax devolution formula, general economic

indicators still dominated. The methodology has also had an inherent bias against poorer states, because projections of budgetary gaps were made based on existing revenues and non-plan expenditures (representing low levels of services in states with lower tax bases).

Fifth, the gap-filling approach adopted by the Finance Commissions has had adverse effects on incentives. The center has tended to concentrate on non-shareable sources of revenue like import duties, thereby distorting the pattern of resource allocation.<sup>9</sup> Similarly, the center has tended to mobilize resources by increasing administered prices on public monopolies rather than increasing excise duties on them, altering relative prices in unintended ways. At the state level, the gap-filling approach is said to have led not only to disincentives for tax effort, but also profligacy in spending.

Recent Commissions have modified the criticized approach in several ways. First, they substantially enhanced tax devolution so that very few states were left with post-devolution gaps to be filled by grants, and they tried to target tax devolution to poorer states. However, since, an overwhelming proportion is given on the basis of general economic indicators, the overall effect has been quite limited. Second, recent Commissions introduced selective norms for the center and the states by targeting the rates of growth of revenues and expenditures, and by assuming certain rates of return on their loans and investments. However, in the absence of a mechanism to enforce them, these have been merely of academic interest. Finally, whether or not the devolution system has in fact distorted the tax system in India, it does provide a perverse incentive to the center in its revenue raising. The tenth Finance Commission recommended an alternative scheme of devolution by pooling revenue all central taxes and giving a fixed share to the states and the government is in the process of implementing this recommendation. The proposed new arrangement is better than the prevailing system, though the problem of disincentives would not be entirely eliminated. The center still would have the incentive to raise non-tax revenues as against tax revenues, and raise administered prices of public monopolies instead of raising excise duties.

### **Plan Transfers**

Plan transfers from the center to the states consist of grants and loans. Since 1969, plan assistance has been distributed on the basis of the “Gadgil formula” approved by the National Development Council modified from time to time. The latest modification in the formula was made in December, 1991. According to this latest formula, at present 30 per cent of the funds available for distribution is kept apart for the special category states. Assistance to them is given on the basis of plan projects formulated by them and 90 per cent of the transfer is given as grants, with the remainder as loans. The 70 per cent of the funds available to the major states is distributed with 60 per cent weight assigned to population, 25 per cent to per capita SDP, 7.5 per cent to fiscal management and the remaining 7.5 per cent to special problems of states. Of the 25 per cent weight assigned to per capita SDP, the major portion of the funds, 20 per cent is allocated only to the states with less than average per capita SDP on the basis of the “inverse” formula; the remaining 5 per cent of the funds is assigned to all the states according to the

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<sup>9</sup> For arguments on these lines see, Burgess, Howes and Stern (1993). Dasgupta and Mookherjee (1994), however, provide evidence against this hypothesis.

“distance” formula. For the major states, assistance is given by way of grants and loans in the ratio of 30:70. The transfers given to the states for plan purposes are not related to the required size or composition of plan investments (see Appendix Table A4).

The Planning Commission works out five-year-plan investments for each sector of the economy and each state. With this as background, the states work out their respective annual plans for each year, based on the estimated resource availability, which includes the balance from current revenue, contributions of public enterprises, additional resource mobilization, plan grants and loans, market borrowings and other miscellaneous capital receipts. The state plans are then approved by the Planning Commission. Thus, in the final analysis, given the amount of central transfers to the states as determined by the Gadgil formula, at the margin it is mainly the own resource position of the states that determines their plan sizes.

Plan assistance does not have any relationship with the investment requirements of the states. Transfers are not directly related to any shortfall in states’ resources, given the required amount of plan investments and own resources reckoned at a standard level of effort. Plan transfers to the states, as well as their grant-loan components, are determined independently of the required plan investments, their sectoral composition, resources available with the states or their fiscal performance. In fact, the grant component of central plan assistance has been kept at 30 per cent because when the Gadgil formula was introduced, the current component of plan outlay was approximately 30 per cent.

Hence, while there were considerable variations in the ratio of current plan expenditures among individual states, the grant-loan mix for plan assistance for the major states has been kept constant. The constancy in the grant portion to all the major states does not take account of the differing repayment abilities of the states. Also, it involves a bias against states with a strategy for development through human capital formation (e.g., education), as against those with an emphasis on material capital formation. In the former, the current expenditure component, according to prevailing budgeting practices, is higher. Since returns on expenditure initially accrue to the individual rather than the government, states with a larger current component of plan expenditures would have as much of an interest liability as states with a larger share of capital expenditures, but with much lower levels of revenue-yielding assets. There may, therefore, be a case for varying the grant component of central plan assistance, depending on the repayment capacity of individual states.

### **Assistance for Central Sector and Centrally Sponsored Schemes**

Assistance given to states through central sector and centrally sponsored schemes, constituting about 20 per cent of total transfers, is in some respects the most controversial form of transfers. These transfers are neither based on the recommendations of the Finance Commission, nor determined by the Gadgil formula, but are discretionary. Central government ministries initiate a number of “National Programs”, either by themselves, or at the request of the relevant ministries at the state level. Central sector schemes are assisted entirely by way of central grants and the states merely have the agency function of executing these programs. Centrally sponsored schemes are essentially cost sharing programs, and the share of central assistance is given by way of grants or loans decided for each of the programs. The rationale for

introducing these programs is ostensibly to finance activities with a high degree of inter-state spillovers, or are in the nature of merit goods (e.g., poverty alleviation and family planning).

Although the major programs on family planning and rural development are well designed, and the transfers are given according to formulas devised by the administering ministries, bureaucratic and political discretion often plays an important role in determining the amount of transfers and the pattern of their distribution. There have also been instances where the Prime Minister has announced the programs in public meetings, leaving the Planning Commission and the relevant ministries to work out details subsequently. If even a few of the programs are determined in an arbitrary and non-transparent manner, well formulated programs under central sector and centrally sponsored schemes also become the subject of doubts about their objectivity and transparency.

These programs have provided the central government with an instrument to actively influence states' spending. Until 1969, the volume and pattern of assistance to state plan schemes were decided for each project, and the central government did not need such transfers. Once plan assistance was given according to the Gadgil formula, the center introduced these specific purpose transfers and expanded them significantly. These schemes have grown in both volume and number over the years, in spite of states' objections to their proliferation and the decision of the National Development Council (NDC) in 1970 to roll into assistance to such schemes 1/6th of central assistance for state plans. At present, there are over 250 centrally sponsored schemes with detailed conditionalities. These conditionalities, such as requirements on staffing patterns, tend to distort the states' own spending. Also, the proliferation of schemes seemingly has increased the bureaucracy considerably. Therefore, the NDC appointed an investigative committee, which recommended scaling down centrally sponsored schemes. This recommendation, however, has not been acted upon in a serious manner. There is perhaps a strong case for consolidating a number of schemes into specific purpose transfers under broad headings, with greater flexibility given to the states in the use of funds.

### **Institutional Details**

Normative criteria for a successful intergovernmental transfer system are that, besides being equitable and incentive efficient, it should be simple, objective, and transparent. These criteria, in turn, require a proper institutional mechanism. In India, the Constitution attempted to create this through the Finance Commission. The Commission was to be appointed every five years, to take account of the changing needs of the center and the states. The Finance Commission (Miscellaneous) Act also lays down qualifications of the Chairman and Members of the Commission and the presence of a judicial member/chairman in the Commission is supposed to give it an independent, semi-judicial status.

Despite the provision of a specialized, independent and semi-judicial agency, the system of transfers evolved over the years in India has not fulfilled its intended objectives. The design of general and specific purpose transfers falls short of the intention of offsetting the fiscal disabilities of poorer states, and of ensuring minimum standards of services in aided activities. Further, transfers in practice are not simple and transparent; the incentives generated by the system do not promote good fiscal management; and transfers are not well targeted to meet the

objective of fiscal equalization. There are a number of institutional reasons for this outcome. First, as already discussed, although the Constitution envisaged rule-based transfers on the recommendation of the Finance Commissions, other developments put a major proportion of transfers outside its purview. Multiple agencies giving transfers in an uncoordinated manner cannot implement singular economic objectives. Furthermore, while the Finance Commission is at least expected to be non-political, the Planning Commission is not. The Gadgil formula used for distributing Plan assistance is determined by consensus in the NDC, where all the states are members. Finally, the centrally sponsored schemes are discretionary, and designed by the central ministries, where many non-economic considerations enter into the distribution mechanism.

Even the Finance Commissions have not functioned well professionally in evolving the transfer system. Lack of permanency in their tenure has impeded the development of a satisfactory methodology for dispensing transfers. Although a small cell has been created in the Finance Ministry, it is ill-equipped both to improve the methodology of making projections, and to maintain and update the data required for the analysis of subsequent Commissions. Each Commission has to start afresh and, given its time constraints, finds it difficult to conduct the analysis necessary for making recommendations consistent with overall objectives. Thus, there has been very little improvement in methodology or databases.

The fact that the central government (through the Ministry of Finance) determines the Chairman and Members of the Commission and specifying its terms of reference, raises questions about objectivity and fairness in the minds of state-level decision-makers. This is particularly true when political personalities are appointed to the Commission. Also, the Member-Secretary is always a senior bureaucrat belonging to the Indian Administrative Service, appointed not because of expertise or interest in the subject, but because he or she qualifies to be appointed as a Secretary<sup>10</sup>. Sometimes, mid-way through the Commission's tenure, the Member-Secretary secures a transfer to a more prestigious posting as a Secretary in an important administrative department, and is replaced by another such bureaucrat. The Commission's staff also comes chiefly on deputation from various central ministries: many are unfamiliar with the technical details of state finances, intergovernmental transfers, and research methods.

Lack of co-ordination between the Planning and Finance Commissions further adds to the shortcomings of the current institutional arrangement. There have been cases where the Planning Commission set about filling the non-plan gaps of the states in their current accounts, resulting from their non-compliance with the norms set by the Finance Commissions. The states, as noted earlier, submit different projections of revenues and expenditures to the two commissions. The presence of a common member in Planning and Finance Commissions has partly resolved this issue, but the problem of independent treatment of interdependent plan and non-plan sides remains.

## **VI Empirical Framework and Results**

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<sup>10</sup> This designation is the highest rung of the civil service.

Our goal is to use a parsimonious framework to try to explain the observed pattern of center-state fiscal transfers. We restrict attention to explicit current transfers, having discussed elsewhere (Rao and Singh, 1998d) implicit transfers through subsidized loans to states. By a parsimonious framework, we mean the use of regressions with just a few key variables that describe the economic, demographic and political characteristics of the states. We begin by describing the data and estimation methodology, then present the results.

## Data

We use data on fiscal transfers from the center to the states that has been compiled and cleaned up at the National Institute for Public Finance and Policy, New Delhi. This Institute is primarily responsible for such data compilation and analysis, and we are quite confident about the data quality. There are no missing observations. We use data on 14 major states: these exclude the so-called Special Category states, and the small state of Goa, which was upgraded from Union Territory status relatively recently. The Special Category states are distinguished by being border states, with substantial ethnic and religious differences from the ‘mainstream’ of India. Their exclusion therefore does not imply unimportance: in fact, as the data in the last column of Table 3 suggests, they are the clearest illustration of a Rikerian view of federalism. However, there are several wrinkles in considering the special category states (such as differences in cost structures) that suggest a separate analysis for which additional data are required. While we have a time series on fiscal transfers that stretches further back, we have, for tractability, restricted our empirical analysis in this paper to the 10-year period from 1983-84 to 1992-93. This NIPFP data set also included figures on State Domestic Products in current and constant prices, and in total and per capita terms. Thus we recovered state population figures from the ratio of per capita and total values for each year and deflators from the ratio of current to constant price figures. These were used to convert the fiscal data to constant price terms (with 1981 as the base year), and to per capita terms wherever required. We describe the fiscal data in more detail below.

We also use data on political characteristics of the states. In particular, we use data on the share of different states’ parliamentary representation<sup>11</sup> in the ruling party or ruling coalition. These data are constructed from Butler, Lahiri and Roy (1995). The period of estimation included majority Congress governments from 1980 to 1984 and 1985 to 1989, as well as a minority Congress government from 1991 to 1996. From 1989 to 1991 (a period of about a year and a half), there were two Janata Dal minority governments). The existence of ‘outside support’ for minority governments introduces some noise into using the share variable as a measure of political strength of the state in the central process, but for the present paper we work with this variable.<sup>12</sup> We also use data on the control of the various state governments, creating a variable that takes the value one if and only if the party at the center and the state level are the same in a particular year, and zero otherwise.<sup>13</sup>

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<sup>11</sup> We used figures for the lower house only, since this is the main legislative body. The upper house has limited, though not completely negligible powers.

<sup>12</sup> Ideally, we would like to calculate a power index, such as the Banzhaf Index, to measure the political clout of different states in the ruling party/coalition at the center, but such calculations will require implementing a complex computer program, which we have obtained, but not yet tried. Sugata Marjit, in a conversation with the second author, has suggested that he has obtained promising results using representation of states in the central cabinet. This is also very plausible, but we do not have further details on his work. An idea in a similar vein, which is based on the experience of the first author in working with the Finance Commission, is that the state allegiances of the Members of the Commission, in particular the Chairman, have an impact on actual transfers.

<sup>13</sup> These data were kindly made available to us by Bhaskar Dutta, who used them in an analysis of the state governments’ expenditure patterns (Dutta, 2000). The data are also in Butler, Lahiri and Roy (1995). Again, the existence of coalition governments in states can make the matching variable we use somewhat less reliable.

We now describe the data on transfers in greater detail. The table below illustrate the tax data we have, using the original (current price) data from Andhra Pradesh for 1983-84. For our present analysis, we consider only the aggregate of shared taxes. Recall that these are centrally collected taxes, which are constitutionally required to be shared with the states. The aggregate share, and the distribution among the states, are determined by the Finance Commission.

Total Tax Revenue =	118440.6
Own Tax Revenue +	82352.0
Shared Taxes =	36088.6
Shared Income Taxes +	9069.5
Shared Estate Duty +	107.5
Share of Union Excise Duties =	26911.7
Basic Union Excise Duties +	23294.2
Additional Excise Duties	3617.5

The data on non-tax revenue of the states are also available broken down by categories. The table below illustrates the nature of the original data, also using figures from Andhra Pradesh, again at current prices for 1983-84. The four grant categories are further disaggregated in the original data, but we do not present the disaggregated data here.

Total Non Tax Revenue =	57966.50
Total Own Non Tax Revenue +	30942.44
Grants from Central Government =	27024.06
Non Plan Grants +	6317.80
Grants for State Plan Schemes +	7862.07
Grants For Central Plan Schemes +	3108.55
Grants For Centrally Sponsored Schemes	9735.65

For the empirical analysis in this paper, we aggregate transfers into three categories, as indicated below:

Statutory transfers = Shared Taxes + Non Plan Grants

Grants for State Plan Schemes

Discretionary transfers = Grants For Central Plan Schemes + Grants For Centrally Sponsored Schemes



The sum of these three categories constitutes Total Transfers. We also run regressions using this total variable. Disaggregation of categories of transfers beyond that assumed in this paper is certainly possible, and we shall explore that in future work. Summary statistics for the data are provided in Table 7. The means in the table are unweighted means of the 140 observations. Correlations for the independent variables are also calculated similarly. The summary statistics suggest that, in general, neither lack of variation nor high correlation between independent variables is likely to be a problem.

### **Estimation Methodology**

We used the LIMDEP7 program to estimate fixed effects models for various specifications. We report selected results in detail in this paper, and briefly discuss other specifications. All regressions were run alternatively using the three transfer components, and their total, as the dependent variables, in constant price, per capita terms. The independent variables used were State Domestic Product at 1981 prices (SDP81), per capita constant price SDP (SDPPC81), population (POP), the proportion of the ruling party's Members of Parliament (lower house only) coming from a particular state (PROP), and the variable measuring whether the same party was in power at the center and the state level (MATCH). Lags of the latter two variables were also tried, with, for example, a three-year lagged variable being denoted PROP3 and MATCH3 respectively. We found the results with the lagged variables to be more plausible, as we discuss below, and only those are reported. In addition to these independent variables, state fixed effects were also included. The model without state fixed effects was always rejected in the standard F-tests automatically carried out by LIMDEP, and therefore those results are not reported. We tried three specifications: linear, loglinear, and translog. In each case the political variables were unchanged. All estimations were carried out using the White heteroscedasticity-corrected variance covariance matrix.

One lacuna in the regressions reported here is that we were unable to test the fixed effects specification against a random effects specification, using Hausman's (1978) standard test. LIMDEP was never able to compute the required statistic, although it did produce the random effects estimates. In general, the random effects estimates were somewhat different from the fixed effects estimates, and seemed less stable and less plausible. In general, we believe that the random effects model requires independence assumptions that are unlikely to be satisfied (as was the case in Hausman's original illustration of the test), and we therefore present only the fixed effects results in this paper.<sup>14</sup>

### **Linear Specification Results**

Table 8 presents results for the linear specification, for each of the four dependent variables (the three components of transfers, as well as their sum). The first regression, for purposes of illustration, reports the regression without the two explicit 'political' variables. The dependent variable here is statutory transfers. In general, we found that the coefficients of SDP,

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<sup>14</sup> The random effects results are available from the authors on request. They do display somewhat similar impacts on transfers of the political and other variables.

SDPPC and POPN were not very sensitive to inclusion of the political variables. Therefore, except for the illustrative regression (1), all other regressions reported include the two political variables. As noted, we found that a lag of three years for the political variables gave reasonable results, and we imposed this lag for all the regressions reported. The reasoning behind using lags is that actual transfers would be heavily influenced by factors determined in advance by the Finance Commission, and political impacts would therefore show up with a lag. A rationale for the particular lag can be sought in the five year cycle of Finance Commission and Planning Commission awards, with three years representing an approximate ‘average’ lag, though this is only a rough intuition. The results with the lagged political variables are reported for the linear regressions numbered (2)-(5) of Table 8.

Note that, since the three independent variables SDP, SDPPC and POPN are multiplicatively related<sup>15</sup>, the coefficients of these variables can not directly give us marginal impacts of changes in state characteristics. The marginal effects at the unweighted means of the data are therefore also reported in Table 9. We use the point estimates to calculate the marginal effects, even though some estimated coefficients are statistically ‘insignificant’ at conventional levels. In every case, except for regression (3), the ‘t’-ratios are at least one, and so the point estimates are not only statistically ‘best’, but are also reasonably precise. For regression (3), with grants for state plan schemes as the dependent variable, none of the three coefficients are even close to statistically significantly different from zero at conventional levels, and we have omitted the calculation of marginal effects for this regression from Table 9. For the other regressions, since the marginal effects are linear functions of the coefficients, we are able to calculate the usual t-statistics, and these are reported in Table 9 as well.

We discuss the coefficients and marginal effects for each of the regressions (2)-(6) in turn. We have also presented the fixed effects for regressions (2)-(6), in Table 10, and we examine them for all four regressions together, once we have presented the discussion of the coefficients and marginal effects.

The regression for statutory transfers per capita, (2), has only the coefficients for SDP per capita and population statistically significantly different from zero. However, the other coefficients are not estimated too imprecisely, and the overall fit is reasonable, though much of the explanatory power comes from the fixed effects. The main story is to be found in the estimated marginal effects in Table 9. There we see that the effect of changes in SDP per capita on the per capita statutory transfer, controlling either for economic size (SDP) or demographic size (population), is surprisingly not statistically significant, though in the first case it has the ‘right’ negative sign. The latter is consistent with equalization objectives and the evidence from simple correlations presented in the last section. On the other hand, higher SDP is associated with higher per capita statutory transfers. Thus, whether we control for the per capita product of the state, or for its population, a state which is economically more important, as measured by the size of economic activity in the state, receives higher *per capita* transfers. This result is not an obvious outcome of the complex institutional process of making transfers, and it is our first important observation from our regressions. Finally, population also has a positive effect on per

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<sup>15</sup> Because of the units we have used for the three variables, the relationship is  $SDP81 = POPN * SDPPC81 * 10$ .

capita transfers: a more populous state receives more per capita, compared either to a state with the same per capita product or to a state with the same total domestic product (i.e., with a higher per capita product).

The political variables in regression (2) are statistically insignificant. We tried several other combinations and lags of the two political variables in the statutory transfers regression. In no case were the coefficients of the two political variables statistically significantly different from zero. As noted, we report only the results for the specification where the variables were lagged by three years. However, we may interpret the population variable as capturing some political effects: in a democracy, the demographic size of a state may be an indicator of its political influence.

Regression (3) in Table 8 presents results for the case where the dependent variable is per capita grants for state plan schemes. Only the matching variable is statistically significant, with a lag of three years. The effect is economically important as well. The mean per capita grant for the sample is Rs. 13.97, and the average effect of the state being ruled by the same party as the center is that the per capita grant in this category is higher by Rs. 4.78. The interpretation of this regression is quite plausible: states propose these schemes to the Planning Commission, and states that are ruled by the party in power will tend to receive higher per capita grants. The other political variable is insignificant, as are the measures of state economic activity and demographics (making calculation of those marginal effects moot). Alternative specifications did not change these latter results. The only noteworthy feature was that when the matching variable was included without a lag, it was *negative* and statistically significant at the 10% level. We do not have a plausible explanation for this result: such a switch in sign was not observed when lags were varied in the statutory transfers regression. The results for the grants for state plan schemes regression, when contrasted with those for statutory transfers, show very clearly that different components of transfers are determined by very different factors. This regression's explanatory power is also considerably lower, suggesting that unobserved factors are at work for this component of transfers.

Regression (4) in Table 8 presents the results where per capita discretionary (as defined by us) grants are the dependent variable. Neither of the political variables is significant, although when we included only the current MATCH variable, it was again, surprisingly, negative, and significant at the 10% level. The marginal effects, reported in Table 9, are quite similar in size and magnitude to those for statutory transfers, even though the institutional determination of the two different categories is very different. While the coefficients are mostly somewhat smaller in magnitude, it must be noted that transfers in the discretionary category are less than one-third of those in the statutory category. Thus the marginal impacts are proportionately higher. For example, an increase in SDP by 100,000 units (Rs. 1 trillion) is estimated to increase statutory per capita transfers by about Rs. 4.40, which is 7.6% of the mean transfer in this category. The estimated effect on discretionary transfers is about Rs. 2.80, which is 15% of the mean transfer in this category. Similarly, population has greater proportionate effects for per capita discretionary transfers as compared to statutory transfers. Perhaps discretionary transfers are more politically useful in larger states, irrespective of whether the ruling party currently controls the state or not. Also, the statistical significance levels for the marginal effects are somewhat greater in the case

of discretionary transfers, than for statutory transfers. One surprise in the results is the statistically significant negative effect on discretionary transfers per capita of higher per capita SDP, keeping total SDP constant. Our hypothesis would have been that discretionary transfers were less likely to display such equalization effects.

Regression (5) in Table 8 presents results for total transfers per capita as the dependent variable. The coefficients of the demographic and income variables, and the resulting marginal effects shown in Table 9, are not dissimilar to those for statutory and discretionary transfers. The lagged matching variable appears to reflect the impact on grants for state plan schemes that was discerned in the regression for that component of transfers, and is very close to being significant at the 10% level. The lagged variable measuring the proportionate importance of the different states in the ruling party's parliamentary strength is the closest it comes to statistical significance in any of the linear regressions. In sum, the total transfers regression appears to reflect quite clearly the determinants of the three components of transfers. Of these three components, statutory and discretionary transfers are surprisingly similar in their determinants, while grants for state plan schemes are clearly influenced by a different set of factors, which are not being well captured in this empirical exercise.

Table 10 also shows the fixed effects coefficients for the 14 states, for each of the regressions, (2)-(5). The coefficients for the statutory transfers regression display considerable variation, ranging from -96 to 33. Several of the fixed effect coefficients (particularly those that are larger in magnitude) are statistically significantly different from zero. The variation in the fixed effects suggests, of course, that factors missing from the regressions are important determinants of transfers. One possibility is that the poverty rate is an important missing variable, since Bihar, Madhya Pradesh and Uttar Pradesh all have negative fixed effects that are large in absolute value. Furthermore, Maharashtra, also with a sizable negative fixed effect, while a high-income state, has a poverty ratio that is relatively high for its SDP per capita, the average being skewed by the large financial center, Mumbai. However, higher poverty ratios should be reflected in fixed effects that are positive, or less negative, rather than the pattern that is observed. Furthermore, Rajasthan, the fourth 'BIMARU' state<sup>16</sup> does not fit the pattern suggested by the relative poverty explanation (or being part of the Hindi heartland, which also fits the BIMARU states). Neither does the fixed effect for Orissa, another poor state, fit this explanation.

Another possibility is that nonlinearities with respect to the impact of the independent variables can account for the variation in the fixed effects. In particular, the fixed effect coefficients seem to be larger in magnitude for states with larger populations (e.g., Bihar, Maharashtra and Uttar Pradesh). Therefore we did try to allow for nonlinearities by including, alternatively the square and the square root of population, in addition to the other independent variables. However, this resulted in severe multicollinearity, with unstable and insignificant coefficient estimates, as well as other estimation problems in some cases. Furthermore, the fixed

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<sup>16</sup> The word 'bimar' means 'ill' in Hindi. The term 'BIMARU' comes from the beginning letters of Bihar, MP, Rajasthan and UP.

effect coefficients continued to exhibit considerable variation across states. Explaining the fixed effects therefore remains an issue, which we return to later in the paper.

The fixed effects for the grants for state plan schemes regressions (column (3) of Table 10) are smaller than for the statutory transfers regressions (and now none are statistically significantly different from zero), but almost proportionately so. They display some of the same patterns across states as in the statutory transfers regression. The fixed effects for discretionary transfers also show considerable variation across states. Now their magnitudes are quite large, compared to the fixed effects for the larger category of statutory transfers, and they are mostly statistically significant. The pattern of fixed effects for discretionary transfers does show some differences, compared to the other two categories of transfers. For example, the fixed effects for Tamil Nadu and West Bengal are relatively low (more negative) than for statutory transfers or grants for state plan schemes. In fact, the differences in the fixed effects mark the greatest difference between the statutory and discretionary transfers regressions, rather than the economic, demographic and measured political factors.

### **Loglinear Specification Results**

In order to explore the sensitivity of our results to different specifications, we next estimated a loglinear specification. The results for these are reported in Table 11, with fixed effects given in Table 12. Since the logarithm of SDP is the sum of the logarithms of population and per capita SDP, it is omitted from these regressions. The coefficients of SDP per capita and population are now the elasticities of per capita transfers with respect to these variables, keeping the other variable constant. Since  $\ln\text{SDPPC} = \ln\text{SDP} - \ln\text{POPN}$ <sup>17</sup>, we can substitute this into the equation to derive the other elasticities. The elasticity with respect to SDP keeping population constant is the same as the elasticity with respect to per capita SDP (keeping population constant) in this model, while the elasticity with respect to per capita SDP keeping SDP constant is the difference in the coefficients (since  $\ln\text{POPN} = \ln\text{SDP} - \ln\text{SDPPC}$ ). The two explicit political variables were included in the regression without transformation.

The significance of the variable that measures states' influence in the national parliament (PROP<sub>N</sub>) changes when we try loglinear regressions. In the logarithmic regressions, the variable PROP<sub>N</sub>LAG<sub>3</sub> now has a positive and significant effect for statutory and for total transfers. This result is again somewhat surprising, since one would have hypothesized that discretionary transfers were more subject to these kinds of influence. The coefficient of this variable is also positive, though statistically insignificant, for the other two components of total transfers. The variable that measures whether there is a match between the national and state government parties is statistically significant only for grants for state plan schemes, as was the case for the linear specifications.

As noted, the coefficients of the population and per capita SDP variables are now elasticities, and the elasticity with respect to the latter, keeping population constant, is positive (i.e., counter to equalizing objectives) in three of the cases, surprisingly excepting discretionary

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<sup>17</sup> There is also a constant term, reflecting the difference in units explained in footnote 15, but this does not affect the elasticity relationships.

transfers. However, the elasticity with respect to per capita GDP is not statistically significant in the case of grants for state plan schemes. Also, in all four cases, this elasticity is negative when the state fixed effects are omitted (results not reported here). This again points to the role of state fixed effects as capturing some unaccounted-for economic criterion. The state fixed effects in Table 12 display patterns similar to those for the linear regressions in Table 10.

One noteworthy result is the large positive coefficient of population in the case of discretionary transfers (keeping per capita GDP constant). This is consistent with the point made for the linear regressions, that population may be an indicator of political influence, solely due to the size of the state, and irrespective of its economic base or contribution to the ruling group in parliament. Finally, the elasticity of per capita transfers with respect to economic size, as measured by GDP, is generally positive in the four logarithmic regressions, since it is either the coefficient of GDP per capita (if population is held constant), or the coefficient of population (if per capita GDP is held constant). The impact is largest for the discretionary transfers regression. These results are therefore consistent with the linear regressions.

In broad terms, therefore, the loglinear regressions are consistent with the linear specification results. There is some evidence in the loglinear regressions (perhaps slightly stronger than in the linear case) that political variables matter. This effect arises in the expected way in the regression explaining grants for state plan schemes, but in an unexpected manner in the case of statutory transfers, which one would have hypothesized were less susceptible to political influence than what we have characterized as discretionary transfers. Even in the loglinear case, there are definite patterns in the fixed effects that suggest that unexplained factors might be captured in those variations. It is possible, however, that the variation in fixed effects is a result of misspecification of the regressions. In particular, neither the linear nor the loglinear specification may capture the effect of the complicated formulas that are used for statutory transfers. We therefore also estimated a more flexible functional form, the translog specification described next.

### **Translog Specification Results**

The translog specification is a well-known approximation to a general functional form, based on the idea of a Taylor series expansion of a function. The translog specification results are presented in Table 13. Clearly some of the multicollinearity that made the linear-quadratic estimates impossible to calculate is present in the translog estimates. For example, population is now no longer statistically significant, when it enters the regression through three different variables. However, the cases of statistical significance of the political variables that were present in the loglinear case survive this generalized specification. There is some evidence of nonlinearities in the relationship among the logged variables, indicating that the elasticities of response of transfers to demographic and economic variables are not constant.

It is possible to re-estimate the translog specification in a restricted form, with restrictions varying for each equation, and some preliminary estimates (not reported here) were reasonable, restoring, for example, the statistically significant coefficients on population. However, the main point we wish to emphasize here is that the fixed effects, reported in Table 14, are now almost uniform for every one of the regressions in the translog specification. Thus it is at least possible

that nonlinearities in the response of per capita transfers to demographic and economic characteristics of the states explain some of the pattern of the fixed effects in the earlier regressions, in addition to the omission of idiosyncratic political and economic factors.

## **Summary**

Overall, the regressions suggest that, even with a very simple specification, there is some evidence for the importance of variables that may proxy bargaining power of the components of the Indian federal system. This conclusion is based on the positive estimated effect of economic and demographic size of the states on both statutory and discretionary transfers per capita, and of the lagged effect of a match between the state and central ruling parties on grants for state plan schemes. In the loglinear case, there is also a positive effect of the proportion of ruling party/coalition MPs on per capita statutory transfers, again with a lag. A cautionary note, besides the general problem of potential fragility of econometric results such as these, lies in the limited explanatory power of the independent variables. Most of the explained variance in the regressions reported here is due to the state fixed effects. We have suggested that there may be patterns in these state fixed effects that can be captured by other measurable political and economic characteristics of the states. Examples of such variables include the presence of prominent parliamentary party members with important ministries in their charge, poverty ratios, degree of urbanization, and level of infrastructure. Including such variables may improve the explanatory power of our regressions, and will provide a robustness check on the initial results presented here.

## **VII Conclusion**

Much of our paper has involved a critical review of how the features of Indian federalism determine the levels and composition of fiscal transfers from the central government to the state governments. The length of our review was necessitated partly by the complexity of the arrangements that have evolved for such transfers over the decades since India's independence. However, the chief contribution of our paper is in the admittedly preliminary empirical exercise reported in the previous section. There, rather than engage in yet another normative dissection of the details of India's system of center-state transfers, we have attempted to cut through the institutional thicket with a simple positive empirical model of the main components of vertical transfers.

Our motivation is in the view of a federal system as a constitutional or political bargain. Even though India was not formed out of an explicit bargaining process (except to some extent with respect to the inclusion of the princely states at the time of independence), the perspective of bargaining is commonly applied informally to resource sharing among the different constituent governments. The states, while they have not had sovereign status, and, constitutionally speaking, exist at the pleasure of the central government, represent real and significant political groupings, based on language and culture. We would argue that they are the subnational political units that matter above all, more so than caste or class. Therefore, center-state transfers in India, which are large in relative and absolute terms, provide a natural data set with which to test

hypotheses on the functioning of a federal system as an ongoing political bargain. As we outlined in Section II, we simultaneously tackle the distributive issues that arise due to the possibility of secession, as well as those that are part of the normal politics of ongoing governance.

After providing a detailed discussion of India's institutions and experience with respect to vertical transfers, we therefore proceeded to run some explanatory regressions. As far as we are aware, this is the first such exercise to be attempted for India.<sup>18</sup> Given the heterogeneity of methods of transfer, we grouped transfers in this initial analysis into two broad categories, which we termed statutory and discretionary transfers, leaving separate a third category, grants for state plan schemes. Surprisingly, results for statutory and discretionary transfers were broadly similar in the linear regressions, despite the very different institutional mechanisms governing them. On the other hand the factors governing grants for state plan schemes seemed to be quite different, and tied to political considerations in a plausible way. The loglinear specifications provide further evidence for the hypothesis that the political and economic importance of the states has a positive influence on per capita transfers.

We have noted, in Section II, as well as at the end of the last section, the need to incorporate further variables into our empirical analysis. To this we can add plans to investigate alternative specifications, and longer time spans. We may also note again that explicit transfers are only one component of a complex process of distribution of the surplus: tax rates, the location of economic activity, the states' own fiscal behavior, and other variables also enter. To the extent that we can measure these factors, they represent an interesting possibility for future work. Another important future task is to compare our results for India with the fast-growing analytical and empirical work on federal transfers in other countries.<sup>19</sup>

Our emphasis in the analysis is positive, to examine the overall outcomes emerging from a complex and heterogeneous set of institutions and motivations. However, if our analysis can show that the outcomes exhibit patterns, predictable or unexpected, our work may ultimately aid in designing a more effective set of institutions for intergovernmental transfers in India. Alternatively or additionally, the ultimate conclusion may also be that a system with large vertical transfers is inevitably subject to political pressures and unintended effects, implying a need to reconfigure the underlying tax assignments to achieve a better match with expenditure responsibilities at different levels of government.

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<sup>18</sup> These results and ideas were first presented in preliminary form at the NIPFP in September 1998. As noted earlier, we recently became aware that Sugata Marjit has undertaken a similar empirical exercise, though we have not yet seen his work.

<sup>19</sup> See, for example, Diaz-Cayeros (1999) on Mexico, Iaryczower, Saiegh, and Tommasi (2000) on Argentina, Treisman (1996) on Russia, and the comparative studies by Kraemer (1997) and Danninger (2000).



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**Table 1: Revenue Receipts of the Central and State Governments**

Items of Revenue	(Per cent)						
	Revenue Share 1985-86		Revenue Share 1990-91		Revenue Share 1997-98		Per cent of Total
	Center	States	Center	States	Center	States	
A. Tax Revenue (a+b+c)	49.0	51.0	49.1	50.9	45.1	54.9	84.8
a. Exclusive Central Taxes	100.0	-	100.0	-	100.0	-	23.9
1. Corporation Tax	100.0	-	100.0	-	100.0	-	7.9
2. Custom Duties	100.0	-	100.0	-	100.0	-	15.2
3. Other	100.0	-	100.0	-	100.0	-	1.7
b. Exclusive State Taxes	-	100.0	-	100.0	-	100.0	36.8
1. State Excise Duties	-	100.0	-	100.0	-	100.0	6.6
2. Sales Taxes	-	100.0	-	100.0	-	100.0	17.2
3. Taxes on Transport	-	100.0	-	100.0	-	100.0	4.1
4. Other	-	100.0	-	100.0	-	100.0	8.9
c. Shared Taxes	51.6	48.4	51.4	48.6	42.1	57.9	28.4
1. Personal Income Tax	26.5	73.5	23.4	76.6	46.1	53.9	10.7
2. Union Excise Duty	56.6	43.4	57.5	42.5	48.5	51.5	17.7
B. Non-tax Revenue	62.1	37.9	54.3	45.7	44.7	55.3	14.3
1. Net Contribution from Public Enterprises	-875.9	975.9	-288.1	388.1	-42.7	142.7	1.8
2. Administrative Receipts	20.8	79.2	33.8	66.2	66.7	33.3	6.8
2. Interest Receipts	66.6	33.4	59.6	40.4	50.6	49.4	5.2
3. External Grants	100.0	-	100.0	-	100.0	-	0.4
C. Grants to States		100.0		100.0	-	100.0	16.3
D. Total Revenue Accrual	38.2	61.8	37.7	62.3	43.3	56.7	100.0
E. Total Revenue Collections	65.6	34.4	63.9	36.1	68.6	31.4	100.0

**Source:** Public Finance Statistics, Ministry of Finance, Government of India, 1999.

**Table 2: Trends in Vertical Fiscal Imbalance**

Period	Per cent of States' own current revenue to total current revenue	Per cent of States current expenditure to total current expenditure	Per cent of States' own current revenue to States' current expenditure	Per cent of States' expenditure* to total expenditure*
1955-56	41.2	59.0	68.9	61.7
1960-61	36.6	59.9	63.9	56.8
1965-66	32.6	55.6	63.5	53.3
1970-71	35.5	60.2	60.6	53.9
1975-76	33.5	55.1	70.4	47.6
1980-81	35.6	59.6	60.1	56.0
1985-86	35.5	56.0	57.7	52.6
1990-91	36.6	55.2	53.5	53.1
1995-96	39.6	57.2	58.3	56.7
1996-97	37.3	58.3	54.2	58.5
1997-98	39.5	57.6	55.5	69.4

\* Current + capital expenditures

**Source:** Public Finance Statistics, Ministry of Finance, Government of India (relevant years).

**Table 3: Revenues and Expenditures of the States - 1993-94**

<b>I. Major States</b>	Per capita SDP (Rupees)*	Poverty ratio (per cent)**	Per capita own revenue (Rupees)	Own revenue as percentage of SDP	Per capita current spending (Rupees)	Per cent of own revenue to current spending
<b>A. High Income States</b>	<b>10211</b>	<b>32.7</b>	<b>1278.63</b>	<b>12.5</b>	<b>1680.87</b>	<b>76.1</b>
1. Gujarat	7600	32.3	1233.82	16.2	1601.92	77.0
2. Goa	11658	23.4	2632.4	22.6	3499.84	75.2
3. Haryana	10359	16.6	1680.61	16.2	1951.10	86.1
4. Maharashtra	10984	40.1	1213.82	11.1	1578.65	76.8
5. Punjab	12319	12.7	1214.61	9.9	1915.74	63.4
<b>B. Middle Income States</b>	<b>6661</b>	<b>38.2</b>	<b>765.59</b>	<b>11.5</b>	<b>1238.84</b>	<b>61.8</b>
1. Andhra Pradesh	6651	27.2	744.43	11.2	1151.37	64.7
2. Karnataka	7029	38.1	970.42	13.9	1325.3	73.2
3. Kerala	6242	32.1	884.13	14.2	1422.7	62.1
4. Tamil Nadu	7352	45.1	960.32	13.1	1527.72	62.9
5. West Bengal	6055	44.0	447.78	7.4	959.89	46.7
<b>C. Low Income States</b>	<b>4674</b>	<b>46.1</b>	<b>438.97</b>	<b>9.4</b>	<b>969.79</b>	<b>45.3</b>
1. Bihar	3650	53.4	288.13	7.9	800.22	36.0
2. Madhya Pradesh	5485	43.4	585.01	10.7	1077.75	54.3
3. Orissa	4726	55.6	384.07	8.1	1048.61	36.6
4. Rajasthan	5220	34.6	673.13	12.9	1267.67	53.1
5. Uttar Pradesh	4744	42.0	401.48	8.5	911.47	44.1
<b>II. Special Category States</b>	<b>5607</b>	<b>29.7</b>	<b>437.56</b>	<b>7.8</b>	<b>1939.48</b>	<b>22.6</b>
1. Arunachal Pradesh	7904	37.5	964.11	12.2	4330.91	22.3
2. Assam	5916	36.8	530.94	6.9	1223.0	33.2
3. Himachal Pradesh	6519	15.5	693.16	10.6	2489.53	27.8
4. Jammu and Kashmir	4244	23.2	439.81	10.4	2162.23	20.3
5. Manipur	5362	32.9	238.37	4.5	2243.74	10.6
6. Meghalaya	5519	34.6	399.53	7.2	2528.58	15.8
7. Mizoram	6599	32.5	462.84	6.7	5399.42	8.6
8. Nagaland	5870**	34.9	311.42	4.8	5015.25	6.2
9. Sikkim	5416**	34.7	868.70	15.6	3916.40	22.2
10. Tripura	3781	36.8	202.16	5.1	2089.88	9.7
<b>All States</b>	<b>6287</b>	<b>39.3</b>	<b>653.5</b>	<b>10.4</b>	<b>1158.24</b>	<b>56.4</b>

Note: SDP = State Domestic Product.

\*Quick Estimates of Govt. of India. \*\*Estimate made by the Expert Committee (India, 1993)

Sources: 1. Reserve Bank of India Bulletin, December, 1995

2. Public Finance Statistics, Ministry of Finance, Government of India, 1994-95.

**Table 4: Central Transfers to States**

Years	Per Capita Transfers 1981-82 Rupees	Transfers as Percentage of GDP	Transfers as Percentage of Central Revenues	Transfers as Percentage of State Current Revenues	Transfers as Percentage of Total State Expenditures
1975-76	77.36	3.67	31.8	38.64	44.80
1980-81	105.37	4.84	34.8	43.81	47.50
1985-86	151.54	5.55	40.98	45.62	46.42
1990-91	179.98	5.20	40.02	44.34	34.22
1991-92	184.03	5.35	39.65	42.33	34.06
1992-93	191.04	5.45	40.64	44.16	35.61
1993-94	194.12	5.33	44.07	42.36	35.38
1994-95	180.31	4.76	39.09	37.73	30.37
1995-96	185.39	4.66	39.06	38.37	30.85

**Source:** Indian Economic Statistics/ Public Finance Statistics.  
Ministry of Finance, Government of India.

**Table 5: Current Transfers from the Center to the States**

(Rs. Billion, in current rupees)								
Plan Periods/ Years	Finance Commission Transfers			Plan Grants			Other Grants	Total
	Tax Devolu- tion	Grants	Total	State Plan Schemes	Central Schemes	Total		
Fourth Plan (1969-74)	45.6 (54.2)	8.6 (10.2)	54.2 (64.6)	10.8 (12.8)	9.7 (11.6)	20.5 (24.4)	9.3 (11.0)	83.9 (100.0)
Fifth Plan (1974-79)	82.7 (50.2)	28.2 (17.1)	110.9 (67.3)	29.1 (17.7)	19.3 (11.7)	48.4 (29.4)	5.4 (3.3)	164.7 (100.0)
Sixth Plan (1980-85)	237.3 (57.0)	21.4 (5.1)	258.7 (62.1)	73.8 (17.7)	69.0 (16.6)	142.8 (34.3)	15.1 (3.6)	416.5 (100.0)
Seventh Plan (1985-90)	494.6 (54.2)	62.7 (6.9)	557.4 (61.0)	155.2 (17.1)	165.1 (18.0)	320.3 (35.1)	35.2 (3.9)	913.1 (100.0)
Eighth Plan:								
1991-92	172.0 (52.2)	34.5 (10.5)	206.4 (62.7)	57.2 (14.2)	55.4 (16.8)	112.5 (34.4)	10.2 (3.1)	329.4 (100.0)
1992-93	205.2 (53.5)	26.4 (6.9)	231.7 (60.4)	78.4 (20.4)	65.2 (17.0)	143.9 (37.5)	7.2 (1.9)	383.4 (100.0)
1993-94	223.9 (51.4)	20.7 (4.8)	244.6 (56.1)	107.7 (24.7)	74.1 (17.0)	181.8 (41.7)	9.3 (2.1)	435.7 (100.0)
1994-95	248.5 (52.6)	24.3 (5.2)	272.8 (57.8)	99.0 (21.0)	94.5 (20.0)	193.5 (41.0)	5.3 (1.1)	471.6 (100.0)
1995-96	290.5 (58.0)	39.7 (7.9)	330.2 (66.0)	81.4 (16.3)	68.8 (13.8)	150.2 (30.0)	20.1 (4.0)	500.5 (100.0)
Ninth Plan:								
1996-97	350.4 (60.2)	36.0 (6.2)	386.4 (66.4)	116.9 (20.1)	62.0 (10.7)	179.0 (30.8)	16.5 (2.8)	581.9 (100.0)
1997-98	400.5 (59.1)	25.5 (3.8)	426.0 (62.9)	128.8 (19.0)	103.4 (15.3)	232.2 (34.3)	19.3 (2.9)	677.5 (100.0)
1998-99	408.9 (57.6)	20.7 (2.9)	429.6 (60.5)	153.5 (21.6)	105.6 (14.9)	259.1 (36.5)	21.2 (3.0)	709.8 (100.0)

**Note:** Figures in parenthesis are percentages to total transfers

**Source:** Indian Finance Statistics/Public Finance Statistics, Ministry of Finance, Government of India.



**Table 6: Equalizing Effect of Transfers**

Transfers	Correlation coefficients with per capita SDP				Income elasticities			
	VI F.C. (1974-79)	VII F.C. (1979-84)	VIII F.C. (1984-89)	IX F.C. (1989-94)	VI F.C. (1974-79)	VII F.C. (1979-84)	VIII F.C. (1984-89)	IX F.C. (1989-94)
Shared Taxes	-0.167	-0.706**	-0.849**	-0.809**	-0.024	-0.195*	-0.507*	-0.564*
Non-plan grants	-0.240	-0.289	-0.110	-0.286	-0.716	-0.070	0.302	-0.054
Total Finance Commission transfers	-0.272	-0.551*	-0.664**	-0.765*	-0.201	-0.280*	-0.403*	-0.514*
Plan grants-State plan schemes	-0.263	-0.524*	-0.010	-0.425**	-0.243	-0.426**	-0.029	-0.557**
Plan grants-Central schemes	0.342	-0.101	-0.162	-0.278	0.460	-0.066	-0.095	0.070
Total plan grants	0.091	-0.327	-0.092	-0.417	0.072	-0.236	-0.060	-0.282
Gross current transfers	-0.194	-0.519*	-0.663**	-0.716**	-0.115	-0.268**	-0.277*	-0.408**

**Note:** \*Significant at 1 per cent level. \*\*Significant at 5 per cent level  
 Elasticity coefficients relate to cross-section of 14 major States. F.C.= Finance Commission.  
 Source: Estimated from the data taken from the Budget Documents of the State Governments.

**Table 7: Summary Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>
Statutory Transfers per capita (Rs.)	57.78	14.63
Grants for State Plan Schemes per capita (Rs.)	13.97	7.12
Discretionary Transfers per capita (Rs.)	18.61	6.08
Total Transfers per capita (Rs.)	90.36	20.82
State Domestic Product (Rs. 10,000,000)	995,800	549,135
State Domestic Product per capita (Rs.)	2027	724
Population (millions)	53.07	29.21
Proportion of MPs from state in ruling party/coalition	0.066	0.054
Match between central and state ruling parties	0.55	0.50

Note: All financial variables are measured in 1981 Rupees

### **Correlations of Independent Variables**

	<b>SDP</b>	<b>SDP capita</b>	<b>Population</b>	<b>Match</b>	<b>Proportion</b>
<b>SDP</b>					
<b>SDP per capita</b>	0.1826				
<b>Population</b>	0.7831	-0.3207			
<b>Match</b>	0.1388	0.0654	0.0999		
<b>Proportion</b>	0.4853	-0.2291	0.6210	0.4485	

**Table 8: Linear Specification Coefficients**

Variable	(1) Statutory Transfers per capita	(2) Statutory Transfers per capita	(3) Grants for State Plan Schemes per capita	(4) Discretionary Transfers per capita	(5) Total Transfers per capita
SDP	-0.162E-04 (-1.262)	-0.173E-04 (-1.328)	0.328E-06 (0.036)	-0.912E-05 (-1.475)	-0.261E-04** (-2.151)
SDPPC	0.0142** (2.171)	0.0156** (2.363)	0.586E-04 (0.013)	0.499E-02 (1.592)	0.0206** (2.219)
POPEN	1.224*** (2.919)	1.216*** (2.769)	0.295 (0.950)	0.812*** (3.888)	2.323*** (6.183)
MATCHLAG3		1.7344 (0.636)	4.784** (2.481)	0.110 (0.085)	6.628 (1.631)
PROPENLAG3		52.684 (1.107)	4.687 (0.139)	5.040 (0.223)	62.440 (1.194)
Adjusted R-squared	0.62681	0.62802	0.21306	0.51408	0.62325

Note: All financial variables are measured in 1981 Rupees  
t-ratios in parentheses

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10 % level (all two-sided)

**Table 9: Linear Specification Marginal Effects**

Impact Variable (Held Constant)	(2) Statutory Transfers per capita	(4) Discretionary Transfers per capita	(5) Total Transfers per capita
SDP (SDPPC)	0.43E-04*** (3.14)	0.31E-04*** (4.78)	0.93E-04*** (6.52)
SDP (POPEN)	0.12E-04 (1.48)	0.28E-06 (0.07)	0.11E-04 (1.26)
SDPPC (SDP)	-0.014 (-1.41)	-0.015*** (-3.14)	-0.039*** (-3.24)
SDPPC (POPEN)	0.006 (1.48)	0.15E-03 (0.07)	0.006 (1.26)
POPEN (SDP)	0.66* (1.67)	0.64*** (3.35)	1.74*** (3.76)
POPEN (SDPPC)	0.87*** (3.14)	0.63*** (4.78)	1.89*** (6.52)

t-ratios in parentheses

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10 % level (all two-sided)

**Table 10: Linear Specification Fixed Effects**

State	(2) Statutory Transfers per capita	(3) Grants for State Plan Schemes per capita	(4) Discretionary Transfers per capita	(5) Total Transfers per capita
Andhra Pradesh	-32.282	-10.041	-31.045	-73.403
Bihar	-47.652	-18.333	-47.100	-113.122
Gujarat	-31.364	-1.624	-20.254	-53.267
Haryana	-15.283	7.830	-1.928	-9.403
Karnataka	-21.737	-6.311	-17.990	-46.066
Kerala	5.690	4.207	-11.362	-1.487
Madhya Pradesh	-34.247	-9.233	-32.175	-75.685
Maharashtra	-52.746	-17.923	-35.963	-106.667
Orissa	33.165	6.709	-2.121	37.737
Punjab	-19.024	3.608	-10.104	-25.547
Rajasthan	-9.745	3.626	-9.083	-15.224
Tamil Nadu	-18.331	-5.330	-26.070	-49.759
Uttar Pradesh	-96.628	-27.150	-77.766	-201.597
West Bengal	-19.856	-6.387	-39.529	-65.803

**Table 11: LogLinear Specification Coefficients**

Variable	(6) Statutory Transfers per capita	(7) Grants for State Plan Schemes per capita	(8) Discretionary Transfers per capita	(9) Total Transfers per capita
LNSDPPC	0.397* (1.868)	1.086 (1.492)	-0.299 (-0.923)	0.380** (1.974)
LNPOP	0.661** (1.979)	-0.745 (-0.657)	2.704*** (4.868)	0.852*** (2.904)
MATCHLAG3	0.0093 (0.230)	0.253* (1.950)	-0.012 (-0.196)	0.054 (1.316)
PROPFLAG3	1.397** (2.428)	1.637 (1.222)	1.384 (1.353)	1.300** (2.451)
Adjusted R-squared	0.60946	0.25657	0.49594	0.60212

Note: All financial variables are measured in 1981 Rupees  
t-ratios in parentheses

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10 % level (all two-sided)

**Table 12: LogLinear Specification Fixed Effects**

State	(6) Statutory Transfers per capita	(7) Grants for State Plan Schemes per capita	(8) Discretionary Transfers per capita	(9) Total Transfers per capita
Andhra Pradesh	-1.760	-2.833	-6.129	-2.006
Bihar	-1.747	-2.339	-7.168	-2.118
Gujarat	-1.885	-3.482	-5.021	-1.930
Haryana	-1.236	-4.267	-1.961	-1.040
Karnataka	-1.667	-3.450	-5.052	-1.822
Kerala	-1.121	-3.053	-4.134	-1.230
Madhya Pradesh	-1.765	-2.605	-6.256	-2.001
Maharashtra	-2.218	-3.629	-6.447	-2.497
Orissa	-0.748	-2.700	-3.851	-0.885
Punjab	-1.343	-4.541	-2.804	-1.320
Rajasthan	-1.425	-2.746	-4.667	-1.462
Tamil Nadu	-1.596	-2.947	-5.726	-1.839
Uttar Pradesh	-2.253	-2.009	-8.312	-2.625
West Bengal	-1.597	-2.733	-6.664	-1.954

**Table 13: Translog Specification Coefficients**

Variable	(10) Statutory Transfers per capita	(11) Grants for State Plan Schemes per capita	(12) Discretionary Transfers per capita	(13) Total Transfers per capita
LNSDPPC	9.402*** (3.324)	9.1155 (1.430)	6.472 (1.513)	7.366*** (3.074)
LNSDPPC^2	-0.554** (-2.351)	-0.700 (-1.276)	-0.315 (-0.952)	-0.431** (-2.235)
LNPOP	1.396 (0.964)	-7.460* (-1.855)	1.976 (0.830)	-0.343 (-0.236)
LNPOP^2	0.059 (0.178)	0.177 (0.184)	0.570 (1.264)	0.253 (0.960)
LNSDPPC* LNPOP	-0.149 (-0.369)	0.708 (0.578)	-0.497 (-0.872)	-0.101 (-0.295)
MATCHLAG3	-0.136E-02 (-0.034)	0.239* (1.959)	-0.363E-02 (-0.060)	0.505E-01 (1.397)
PROP	1.373** (2.279)	1.334 (1.002)	0.979 (0.895)	1.095** (2.081)
Adjusted R-squared	0.63575	0.26837	0.50006	0.63185

Note: All financial variables are measured in 1981 Rupees  
t-ratios in parentheses

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10 % level (all two-sided)



**Table 14: Translog Specification Fixed Effects**

State	(10) Statutory Transfers per capita	(11) Grants for State Plan Schemes per capita	(12) Discretionary Transfers per capita	(13) Total Transfers per capita
Andhra Pradesh	-37.523	-20.831	-30.481	-26.384
Bihar	-37.388	-19.894	-31.614	-26.407
Gujarat	-37.607	-21.503	-29.426	-26.316
Haryana	-36.990	-22.149	-27.383	-25.769
Karnataka	-37.414	-21.515	-29.402	-26.205
Kerala	-36.835	-21.195	-28.624	-25.665
Madhya Pradesh	-37.499	-20.534	-30.598	-26.353
Maharashtra	-37.902	-21.799	-30.736	-26.855
Orissa	-36.408	-20.776	-28.249	-25.256
Punjab	-37.006	-22.249	-27.924	-25.881
Rajasthan	-37.136	-20.765	-28.996	-25.817
Tamil Nadu	-37.372	-21.021	-30.067	-26.231
Uttar Pradesh	-38.124	-19.950	-33.193	-27.216
West Bengal	-37.374	-20.843	-31.030	-26.361

**APPENDIX**

**Table A1**

<b>TAXATION HEADS ASSIGNED TO THE UNION AND THE STATES IN THE CONSTITUTION (AS LISTED IN THE SEVENTH SCHEDULE OF THE CONSTITUTION)</b>			
Union		States	
Entry in List I of the Seventh Schedule	Head	Entry in List II of the Seventh Schedule	Head
82	Taxes on income other than agricultural income	45	Land revenue, including the assessment and collection of revenue, the maintenance of land records, survey for revenue purposes.
83	Duties of customs including export duties	46	Taxes on agricultural income
84	Duties of excise on tobacco and other goods manufactured or produced in India except- a. alcoholic liquors for human consumption; b. opium, Indian hemp and other narcotic drugs and narcotics; but including medicinal and toilet preparations containing alcohol or any substance included in sub-paragraph (b) of this entry.	47	Duties in respect of succession of agricultural land
85	Corporation tax	48	Estate duty in respect of agricultural land
86	Taxes on the capital value of the assets, exclusive of agricultural land of individuals and companies; taxes on the capital of companies	49	Taxes on lands and buildings
87	Estate duty in respect of property other than agricultural land.	50	Taxes on mineral rights subject to any limitations imposed by Parliament by law relating to mineral development
88	Duties in respect of succession to property other than agricultural land	51	Duties of excise on the following goods manufactured or produced in the State and countervailing duties at the same or lower rates on similar goods manufactured or produced elsewhere in India: a. alcohol liquors for human consumption; b. opium, Indian hemp and other narcotic drugs and narcotics; but not including medicinal and toilet preparations containing alcohol or any substance included in sub-paragraph (b) of this entry.
89	Terminal taxes on goods or passengers carried by railway, sea or air: taxes on railway fares and freights.	52	Taxes on the entry of goods into a local area for consumption, use or sale therein.

**Table A1 (Contd)**

90	Taxes other than stamp duties on transactions in stock exchanges and future markets	53	Taxes on the consumption or sale of electricity
91	Rates of stamp duty in respect of bills of exchange cheques promissory notes, bills of lading, letters of credit, policies of insurance, transfer of shares, debentures, proxies and receipts.	@54	Taxes on the sale or purchase of goods other than newspapers, subject to the provisions of entry 92A of List I.
92	Taxes on the sale or purchase of newspapers and on advertisements published therein.	55	Taxes on advertisements other than advertisements published in the newspaper @@ and advertisements broadcast by radio or television.
*92A	Taxes on the sale or purchase of goods other than newspapers, where such sale or purchase takes place in the course of inter-State trade or commerce.	56	Taxes on goods and passengers carried by road or on inland waterways.
**92B	Taxes on the consignment of goods (whether the consignment is to the person making it or to any other person), where such consignment takes place in the course of inter-State trade or commerce.	57	Taxes on vehicles, whether mechanically propelled or not, suitable for use on roads including tramcars, subject to the provision of entry 35 of List III.
97	Any other matter not enumerated in List II or List III including any tax not mentioned in either or both the Lists.	58	Taxes on animals and boats
		59	Tolls
		60	Taxes on professions, trades, callings and employments
		61	Capitation taxes
		62	Taxes on luxuries, including taxes on entertainments, amusements, betting and gambling.
		63	Rates of stamp duty in respect of documents other than those specified in the provision of List I with regard to rates of stamp duty.

\* Ins. by the Constitution (Sixth Amendment) Act, 1956 s.2

\*\* Ins. by the Constitution (Forty-sixth Amendment) Act, 1982, s.5

@ Sub. by the Constitution (sixth Amendment) Act 1956, s.2 for entry 54

@@ Ins. by the Constitution (Forth-second Amendment) Act, 1975, s.57 (w.e.f. 31.1.1977)

-----Extracts from the *Report of the Commission on Center-State Relations* (Justice R.S. Sarkaria), 1987.

**Table A2**

<b>Distribution of the States' Share in the Net Proceeds of Non-corporate Income-tax</b>					
Finance Commissions	Net Proceeds distributed to the States	Criteria for Distribution			Others
		Contri- bution	Popula- tion	Per capita SDP	
First	50	20	80	-	-
Second	60	10	90	-	-
Third	60.67	20	80	-	-
Fourth	75	20	80	-	-
Fifth	75	10	90	-	-
Sixth	80	10	90	-	-
Seventh	85	10	90	-	-
Eighth	85	10	22.5	45* 22.5*	-
Ninth (First Report)	85	10	22.5	45* 11.25 **	11.25 (Proportion of the poor in the States to total poor population)
Ninth (Second Report)	85	10	22.5	45* 11.25 **	11.25 Composite index of backward- ness@
Tenth	77.5	-	20	60**	5 (Area) 5 (Infrastructur Index) 10 (Tax Effort)

\* According to "distance" formula - see notes under Table A3.

\*\* According to "inverse" formula - see notes under Table A3.

@ The variables included are (i) the population of scheduled castes and tribes; and (ii) number of agricultural laborers. Equal weights are assigned to the two factors

\*\* According to "inverse" formula - see notes under Table A3.

Table A3

Distribution of States' Share in the Net Yield from Union Excise Duties						
Criteria Used for Distribution among the States						
Finance Commissions	Coverage	States' share (per cent)	Proportion of the population of the State to the total population of all States	Per capita income	Economic or social backwardness	Other criteria
1	2	3	4	5	6	7
First	Three commodities: tobacco, matches and vegetable products	40	100	-	-	-
Second	Eight commodities:	25	90	-	-	10 per cent for adjustment
Third	All commodities yielding more than Rs 5.9 million in 1960-61 (about 35)	20	Mainly population basis along with relative financial weakness and economic backwardness as other factors.	-	-	-
Fourth	All commodities excluding regulatory duties, special excises and earmarked cesses	20	80	-	20 Backwardness as indicated by seven factors: i) per capita agricultural production; ii) per capita manufacturing value added; iii) percentage of workers to total population, iv) percentage of enrollment in class 1 to 5 to the population in the age group 6-11, v) population per hospital bed, vi) percentage of rural population, vii) percentage of scheduled caste population	-

1	2	3	4	5	6	7
Fifth	All types of union excise duties (for the first 3 years (1969-72), Regulatory duties and earmarked cesses are excluded	20	60	13.3 Distributed among only those States whose per capita SDP was below all States average: in proportion to the shortfall of the State's per capita SDP from all State average multiplied by the population of the State	6.7 According to an integrated index of backwardness measured by are: i) scheduled caste population, ii) number of factory workers per lakh of population iii) net irrigated area per cultivator iv) length of railways and surfaced roads per square kilometre area v) enrollment ratio of school going age children; and number of hospitals beds per thousand person	
Sixth	For 1974-75 and 1975-76 all items except auxiliary duties of excise and cesses levied under special acts and earmarked for special purposes	20	75	25 According to the "distance" formula	-	-
Seventh	All items excluding duty on the generation of electricity	45	25	25 Inverse* of per capita SDP formula	25 Percentage of poor	25 According to a formula equalizing revenue capacity computed by regressing States' per capita revenue on per capita SDP and substituting the actual values of per capita SDP in the equation.
Eighth	Net proceeds: excluding cesses levied under special Acts and earmarked for special purposes	45	25	25	50	(5 per cent to deficit States) in proportion to the deficit of a State to the total deficit of the State in that year

Ninth First Report (1989-90)	Net proceeds excluding cesses levied under special acts and earmarked cesses	45 (40 per cent to all States and 5 per cent to the States having post-devolution deficits)	25	50	12.5 Percentage of people below poverty line	-
Ninth Second Report (1990-95)	Net proceeds excluding cesses levied under Special Acts and earmarked cesses	45 (40 per cent for all States. 5 per cent for the States with post-devolution deficits.)	25	12.5 Inverse* formula 33.5 Distance formula**	12.5 Index of backwardness computed with equal weights assigned to population of scheduled castes and tribes and number of agricultural laborers	
Tenth (1995-2000)	Net proceeds excluding cesses levied under special Acts and earmarked cesses	47.5 (40 per cent to all the States and 7.5 per cent to the States having post-devolution deficits)	20	60 Distance formula	5 (index of Infrastructure) 5 Area; the relative shares of the States are worked out based on the area of the state with no State getting more than 10 per cent at the upper end less than 2 per cent at the lower end.	10 Tax effort as measured by the ratio of per capita tax revenue to the square of per capita SDP in the state scaled by population.

\* Inverse formula =  $(P_i / Y_i) / \sum P_i / Y_i$

\*\*Distance formula =  $(Y_{i-1} - Y_i) / \sum (Y_{i-1} - Y_i) P_i$

where  $Y_i$  and  $Y_{i-1}$  represent per capita SDP of the  $i^{th}$  and the highest per capita SDP State,  $P_i$  - the population of the  $i^{th}$  State,  $(Y_{i-1} - Y_i)$  for the 'h' State is taken to be the distance between the highest and the next highest per capita SDP.

**Table A4**  
**Formula for Distributing State Plan Assistance\***

Criteria	Share in central plan assistance (per cent)	Share of grants and loans	Criteria for distribution in non-special category States
A. Special category States (10)	30	90:10	
B. Non-special category States (15)	70	30:70	
(i) Population (1971)			60.0
(ii) Per capita income, of which			25.0
(a) According to the 'deviation' method covering only the States with per capita income below the national average			20.0
(b) According to the 'distance' method covering all the fifteen States			5.0
(iii) Fiscal performance, of which			7.5
(a) Tax effort			2.5
(b) Fiscal management			2.5
(c) National objectives			2.5
(iv) Special problems			7.5
Total			100.0

- Note:**
1. The formula as revised in December, 1991.
  2. Fiscal management is assessed as the difference between States' own total plan resources estimated at the time of finalizing annual plan and their actual performance, considering latest five years.
  3. Under the criterion of the performance in respect of certain programs of national priorities the approved formula covers four objectives, viz. (i) population control, (ii) elimination of illiteracy, (iii) on-time completion of externally aided projects, and (iv) success in land reforms.