

**INTERGOVERNMENTAL TRANSFERS:
RATIONALE, DESIGN AND INDIAN EXPERIENCE ***

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Abstract

Intergovernmental transfers have been employed in all federations to achieve a variety of political and economic objectives. However, an emphasis on economic objectives helps to focus the analysis on the ideal design of the transfer schemes and the departures from this can then be analysed in terms of various non-economic (political) objectives. In this paper, we present the economic rationale for transfers, analyse their appropriate design to fulfil the stated economic objectives and, within this conceptual framework, evaluate some aspects of the prevailing transfer systems in India. We highlight some of the vertical and horizontal fiscal imbalances in the Indian federal system, and discuss how a transfer system might deal with them.

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Intergovernmental transfers have been employed in all federations to achieve a variety of political and economic objectives. In the political realm, transfers in many federal countries have performed a nation-building role. In other words, they have been an important instrument for the central government to keep the country together, enable sub-central units to pursue their own goals, and yet influence their priorities through conditionalities. Often, the central government has employed intergovernmental transfers to influence the pattern of spending of sub-central governments or to implement its expenditure plans through sub-central governments, using them as agencies. In the economic sphere transfers have been employed as a potent instrument to resolve imbalances in revenues and expenditures between different levels of government (vertical) and among different units within each of the levels (horizontal), to establish fiscal equity among individuals or regions, or to offset inter-jurisdictional spillovers.

A large part of the literature on intergovernmental transfers deals with their economic rationale. In this, it is presumed that economic objectives are the sole consideration for determining the quantum of transfers and the design of transfer systems. Of course, even economic objectives have political undertones and in actual practice, the volume and the distribution of transfers to a large extent reflect political compromises, and they are designed to subserve a host of political objectives. However, an emphasis on economic objectives helps to focus the analysis on the ideal design of the transfer schemes and the departures from this can then be analysed in terms of various non-economic (political) objectives.

In this paper, we present the economic rationale for transfers, analyse their appropriate design to fulfil the stated economic objectives and, within this conceptual framework, evaluate some aspects of the prevailing transfer systems in India. The paper is organized as follows. Section I begins by discussing the role of intergovernmental transfers in offsetting fiscal imbalances, particularly “vertical” imbalances between the center and subnational (state) governments. We continue the section with a consideration of “horizontal” imbalances, that is, imbalances across states, and of the role of transfers from the center in reducing fiscal inequalities across states. In both cases, vertical and horizontal, we provide data on the nature of such imbalances for the Indian case. In section I we also briefly discuss correcting spillovers and competitive equality goals as reasons for transfers. Section II considers the design of transfer schemes in the light of our analysis of section I, while section III provides a conclusion.

I Intergovernmental Transfers: Economic Rationale

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

I.a Intergovernmental Transfers to Offset Fiscal Imbalances

An important reason for giving transfers arises from fiscal imbalances or mismatch between revenues and expenditures of different governmental units. Fiscal imbalances can be “vertical” or “horizontal”. “Vertical fiscal imbalance” refers to the difference between expenditures and revenues at different levels of government, and “horizontal fiscal imbalance” refers to the differences between revenue and expenditure levels within a particular level of government. Although these two concepts are identifiable by themselves, they are, except under very special circumstances, related.

I.a (i) Vertical fiscal imbalances

Vertical fiscal imbalances are a feature common to all multilevel governmental systems. Even when assignments of functional responsibilities and revenue powers are efficient, imbalances are bound to occur. This is because the efficient expenditure assignment does not typically match with the efficient tax assignment. The central government has a comparative advantage in raising revenues and monitoring intergovernmental competition to control “free-riding” whereas sub-central governments are better placed to provide public services efficiently corresponding to varying preferences of people of different jurisdictions (Breton, 1987, 1996). Therefore, assignments according to comparative advantage necessarily result in vertical fiscal imbalance. Of course, actual assignments are the result of many non-economic considerations and these can contribute to vertical fiscal imbalances as well. Vertical fiscal imbalances can also be caused by factors other than assignments. At the sub-national level, intergovernmental tax competition can result in lower tax rates, but competition to provide public services can enhance expenditure levels, thereby accentuating vertical fiscal imbalance. In addition, variations in fiscal management in terms of tax effort and expenditure economy among different levels of government can also contribute to the degree of vertical fiscal imbalance.

Several measures of vertical fiscal imbalance have been suggested to indicate the degree of fiscal dependence of sub-national governments on the central government to finance their expenditures. In other words, these measures show the share of expenditures by sub-national governments actually financed from their independent sources of revenue. Thus, Hunter (1977) has three alternative measures of a ‘coefficient of vertical balance’, depending upon three different concepts of independent revenue

sources of sub-national governments¹. In the first, only the sub-national governments' own revenues are taken, the second also includes shared taxes, and the third includes both shared taxes and unconditional grants in addition to own revenues.

Although the concept is intuitively clear, numerical measurement of the coefficient of vertical fiscal imbalance and its comparison across different countries is problematic, because it is difficult to judge the degree of independence of various sources of revenue in different countries. For example, some types of tax revenue collected by a state government might be subject to restrictions on the base and rates imposed by the higher level government. Nor are any of the measures of vertical fiscal imbalance independent of the nature of fiscal management of governmental units. In other words, the vertical fiscal imbalance will be higher if sub-national levels put in lower tax effort or indulge in fiscal profligacy or, conversely, if there is higher tax effort and better fiscal management at the center. As noted by Bird (1986, p. 402), there is "...no useful shortcut by which analysts can avoid the painstaking work really needed to understand the federal fiscal system of any one country".²

I.a (ii) Vertical fiscal imbalance in India

In this paper, we measure vertical fiscal imbalance in India by taking only the own revenues in the current account as their independent revenue source. The analysis shows a clearly increasing trend in vertical fiscal imbalances. Thus, the ability of the states to finance their current expenditures from their own sources of revenues has shown a decline from 69 per cent in 1955-56 to about 55 per cent in 1993-94 (Table 1). Interestingly, during this period, the states' shares of current expenditures as well as current revenues have remained more or less constant and yet, the measure of vertical balance shows a decline. This apparent paradox is due to the fact that an increasing proportion of expenditure of central and state governments over the years has been financed from borrowing. Thus, the declining share of the states' own revenues to their current expenditures shown in column 4 actually reflects an increasing tendency to divert capital receipts to meet current expenditures. As the states do not have much manoeuvrability with regard to capital receipts, this indicates increasing vertical imbalance.³

Increasing centralisation and imbalance are not entirely reflected in the quantitative indicators. The states' control over expenditure decisions has eroded also because the expenditure component of specific purpose, matching transfers for Central Sector and

1. Thus, Hunter's measures of coefficient of vertical fiscal imbalance can be shown as: $V = 1 - G/E$, where, V is the coefficient of vertical balance, G is the amount of State expenditures determined by the central government and E is the total state expenditures.

2. For a critical assessment of the coefficient of vertical fiscal imbalance see, Thimmaiah (1976)

3 According to Article 293 of the Constitution, if the states are indebted to the centre, they have to seek the permission of the latter to borrow from the market. As all the States are indebted to the centre, the amount each state can borrow from the market is decided by the Union Finance Ministry in consultation with the Planning Commission and Reserve Bank of India. Thus the states have no manoeuvrability to determine either the central loans or the market borrowing.

Centrally Sponsored Schemes in total state expenditures have increased⁴. Thus, the proportion of specific purpose transfers in total transfers increased from 12 per cent in the fifth Plan (1969-74) to 18 per cent in the seventh Plan (1985-90) and now, almost 15 per cent of states' expenditures are on these schemes, up from about nine per cent in the fifth

Table 1
Trends in Vertical Fiscal Imbalance

Period	Per cent of States' own current revenues to total current revenues	Per cent of States current expenditure to total current expenditure	Per cent of States' own current revenues to States' current expenditure	Per cent of States' expenditure* to total expenditure*
1955-56	41.2	59.0	68.9	61.7
1960-61	36.6	59.9	63.9	56.8
1965-66	32.6	55.6	63.5	53.3
1970-71	35.5	60.2	60.6	53.9
1975-76	33.5	55.1	70.4	47.6
1980-81	35.6	59.6	60.1	56.0
1985-86	35.5	56.0	57.7	52.6
1990-91	36.6	55.2	53.5	53.1
1991-92	37.6	58.3	54.8	56.2
1992-93	36.6	57.9	53.7	55.1
1993-94	39.6	57.5	55.3	54.7
1994-95 (RE)	41.1	58.3	57.1	57.5

* Current + capital expenditures, RE Revised Estimates

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

4. It should be noted that the transfers referred to above amounted to more than 17 per cent of the total current transfers from the Center to the States in 1992-93, and thus are not insignificant quantitatively.

Plan period. Such transfers not only change the expenditure priorities of the states in the short run, but also have an effect in the longer term, when transfers under the schemes are no more available, as the states get locked into many such centrally initiated schemes.

While there is clear evidence of increasing vertical fiscal imbalance in Indian federalism, that by itself would not justify intergovernmental transfers. In fact, the vertical fiscal imbalance rationale for intergovernmental transfers is tautological because the growth of the vertical fiscal imbalance itself could be due to (i) increases in revenue capacity at the state level lagging growing expenditure needs; and (ii) slack fiscal management at the state level resulting in lower tax effort and increased expenditure profligacy. Further, giving transfers to fill the gaps between actual revenues and expenditures of the states can also create serious disincentives for states' fiscal management.

I.b (i) Horizontal Fiscal Imbalance

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

Horizontal fiscal imbalances can arise due to revenue or expenditure differences between the states. Revenue differences can be due to either differences in fiscal capacity or in effort. Similarly, expenditure differences between states may be due to differences in the quantity or quality of public services provided or differences in the unit cost. Again, cost differences can be due to factors beyond the control of the states or due to differences in fiscal management.

Table 2 presents differences in per capita incomes, revenues and expenditures as well as poverty levels among the 25 states in the Indian federation. To facilitate meaningful comparisons the states have been classified first in terms of 15 relatively homogeneous ones and 10 ‘Special Category’ states (seven North-Eastern States, Sikkim, Jammu & Kashmir and Himachal Pradesh). The former are again classified into high income, middle income and low income categories.

The differences in revenues and expenditures presented in Table 2 bring out a number of features. First, there are wide variations in revenues between different categories of states as well as among the states within each of the categories, both in per capita terms, and as a ratio of Net State Domestic Product (SDP) . Second, these variations indicate both inter-state differences in revenue capacity and in efforts to raise revenues. Thus, it is seen that the variation in per capita taxes is much higher than that of

Table 2: Revenues and Expenditures of the States - 1993-94

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

Note: SDP = State Domestic Product.

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

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

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

per capita SDP. Among the general category states, the richest state (Punjab) has 3.4 times the per capita income of the poorest state (Bihar), but the state with the highest per capita taxes (Maharashtra) has 5.8 times the per capita taxes of Bihar. It is also seen that some of the richer states have revenue - SDP ratios lower than middle and low income states in spite of the fact that the richer states have an advantage in exporting the tax burden to poorer states, as argued in Rao and Singh (1998a).

Third, per capita expenditure variations among the general category states, if the small state of Goa is excluded⁵ are lower than the variations in per capita SDP. Fourth, the tax-SDP ratios in the special category states is lower than in the general category states in spite of their higher per capita SDP. This is partly because in these states the size of the tax base is not reflected in SDP as it is derived mainly from government administration. Fifth, although per capita revenue bases in special category states were lower than the average by 25 per cent, their per capita expenditures were higher on an average by almost 67 per cent⁶. Finally, generally, the fiscal dependence of the states on the centre was not only high, but also varied inversely with per capita SDP.

An important consequence of the horizontal imbalances is the skewed distribution of social and physical infrastructure among the states. The richer states due to their higher ability to raise resources were able to incur higher expenditures on social and economic services. Consequently, the composite index of infrastructure computed by the CMIE was higher than the average by 22 per cent for high income states and lower than the average by about 10 per cent for low income states (Table 3). A similar pattern is seen in the case of the infrastructure index estimated by Anant, Krishna and Roy Chaudhry (1994) for the Tenth Finance Commission as well as a human development index (HDI) estimated by Prabhu and Chatterjee (1993). The correlation coefficients of per capita SDP with the two infrastructure indices and the human development index are estimated at which are significant at the one per cent level.

Wide inter-state disparities and horizontal imbalances existed when the country achieved independence and historical factors, particularly the land tenure system and the pattern of development of infrastructure, have been important in determining them. However, ironically, in spite of over four decades of planning and repeated rhetoric on “balanced regional development”, inter-state disparities in India have increased. As may be seen from Table 4, the coefficients of variation in per capita SDP as well as per capita revenues increased over the period, 1975-76 to 1993-94 and, as equalizing federal transfers did not entirely offset the increase in the variations in per capita revenues, the coefficients of variation in per capita expenditures, particularly capital expenditures have increased, though not in a smooth trend.

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

6 The higher than average per capita expenditures in special category states should be attributed largely to their cost disabilities, though this can also be due to their poor fiscal management.

Table 3

Inter-State Disparities in Level of Development in Major States				
States	Index of Per Capita SDP-1994-95	CMIE Infrastructure Index-1993-94	Tenth Finance Commission Infrastructure Index-1990-91	Human Development Index
High Income States				
Gujarat	113.9	122.4	123.0	156.2
Haryana	130.9	141.3	158.9	171.8
Maharashtra	141.2	107.0	121.7	184.2
Punjab	152.8	191.4	219.2	204.3
Average - High Income States	134.4	125.5	138.5	178.1
Middle Income States				
Andhra Pradesh	77.1	96.1	99.2	97.3
Karnataka	87.0	96.9	101.2	136.7
Kerala	75.2	157.1	205.4	222.0
Tamil Nadu	96.3	144.0	149.9	139.6
West Bengal	74.1	94.2	131.7	119.6
Average - Middle Income States	81.8	112.4	130.2	132.2
Low Income States				
Bihar	41.0	81.1	92.0	38.2
Madhya Pradesh	63.0	75.3	65.9	53.3
Orissa	55.5	97.0	74.5	61.1
Rajasthan	56.2	83.0	70.5	65.7
Uttar Pradesh	57.4	103.3	111.8	31.3
Average - Low Income States	54.2	90.0	90.7	43.6
All Major States	100.0	100.0	100.0*	100.0

* Refers to all States including special category States.

Source; Columns 2 and 3 are taken from Profile of States, CMIE, March, 1997. Column 4 is taken from Report of the Tenth Finance Commission, Ministry of Finance, Government of India, 1994. Column 5 is taken from Prabhu and Chatterjee (1993).

Table 4: Coefficients of Variation in Per Capita State Government Expenditures

(Per cent)					
Expenditure/SDP Items	1975-76	1980-81	1985-86	1990-91	1993-94
General administration	23.4	21.9	25.0	29.3	31.1
Education	32.9	31.7	26.4	20.3	26.9
Health	28.8	24.3	27.6	25.8	22.6
Total social services	35.2	29.6	31.1	26.0	24.7
Total economic services	37.4	34.0	41.0	36.7	31.6
Total current expenditure	26.0	23.5	24.8	23.2	27.1
Total capital expenditure	38.7	28.1	54.3	40.2	43.1
Total expenditure	26.6	23.0	28.3	24.2	28.1
Total Per Capita Net State Domestic Product	29.9	31.7	31.7	34.1	36.2

Source: Budget Documents of State Governments (Relevant years)

While persistent horizontal imbalances do indeed lead to a skewed distribution of infrastructure and an accentuation of inter-state inequalities in income levels, they can not, by themselves, provide a rationale for intergovernmental transfers. This is because, like vertical fiscal imbalances, horizontal fiscal imbalances are not exogenous to the states' fiscal management. In other words, a revenue - expenditure mismatch in the states can occur not only because they have a poor resource base and/or their expenditure requirements are large, but also because their fiscal management, both in terms of effort at mobilising revenues and of exercising economy in spending, is unsatisfactory.

I.b (ii) Fiscal Equity Arguments for Intergovernmental Transfers

The argument for intergovernmental transfers on equity grounds has been made either in terms of ensuring horizontal equity of individuals across the states, or simply of ensuring inter-regional equity (Musgrave, 1962). Both the approaches build a case for unconditional or general purpose transfers from the centre to the states on a progressive scale so as to offset the fiscal disabilities arising from low revenue capacity and high expenditure needs. In the literature, the efficiency and growth implications of equitable transfers have also been discussed at considerable length, though the issue of efficiency

vs. equity consequences of intergovernmental transfers has never been satisfactorily resolved. (Scott, 1964, Wiseman, 1992).

The natural starting point for this analysis is the horizontal equity rationale for federal transfers (Boadway and Flatters, 1982, Buchanan, 1952, Bradbury et. al., 1984). The horizontal equity criterion postulates that two persons equally well off before the introduction of the fiscal system should also be so afterwards. Taking comprehensive income which includes current private consumption, net accretion to wealth and current benefits from the public services as the index of well-being, it has been shown that, even when the fiscal systems of the center and individual states treat equals on an equal footing, nation-wide horizontal equity may be violated. This is because fiscal activities of state governments result in differential net fiscal benefits (NFB)⁷ to individual equals and the central income tax as is presently structured cannot take account of the real income from differential NFBs. Thus, even when the states levy proportional income taxes at uniform *rates*, the revenue *collections* and therefore, *per capita* expenditures in richer states will be higher, and if public services are assumed to be a perfect substitute for private goods, the residents in these states will get higher benefits from public services for the same tax rate payment⁸.

The differences in NFBs arise from the fact that the states cannot levy benefit taxes. Specifically, ‘free-riding’ behavior among the states induces them to levy resource based taxes or origin based consumption taxes and this can cause significant inter-state tax exportation. The ability to export taxes differs among the states causing significant differences in NFBs. In addition, the states may have their own redistributive policies and this too can cause variations in NFBs. Variations in NFBs can also arise when the services provided by the states have ‘public good’ characteristics⁹. In these cases, equalization of NFBs would either call for discriminating central tax rates, which may not be feasible, or giving equalization grants to poorer states.

According to Boadway and Flatters (1983), the degree of equalization depends on the view one takes on horizontal equity. They define horizontal equity in two alternative ways. According to the *broad* view, the fiscal system should be equitable nation-wide vis-à-vis the action of all governments and two persons equally well off before federal and states’ action must also be so afterwards. To fulfil this concept of horizontal equity,

7 NFB in a state is measured as per capita expenditure incurred by the state minus per capita taxes collected by it.

8 This implies two things. First, the state government provides completely a private good and second, the productivity of the state government is equivalent to that of the private sector. In other words, the state government merely replaces the private sector in providing the service. However, the argument is strengthened when the services provided by the state governments have public good elements as the larger *total* outlay (as against *per capita* outlay) will yield higher benefits because of the nonrival nature of the benefits because of the non-rival nature of the benefits.

9 The level of public services (g) depends on “congestion” technology : $g_p = G_p/L_p^\alpha$, where G_p is the public expenditure, L_p is the number of residents, and α is the congestion elasticity, bounded between 0 in the case of pure public goods and 1 in the case of pure private goods. *Ceteris paribus*, the lower the value of α , the higher is the value of g_p and therefore, NFB.

it is necessary to give transfers so that each province is enabled to provide the same level of public services at a given tax rate or, as in a unitary government system, the NFBs in the two states should be completely equalized. Full equalization of NFBs is also justifiable on efficiency grounds because differences in NFBs due to inter-state tax exportation or redistributive policies of the state governments affect migration decisions and prevent the marginal productivity of labor from being equalized among different provinces. Thus, equalization payments are called for on grounds of both equity and efficiency¹⁰.

In contrast, the *narrow* view of horizontal equity takes the actions of state governments as a given datum. In this scheme, central fiscal action will be directed to ensure horizontal equity after the state fiscal system has been established. Two persons equally well off after the state budgets should be equally well off after the central government fiscal activity. The central budget need not offset the inequities introduced by the operation of the state budgets *per se*, but take account of the income distributional effects of the states' fiscal operations (Boadway and Flatters, 1982, p. 20).

Boadway and Flatters (1982) present equity arguments for intergovernmental transfers in a formal stylized model of the economic system with a number of simplifying assumptions. For simplicity, a federation is assumed with two states. It is also assumed that income is generated from labor, land and capital. Labor is assumed to be mobile within states but immobile between them. Capital, on the other hand is assumed to be mobile between the states. The states levy three kinds of taxes: a "residence based" proportional income tax on all incomes, and "source based" taxes on capital income and land rents. The taxes collected by the states are used entirely to provide public services of a private nature only to residents. Prices are assumed to be identical in the two states. All persons in a state are identical. The real income of a resident in state A after state taxes and expenditures will be:

$$\begin{aligned}
 Y_a = & W_a (1 - t_y^a) \\
 & + (1 - t_y^a) \{ \theta_a [r_a (1 - t_k^a) K_a + r_b (1 - t_k^b) K_b] + \sigma_{aa} s_a (1 - t_n^a) N_a + \sigma_{ab} s_b (1 - t_n^b) N_b \} \\
 & + P_a / L_a \dots\dots\dots(1)
 \end{aligned}$$

where, W_a , r_a , s_a , respectively are factor payments for labor, capital and land, t_y^a , t_k^a , t_n^a are tax rates on wages, capital and land in state A (and similarly superscript b for state B), L_a , K_a , N_a are equilibrium quantities of labor, capital and land; θ_a , is the share of nation's capital stock owned by each resident in A; σ_{aa} and σ_{ab} are the resident's share of land ownership in A and B, respectively and P_a is total state expenditures. The first line represents a resident's net of state tax real income from wages, the second line represents income from capital and land and the third, from state government expenditures.

10 For a detailed examination of efficiency implications of horizontal equity transfers, see Courchene (1989).

Assuming that the state budget is balanced, the real income of the resident of A from state government expenditure will be:

$$P_a / L_a = t_y^a \{ W_a + \theta_a [r_a (1 - t_k^a) K_a + r_b (1 - t_k^b) K_b] + [\sigma_{aa} s_a (1 - t_n^a) N_a + \sigma_{ab} s_b (1 - t_n^b) N_b] \} \\ + t_k^a r_a K_a / L_a + t_n^a s_a N_a / L_a \dots\dots\dots(2)$$

Substituting (2) in (1) we have:

$$Y_a = W_a (1 - t_y^a) \\ + (1 - t_y^a) \{ \theta_a [r_a (1 - t_k^a) K_a + r_b (1 - t_k^b) K_b] + \sigma_{aa} s_a (1 - t_n^a) N_a + \sigma_{ab} s_b (1 - t_n^b) N_b \} \\ + t_y^a \{ W_a + \theta_a [r_a (1 - t_k^a) K_a + r_b (1 - t_k^b) K_b] + [\sigma_{aa} s_a (1 - t_n^a) N_a + \sigma_{ab} s_b (1 - t_n^b) N_b] \} \\ + t_k^a r_a K_a / L_a + t_n^a s_a N_a / L_a \dots\dots\dots(3)$$

In the equation the third and the fourth lines represent consumption of public services provided by the states. The third line represents the amount financed from residence based income taxes and the fourth, the amount financed from source based taxes. Simplifying (3) gives:

$$Y_a = W_a + \theta_a [r_a (1 - t_k^a) K_a + r_b (1 - t_k^b) K_b] + \sigma_{aa} s_a (1 - t_n^a) N_a + \sigma_{ab} s_b (1 - t_n^b) N_b \\ + t_k^a r_a K_a / L_a + t_n^a s_a N_a / L_a \dots\dots\dots(4)$$

A similar expression would hold for any resident of state B.

The central income tax as presently structured will tax only wage and property income and not the real income accruing to residents in the form of higher public expenditures due to source based taxes collected by the states from non residents. For the same reason, such source based taxes or state taxes on resource rents prevent the attainment of horizontal equity because central taxes are paid only on market income and not real income which includes state spending on public services financed from source based taxes. Similarly, when we relax the assumption of identical individuals, the redistribution from the states' budgetary activity will cause the NFBs to differ across the states, and this cannot be captured in the prevailing structure of the central income tax. The simplest example is to consider the typical case of individuals within a state receiving equal benefits from a state's public expenditures financed by a proportional income tax. When the income levels in the two states are different, a person who is otherwise equal residing in a higher income state would have a higher NFB than the one residing in a lower income state.

So far we have restricted our analysis to the case in which the states levy only personal income tax or taxes on factor incomes at source. Instead, when the states get

revenue from indirect taxes, the equity case depends on the degree to which the taxes are shifted forward in terms of higher prices and the proportion of the taxes shifted forward to non-residents. If market imperfections cause a significant degree of forward shifting of the indirect taxes, and if the tax is predominantly origin based, it is reasonable to expect that a significant portion of the taxes collected by a state would be exported to non-residents. The equity case thus depends on the degree of shifting of the tax burden to non-residents through inter-state tax exportation.

The preceding analysis assumes that the functioning of the states' fiscal system is the only source of inequity and inefficiency. In economies where many prices and outputs are determined or regulated by government policies rather than by the market mechanism, there can be other sources of inequity. Often, these invisible sources of inequity can be very significant, and as the intergovernmental transfer system fails to offset them, the inequities and inefficiencies in such federations continue to persist. An obvious source of inter-state variations in NFBs in developing countries is the subsidized loans given to the states by either the central government or the public sector financial and banking system. Such implicit transfers may create further inequities and the transfer system in such cases has the additional task of offsetting them. We discuss these issues further in Rao and Singh (1998b).

While the horizontal equity argument for intergovernmental transfers is intuitively appealing, it is possible to argue that these are neither necessary nor are they sufficient to establish horizontal equity. It must be noted that fiscal actions of the sub-national governments violate horizontal equity only when they undertake redistribution. If the sub-national governments levy simply benefit taxes, the NFBs will be identical across jurisdictions and therefore, intergovernmental transfers are not *necessary*. This, however does not mean that equals in different jurisdictions are placed at the same *welfare* level. Individuals with identical incomes (including benefits from public services) can be at different welfare levels depending on their preferences for public vis a vis private goods. Transfers are not *sufficient* to ensure horizontal equity because, they only ensure *potential* and not *actual* equality of equals. (Musgrave, 1962).

I.c Intergovernmental transfers to correct spillovers

In the mainstream literature, intergovernmental transfers are seen as a device to resolve the problem of mismatch between benefit spans from various hierarchies of public goods and exogenously given spatial jurisdictional domains. When the benefits of public services provided by a state spill over its jurisdiction, the state ignores the benefits accruing to the non-residents while deciding the amount of the service provided. The jurisdiction equates the marginal benefits from the public service with the marginal cost of providing it, and as it ignores the part of the benefit accruing to non-residents the result is non-optimal provision of the public service. Optimal provision of the service in question can be ensured through Coasian bribes or voluntary action of the jurisdictions to compensate for the spillovers (Gramlich, 1993). However, such solutions are infeasible and therefore, spillovers have to be arbitrated through central grants akin to 'Pigovian' subsidies to offset the spillovers. These transfers must necessarily be specific-purpose,

requiring matching contributions from the states and the exact matching rate should depend upon the size of spillovers. This implies that the matching rate should vary with the degree of externality generated by various public services. Further, a uniform rate of matching transfers would have non-uniform responsiveness in different states depending on their level of development, as complete equalization in fiscal capacities is never achieved in any federation. This calls for varying the matching rates itself in favour of the poorer states (Feldstein, 1975; Rao and Dasgupta, 1994).

I.d Intergovernmental transfers to ensure competitive equality

The competitive federalism literature (Breton, 1996), however, brings out three basic assumptions of the welfare economics guided spillover rationale for intergovernmental transfers. First, the existence of a body that would correctly decide the division of powers. As the division of powers is exogenously given, we simply ignore the motivation for the existence of spillovers, but simply concentrate on its effects. Second, an omniscient central government which can assess and accurately estimate inter-state spillovers and make intergovernmental transfers based thereon. If indeed the central government is omniscient, then it would probably be preferable to have it provide such public services rather than design the grants to the states corresponding to the degree of spillovers. Finally, the model assumes away any role for intergovernmental competition in determining the division of functions or jurisdictional tiers altogether.

If the existence of vertical and horizontal intergovernmental competition is recognized, both assignments and intergovernmental transfers may be seen as outcomes of competition rather than decided exogenously. Competition, as discussed in Rao and Singh (1998a), results in a vertical imbalance because the higher levels of government have a comparative advantage in collecting revenues and lower level governmental units have a comparative advantage in spending. The higher level governments are relatively better placed to minimize tax avoidance and evasion due to the mobility of tax bases, lower cost of assessing their size and ability to stand political pressures (Breton, 1996), and this results in revenue centralization. The lower governmental units have a cost advantage in obtaining information on demand for most of the services, particularly the congestible services. This would necessitate intergovernmental flow of funds or “revenue payments” (Breton, 1996, p. 258).

In addition to these “revenue payments”, the central government has to give unconditional grants to “stabilize” horizontal competition as well. Besides providing the public services in which it has a comparative advantage, the central government has the responsibility of monitoring both vertical and horizontal competition and a major task of monitoring is to secure stability. Instability in competition may be caused by the fact that individual rationality differs from collective rationality. Thus, it is perfectly rational for an individual sub-national jurisdiction to resort to beggar-thy-neighbor policies through measures like predatory pricing of goods and services, exportation of tax bases, dumping externalities, erection of trade barriers and incentives to attract capital flows. When there are significant differences in the ability of the jurisdictions to compete, the stronger ones can dominate the weaker jurisdictions.

The central government can employ a variety of instruments to secure stability in horizontal competition. Setting the rules through the use of prohibitions and standards, helps to prevent beggar-thy-neighbor policies. The regional policies help to achieve equitable spread of infrastructure and central government investments. Intergovernmental transfers complement the regional policies to achieve “competitive equality” of jurisdictions. The transfers given to enable competitive equality of jurisdictions can be termed “stabilizing grants”. As already mentioned, these are in addition to the “revenue payments” given to offset competitively determined mismatch between revenue and expenditure assignments.

II Economic Rationale for Intergovernmental Transfers: Design Issues

The economic rationale for intergovernmental transfers discussed above has an intuitive appeal and probably explains why transfers are in fact given in most federations. Yet, a careful scrutiny of the arguments reveals that, each of them has very limited explanatory power. As already mentioned, the fiscal imbalance argument does not exclude the actual fiscal behavior of the states, and designing transfers to offset fiscal imbalances could in fact, encourage fiscal laxity by adversely affecting incentives for own-revenue raising and for spending control. Similarly, as argued above, transfers are neither necessary nor are they sufficient to ensure horizontal equity. Transfers to ensure competitive equality are appealing, but it is difficult to equate competitive ‘power’ with the amount of transfers. Finally, designing transfers to offset spillovers would require an omniscient central government, and, if there were such a central government, it is uncertain whether there would be gains from decentralization at all.

The foregoing discussion did not consider the non-economic objectives of intergovernmental transfers. In a federal polity, transfers may be given to induce the units to be a part of a federation or simply, to bribe a reluctant participant. They may also be an instrument through which the central government intends to alter states’ allocations in favor of its own preferred sectors of the economy. Bureaucrats and politicians may employ transfers to favor some regions over others.

II.a The Design of Intergovernmental Transfers.

The design of the transfer system depends upon the rationale outlined in sections I.b-I.d. The rationale essentially lays down the objective, and transfers are designed to fulfil them. Thus transfers given to offset fiscal imbalances or to ensure horizontal equity or stabilise intergovernmental competition ought to be unconditional. However, to avoid the moral hazard of states viewing such transfers as “blank checks” from the central government, the amount of such grants can be tied to the tax efforts of the states. The grants given to offset spillovers or those given to ensure minimum outlays on specified services (merit good reasons) must be purpose specific with matching requirements from the states. There is also a case for having matching ratios that vary inversely with the

level of development of the states to ensure uniformity in the responses of all the states to these transfers (Feldstein, 1975).

Thus, intergovernmental transfers can be designed in a variety of ways and the effect of transfers depends on the way they are designed (Wilde, 1971, Gramlich, 1977). Although the theoretical rationale helps to identify the objectives of transfers and provides broad guidance on their design, a number of judgements have to be made in effecting actual intergovernmental flows and the method of transfers and the formula employed to effect them have implications both on equity and incentives. Naturally, each country has developed its own system of transfer design depending upon various political, historical and economic compulsions. In what follows, we discuss the designs of unconditional and specific purpose transfers with least disincentive effects in some detail.

II.b General Purpose Transfers

General purpose transfers are given to enable the sub-national governments to offset the fiscal disadvantages arising from a lower revenue capacity and a higher unit cost of providing public services. This is achieved by giving unconditional transfers in a variety of ways but the least distorting way is to give transfers equivalent to their “need-revenue” gap (Bradbury, et. al., 1984). The need-revenue gap measures the difference between what a state ought to spend to provide specified levels of public services and the revenue it can raise at a given standard level of tax effort.

Thus, the need-revenue gap for the i^{th} state can be taken as:

$$G_i = \bar{Q}C_i - \bar{t}B_i \quad (1)$$

where G_i is the gap (per capita), \bar{Q} is the desired (normative) level of composite public service provided by the state per capita. C_i is the unit cost of the public service (reckoned at justifiable costs), \bar{t} is the standard tax effort, and B_i is the per capita tax base. C_i in turn, consists of two components: (i) unit cost within the control of the State governments, (C_{1i}), and (ii) that beyond the states’ control (C_{2i}). For need calculations the unit cost within the control of the state governments (C_{1i}) would also have to be reckoned at justifiable levels (\bar{C}_{1i}). Thus,

$$G_i = \bar{Q}(\bar{C}_{1i} + C_{2i}) - \bar{t}B_i \quad (2)$$

The fiscal disadvantage of the state (D_i) is determined on the basis of the difference between a state’s need-revenue (G_i) gap and the normative gap (G^*) or the gap of the base line state. That is,

$$D_i = G_i - G^* = \bar{Q}(\bar{C}_{1i} + C_{2i}) - \bar{t}B_i - G^* \quad (3)$$

A state with a disadvantage [$D_i > 0$] is eligible to receive aid, whereas one without [$D_i < 0$] is not. If the central government sets apart an amount ‘M’ to be distributed to the eligible states on the basis of their fiscal disadvantage, the amount of funds the i^{th} eligible state would receive is given by:

$$S_i N_i = [(D_i N_i)^a / \sum_i (D_i N_i)^a] M \text{ for all } D_i > 0 \quad (4)$$

where S_i represents per capita transfers received by the i^{th} state and N_i its population.

First, whether or not a state is eligible to receive aid depends on the normatively chosen G^* . It is possible to select G^* such that even the state with the lowest G_i (or the state with the highest fiscal strength) is also eligible to receive aid. Second the states may not be given grants to fill the entire gap, $G_i - G^*$; the share of individual states in such a case is determined by the exponential 'a' of the gap to be equalised, the total amount of funds available for transfer (or perceived vertical fiscal imbalance), and gap of the state in relation to the total gap. The degree of equalisation achieved, thus, depends upon the normatively chosen (G^*), the value of the exponential (a), and the amount of funds available for transfer (M).¹¹

II.c Specific Purpose Transfers

Specific purpose transfers are intended to alter the recipient's cost of provision to ensure the optimal provision of sub-central services having spillovers. In this case, the additional per capita outlay (A_{ij}) required to ensure a minimum level of public service 'j' in the i^{th} state would be the difference between the justifiable cost of providing the required minimum level of the service per capita ($\bar{Q}_i^* C_{ij}$) and the justifiable cost of the actual per capita service level provided in the state ($Q_{ij}^* C_{ij}$). That is

$$A_{ij} = \bar{Q}_i \cdot C_{ij} - Q_{ij} \cdot C_{ij} \quad (5)$$

The per capita grant to be given to each state to ensure the minimum standard of service is given by

$$S_{ij} = r_c \left[\bar{Q}_i^* C_{ij} - Q_{ij}^* C_{ij} \right] \quad (6)$$

such that

$$r_c + r_s = 1 \quad (7)$$

where ' r_c ' is the proportion of additional outlay the central government bears and ' r_s ' is the matching proportion the state government contributes. As the response to a given r_c is lower in poorer states, to obtain a given uniform impact r_c should vary inversely with the per capita incomes. Similarly, to ensure the specified level of service, ' r_c ' should be inversely related to the price elasticity of demand for the service. If the price elasticity is zero, to ensure the minimum level of service it would be necessary for the central government to transfer the entire quantum of expenditure required to provide the prescribed level of the public service.

¹¹ For a similar formula, see Ahmad and Thomas (1997), pp. 363-4.

II.d Conclusions on Design

In designing the formula for intergovernmental transfers and implementing it, three things are extremely important. First, besides being equitable, the formula must be simple and transparent. Second, it should not have incentives for “free-riding” or fiscal laxity or profligacy. Finally, the method of making transfers should be -- and should be seen to be -- objective. Combining all these elements in the design of the transfer system is by no means easy. Nevertheless it is essential if one is to achieve the objectives of transfers efficiently, and to infuse confidence in the transfer scheme and ensure its acceptability.

The most important element in the design of the transfer system is the degree of progressivity of the transfers. The ideal situation is one where the state with the lowest need-capacity gap is chosen as the baseline and the fiscal disadvantages of all the others are completely offset. The choice of baseline and the extent to which the fiscal disadvantages are offset will depend upon the resources available for transfer from the center and on the value judgements made on the degree of progressivity. The most common practical judgement is to estimate the need-revenue gap taking the “average” behavioral parameters, and then calculating the gaps. Another alternative may be to use the Rawlsian “maximin” rule whereby, successively, the need-capacity gaps of the most disadvantaged States are brought down to the level of the next most disadvantaged state and so on until the resources available for transfer are exhausted. Clearly, other strategies are possible. However, while these theoretical constructs are useful signposts, the actual design of the transfer systems are influenced as much by political bargaining and other non-economic factors as by economic rationality.

To summarize the main issues involved: (i) even in the ideal transfer design, value judgements are unavoidable; (ii) the estimation of fiscal parameters required to design an ideal transfer system requires considerable judgment;¹² (iii) there is a clear trade off between ideal design and simplicity in transfer formulae. The practicable approach for a country like India is to have a simple design incorporating the basic objectives of transfers which would be easy to understand and therefore, more easily acceptable to the states.

Ideal transfer systems do not exist in practice. This is because, however much economic objectives are important, in the actual design of transfers, historical, political, cultural factors may well play more important roles. Thus, even where economic considerations warrant a radical redistribution, it may be possible to implement this redistribution only incrementally. Similarly, whatever be the economic rationality of a course of action, it cannot be implemented unless it is politically acceptable. Thus, the extent to which these non economic factors influence the polity constrains the design of intergovernmental transfers in achieving economic objectives.

¹² See Rao and Sen (1997) for details.

While the objectives of intergovernmental transfers are important determinants of the volume of transfers and the degree of progressivity, a number of additional considerations are important in designing transfer systems. First and foremost is the need to avoid arbitrariness and impart objectivity, to minimise political influence and infuse confidence in the central government as a monitoring agency. For this reason alone, formula-based transfers are preferred over discretionary transfers. It must be noted, however, that a formula-based system should not degenerate into a rigid mechanical exercise; it should have sufficient flexibility to take account of changing situations and complexities in intergovernmental fiscal relationships.

Even when the transfer system is formula based, it may not subserve the objectives if, as already mentioned, the design of transfers creates perverse incentives. Thus, if the transfers are designed to perform “fiscal dentistry”, they can only induce larger budgetary cavities; designing transfers to fill the budgetary gaps of the states can only encourage fiscal mismanagement. Avoiding perverse incentives in designing transfers and imparting objectivity and flexibility to the transfer systems are as important as targeting the transfers to fulfil the economic objectives in the design of transfer systems.

III Conclusion

We have presented the economic rationale for transfers, analysed their appropriate design to fulfil the stated economic objectives and evaluated some aspects of the prevailing transfer systems in India. We began by discussing the role of intergovernmental transfers in offsetting fiscal imbalances, particularly “vertical” imbalances between the center and subnational (state) governments. We continued our analysis with a consideration of “horizontal” imbalances, that is, imbalances across states, and of the role of transfers from the center in reducing fiscal inequalities across states. In both cases, vertical and horizontal, we provided data on the nature of such imbalances for the Indian case. We noted some of the problems of incentives in the design of the transfer system in India, and some of its failures to effectively deal with imbalances.

Our conclusion emphasizes the difficulties created by the need to take account of how the transfer system affects the fiscal management incentives of recipient governments. Simple normative criteria, even if agreed upon, may not easily translate into transfer systems that achieve the objectives. A further complication is the constraints imposed by political acceptability on redistributive transfers. In this scenario, typical of India, as well perhaps as any other country, transparency and formulaic rules in designing transfers acquire virtues not apparent in the treatment of intergovernmental transfers in the standard technical literature on fiscal federalism.

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