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THE POLITICAL ECONOMY OF INDIAN FISCAL FEDERALISM

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Abstract

India is a federal state where the institutions of fiscal federalism have been determined by a complex political, social and economic history, in addition to the guidelines imposed by its constitution and legal institutions. In this paper we review theories of the political economy of federalism, summarize India's experience, and begin the development of a model of fiscal federalism in the Indian case that allows for self-interested government decisions, political pressure, and imperfect instruments of control. We show how costly influence activities may depend on the federal fiscal structure in place in India.

The Political Economy of Indian Fiscal Federalism

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1. Introduction

As nations and economic systems have been reshaped in Europe, China, South Africa, and elsewhere, federalism - the principle of organization of political units under a central authority, but with residuary powers at the decentralized level - has received increased scrutiny from academics and policy-makers. This has included fresh discussions of the political values that may govern the design of federalist institutions, as well as the consideration of issues of economic efficiency that arise in such cases. The economic aspect of federalism focuses particularly on its fiscal aspects: the collection of revenues and their expenditure. Examining this fiscal aspect of federalism, in the context of India's experience, is the theme of our paper. At the same time, political institutions help shape economic outcomes, and we shall emphasize this link as well.

India is a federal state with a larger population than the United States and the European Community combined. Not surprisingly, it is one of the most fiscally decentralized, as measured by the proportion of government expenditure that occurs below the central level. The assignment of fiscal responsibilities to different levels of government has been determined by the political, social and economic history of India, in addition to the guidelines imposed by its constitution and legal institutions. One of the major issues of policy debate in India since its independence has been the division of authority for collecting revenues and of responsibility for making public expenditures between the central, state and local governments. The Constitution of India recognized the political need for decentralization by granting a significant degree of fiscal autonomy in explicit provisions. It assigned specific tax instruments and autonomous responsibility for certain public spending programs to the states. Political pressures for the decentralization of fiscal authority arise from conflicts over the allocation of public resources across regions and social communities and the widespread concern that concentrated political power at the federal level will benefit majority constituencies. Regional decentralization of taxation and public spending may promote fairness and help protect minority interests in the distribution of public and private resources under majority rule. Even with constitutional mandates and a legal system that protect minority groups, the fiscal policies chosen by a federal government can favor some regions over others and, therefore, some social communities over others. A major issue in public policy debate in India is whether or not its system of fiscal federalism guards against a national majority choosing an allocation of public goods and distribution of tax burden that disfavors some regions or communities.

Studies of the economics of fiscal federalism in India have tended to concentrate on problems of allocative efficiency and the system of interjurisdictional transfers without modelling how politics and economics interact in the institutional setting of Indian federalism[1]. The goal of this paper is to initiate such an investigation by developing a political-economy model of decentralized fiscal policy making motivated by the Indian case. The model of this paper proposes a framework for analyzing how political forces influence the provision of public goods by different levels of government and allocation of tax revenues across jurisdictions under different institutional structures. Intergovernmental fiscal relations are discussed using a simple model in which public goods allocation at the federal and the state level is determined by majority voting.

The first application of the model is to show how majority rule in a decentralized fiscal system leads to a division of tax revenues between the federal and state governments and an allocation of public expenditures between national and local (state) public goods. In the example models, a state government is identified with a particular local public goods spending plan which is chosen under majority rule by the median voter of the state. A federal government consists of a level of national public goods provision and set of interjurisdictional transfers

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[1]There are notable exceptions to this statement. Rao (1981) allows for political variables in his analysis of tax and expenditure determination in four Indian states. Rao and Tulsidhar (1991) relate trends in public expenditure in India to Bardhan's discussion of Indian rent-seeking. Rao and Sen (1993) discuss the role of interest groups in public expenditure theory and attempt to relate India's experience to these ideas. None of these papers has a formal theoretical model.

which is chosen by a majority of the states -- that is, by the median voter in a simple majority of states. The need for national policy makers to achieve a parliamentary majority leads to the result that a subset of states is favored in the federal allocation of public resources. In this system, discretionary policy making by national fiscal authorities chosen indirectly by a simple majority can thwart social goals of fairness or equity in the distribution of public expenditures and tax burdens across regions or communities.

Several interesting issues arise when authorities representing different jurisdictions can undertake efforts to influence the policies chosen by other levels of government in a federation. The institutions of fiscal federalism establish the extent to which each level of government exercises discretion and, therefore, determine the importance of influence activities in interjurisdictional fiscal relations. When the federal government has some discretion over intergovernmental transfers between itself and the states or across states, state fiscal authorities have incentives to try to influence the allocation of grants to favor their constituents. For example, the federal government might use matching grants to provide incentives to sub-national levels to provide specific public goods or transfers. If the objectives or amounts of matching grants can be chosen by the national government, then the state or local authorities will seek to have the formulae changed to the benefit of their jurisdiction. While the motives can be purely redistributive, these activities distort the allocation of resources so that efficiency and other social welfare objectives are sacrificed.

Institutional design can either exacerbate or reduce the possibilities for rent-seeking and similar unproductive redistributive activities. It is a widely-held belief that opportunities for such activities abound throughout the different levels of government in India. Here, we only raise the possibility that the system of fiscal federalism in India may give rise to undesirable efforts to influence transfers between jurisdictions. The same idea applies to national government provision of public goods that have a local aspect, that is, the distribution of benefits to different regions can be chosen, and to taxes when the regional distribution of incidence varies with the tax instrument.

In this paper, we explain how influence activities at sub-national levels of government can be incorporated into the political-economy model of decentralized fiscal policies chosen through majority voting. One implication of the simple model is that the stakes for state governments in influencing the distribution of transfers from the federal government and national public goods spending can be very large. Another is that a reduction in the degree of discretion available to the federal government over the allocation of common revenues across states could lead to an improved ability for achieving overall social welfare objectives of distribution and efficiency. Although it inhibits the ability of fiscal authorities to respond to changing circumstances, a fixed well-defined assignment of tax authority, public spending responsibility and interjurisdictional transfers between the federal and regional governments reduces the capacity for counter-productive influence activities between levels of government[2].

The remainder of the paper is organized as follows. In section 2, we provide an overview of issues in the design of federalist political institutions, based on the recent synthesis of Inman and Rubinfeld (1994). Section 3 turns more specifically to issues of fiscal assignment - of tax and expenditure functions - between different levels of government. This also leads to a consideration of intergovernmental grants. Section 4 surveys the Indian experience of fiscal federalism in the context of the frameworks discussed in sections 2 and 3. In this section, we also discuss the importance of influence activities in the Indian case, and their relation to the country's federal structure. Section 5 uses the median voter model of multi-jurisdictional fiscal policy making and discusses how it can be used to analyze the political economy of fiscal federalism more precisely. We focus, in particular, on the fiscal gap between the center and the states, and consequent determination of interjurisdictional transfers. This section also discusses variants of the basic model of fiscal federalism and the extension to incorporate unproductive rent-seeking between levels of government. Section 6 gives a summary conclusion and discussion of extensions for further research.

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[2]We note here that though our discussion and model are couched in terms of federal-state fiscal distribution, our approach applies as well to allocation by state governments to districts and other local governments. This is especially pertinent, since the 73rd and 74th amendments to the Constitution create a role for state level finance commissions, formalizing and making more transparent the process of transfers from state to local governments. See Finance Commission (1994), Chapter 10 and Singh (1996).

2. The Design of Federal Political Institutions: Representation, Assignment and Legislative Forms

In a significant recent contribution, Inman and Rubinfeld (1994) provide a conceptual paradigm for evaluating institutions of federal republics. They distinguish between the decentralized "confederate" republic of Baron de Montesquieu and the "compound" republic of James Madison, the second form having an overarching central government capable of acting against local interests. They trace this distinction to the debate at the time of the framing of the United States Constitution in 1787. As noted in the introduction, similar issues were addressed in the framing of the Indian Constitution. For either type of republic, Inman and Rubinfeld identify two federalist dimensions of its constitution: representation of the constituent states (or other subordinate units) to the central government, and the assignment of governmental tasks to either the central or the lower level governments. For compound republics, in particular, they argue that the efficient federal institutions involve a preferred combination of representation and assignment.

Representation in a formal model is measured simply by the number and size of the constituent units of the federation. For example, a greater number of smaller units, all of equal size, say, will increase the degree of representation at the center, since there is greater potential for diversity of choices across units. Whether this potential is realized depends, of course, on the assignment of fiscal functions. For a confederate republic, where constituent units have veto powers, an increase in representation through smaller constituent units can be quite powerful in its impact. In the case of a compound republic, the impact of representation also depends on institutions that govern the central legislature. Inman and Rubinfeld focus on two possibilities prominent in the political economy literature: the minimum winning coalition legislature, where some form of majority rule applies; and the universalistic legislature, which uses norms of deference to achieve unanimity or consensus. The choice of legislative form affects the outcome of any particular combination of representation and assignment, as discussed below.

The traditional case for a confederate republic is made primarily on political grounds, in terms of protecting regional rights and encouraging political participation, debate and accomodation. There is also an economic case, based on the efficiency of Coasian bargaining, but this requires a set of special assumptions. Since the Indian situation is clearly that of a more centralized compound republic, we shall not go further into these issues here, referring the reader to Inman and Rubinfeld for a simple political economy analysis.

Within the compound republic, the constituent jurisdictions such as cities, states or provinces must have a political or fiscal role to play, otherwise a federalist structure would not be required. Madison's case for local governments was based on economic efficiency and not on the promotion of democracy. Inman and Rubinfeld, for example, represent it using Tiebout's (1956) theory of local government, wherein, under restrictive conditions, interjurisdictional competition leads to the efficient supply of local public goods. The required conditions include a perfectly elastic supply of jurisdictions, costless mobility of households, full information, and no externalities across jurisdictions. The failure of these conditions to hold implies a rationale for conducting fiscal policy at the level of central government to internalize externalities. Furthermore, the lack of free competition among lower level governments, which violates the Tiebout conditions, can also create rents and rent-seeking.

In their particular analysis, Inman and Rubinfeld examine the issue of representation as the choice of the size of the constituent units that send representatives to the central legislature. The effects of changes in representation depend on how a legislature chooses to do business. They argue that in a universalistic legislature, an increase in the degree of representation is likely to bias government spending upwards, as there are more legislators and constituencies to benefit from the norm of deference, which results in mutual back-scratching. In majority-winning-coalition legislatures, the effect of increased representation is uncertain. For national public goods, what matters is how the location of the decisive representative in the legislature is altered. For lower level public goods, increases in representation mean larger supporting coalitions are required, which increases costs of coalition formation, but also raises the spending associated with successful coalitions: it is hypothesized that the latter effect dominates. Therefore, with either legislative form, there is a trade-off between increased representation, with its democratic advantages, and economic efficiency, which is impaired by the overspending that accompanies more extensive political representation. It is suggested that the other institutional dimension, of the assignment of economic tasks to the different levels of government, may provide a way of resolving or softening the trade-off.

The brief answer to the assignment question, based on economic efficiency considerations, is that where spillovers are significant and/or the goods provided are national, the central government should decide, otherwise the lower level governments should be assigned the task of provision. The extent of spillovers is an important consideration in assignment, and one that has become contentious in practice. Inman and Rubinfeld raise an interesting point, applicable to any number of countries: "If the central legislature assumes responsibility for deciding assignment, then assignment no longer stands as a feasible control to limit legislative inefficiencies."[3] They discuss alternative institutions that have been suggested to deal with this problem: a strong executive (separate from the legislature), locally-run political parties, and public hearings. None of these are currently significant institutions in the Indian context, and we will not discuss this complex institutional issue further in this paper, though we wish to note its importance. We henceforth restrict attention to government as composed of representative legislatures.

Given a clear assignment of tasks, a level of representation, and legislative institutions[4] one can compare the economic efficiency of different combinations of these three institutional variables. Building on the work of Breton and Scott (1978), Inman and Rubinfeld make this comparison based on an assessment of different types of transactions costs. They conclude, based on arguments of plausibility and some empirical work that, on grounds of economic efficiency, national public goods should be assigned to the center, with a legislature operating with majority-winning coalitions, while lower level public goods should be provided by state or other lower level governments.

The analysis we have summarized above treats both assignment and representation in fairly general ways. In our own analysis, we do not explicitly tackle alternative forms or degrees of representation: we assume that governments respond to constituent preferences as captured by the median voter. However, issues of assignment are relevant to us in a more detailed fashion, and we take a closer look at them in the next section. In particular, we are interested in the possibility that the existence of large intergovernment transfers (not explicitly treated by Inman and Rubinfeld) leads to a different interplay of representation and assignment, including activities to influence these transfers. The issue of intergovernment grants, therefore, is also examined in the following section.

3. Fiscal Assignment: Expenditures, Taxes and Intergovernment Grants

In this section, we build on the dichotomy of representation and assignment stressed by Inman and Rubinfeld. In particular, we review in more detail the conventional economic arguments with respect to the assignment of expenditure functions and revenue instruments to different levels of government in a federation. These, in turn, lead to a brief discussion of intergovernmental grants, which are a significant feature of Indian fiscal federalism, and therefore an important component of our analytical model of the Indian case.

The classic treatment of the assignment of expenditure functions was provided by Musgrave (1959), who based his principles for such assignment on his threefold division of the public sector, into allocation, distribution and stabilization branches. He argued that the latter two were the primary responsibility of the center. These arguments, and more recent qualifications that have been provided by various writers, are summarized in Oates (1991). The "heart of fiscal federalism", according to Musgrave, lies in the allocation branch. The Tiebout model, mentioned in the previous section, is a good illustration of this: individuals shop among different jurisdictions that are themselves optimally created. To the extent that the Tiebout assumptions fail, the case for decentralized expenditure is weakened. In the Indian context, with low mobility of households and lack of perfect information, raises such concerns[5].

The assignment of responsibilities for taxes poses a somewhat different set of issues from the case of expenditure functions. Again, Musgrave (1983) provides a systematic treatment. He suggests that highly progressive taxes (especially for redistribution) and taxes on highly mobile tax bases should be centralized. The logic of this is clear, in terms of incentives and efficiency. The central government is also better suited to having

[3] Inman and Rubinfeld (1994), p. 29.

[4] Alternatively, as noted by Inman and Rubinfeld, the legislative rules may be undefined by the constitution, in which case they become endogenous functions of the level of representation and nature of assignment.

[5] However, Oates (1991) quotes empirical studies to suggest that in practice the efficiency losses from centralized provision of state or local public goods may be quite high in some practical cases.

authority over those tax bases that are distributed unequally across jurisdictions, for equity as well as efficiency reasons. Finally, benefit taxes such as user charges and fees are very suitable for lower levels of government. In the context of efficiency and incentives, there is a clear connection between the vertical structure of the revenue system and the assignment of fiscal functions. Taxes which distort prices will affect public expenditures. These connections have been explored by Arnott and Grieson (1981), Wildasin (1983, 1984), and Gordon (1983), among others[6].

In practice, Musgrave's prescriptions are most clear-cut in comparing national with local governments. This is reflected in empirical experience, cited in Oates (1991). Large, intermediate units such as states and provinces, on the other hand, have features in common with both extreme levels, and tax assignment is also more complex. The Indian case illustrates this complexity, as we shall describe in the next section, where we also follow many others in arguing that the above theoretical principles do provide guidelines for improving the efficiency of tax assignment.

The optimal assignment of expenditure functions and tax instruments does not imply that each government at each level must be in balance. Even if we abstract from intertemporal issues in government finance by requiring balance for the public sector as a whole in each time period, individual government units do not have to be in balance. In fact, it is typical for lower level governments to receive transfers from higher level ones. For example, transfers from the center to the state governments are a strong feature of Indian fiscal federalism. A vertical imbalance may arise simply from differing abilities or efficiencies in tax collection. For example, till recently, the central government in China relied almost entirely on provinces and other lower level units to collect taxes, because it lacked institutional mechanisms to do so directly. One may distinguish this case somewhat from true intergovernmental transfers, in that the revenues collected by one level are a priori earmarked for another level, with no offical discretion for the revenue collecting government. In practice, some discretion does creep in when the form and level of a tax is decided by one level, and collection effort by another level of government. Similar issues arise in the Indian context as well.

More generally, intergovernmental grants may be rationalized as serving three main objectives[7]: subsidization of specific programs where there are spillovers across jurisdictions; greater equity in tax incidence; and equalization of fiscal capacity across subcentral jurisdictions. Conceptually, a designer of a fiscal constitution could optimize social welfare by simultaneously assigning revenue instruments, and expenditure functions, taking account of how individual governments, given this assignment, would maximize the social welfare of their constituents by picking levels of expenditure and taxation and of intergovernmental grants. an example of such a conceptual exercise is provided by Gordon (1983)[8]. In practice, the determination of intergovernmental grants, in particular, is often the result of political considerations. Inman (1988) provides evidence for this conclusion for the United States. We shall focus on this aspect in our analysis of the Indian case in subsequent sections of this paper.

4. Indian Experience

We begin with some basic facts on India's federal structure. Excellent recent surveys are in Rao and Chelliah (1990) and Rao (1995), so we do not attempt a comprehensive description. From 1974 to 1986, on average, India's subnational governments accounted for a little over half of total government spending (World Bank, 1988). For 1987, the figure was 54.4 per cent (Rao, 1993). Their revenue, on the other hand was substantially below this fraction. The difference was largely closed by central government revenue sharing and other government

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[6]Wildasin (1986) provides a detailed summary and evaluation of this literature.

[7]See, for example, Oates (1991), p. 17, and King (1984), Chs. 3-5.

[8]See also Wildasin (1983, 1984, 1986).

transfers. For 1987, the share of state government revenue in total government revenue was only 30.2 per cent, and the states financed only 43.4 per cent of their expenditure from their own revenues (excluding loans)[9].

Revenue sharing, as an example of intergovernmental transfers, is common in federal systems. The rationale for sharing is often based on fiscal capacity: the ability of the central government to raise revenue at lower collection costs and creating smaller excess burdens. What is not necessarily stressed is the dependence of that fiscal capacity on the particular institutional setting of fiscal policy-making. One of the striking comparisons that is highlighted by Rao (1993) is how low the ratio of states' revenue to states' expenditure is for the Indian case, that is, 43.4 per cent. The only comparable figure is 44.6 per cent for Australia, which has a total population about as large as a smaller Indian state. Figures for other larger federations are substantially higher, for example, 88.1 per cent for the United States, and 67.4 per cent for Brazil. These other federations also involve more spending directly by the central government, for example, 69.1 per cent in the U.S. and 67 per cent in Brazil. Thus India stands out because as a large federation it has a high degree of decentralization of expenditure. One might expect this result because of India's size, but not the correspondingly high degree of centralization of revenue collection that occurs. The result is what Rao (1993) calls a "vertical fiscal imbalance". However, there is no *prima facie* reason for this imbalance to be a problem. If it simply reflects differences in fiscal capacity, coupled with information differences that favor decentralization of expenditures, there should be no problem at all. We suggest below, however, that the political economy of this imbalance is a problem.

Another commonly stated motivation for central revenue sharing is the reduction of inequality: a poor region will be able to raise less revenue per capita, and central transfers can play an equalizing role. Again, India stands out in this respect because of the wide range of per capita incomes: the average per capita income in the richest state is probably at least double that of the poorest state[10]. In India, however, the evidence suggests that the equity objective has not been achieved, even partially, through central government transfers to the states. In fact, some analyses suggest that the overall effect of central transfers has been regressive[11].

If this regressivity is indeed the case, why should such an outcome arise? Two possibilities suggest themselves, one involving the political economy of India's fiscal federalism, and the other the particular federal structure. First, and most obviously, the center may be responding to political constraints and incentives that do not match the goals of equity or support their achievement. Secondly, the center, in its elaborate exercises to determine transfers to the states, must, and does, incorporate features that reward resource mobilization efforts by the states[12]. This incentive goal may easily conflict with the equity objective.

To further understand the vertical fiscal imbalance that we have highlighted so far, along with the issues of efficiency and equity that arise with respect to transfers from the center to the states, we briefly describe some of the particular agencies that partly govern these transfers. These are the Planning Commission, which is

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[9]These numbers are also from Rao (1993), whose own source is the Government Finance Statistics of the International Monetary Fund.

[10]See, for example, the last column of Table 11 in Guhan (1988), which, for the fifteen major states, lists per capita income figures ranging from Rs. 1033 for Bihar to Rs. 3073 for Punjab, averaged over 1979-1984. A similar ratio is reported by Choudhury (1992) who also reports figures for per capita consumption. These latter range from Rs. 1054 for Bihar to Rs. 1864 for Punjab, for 1986-87. Choudhury points out that the income figures overstate inequality because they are based on State Domestic Product, and not personal income.

[11]A general overview of India's earlier experience in this regard is in Toye (1981), particularly chapter 7, and in Rao (1981). A recent paper that reaches the conclusion of regressivity of transfers is Guhan (1989). A still more recent survey of Indian experience with intergovernment transfers as a poverty reduction instrument, including a discussion of concepts, is Rao and Das-Gupta (1993). Rao (1994) is also a valuable source. The latter two papers make clear that some components of central transfers have been equalizing, while others have had the opposite effect.

[12]For discussions of this issue of encouraging resource mobilization by the states, see, for example, Bajaj and Viswanathan (1989) and Viswanathan (1990), as well as Guhan (1988, 1989)

permanently constituted as a part of the central government under the control of the Prime Minister, and the Finance Commission, which is periodically constituted as a quasi-independent body, advisory to the government[13]. The distinction between the responsibilities of the two bodies has been based on "plan" and "non-plan" expenditures, which may in theory be identified, respectively, with "developmental" and "non-developmental" expenditures[14]. Thus transfers for different categories of expenditure have been, at least notionally, dichotomously determined by two separate bodies. Of course, this has given rise to problems of coordination of objectives, compounded by the ultimate fungibility of much of the transfers: in practice, both Finance Commission and plan transfers are general purpose[15].

Plan transfers to the states have, to a considerable degree, been determined by formulae[16] based on factors such as state income, urbanization and population, but they have also included expenditures completely earmarked for projects determined by the center, as well as projects which the center encourages by providing matching funds. With a large element of central discretion and control being present, one might argue that the degree of fiscal decentralization suggested by aggregate statistics is overstated. In other words, if state expenditures are to a large extent determined by central instructions, the issue of the vertical fiscal imbalance becomes less important. However, this line of reasoning is controverted by the fact of state fiscal deficits and increases in indebtedness of the states, even allowing for earmarked central transfers. This is because, if the center wishes to control the fiscal deficit (and it certainly currently feels pressure to do so), and states are running large deficits, they must be doing something beyond the center's control.

While the Planning Commission concerns itself with directing resources for their potentially best uses for economic growth and development, the Finance Commission's responsibility includes the issue of how those resources are raised through the tax system, as well as purely expenditure-side decisions. For example, it recommends how the proceeds of taxes, such as the national income tax, are to be shared between center and states. Hence, a discussion of the Finance Commission's role and functioning, requires some description of the Indian tax system in a federal perspective.

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[13]More specifically, the Finance Commission is constituted every five years with a charge to make recommendations that cover a period concurrent to the period of a five year plan. Its membership includes academics as well as civil servants and politicians, but the government selects, and therefore to some extent controls, who serves on each commission. Its existence and broad functions are mandated in the Indian constitution. Such a constitutional body seems to be unique to the Indian brand of fiscal federalism. The rationale for such an institution can be seen in relation to the Inman-Rubinfeld framework, as providing a way of allowing flexibility in assignment, without making assignment questions politically subservient to the legislature.

[14]By developmental expenditures one would normally mean investment activities, including categories such as education, with nondevelopmental expenditures being essentially for current consumption. In practice, the distinction between plan and non-plan expenditures runs across revenue and capital budgets, and the latest Finance Commission (1994) report suggests that it has perverse impacts and should be scrapped in favor of the conventional revenue-capital distinction (paras. 15.11-15.12).

[15]See Rao (1993), p. 18, as well as Rao and Dasgupta (1993) and Rao (1994). The latter states "..the absence of a clear and coordinated approach for distributing unconditional transfers to the states is a major weakness in the Indian federation" (p. 27). Rao (1995), in his concluding comments, explicitly suggests that, to avoid overlapping functions, the Finance Commission should "assess and recommend transfers to cover the entire current needs of the states" while the Planning Commission "can assess the requirements of physical infrastructures and give the required loans".

[16]Given the emphasis on planning in India's first four decades after independence, it is not surprising that these formulae have received considerable attention, along with other aspects of the planning process. An example of an analysis of the formulae for plan transfers to states is Ramalingom and Kurup (1991). Rao (1994) provides a critical survey of these and other aspects of India's experience with intergovernmental transfers.

Central and state responsibilities and rights, with regard to which level of government can levy a particular tax, and how the taxes are shared, are described in the Indian Constitution, in particular, Articles 268 to 293[17]. While the constitution delineated these responsibilities in broad terms, specifics were left to be determined by the Finance Commissions created by the constitution for that purpose. Successive commissions have made recommendations about specific issues of sharing revenues. These recommendations have been made according to their interpretations of the constitution. The result has been a system that allows for considerable administrative discretion, and, in the view of some[18], favors the center at the expense of the states in terms of raising resources through taxation. According to this view, the central government has not adequately used constitutional provisions that do exist for levying taxes exclusively for states' purposes, under Article 269. Finance Commissions have interpreted other Articles (for example, 270, 271 and 272) as allowing the central government to collect some tax revenues in ways that are exempt from revenue sharing, so that the states' share of taxes is reduced. For example, the center has used a long-lasting income tax surcharge that is not subject to sharing with the states, rather than merging such taxes into the basic income tax structure, whose revenues must be shared between center and states. A similar motivation is alleged with respect to newer taxes that are made the exclusive preserve of the center: the gift tax, wealth tax on urban immovable property, and tax on interest earnings on bank deposits.

The data seem to bear out some of the above contentions. For example, between 1980-81 and 1987-88, income tax revenue grew by about 90 per cent: tax-revenue sharing formulas have assigned 85 per cent of this revenue to the states, though it is collected by the center. Corporation tax revenue, which is under central control, rose by about 170 per cent in the same period[19]. Other examples can also be given of the same sort of phenomenon: customs duties and central excise duties, both "belonging" to the center[20], also rose rapidly in the same period. Nor is this a surprising outcome: to use an analogy to the behavior of individuals, those who are taxed in some directions will shift their efforts or expenditures towards less heavily taxed activities. Here, the center pays an effective "tax" on some forms of revenues through revenue-sharing, and shifts it own tax effort in other directions[21].

However, the analogy to the behavior of an individual can not be the whole story. After all, the center in its competition with the state governments is not in an adversarial position. The objectives of the center to some extent must include the welfare of its constituents in each state. We say "to some extent" because there is the possibility - one that seems evident for the Indian case - that each government is composed of self-interested individuals[22]. This would then lead to adversarial competition for the control of resources. We shall return to this issue in the discussion of tax competition between the center and states, later in this section.

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[17]The full text of these articles is reproduced in Thakur (1989).

[18] For example, see Panigrahi (1985).

[19]These figures are derived from Table 5.5, World Bank (1989). Of course the evidence can only be suggestive, since other factors may have been changing as well. See also Table 1 in Finance Commission (1994), Chapter 13.

[20] The history of sharing central excise duties is actually complex. It is summarized in the Tenth Finance Commission's Report (Finance Commission, 1994, paragraph 5.24).

[21] The Tenth Finance Commission report suggests some marginal adjustments that make sharing rates more equal, namely, reducing the states' share of income tax to 77.5% and increasing their share of central excise duties from 45% to 47.5% (Finance Commission, 1994, paras 5.21, 5.28). An alternative devolution scheme, proposed in the same report (Chapter 13), suggests that states receive a uniform share (29%) of (almost) all federal revenue. This proposal seems eminently sensible. It should be noted that, as discussed in the report, the idea has antecedents in proposals made by the 1991 Chelliah Committee on Tax Reforms, and at one stage by the central Finance Ministry. It would seem, however, to require a constitutional amendment to be implementable.

[22]The now classic analysis of India as a "rent-seeking" society is Bardhan (1984). The term rent-seeking is due to Krueger (1974). An earlier analysis of similar behavior is due to Tullock (1967), and the same logic underlies Olson's (1971) contribution.

To recapitulate, we suggest that the central government is able to circumvent the Finance Commission's intent in tax-revenue sharing, and has a superior command over tax resources. In practice, as we have noted in the discussion of the vertical fiscal imbalance, the center has not fully translated this superior command over resources into greater direct expenditures. Much has flowed back to the states in other ways. But as we pointed out in the context of plan transfers, the center has been able to exercise considerably more discretion than it could have done if the transfers to states were chiefly determined by exogenous formulae.

In fact, discretionary transfers appear to have grown as a proportion of revenue sharing with the states in recent years. These discretionary transfers tend to favor states with higher per capita incomes[23]. This is particularly true for transfers from the federal government that are allocated according to matching formulae, i.e., where the center matches state expenditures for a particular project or category according to a preset rule. The use of matching favors richer states to the extent that they can more easily come up with their share, and is one contributing factor in the growth of fiscal disparities among states in India. A final aspect of this issue is that state deficits have grown, and loans to states by the center have grown correspondingly: again, this is potentially a conversion of rule-based finance of the states' expenditure to discretion-based finance, since loans are based on central government discretion, which is swayed by political considerations[24]. In terms of the discussion in sections 2 and 3, these issues are not being decided according to the normative guidelines summarized in that discussion.

The problem of tax competition between the center and the states extends beyond issues of tax-revenue sharing discussed above. In practice, there is also considerable overlap in the imposition of taxes, particularly indirect taxes. Excise taxes by the central government, sales taxes by states, and even local taxes[25] by urban government bodies may fall on the same commodities. For each type of taxation, there are often multiple rates, and there is little evidence of tax coordination between center and states[26]. Rate multiplicity is not just a problem across levels of government. States impose a wide variety of sales tax rates and exemptions leading to significant variation in the effective tax rates imposed on different sectors and activities. For example, the state of Gujarat has 22 different sales tax rates. Ahmad and Stern (1987, 1991) provide systematic economic analyses of the details of this complex Indian tax structure.

As noted above, the specific indirect taxes imposed in India have been heavily affected by the provisions of the constitution. Under the Government of India Act of 1935, which formed the basis for the 1950 constitution's assignment of fiscal rights and responsibilities, the provinces (precursors of present-day states) were granted jurisdiction over the taxation of final goods. This assignment, in effect, carried over to independent India. The

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[23]See Chelliah, Rao and Sen (1992) and Rao and Chelliah (1990) for overviews. Rao and Das-Gupta (1993) report that specific purpose transfers from center to states rose from 11.9 per cent of total transfers in 1975-76 to 18.3 per cent in 1988-89 (see their Table 8). Rao and Narayana (1994) note that the capital of central public enterprises was also biased towards high income states. Rao (1994) reports some striking figures (see his Table 8). Looking at the seventh plan period, 1982-85, and at 14 major states, divided into high, middle and low income groups, statutory transfers (shared taxes and Finance Commission grants) per capita were respectively, Rs. 321, 439 and 472: hence these were equalizing. However, non-plan loans were, respectively, Rs. 722, 423 and 377 per capita: they particularly favored the high income states as a group. Finally, central plan assistance including centrally sponsored schemes was, respectively, Rs. 533, 227 and 287 per capita, again favoring high income states. Within each group and category there were even greater variations, suggesting that discretion in central transfers was operating in nonobvious ways.

[24] We should note, however, that the latest Finance Commission (1994) report makes explicit recommendations on loans and debt relief for the states (Chapter 12), including a scheme to link debt relief to fiscal performance. At the same time, some states qualify for special relief, and one suspects that ultimately central discretion will remain very important.

[25]In particular, there is the "octroi", which is a tax on goods entering some urban areas, and which appears to be a remnant of older times and peculiar to India.

[26]An excellent discussion of tax competition in India in a comparative context is in Rao (1993).

result was that the central government increasingly relied on excise taxes on domestic production. This use of excise taxes by the center in turn led to a cascading structure of indirect taxes, with very high effective tax rates that vary greatly across sectors. In section 3, we noted the complexity of clearly deciding on assignment issues for large subnational units, but the Indian case seems somewhat extreme. In the 1980s, the problem of cascading was finally beginning to be addressed by the adoption of a system called MODVAT which allowed for rebates of some taxes under central government control[27].

Up to now we have focused on center-state fiscal relations. Another feature of fiscal federalism is, of course, the competition among the lower level components of the federation. Tax competition, which includes the phenomenon of tax exporting (the choice of taxes to shift tax burdens to nonresidents), has received considerable attention in the theoretical literature on fiscal federalism[28]. In the context of the Tiebout model referred to in sections 2 and 3, tax competition may be efficient, and it has been extolled as a check on the "Leviathan" of central government by Brennan and Buchanan (1980)[29]. However, when the Tiebout assumptions are violated (as we suggested in section 3 is the case for India), tax competition can be inefficient. Examples of the phenomenon of tax exporting are well documented in a general way for the Indian case, though there is little systematic quantitative analysis of the distortions associated with tax competition among states or localities in India[30]. What is particularly interesting about the Indian case is that the center has not been able or willing to try and coordinate state actions with respect to taxation. Its ability to do so would clearly have been enhanced by something akin to the provision of the United States constitution, which prevents restraints on interstate commerce, and which has been used to rule out taxation of interstate trade. However, the question arises as to why some kind of cooperative agreement has not been possible in this respect. We conjecture that the heterogeneity of the Indian states has made the requisite political coalition more difficult, but this requires more formal and careful analysis of the coalitional bargaining structure of the situation, which is somewhat outside our current scope.

A final aspect of Indian fiscal federalism is that of the role of lower level governments in the federal fiscal structure. When we realize that most of the Indian states have populations the size of European countries or greater, it is striking to see how weak local governments are in India[31]. This is presumably a legacy of the historical evolution of the Indian union, but it raises an additional set of issues: what is the appropriate geographic or population scope of governments for different tasks? There appears to be little in the literature on Indian fiscal federalism on this topic, though the theoretical principles are clear[32]. Again, if we ask why this situation has persisted, we may draw some lessons from the analysis of central-state relations, and we will hazard some thoughts on this in the conclusion.

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[27]Purohit (1993) surveys the experience with MODVAT in India, as well as comparing it with other countries' VAT schemes.

[28]See Wildasin (1986) for a comprehensive survey.

[29]See Oates (1991) for an evaluation of this idea and the empirical evidence for it.

[30]Rao (1993) is a good source of examples of tax competition in India. The only quantitative analysis of which we are aware is Rao and Vaillancourt (1993). Ahmad and Stern's analysis is at a more aggregate level, and so does not look at interjurisdictional tax competition.

[31]This will, one expects, change with the passage and implementation of the 73rd and 74th amendments to the constitution which require states to "hold regular elections to rural and urban bodies and also appoint state finance commissions at regular intervals to recommend transfers to these bodies" (Rao, 1994, p.2). The impact of these amendments is already apparent in the discussion of grants to local bodies in the Tenth Finance Commission report (Finance Commission, 1994). See also Singh (1996).

[32]Examples of studies of local finances are those of Datta (1984) and Jetha (1992). A clear exposition of the theoretical principles on this topic is Olson (1986). The framework of Inman and Rubinfeld is also illuminating in this context.

Our overview has focused on three aspects of Indian fiscal federalism: the vertical fiscal imbalance between the center and the states, tax competition between the center and the states, and finally tax competition among the states themselves. Our discussion has suggested that an understanding of the operation of Indian fiscal federalism requires attention to the political and economic incentives of the different levels of government, and how they interact. Vertical fiscal relations matter for horizontal competition, as well. In particular, since we know that a benevolent, well-informed center could resolve the problem, why horizontal competition persists to such a great degree in the Indian fiscal system must be related to the objectives of the central government. Thus in the next section we will focus on the interaction of the center with the states, rather than interactions among the states. We will attempt to treat the issues discussed in this section in as unified a way as possible.

5. Political Economy of Fiscal Federalism: Outline of a Model

Our analysis begins with the premise that governments are made up of self-interested individuals[33]. The implication of this approach is that the government is subject to rent-seeking behavior. The simplest models of rent-seeking posit a given rent and analyze how competition for that rent occurs. More generally, government decision-makers, by their actions, are in a position to create rents. They cannot necessarily capture these rents directly, but it is often the case that they indirectly get a share through the competition of others for those rents. In a standard example, a politician may not be able to directly take advantage of an import quota, but it is an easy matter to allocate the quota to an industrialist in return for campaign contributions or other payments.

In the context of government susceptibility to corruption, this problem has been extensively discussed and condemned. However, it is also possible that activities that come under the category of rent-seeking may inseparably have a positive role as well. This has been clearly brought out, in the context of behavior in organizations, in a series of papers by Milgrom (1988) and Milgrom and Roberts (1988, 1990a,b)[34]. They use the neutral term "influence activities". Their insight, with respect to the design of institutions or organizations, is: if the benefits from such activities in the conveyance of information for better resource allocation are relatively low, the central decision-maker should be insulated from lower level influence activities by not having discretion in such matters.

In India, it is striking how its pattern of development has been towards increasing discretionary control of resources by the center. Part of this may simply be explained by a divergence of objectives. If the center wants a certain activity or project undertaken, it can earmark its transfer to the state for that purpose, or it can provide inducements through matching formulas. In the Indian case, however, the central government often effectively underwrites expenditures of the state governments that it does not control or direct. It does this through the granting of loans that are subsequently forgiven. What makes this method of providing resources superior to directly providing states with additional funds by allowing tax-revenue sharing of, say income tax surcharges?

Several answers are possible. There are different categories of expenditures in terms of the accounting framework used: current and capital. So the above policy might not work. But this can be countered by observing the considerable degree of fungibility of funds. For example, there is no guarantee that a rupee raised by taxation will go for current expenditure, and a rupee raised by borrowing will go for capital expenditure, even if the borrowing is earmarked for investment, since the government can reallocate to current expenditure money that would have been spent on capital projects in the absence of the borrowing.

Another answer could be that a formulaic allocation of revenues might not serve the equity objectives of the central government. But we have observed that these objectives did not appear to be met by transfers in practice. Furthermore, the Finance Commission formulae used have typically had some equity or equalizing considerations built in to them, and it is discretionary transfers, including matching grants, that have been

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[33]This is, of course, the central tenet of the public choice school of thought, associated with James Buchanan. See also Olson (1971).

[34]The positive role of lobbying activities has been developed for the case of government and industry in Kohli (1992).

unequalizing[35]. Thus the goal of equity does not seem to justify the pattern of discretionary transfers from the center to the states.

The remaining explanation is that the system of financing the state governments has allowed the center the greatest discretion to achieve goals that are well-defined, and therefore fit the standard model of economic behavior, but are determined by government decision-makers' self interest, rather than aggregate social welfare. It is worth clarifying here that this notion of self interest does not exclude attention to the preferences of constituents. It is easy to think of the government decision-maker trading off current gain against the possibility of future gain through re-election[36]. Alternatively, government decision makers may pursue self interest within the constraints imposed by the prime requirement of satisfying voters and winning re-election. We explore this type of framework in our model.

The next question that arises is, why does control over state governments in this manner matter for the central decision-maker seeking to maximize long run self interest? We suggest that the states are the key political units for control of the central government. In other words, a pliable and cooperative state government in India can be very important in delivering a large fraction of its national parliamentary seats at the time of a general election. This is by no means a guarantee, but casual observation of Indian elections does suggest this as a possibility.

Two further issues remain. First, in the context of fiscal federalism, what is the analogue of the owner of a firm in the organizational setting as considered by Milgrom and Roberts? We have suggested that the central government itself does not fulfil that role, since its interests lie in creating discretionary power and responding to influence activities. The closest analogue, then, must be the population of the country. The problem then arises as to how they can collectively impose rules that prevent the kind of discretionary behavior that we have suggested arises in the Indian case. Note once more that such discretionary actions by the central government are not in themselves undesirable. The standard arguments in the fiscal federalism literature could justify them if the objectives of government were equity and externality correction that could not adequately be achieved by lower level governments.

One can think of different solutions to this problem of imposition of collective will of the populace on its representatives. The ideal might seem to be a rewriting of the Constitution. Yet no constitution can be detailed enough to completely rule out such behavior. Furthermore, achieving this constitutional change would seem to be a process fraught with difficulties and pitfalls. A second, more feasible route, would seem to be the changing of the rules that govern the interaction between the center and states within the current constitutional framework.

The second issue has to do with the behavior of the state governments. We have emphasized the increasing discretionary aspects of the central government's transfers to the states. In a sense, this implies control of the center over the expenditures of state governments. At the same time, the states have been running deficits which have been covered by central loans and transfers, and they are perceived as being profligate in many ways[37]. The answer to this, presumably, lies in the state governments' responsiveness to influence activities from constituents, for example, farmers who receive subsidies, and their power in delivering votes to the center. A possible prediction, therefore, would be that as power at the center becomes more solidified than it has been recently, the center will be able to squeeze state expenditures more successfully, shifting the focus of influence activities by various interest groups to the center[38].

We now proceed to sketch a model that incorporates some of the above mentioned features of Indian fiscal federalism. In particular, we discuss how different layers of government may pursue self interest within the context

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[35]See footnote 19, and the references therein.

[36]For an example of such models see Appelbaum and Katz (1987).

[37]See, for example, the article on this issue in *The Economist* magazine, January 28, 1994.

[38]As an aside, we may note that if we apply the same logic of self interest and rent-seeking to the state governments, we may begin to extract some insight into the complex and distortionary tax systems at the state level, and the absence of strong or effective local governments in India. Clearly, the phenomena are so numerous, however, that more work needs to be done on this aspect.

of also satisfying voters. While we are far from capturing all the phenomena described in this section and the last, we believe the model adds some insights into the specifics of the political economy of federalism[39].

In keeping with our focus, we restrict attention to two levels of government. The higher level will be the center, and the multiple jurisdictions under it will be indexed by *l* to indicate the lower level. We may think of these as state, provincial or local governments, though we will have the major Indian states in mind in most of our analysis, as we did in our previous discussion. We will assume there are *L* of these lower level governments.

Basic assumptions

Each government is assumed to provide an amount of a public good. For the center, this amount is denoted by G, and for lower level government *l* it is G_l. There is also a single private good, and the amount of this in jurisdiction *l* is denoted by x_l . We assume that household preferences over the three goods are identical up to a parameter, b, that measures the relative preference for public versus private goods. Thus the utility function is given by

$$bU(G, G_l) + W(x_l).$$

Note that two further assumptions are incorporated in the specification. First, the relative preference measured by b is for both public goods versus the private good. Secondly, we assume separability in the preferences of public versus private goods. These assumptions simplify the model without affecting the main insights.

Further simplifications can have important implications. Two examples of these are assuming that utility is linear in private good consumption, so that it becomes $bU(G,G_l) + x_l$, or that it is separable in the two public goods, so it becomes $b[U(G) + V(G_l)] + W(x_l)$. Of course both these assumptions can be imposed simultaneously as well.

Next we describe assumptions on the distribution of the preference parameter b. This is assumed to have a cumulative distribution function $F_l(b)$, with support [0,1]. The median of b in jurisdiction *l* is defined by $F_l(b) = 1/2$, and denoted by b_l^m. There is also a distribution of b at the national level, which is the average of the lower level distributions. Specifically, if n_l is the number of individuals, households or voters in jurisdiction *l*, the national distribution of b is given by

$$F(b) = \Sigma n_l F_l(b) / \Sigma n_l \tag{1}$$

However, we shall see that this distribution is not of direct interest in the analysis, since what matters to the central government is the median demand level for the public good, rather than the median value of b at the national level.

Budget constraints and taxes

Turning to the budget constraints in the model, we assume that income per capita in jurisdiction *l* is given by I_l . This is exogenous and identical for everyone in that jurisdiction. However, it may differ across jurisdictions: there may be rich and poor states, for example. Both levels of government impose taxes on this income[40] . For simplicity, we shall assume these taxes are proportional to income, and that there is no deductibility of lower level

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[39]Related or complementary models include Persson and Tabellini (1992), Murty and Ray (1990), and Kanbur and Myles (1993). Like all of these authors, we use a static model, without intertemporal budget constraints. An analysis of fiscal deficits in a dynamic political economy model, albeit without layers of government, is that of Velasco (1992).

[40]Note that since we are treating the private good as an aggregate, this tax is to be interpreted as a composite of the usual income tax and various commodity taxes. We are, however, restricting ourselves to a closed economy, so there is no model analogue of customs duties, which have been an important revenue source in India.

taxes[41]. The respective tax rates for center and lower levels are t and t_l . There are also costs of collecting the taxes, denoted by per rupee amounts k and k_l respectively, so the tax revenues at the two levels are given by[42]

(2) Center: $$(t-k)\Sigma I_l n_l$$

State: $$(t_l-k_l)I_l n_l$$

The budget constraint of an individual is given by

(3) $$x_l=I_l-t_l I_l-tI_l$$

A few words on the interpretation of collection costs is in order. They could also include losses due to bribery and corruption, though one has to be careful with this interpretation, since corruption in tax administration often means that less than the official taxes are paid by individuals. Here we are thinking of t and t_l as more or less the official tax rates. Furthermore, there is no game being played at this level in our model: the costs k and k_l are exogenous, though they may be high due to inefficiencies in collection. Finally, one would guess that receipts from corruption in tax administration are localized in tax departments, while political decision makers benefit more from the power to produce and allocate public goods.

A separate issue also arises in our formulation. If some of the collection costs were to be captured by government officials, this would show up in individual budget constraints. We shall sidestep this complication by arguing that the number of individuals who substantially benefit from corruption is relatively small, so that neglecting these transfers is immaterial for the analysis. Finally, we wish to stress that such direct capture is not the essence of our formulation: policy decisions by government may matter more[43].

Government expenditures

Next we turn to the expenditure side. Governments use their tax revenues to finance public goods. The unit cost for the national or central public good is denoted by c. This is taken to include the waste and administrative costs that may be involved in the production of the public good. Similarly, the unit cost of the public good produced in jurisdiction *l* is c_l . The earlier discussion of collection costs and the nature and effects of corruption also applies to these production costs, with the difference that gains here are more likely to matter to political decision makers. For the present, we assume there are no intergovernment transfers. We also restrict attention to a static case, so there is no intertemporal reallocation possible by government, and current expenditure on public goods must be financed by current tax revenues. Then the budget constraints are:

(4) Center: $$cG=(t-k)\Sigma I_l n_l$$

State: $$c_l G_l=(t_l-k_l)I_l n_l$$

Decision-making

We now discuss the objectives of the central and local governments in this model. We incorporate political objectives appropriate for a democracy in the usual way through the assumption that the government follows the preferences of the median voter. The logic of this assumption is that a majority of voters will favor this over any

[41] These assumptions simplify algebra without affecting essential features of the model.

[42] In Indian practice, of course, things are more complicated, due to formulaic sharing of income taxes, etc. In such cases, collection costs are also allocated between the center and states. See Finance Commission (1994), paras. 5.14-5.16.

[43] Examples of such policy decisions, suggested to us by Sudipto Mundle, can include lower tax rates, increases in tax exemptions, and ignoring tax evasion. In our model, what matters implicitly to government decision makers is political support, and the main policy decision is with respect to intergovernment transfers. We are grateful to Sudipto Mundle for helping to clarify these issues.

other alternative, provided preferences are single-peaked so that alternatives can be ordered in a unique way[44]. This latter requirement is ensured by our assumptions about household preferences and budgets. The alternatives here are the levels of the public goods. Another goal of government decision-makers may be pecuniary gain. Implicitly, this is one of the possible reasons, in addition to power and prestige, that they wish to get re-elected by pleasing the majority. In the model so far, we may think of this objective as being met through some share of the spending on public goods. Thus, some part of the unit cost of each level of public good could be due to appropriation of funds by individuals in government. For the moment, we assume that this is exogenous. Then the way that this second objective can be met is to increase the levels of the public goods. In this model, this objective is subordinate to doing what the median voter wants[45]. However, this other government objective should be borne in mind.

The decision-making at the state or local level is straightforward, because everyone is identical up to the parameter b and faces identical taxes. This implies that the person with the median b also determines the median G_l . This value is determined as follows, assuming that preferences for the private good are linear. The individual's utility, incorporating the government budget constraint, is:

$$bU(G,G_l)+I_l-t_lI_l-tI_l=bU(G,G_l)+I_l-\frac{c_lG_l}{n_l}-k_lI_l-\frac{cGI_l}{\Sigma n_lI_l}-kI_l \tag{5}$$

The preferred level of the local public good for this individual is given by the first order condition[46] :

$$bU_2(G,G_l)-\frac{c_l}{n_l}=0 \tag{6}$$

Here, the subscript "2" indicates the derivative with respect to the second argument. Recall that b_l^m is the median b for this jurisdiction. Then, the above equation, with this value of b, implicitly defines the median level of the demand for the local public good which will be chosen by the lower level government. We may write it as G_l^m (G, b_l^m, c_l/n_l). Note the dependence on the level of the national public good. The nature of this dependence can vary. If a higher G reduces the marginal utility of the lower level public good, i.e., the goods are weak substitutes, it will reduce G_l^m. In this case, a higher level of the national public good will reduce the amount that can be pocketed by lower level government. Hence, the two levels of government are in competition with respect to their choices. If the two levels of public good are complementary in individual utility, this complementarity carries over to the interests of the two levels of government. In our model these strategic considerations are within the constraints imposed by the need to satisfy the median voter, since we assume that this is what the vote-maximizing government does, whatever the choice of another level of government. Finally, in the case where the utility of the two levels of public goods is separable, there is no such strategic interaction.

We may also discuss the effects of corruption and inefficiency on the demands and provision of the local public good. Clearly, increases in costs decrease the demand for and amount of the public good. Thus, one could easily graft on a function that allows political decision makers to endogenously appropriate more per unit of the public good. This raises unit cost, and decreases the amount provided. With plausible assumptions, there would be an interior optimum for the government, in terms of the amount of corruption, analogous to the monopolist which has an optimal price where marginal profit is zero. A complication that this possibility raises is that voters might

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[44]A brief survey of the scope of the median voter approach is in Calvert (1986). Lindbeck and Weibull (1993) follow some earlier papers in developing a model of policy motivated candidates or parties, where political competition converges on the mean preference. The insights of our model carry over to this alternative framework: calculating the mean is just somewhat more cumbersome in examples.

[45]One can think of an alternative formulation, such as that of Appelbaum and Katz (1987), where these two objectives are weighted in some way. Their formulation assumes an exogenous probability of re-election (or reappointment) function, rather than adherence to the median voter's wishes. Reappointment matters, though, because it allows future gains for the office-holder to be realized. We will explore this specification in future work.

[46]Here and elsewhere, we assume that functions satisfy appropriate concavity properties so that first order conditions characterize unique interior optima, unless otherwise stated.

be sensitive to the level of corruption through this channel, and not just to the level of the public good provided. This would require an extension of the model, and we do not take it up here.

A final point with respect to the first order condition above is that corruption and other costs in tax collection do not enter the determination of the level of the local public good. However, this is just a consequence of the special, quasilinear utility function. For example, if utility is separable, but not quasilinear, the condition becomes

$$(7) \qquad bU_2(G,G_l) - W'(.)\frac{c_l}{n_l} = 0$$

and the additional derivative in the second term does depend on the costs of tax collection.

We now turn to describing how the central government chooses G according to the preferences of the median voter at the national level. The key difference from the lower level is that, since incomes vary across lower level jurisdictions, there is no one-to-one correspondence between the preference parameter b and the demand for the national public good. We will first illustrate this with a special-case example, where utility is separable in the public goods at the two levels. Then we will turn to discussion of the more general case where there are interaction effects in the utility function. This begins to get to the core of some of the issues in Indian fiscal federalism. The subsequent steps will be to introduce representative government, and then intergovernmental transfers.

Example 1

In the example, we assume there are two states as the lower level jurisdiction, each of size n. Income per capita in state 1 is 1 and in state 2 is 2. There are no collection costs for taxes. The unit costs of the public goods are 2n and n, respectively, at the national and state levels. Note that this assumption is consistent with the national public good having twice the size per unit, as it has to reach twice as many people. In particular, there are no economies of scale in this example, whereas there might be in general. The individual utility function is b(lnG + lnG_l) + x_l . The distribution of b in each state is uniform on [0, 1], so the median b in each state is 1/2. Thus, the national distribution of b is also the same. At the state level, the first order condition is just b/G_l - n/n = 0. Therefore, substituting in the median value of 1/2, we see that the equilibrium amount of G_l is 1/2. For the national public good, the general first order condition in this case is

$$(8) \qquad bU_1(G,G_l) - \frac{cI_l}{\Sigma I_l n_l} = 0$$

Substituting in the particular values from the example, we find that for state 1 this reduces to b/G - 2n/n(1+2) = 0, so that G^d(b) = 3b/2, where the superscript indicates that this is the demand of individual with preference parameter b, and not necessarily the outcome. Similarly, in state 2, the demand by individual b is G^d (b) = 3b/4. Individuals in the rich state demand less of the national public good because, with a proportional tax on income, they have to pay more for it. Now, to calculate the demand of the median person, we have to derive the distribution of demand levels, G^d. For state 1, the c.d.f. of G^d is 2G/3, on the interval [0, 3/2]. For state 2, it is 4G/3, on the interval [0, 3/4]. Since the states are of equal size, the national distribution of G^d is obtained by taking the simple average of these two functions. We obtain:

$$H(G) = \begin{cases} G & \text{on } [0, 3/4] \\ 1/2 + G/3 & \text{on } [3/4, 3/2] \end{cases}$$

Thus, the median of this distribution is G = 1/2, and this is what will be chosen by the center following median voter preferences. This level of G is optimal for individuals with b = 1/3 in state 1 and b = 2/3 in state 2. This illustrates the lack of a one-to-one correspondence between the distributions of b at the state level or national level and the distribution of demands for G at the national level.

The above example is particularly simple because the choices of public goods at the national and lower levels are independent. Suppose this is not the case, as in the general first order condition above. There, we saw that the demand for G by individual b in state *l* is a function $G^d(G_l, b, s_l)$, where the last argument is simply a shorthand for the cost share term. Now the distribution of demands for the national public good depends on the levels of the state public goods. These levels, however, also depend on the level of the national public good, as we saw earlier. That dependence did not matter in determining the median demand at the state level, because of the correspondence between the distributions of b and G_l. Here, however, the median demand for G can depend on the whole distribution of levels of state public goods. At the equilibrium, it must be true that the choices of the levels of government are consistent. In other words, the level of G chosen is the median of a distribution based on substituting each of the $G_l^m(G, b_l^m, c_l/n_l)$ into the function $G^d(G_l, b, s_l)$.

Example 2

To make this point clearer, we consider another example, where we change the utility function to $b\ln(G + G_l) + x_l$: that is, the two public goods are perfect substitutes. We also change the assumptions on the distributions of preferences. In state 1, there are three people, all with b = 1/2. In state 2, there are three people with levels of b given by 1/4, 1/2, 3/4. Unit cost for the national public good is 2, and for the state public goods it is 1/2 and 3/2 respectively. Income per capita in each state is 1. It is now possible to derive the following demand functions.

State 1: Each person has demand $G_1^d = 1 - G$, wherever this is nonnegative.

State 2: The median demand is $G_2^d = 1/3 - G$ wherever this is nonnegative.

Center: Individuals in state 1 each have demand $G^d = 1 - G_1$ wherever nonnegative.

Individual demands in state 2 are (with the condition that they be nonnegative):

$1/6 - G_2$, $1/3 - G_2$, $2/3 - G_2$.

The central choice will be the median of the six individual demand values. This median depends on the state level choices. Now suppose $G_1 \leq 1/3$. This implies $G \geq 2/3$. This, from the state 2 median demand function, in turn implies G_2 must be 0. The median demand for G must be the average[47] of 2/3 and the demand by any one of the identical people in state 1, whose demands for G exceed 2/3. The latter, however, is $1 - G_1$, which must be equal to G if it is positive. Hence, this can not be an equilibrium.

Now, instead, suppose $1/3 < G_1 < 2/3$. It is still the case that G_2 must be zero. This is due to the fact that consistency requires $1 - G_1$ to be the national median and, hence, $G_2 = 1/3 - G = 1/3 - (1 - G_1)$, i.e., $G_1 = G_2 + 2/3$, if G_2 is positive, which contradicts the initial supposition. Hence, if $1/3 < G < 2/3$, $G_1 = 1 - G$, and $G_2 = 0$, this is a possible equilibrium.

In such cases, where there is interdependence of central and lower level government choices, the issue of strategic behavior becomes important. For example, one could think of the center choosing G given the various lower level choices and the equilibrium being a fixed point of the game. Alternatively, the center could be able to precommit, knowing how the lower level governments will respond to its choices. Why should either level of government care, since they always do what the median voter wants? The answer is that higher public expenditure at your level implies a greater cut for you as the political decision maker. In the case of perfect substitutes in the above example, the interests of the two levels of government are opposed, in this respect. A gain for one is a loss for the other. This will not be the case in general and, in some cases, interests may even work in the same direction.

Representative government

A final example will illustrate another aspect of political decision-making that we have not incorporated in the above. Political support at the center depends not on direct elections, but on gaining a majority in parliament. Hence the central government may not be concerned with the median voter per se, but with gaining such a parliamentary majority. At the same time, the median voter logic still applies in this case, as we will illustrate with the next example. Therefore, consider the following modification of the first example, with separability of national and state level public good preferences. Now let there be a third state, also of the same size, but with a different income level, 1/2. Now the demand for the national public good in this poorest state is $G^d = 3b$. Hence the distribution of demands in this state is G/3 on [0, 3]. As before, we may construct the national distribution of demands for the national public good. This is given by

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[47]The use of the average here is simply because, with six individuals, the median is the average of the third and fourth individuals' demands.

$$H(G) = \begin{cases} 7G/9 & \text{on } [0, 3/4] \\ 1/3 + G/3 & \text{on } [3/4, 3/2] \\ 2/3 + G/9 & \text{on } [3/4, 3]. \end{cases}$$

If, as we assumed before, the central government directly cares about the national median voter, this is given by the demand level 9/14. However, if the objective is to win support in a majority of constituencies, the optimal choice is different. To see this, assume that each state is a single constituency. Then 9/14 will not be optimal. For example, the level 2/3, which is greater, will be preferred by majorities in the two poorer constituencies or states, in a pairwise choice versus 9/14. In fact, the optimal choice here must be G = 3/4, or the preferred level for the median voter in the median constituency.

Aside from changing the optimal level of the national public good from the point of view of the center, representative democracy has another consequence for fiscal federalism. Now the central government requires more information than it did in the case of direct democracy, where it had to know only the national distribution of demands for the centrally provided public good. Here it must be able to rank constituencies in terms of median demands for the public good, and determine what the median voter in the median constituency would most prefer. This creates a role for state governments as providers of information, and possibly as implementers of the centrally desired level of the national public good. Furthermore, if the central government can not determine what the optimal level of the national public good should be, it may wish to substitute spending by the relevant state government (where the median constituency may be located) as a way of gaining political support. This alternative, of course, would require the state and central governments to be complementary in terms of political support, which would be the case if they were composed of the same or allied political parties. This provides a rationale for intergovernmental transfers beyond the usual economic ones.

Intergovernmental transfers

So far, we have not looked at the possibility of transfers between states or levels of government. This is our next step, and the most significant one in terms of analyzing Indian fiscal federalism. The reasons for such transfers have been mentioned in section 3. Let R_l be the amount transferred to jurisdiction *l*. Then the budget constraint for the lower level government becomes:

$$c_l G_l = (t_l - k_l) I_l n_l + R_l \qquad (9)$$

If the transfer is not tied to marginal spending on the local public good, then this just serves as a lump-sum grant[48]. For example, if utility is quasilinear, there is no stimulative effect on consumption of the lower level public good. The effect of the transfer will be purely to raise private good consumption, ceteris paribus. The full effect, however, requires a consideration of the central budget constraint which becomes, with these transfers:

$$cG = (t - k)\Sigma I_l n_l - \Sigma R_l \qquad (10)$$

Again, with quasilinear utility, the equilibrium amount of the national public good is unchanged, but since the resulting tax rates are different, there is an effect on private consumption. In our earlier example 1, with two states and a continuum of preference parameters, the rich state is taxed more by the center using a proportional tax. Assuming that the collection costs are unchanged, the net result of the transfers will be no change in public good levels in any jurisdiction, but a possible redistribution from the rich state to the poor state[49]. Since total spending on public goods is unchanged, aggregate tax revenue, net of collection costs, is unchanged. However, if the central government can raise revenue more efficiently, for example if k and k_l are proportional to the respective tax rates, with k being a smaller proportion, shifting the tax burden to central taxes from state taxes has the effect of reducing

[48]This is also true even if the transfer is earmarked, except if the lower level government happens to be at the resulting kink in its budget constraint. King (1984) is a useful reference on such points.

[49]The net transfer to the poor state is $2R_1/3 - R_2/3$, which is positive as long as the rich state is not heavily favored in terms of the size of the direct transfer.

the losses to individuals from the tax collection process. If the transfers are chosen appropriately as well, it is conceivable that this arrangement could make all individuals better off than the situation where there are no transfers. This kind of situation was alluded to in section 3, in discussing rationales for intergovernmental grants.

Neglecting differences in tax collection costs, we next comment on the implications of intergovernment transfers for political support in this model. So far, we have assumed that the central government chooses only G, and is driven by political competition to choose based on the preferences of the median voter (in the median state in the case of representative democracy) with respect to G. Taxes, which finance G, are uniquely determined by G when there are no intergovernment transfers. When intergovernment transfers are introduced, this adds several dimensions to the center's decision problem. For concreteness of exposition, we shall work with the three state example introduced in the discussion of representative government.

In general, net transfers per capita resulting from intergovernment grants (which are financed by changes in central taxation) are given by

$$(11)\quad \frac{R_l}{n_l} - \frac{I_l \Sigma R_l}{\Sigma I_l n_l}\ .$$

In the example, with equal state population sizes, n, and per capita incomes of 1/2, 1 and 2, one obtains the following expressions for per capita net transfers: $(6R_1 - R_2 - R_3)/7n$, $(-2R_1 + 5R_2 - 2R_3)/7n$, and $(-4R_1 - 4R_2 + 3R_3)/7n$. These sum up to zero, of course. If we fix one of the transfers, say R_1, this leaves two degrees of freedom for the center. It can choose the other two R's to make one or two net transfers positive. If it is motivated by political support, it seems it will choose the latter course of action, benefitting two states through intergovernment transfers at the expense of the third. However, unlike in the choice of the level of the public good, there is no natural ordering of states, so there are three different sets of policies[50] in this example that will satisfy the majority preference criterion, that is, any of the subsets of two states out of the three. Note also that everyone in a given state is equally affected, in this kind of example, by the intergovernment transfers.

One way to resolve this indeterminacy is to assume that the choice of transfers will be made to agree with the choice of the level of the national public good. Recall that the best choice of G for the central government in this case is 3/4, the preferred level for the median voter in the middle income state. This is supported by majorities in the two poorer states, here labelled 1 and 2. Hence, the intergovernment transfers could be chosen so that net transfers, after accounting for taxes to finance the R's, are positive for these two states. A more complete, but considerably more complex approach would be to look jointly at central policies, that is, the vector (G, R_1, R_2, R_3) and examine what would be optimal for the center in terms of ensuring political support. This support would depend on individual utilities from the policy chosen. Alternatively one may follow Baron and Ferejohn (1989) and Baron (1993), and model agenda rules and coalition formation in the central legislature to determine the outcome[51].

In the discussion so far, we have assumed that intergovernment transfers are lump-sum, so that with quasilinear individual utilities, there is no stimulative effect on local public good consumption. Continuing with the quasilinear, separable case, we note that the center does have a way of stimulating lower level public good expenditure if it wishes. The reasons for wanting to do so could be, for example, spillovers across lower level jurisdictions that are neglected by those lower level governments. In this case, transfers may be in the form of matching grants, so that $R_l = a_l G_l$. A matching grant of this form reduces the marginal cost of local public good production, and therefore increases the equilibrium provision of local public goods.

The above model for analyzing both types of intergovernment grants can be extended to one with a more general preference structure, in which preferences over national and local public goods are not separable and utility is not linear in the private good. In that case, transfers between jurisdictions will have additional effects caused by substitution in household preferences that can either support or hinder federal government objectives. We take this up again after we have introduced influence activities into this framework.

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[50]Within each set there is further indeterminacy of the particular policy chosen. For example, vectors of transfers can be scaled up or down without affecting the majority coalition. This indeterminacy can presumably be removed by incorporating the tax collection costs, or other operating costs, in the appropriate way.

[51]Inman and Rubinfeld summarize this approach in their paper.

Influence activities

When the federal government designs transfer schemes to provide incentives for lower levels of government, the possibility arises that sub-national authorities can engage in activities to try to influence the amounts of the transfers or the formulae themselves. This is the case, as noted in our discussion above, when the central government policy makers retain discretion over at least a portion of intergovernment transfers. Milgrom and Roberts' general formulation of influence activities within an organization can be applied directly to intergovernmental transfers in a federation. Discretion at the federal level can give rise to unproductive redistributive activities by lower levels of government that can reduce or offset the gains from providing incentive schemes such as matching grant formulas. Suppose that the federal government can select either the amounts of intergovernmental transfers, R_l, or policy formula parameters, such as a_l. Because state or local government policy makers prefer receiving larger transfers from the central government so that they can provide higher levels of spending on state or local public goods, they will expend effort trying to change the federal policy. For example, we can extend the model to allow state fiscal authorities to expend effort e_l in jurisdiction l on activities that yield an increase in R_l. This can be costly, so also assume that the unit cost of producing the public good, c_l, rises with e_l, perhaps because influence activities take attention away from the management of the state government. Each local or state jurisdiction will balance the costs with the benefits of these redistributive efforts at the margin to decide how much they engage in lobbying or other types of influence activities.

To complete this framework, we need to explain how efforts of the sub-national public authorities influence the policy choices of the central government actors. A simple postulate is that the federal authorities can be successfully swayed because they receive some benefit. The returns to the public officials could be monetary, although such gains might be obtained more easily in a direct fashion[52]. The benefit could also be in the form of political support of various kinds. If the center cares about the median voter in each jurisdiction, as well as at the national level, it may need to use state or other lower level governments in this fashion, to please voters appropriately.

An embellishment of the median voter model can yield some interesting insights as to how important influence activities might be even when we ignore the possibilities for personal gain for government officials. Suppose that there is substitution between national and state public goods in the preferences of the voters in each jurisdiction and that the utility function defined over these two goods differs across jurisdictions. That is, voter preferences are given by

$$bU^l(G, G_l) + W(x_l),$$

where the distribution over the characteristic b can vary across the states. $U^l(G, G_l)$ differs in functional form across states in a way so that the median voter in each state desires a different mix between national and state public goods. In general, federal authorities can choose different policy packages consisting of national public goods spending and a set of transfers to the states (along the lines discussed earlier, when we introduced intergovernment transfers) that will meet the approval of a simple majority of the states' median voters. Different policy proposals that yield a parliamentary majority will necessarily attract a different collection of the states to the majority coalition.

Since we assume that federal authorities are self-interested, and either benefit from achieving a majority (which requires some more extensive modelling) or from payments from local authorities (a simple addition), they do not have incentives to make generous transfers to the states that do not contribute to the winning coalition of states. In fact, they only need to make transfers to the states that form the majority coalition. This implies that the median voter in each state will want the state fiscal authorities to do whatever they can, up to the limit of marginal costs equalling marginal benefits, to get into the majority. The median voter of a state that forms part of the parliamentary majority achieves a more desired national and local public goods plan. The stakes for the states in this type of model can be quite large when, as in the case of India, intergovernmental transfers provide for a large share of state public expenditures.

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[52]However, authors such as Olson and others have noted the desire for opacity rather than transparency among those engaged in such activities. M. Govinda Rao also made this point to us in conversations about the functioning of Indian fiscal federalism.

The result that emerges from this framework is that the costs of influence activities may outweigh the benefits of discretion in making transfers between the federal level and the states or across states through the federation. One solution is to remove such discretion by precommitting to amounts or formulas. This restraining of discretion might lose some of the possible benefits of such transfers if , for example, it requires imposing uniformity where variation might be efficiency-enhancing. One way to precommit that is less restrictive is to have the decisions delegated to another body that would not be as susceptible to influence. This is precisely the potential role of the Finance Commissions in India. This role has not been realized much in practice, partly because of the possible susceptibility of the Finance Commissions themselves to influence activities[53], and partly because of the details of their organizational structure. With regard to the latter, Rao (1995) suggests that a permanent secretariat, with greater transparency and continuous research, would strengthen the Finance Commission's working. This is also the substance of the final paragraph of the Tenth Finance Commission's report. These issues will also be important to consider in the setting up of the new state-level finance commissions.

6. Conclusion

In this paper we have provided an overview and analysis of Indian fiscal federalism that stresses the interaction of political and economic factors in a particular institutional environment. We have outlined a model that may be used to more precisely examine some of these factors in shaping Indian fiscal federalism and its consequences for resource allocation. The particular contribution of the model is to propose a systematic framework for analyzing the interactions between the institutions of fiscal federalism and political decision-making that can allow strategic behavior on the part of self-interested government decision makers to be explored. The model incorporates constraints imposed by a democratic polity by using a median voter framework. Governments can still act in their self-interest because they capture some of the revenues obtained through taxes or intergovernment transfers.

The presentation, in section 5, of our approach to modelling the political economy of fiscal federalism concludes with an a discussion of the consequences of influence activities pursued between levels of government in a federation. In our case, these activities are motivated by the capacity of the federal government to make interjurisdictional transfers. Our argument has two essential features: representative majority voting determines the fiscal policy of the federal government and federal fiscal authorities have some degree of discretion over public goods provision at the national level and transfers of federal revenues to the state or local governments. We argued at the outset that there is a significant degree of discretion at the federal level over both policy instruments plus the share of tax revenues that accrue to the federal government, despite appearances to the contrary. Our proposition is that the costs of discretionary policy making at the center of a fiscal federal system under representative majoritarian rule can be very large. The point that the central government will not have an incentive to make transfers to states left out of the majority-forming coalition of states relates to worries that the fiscal federalism as practiced in India may not promote national goals for equitable treatment of regions and social communities. Discretionary policy making and consequent influence activities in the majoritarian rule model can create significant losses to social welfare through the effects on allocative efficiency and on the distribution of public resources. This notion of the costs of influence activities within the organization of the fiscal policy apparatus augments other arguments that while discretion for policy makers is important for achieving allocative efficiency, it can come at the cost of encouraging rent-seeking activities.

The model and the discussion of the Indian case suggest that the implementation of a particular degree of representation, and of a particular assignment of fiscal tasks, is considerably complicated by the pressure of political motivations and influence activities. Furthermore, the fact that significant intergovernmental transfers exist in such an environment makes some aspects of assignment politically rather than constitutionally determined. The functioning of the Finance Commissions in India, and their overshadowing by the central legislature, illustrates these problems. Dealing with basic issues of tax assignment to avoid undue tax competition is potentially more straightforward than solving the broader problem of vertical fiscal imbalances and the attendant costs of influence

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[53] For example, it has been suggested to us that the home states of the Chairpersons and Secretaries of the various Finance Commissions have always done well in the Commissions' awards.

activities. This broader problem has also been present in the fiscal relations of state and lower-level governments, in some sense in a more extreme form. This has the potential to change with the passage of the 73rd and 74th amendments to the Constitution, but the same political economy factors that delayed such a movement towards decentralization may continue to play a role. Tax assignment will once again matter. To quote from the Tenth Finance Commission (1994, para. 15.13) report:

> "Panchayats and urban local bodies need to have well-defined sources of income and taxing powers. They must be encouraged to exploit them to the full, relying on transfers from above only at the margin..."

Can this be achieved? It may be that more fundamental institutional remedies such as a stronger executive, as mentioned in section 2, or other institutional checks and balances, need to be explored. These larger issues remain for future work, but it does seem that recent developments have been positive, and much can be achieved within the current institutional framework.

References

Ahmad, E., and N. Stern, "Alternative Sources of Government Revenue: Illustrations from India, 1979-80", in D. Newbery and N. Stern, eds., *The Theory of Taxation for Developing Countries*, New York: Oxford University Press, 1987.

Ahmad, E., and N. Stern, *The Theory and Practice of Tax Reform in Developing Countries*, Cambridge: Cambridge University Press, 1991.

Appelbaum, E., and E. Katz, "Seeking Rents by Setting Rents: The Political Economy of Rent Seeking", *Economic Journal*, 1987, 685-699.

Arnott, R., and R. E. Grieson, "Optimal Fiscal Policy for a State or Local Government", *Journal of Urban Economics*, 1981, 23-48.

Bajaj, J.L., and R. Viswanathan, "Financial Management in the States: Role of the Finance Commission", *Economic and Political Weekly*, October 7, 1989.

Bardhan, P., *The Political Economy of Development in India*, Oxford: Basil Blackwell, 1984.

Baron, D., "A Theory of Collective Choice for Government Programs", Research Paper No. 1240, Graduate School of Business, Stanford University.

Baron, D., and J. Ferejohn, "Bargaining in Legislatures", *American Political Science Review*, 1989, 1181-1206.

Breton, A., and A. Scott, *The Economic Constitution of Federal States*, Toronto: Toronto University Press, 1978.

Calvert, R.L., *Models of Imperfect Information in Politics*, Fundamentals of Pure and Applied Economics 6, Chur, Switzerland: Harwood Academic Publishers

Chelliah, R.J., M. G. Rao, and T. K. Sen, "Issues Before Tenth Finance Commission", *Economic and Political Weekly*, November 21, 1992.

Choudhury, U.D.R., "Inter-State and Intra-State Variations in Economic Development and Standard of Living", *Economic and Political Weekly*, December 5-12, 1992.

Datta, Abhijit, *Municipal Finances in India,* New Delhi: Indian Institute of Public Administration, 1984.

Finance Commission, *Report for 1995-2000*, Government of India: New Delhi, 1994.

Gaur, A. K., *Federal Finance in India: Emerging Trends*, New Delhi: Deep & Deep Publications, 1988.

Gordon, R.H., "An Optimal Taxation Approach to Fiscal Federalism", *Quarterly Journal of Economics*, 1983, 567-586.

Guhan, S., "Issues before the Ninth Finance Commission: On Closing the Pandora's Box", *Economic and Political Weekly,* February 6, 1988.

Guhan, S., "The Norm and the Tilt: First Report of the Finance Commission", *Economic and Political Weekly*, January 14, 1989.

Gurumurthi, S., "Towards an Alternative System of Tax-Sharing", *Economic and Political Weekly*, March 20, 1993.

Inman, R.P., and D.L. Rubinfeld, "The Political Economy of Federalism", processed, University of California at Berkeley and Pennsylvania University, June 1994.

Jetha, N., "Financing Urban Service in India: Selected Issues", processed, World Bank, 1992.

Kanbur, S.M.R., and G.D. Myles, "Policy Choice and Political Constraints", *European Journal of Political Economy*, 1993, 1-29.

King, D.N., *Fiscal Tiers: The Economics of Multi-Level Government*, London: George Allen & Unwin, 1984.

Kohli, I., *Three Essays on International Trade Policy and Political Economy*, Ph.D. dissertation, University of California, Berkeley, 1992.

Krueger, A.O., "The Political Economy of the Rent Seeking Society", *American Economic Review*, 1974, 291-303.

Lindbeck, A., and J.W. Weibull, "A Model of Political Equilibrium in a Representative Democracy", *Journal of Public Economics*, 1993, 195-209.

Milgrom, P., "Employment Contracts, Influence Activities, and Efficient Organization Design", *Journal of Political Economy*, 1988, 42-60.

Milgrom, P., and J. Roberts, "An Economic Approach to Influence Activities in Organizations", *American Journal of Sociology*, 1988, Supplement, S154-S179.

Milgrom, P., and J. Roberts, "The Efficiency of Equity in Organizational Decision Processes", *American Economic Review*, Papers and Proceedings, 1990, 154-159.

Milgrom, P., and J. Roberts, "Bargaining Costs, Influence Costs, and the Organization of Economic Activity", in J. Alt and K. Shepsle, eds., *Perspectives on Positive Political Economy*, Cambridge: Cambridge University Press, 1990.

Murty, M.N., and R. Ray, "Fiscal Federalism and Optimal Commodity Taxes: A Comparison of Centralised and Decentralised Decisions", Working Paper No. E/147/90, Institur\te of Economic Growth, Delhi, November, 1990.

Musgrave, R.A., *The Theory of Public Finance*, New York: McGraw Hill, 1959.

Musgrave, R.A., "Who Should Tax, Where and What?", in C. McLure, ed., *Tax Assignment in Federal Countries*, Canberra: Australian National University Press, 1983, 2-19.

Oates, W., "Principles of Fiscal Federalism: A Survey of Recent Theoretical and Empirical Research", IRIS Working Paper No. 21, University of Maryland, College Park, 1991.

Olson, M., *The Logic of Collective Action*, Cambridge, Mass.: Harvard University Press, 1971.

Olson, M., "Toward a More General Theory of Governmental Structure", *American Economic Review*, May 1986.

Panigrahi, D.D., *Centre-State Financial Relations in India*, New Delhi: Vikas Publishing, 1985.

Persson, T., and G. Tabellini, "Federal Fiscal Constitutions, Part I: Risk Sharing and Moral Hazard", processed, Institute for International Economic Studies, Stockholm, July 1992.

Purohit, M.C., "Adoption of Value Added Tax in India: Problems and Prospects", *Economic and Political Weekly*, March 6, 1993.

Ramalingom, R., and K.N. Kurup, "Plan Transfers to States: Revised Gadgil Formula, An Analysis", *Economic and Political Weekly*, March 2, 1991.

Rao, M.G., *Political Economy of Tax and Expenditure Determination: A Case Study of Four Indian States*, New Delhi: Allied Publisheres, 1981.

Rao, M.G., "Some Conceptual and Methodological Comments: Ninth Finance Commission's Award", *Economic and Political Weekly*, June 9, 1990.

Rao, M.G., "Indian Fiscal Federalism from a Comparative Perspective", processed, National Institute of Public Finance and Policy, New Delhi, 1993.

Rao, M.G., "Intergovernment Transfers in India", processed, paper presented at Conference on Fiscal Transfer Systems, Qingdao, China, July 25-29, 1994.

Rao, M.G., "Fiscal Federalism in India: Problems and Prospects", this volume, 1995.

Rao, M.G., and R.J. Chelliah, "Survey of Research on Fiscal Federalism in India", processed, National Institue of Public Finance and Policy, New Delhi, August 1990.

Rao, M.G., and A. Das-Gupta, "Inter-governmental Transfers as an Instrument to Alleviate Poverty", processed, National Institute of Public finance and Policy", New Delhi, April 1993.

Rao, M.G., and M.R. Narayana, "Fiscal Reforms and the Role of Sub-Central Governments", processed, National Institute of Public Finance and Policy, New Delhi, 1994.

Rao, M.G., and T.K. Sen, "Government Expenditure in India: Level Growth and Composition", processed, National Institute of Public Finance and Policy, New Delhi, August 1993.

Rao, M.G., and V.B. Tulsidhar, "Public Expenditure in India: Emerging Trends", National Institute of Public Finance and Policy, Working Paper No. 5, New Delhi, June 1991.

Rao, M.G., and F. Vaillancourt, "Subnational Tax Disharmony in India: A Comparative Perspective", processed, National Institute of Public Finance and Policy, New Delhi, 1993.

Singh, A. K., *Finance Commissions in India*, Allahbad: Chugh Publications, 1987.

Singh, B. P., *Fiscal Transfers: A Study of Finance Commissions in India*, Delhi: Amar Prakashan, 1988.

Singh, N., "Governance and Reform in India", *Journal of International Trade and Economic Development*, forthcoming, 1996.

Thakur, R., *Finance Commissions and Centre-State Relations in India*, New Delhi: Deep & Deep Publications, 1989.

Tiebout, C., "A Pure Theory of Local Expenditures", *Journal of Political Economy*, 1956, 416-424.

Tullock, G., "The Welfare Costs of Tariffs, Monopolies, and Theft", *Western Economic Journal*, 1967, 224-232.

Toye, J., *Public Expenditure and Indian Development Policy*, Cambridge: Cambridge University Press, 1981.

Velasco, A., "A Model of Fiscal Deficits and Delayed Fiscal Reforms", Research Report #92-06, C.V. Starr Center for Applied Economics, New York University, January 1992.

Viswanathan, R., "Enforcing Fiscal Discipline: Ninth Finance Commission's Award", *Economic and Political Weekly*, June 9, 1990.

Wildasin, D.E., "The Welfare Effects of Intergovernment Grants in an Economy with Independent Jurisdictions", *Journal of Urban Economics,* 1983, 147-164.

Wildasin, D.E., "The Welfare Effects of Intergovernmental Grants in an Economy with Distortionary Local Taxes", *Journal of Public Economics*, 1984, 103-125.

Wildasin, D.E., *Urban Public Finance,* New York: Harwood Academic Publishers, 1986.

World Bank, *World Development Report,* New York: Oxford University Press, 1988.

World Bank, *India: Recent Developments and Medium-Term Issues,* Washington D.C.: The World Bank, 1989.