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Fiscal Decentralization: The Provincial – Local Dimension

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Roy Bahl* and Sally Wallace*

The interesting research and policy issues surrounding intergovernmental fiscal relations in developing and transition countries were 'discovered' by scholars and policy analysts in the 1990s. The result has been an outpouring of research in the last decade.[1]

The primary reason for this research effort is the worldwide interest in decentralization policy, and the fact that sub-national governments are important economic players. As may been seen in Table 2.1, a significant share of government expenditure is made by sub-national governments in developing and transition countries. While there is great variation in the degree of autonomy these governments may exert in making this expenditure, there would appear to be some evidence of a 'decentralization creep'.

The policy literature on this subject (sometimes called fiscal federalism, sometimes called local government finance, sometimes called fiscal decentralization) has centered mostly on Central–Provincial relations. Provincial–local fiscal relations, and the role of the bottom tier, the local government sector, has been much less studied.[2]

This chapter is about the role of the provincial–local government sector in making fiscal decentralization work. We ask three questions:

- Do central governments equalize in terms of their distribution of intergovernmental transfers?
- Do provincial governments offset or reinforce central government equalization policies?
- Is there uniformity in the equalization policies of provincial governments within countries?

In the next section of this chapter, we raise the basic policy question: why is knowledge of provincial and local government fiscal behavior important to the formulation of fiscal decentralization policy? We turn then to a discussion of how countries set up their system of multi-level finances, and then to empirical results from comparative work on China, Russia and the United States.

Table 2.1 Fiscal decentralization[a]: level and growth

Average degree of decentralization[b]	1970s	1980s	1990s
High income OECD countries (n=23)	33.78	33.14	33.42
Less developed countries (n=33)	15.02	15.44	17.53
Transition countries (n=23)	....	21.68	26.12

Source: IMF, various years.

Notes
[a] Measured as the rate of sub-national to total government expenditures.
[b] Averages, based on available data for 1972–79; 1980–89; 1990–98

WHY IS THE PROVINCIAL–LOCAL DIMENSION IMPORTANT?

There is not widespread agreement among policymakers on how to treat provincial–local fiscal relations, or how to treat local governments in a decentralized setting. Many of the interesting questions that might be on the discussion table have been largely ignored. But several countries have now come to the conclusion that provincial–local fiscal relations must be part of the policy frame for fiscal decentralization. One might think of two major issues that continue to arise: whether provincial-level governments offset or reinforce the policies of the center, and whether the center is able to track the fiscal performance of sub-national governments.

Reinforcing or Offsetting Policies

The first issue is whether provincial government policies toward their local governments reinforce or offset the intergovernmental fiscal policies of the central government. The point is that provincial government politics and policies may be inconsistent with central government politics and policies and therefore inconsistent with national objectives. Should this issue be of serious concern to the central government?

Centralists might be expected to believe that the provincial and local governments should be mandated to reinforce central policies or at least to enact fiscal measures that are consistent with central government objectives. Decentralists would be expected to argue that fiscal autonomy is the paramount issue and that for the most part, the center should be agnostic about provincial–local fiscal relations.

Consider equalization policy. If the central government, for example, distributes equalizing grants among the provinces, but the provinces do not distribute among their local governments on an equalizing basis, then central policy is offset. Or, the provinces may equalize to an even greater extent than does the central government, hence the central targets for equalization might be overshot. Moreover, there is even the possibility that the provinces would not all act in the same way, for example, some would equalize, some would not, so there would not be a *national* policy on equalization. Whether reinforcing, offsetting or widely varying, it would seem an imperative that the central government be able to understand and track the fiscal behavior of provincial and sub-provincial governments.

The question of tax effort also plagues intergovernmental policy in many developing countries. The fear is that general-purpose transfers will be used by sub-national governments to substitute for what would otherwise have been raised from local taxes. Some central governments have built tax effort provisions into their transfer formulae, and some have used conditional matching grants to try and stimulate local revenue mobilization. But what if the provincial government does not pass the same incentives on to the local governments? What if the central government uses matching grants to stimulate provincial government tax effort, but the provincial government uses no such incentive in its transfer system for local governments? Provincial government tax effort might be stimulated, but local tax effort might be replaced by general-purpose transfers from the province.[3] Would this be consistent with central government policy?

Another concern arises on the expenditure side of the fiscal equation. The mitigation of expenditure disparities is a key component in most fiscal decentralization programs. The goal usually is to establish a minimum standard of expenditures, province-wide, and then guarantee funding to satisfy that level of spending for every local government. This mandate is usually set by national decentralization policy. But what if the province decides to allocate resources among local governments so that the minimum level of expenditures is not satisfied? The provincial government could establish 'minimum expenditure standards' that are different from those established by the center, or it could allocate resources that are insufficient to accommodate minimum spending levels. So, national uniformity in minimum standards across provinces could be accompanied by an absence of uniformity within provinces. The province might satisfy the *average* requirement, but many local governments could fall below the national minimum. Would this compromise central government intergovernmental policy?

The Need for an Information System

To monitor equalization and the tax performance among local governments, it is necessary to have detailed data on the revenues and expenditures for each governmental unit. In developing and transition countries, such data are rarely available in the format necessary and with the timeliness needed. It is common for neither the province nor the central government to be able to track local government budgets. The evaluation of local government performance is too often guesswork with precious little data available for empirical verification.

The following describes the range of situations in many developing nations:

- Audited financial reports on fiscal outcomes are required by law in most countries, for every local government. However, these data are often badly outdated, and not available in a usable form for analysts hoping to do comparative work. Moreover, these data are sometimes incomplete.
- Budget data are often gathered by central and provincial governments, particularly in those countries where budget approval by a higher-level government is required. However, actual financial outcomes are less often available and budget data may bear little relationship to actual outcomes.
- Financial statements of actual fiscal outcomes may be available, but often are not presented in a comparable format, and may not even be based on a uniform accounting system.
- In some places, financial data are available for the larger local government units, but are not available at all for the smaller ones.

The most used source of comparative data, and probably the most carefully put together, is the IMF *Government Finance Statistics Yearbook* (IMF, various years). This is the one source to which most researchers turn first when doing comparative local government finance work. We examined these data for 1994, for 54 developing, industrialized and transition countries. Only six developing countries reported separate data for provincial governments and for local governments. For countries that do have three tiers of government with fiscal powers, this paucity of data makes it all but impossible to analyse even the local government sector in aggregate. This finding raises questions of the extent to which *reported* provincial and local government data include the local government sector.

HOW DO COUNTRIES ARRANGE THEIR FISCAL SYSTEMS?

Countries organize their central–provincial–local government fiscal systems in many different ways, and these arrangements largely determine the probability of offsetting/reinforcing equalization and tax effort actions by central and sub-national governments. If a hierarchical, three-level government system is in place, then there are hard choices to be made about the level of fiscal discretion to be given to the sub-national governments. A system with no middle tier of government raises other, no less complicated issues. These models and their implications are discussed below.

The Mandate Model or the Autonomy Model?

To capture the benefits of fiscal decentralization, sub-national governments should be empowered to make fiscal decisions, such as, how much to spend, how to divide expenditures, and how to tax. In addition, elected local officials should be empowered to make these decisions and therefore be accountable for them. All of this is to say that fiscal decentralization requires 'moving government closer to the people'. Central governments that are advocates of fiscal decentralization should take this view. When they do, however, the rhetoric is usually in reference to the provincial government level, and decentralization policy is often silent on how the province should treat its local governments. Often, it neither endorses nor prohibits counter-policies by the provincial governments. There are, however, two extreme models that the central government might adopt.

Under the *autonomy* model of central–provincial relations, the central government may leave it to the province to decide on its system of intergovernmental fiscal relations. It may decide not even to monitor the policies adopted or the outcomes. This is the policy in Russia, China and the USA. Under the *mandate* model, the central government would dictate the rules of provincial–local fiscal relations (Germany). Presumably, the goal would be for provincial–local fiscal relations to mirror central–provincial relations.

If the central government chooses an autonomy model and allows provincial government discretion in structuring its relationships with local governments, then there are two paths that are open to the provincial government. At one extreme, the province passes through to local governments the same discretion that it is given by the central government. It might give the local governments budget freedom, taxing and borrowing powers, and it could impose a hard budget constraint on the local governments. Provincial governments in few developing countries go so far in granting fiscal discretion to local governments.

At the other extreme, the provincial governments could require particular behavior by constituent local governments. For example, local governments could be required to seek provincial government approval for their budget, or there could be strict rules concerning the local government expenditure mix. It is not uncommon for local government expenditures to be largely predetermined, for example, the level of compensation of local government employees may be fixed by a higher level government, and all price subsidies may be determined by higher level governments. Local governments sometimes are given few or no taxing powers, no independence in borrowing and little control over the setting of user charge rates. At the extreme, the local governments could be a spending unit of the province. This is not an unheard of arrangement in developing countries, and in fact is the arrangement in Norway.

Dropping the Middle Tier

A solution that some governments have reached out for is to eliminate the middle tier (Province) altogether. This certainly moves government closer to the people and it eliminates the possibility that provincial governments will not support central policies. South Africa (Smoke et al., 2001) and Indonesia (Alm et al., 2001) are two countries that have all but eliminated the provincial level of sub-national government in recent years. Many Eastern European countries eliminated the middle tier after the breakup of the Soviet Union.

Moving to a direct central–local intergovernmental fiscal system raises both opportunities and problems. The main opportunity is that budget decisions are moved closer to the people. How involved can a citizen feel when he or she is a member of a province with 10 or 50 or even 100 million people? At the local level, where the governmental unit is much smaller, preferences can be accommodated more easily, people can participate in government, and the possibility of local officials becoming more accountable may be enhanced.

But, a direct central–local system also raises significant problems.

- Many local governments do not have an adequate capacity to deliver services and raise local revenues. This can lead to amalgamation of local governments and can require, as in South Africa, a redrawing of local government boundaries. This imposes very significant transition costs.

- The central government will have a great number of local governments reporting directly to it. This can make the intergovernmental system more unwieldy to manage.
- The electoral process does not always match up well with local government boundaries, and accountability may often be "up" to the central government or to the party, rather than to the local voters.
- Smaller local governments cannot capture economies of scale, and often have very limited capacity to finance and deliver services. Wetzel (comments, this volume) reports that this has prompted many former soviet bloc countries to consider re-establishing the middle tier.

One is tempted to argue that this unitary intergovernmental strategy will be most advantageous to smaller countries and more difficult for larger countries. While this argument generally squares with the international practice, there are important exceptions (for example, Indonesia).

ANALYTIC APPROACH

In this chapter, we investigate the hypothesis that provincial governments follow similar equalization patterns in their distribution of intergovernmental transfers among local governments, as does the central government with respect to its provincial governments. Whether the hypothesis is accepted or rejected, it raises the issue of how one would explain the equalization choices made by the provincial governments.

In fact, most of the work on fiscal decentralization in developing and transition countries is empirical, descriptive and institutional. It is loosely based on the theory of fiscal federalism or local public goods (Oates, 1972). But the connection is looser than most academics might want to admit. The 'pure decentralization model' that is implicitly used requires a median or representative voter, who can translate his or her preferences to elected officials through votes. It also implies that local governments have the capacity to realize the levels of tax and public services that voters choose. Bahl and Linn (1992, chapter 12) question the validity of this model for developing countries on several grounds:

- popular elections of local officials may not take place,
- chief local officers of local governments are not always locally appointed,
- local governments are not often given a significant degree of autonomous revenue-raising powers,

- tax administration shortcomings and expenditure delivery shortcomings mean that local governments may not be able to deliver the services that are demanded, and
- expenditure mandates and the budget approval processes may limit the discretion of local governments over their budgets.

Given these conditions, it is unlikely that the basic decentralization model fits exactly the case of developing and transition countries. Wetzel (comments, this volume) makes the interesting point that it is hard to identify any former Soviet state that has fully elected and unconstrained local government representation, significant taxing powers that are used effectively, and clear divisions of expenditure assignment.

In this chapter, we stay with an empirical and descriptive approach, and look for an explanation of the findings about intra-province equalization in the institutional relationships, that is, in the rules of governance such as legal limits, powers and functions, statutory grant formulae, *ad hoc* arrangements, mandates, and so on. Our view, however, is that even the general thinking that underlies the advocacy of decentralization, built as it is around efficiency considerations, better fits the case of small local governments. Application of the general idea of the efficiency gains from decentralization to a provincial and local government 'unit' – where the 'unit' may have a population numbering in the millions may not be appropriate. This is another reason why the short attention given to local governments in the decentralization literature needs remedying.

For all of these reasons, we do not offer a behavioral model, but rather an empirical analysis. We examine the equalization features of intergovernmental fiscal systems first at the central–provincial level, and second at the provincial–local level. Our test is straightforward: a cross-section income elasticity of expenditures that is smaller than that of revenues collected, indicates some degree of equalization. The greater the difference, the more the equalization.

CHINA[4]

China has a multi-tiered system of intergovernmental fiscal relations, though many of the key policy decisions are centralized.[5] Most of the important tax rate and tax base decisions are made at the central level. Sub-national governments have some discretion in adjusting expenditure budgets, but unless they channel funds to an extra budgetary account, they have little control over the level of expenditures (Wong, 1996; Wong *et al.*, 1995). The relationship is hierarchical, with each level of government controlling the fiscal actions of the next lower level.

Central–Provincial Fiscal Relations

Though China has no explicit policy for equalization, a number of policy actions give some indication of government thinking. In the days after the opening of China, several experiments with enterprise zones in the coastal cities suggested a strategy of concentrating on those areas with greatest growth potential. This does not suggest a highly equalizing pattern. On the fiscal front, there were mixed signals about the intentions: grants were not allocated on an equalizing basis, and the intent for shared taxes was unclear in terms of their equalization objectives.

Budgetary revenue collections in Chinese provinces are determined by some combination of fiscal capacity, tax effort and the ease of transferring funds to extra-budgetary accounts. Because the main revenue sources are income taxes and a share of the VAT, one would expect wealthier provinces to have a significant revenue-raising advantage. Available data seem to bear this out (Bahl, 1999, Chapter 6). Budgetary expenditures depend on budgetary collections, the retention rate for shared taxes and revenues from 'earmarked grants'.

To evaluate the equalization in this national system of intergovernmental finance, a linear regression of per capita revenue collections by provincial and local governments in 1995 against per capita GDP, population size, and urbanization across 28 provinces was estimated.[6] Per capita GDP is included to measure the taxing power of the province, and the population variable controls for the impact of a size effect on local collections. Because data are not available on the urbanization rate in all provinces, a dummy variable has been used for the most highly urbanized city-provinces (Beijing, Shanghai and Tianjin). Urbanization should have a positive effect because the better 'tax handles' in cities make collection easier. It is important to remember that the dependent variable measures taxes collected by all governments in the province, including those that will be shared with the central government.

The results, presented in Table 2.2, show a strong significant relationship between per capita budgetary revenue collections and per capita income in 1995. The cross-section income elasticities are about unity: in 1995, a 10 percent difference in per capita income is associated with between a 9.2 and a 10.7 percent difference in per capita revenue collections, depending on whether the city-province dummy variable is included. Population size shows the expected negative relationship with per capita revenues. The urbanization effect was highly significant, because even after accounting for their higher levels of income and their population size, Shanghai, Beijing and Tianjin collect a significantly greater amount of revenue than do the remaining provinces.

Table 2.2 China: linear regressions of per capita provincial and local government expenditures and provincial level revenue collections against selected independent variables in 1995[a]

	Per capita budgetary collections		Per capita budgetary expenditures	
	1995	1995	1995	1995
Constant	-2.9755 (2.37)	-1.9157 (2.40)	1.1178 (1.67)	1.4570
Per capita GDP	1.0736 (14.01)	0.9183 (9.08)	0.7235 (9.46)	0.6738 (6.16)
Population	-0.1037 (2.06)	-0.0542 (1.05)	-0.2865 (5.71)	-0.2707 (4.89)
Dummy variable for urban province[b]	--------- ---------	0.4042 (2.17)	--------- ---------	0.1293 (0.64)
Adjusted R^2	0.95	0.92	0.86	0.86
N[c]	28	28	28	28

Source: Adapted from Bahl, 1999, Chapter 5.

Notes
[a] All variables are expressed in logarithms with t-values shown in parenthesis below the regression coefficients.
[b] D=1 for Beijing, Shanghai and Tianjin.
[c] Tibet and Hainan are not included.

The same analysis is carried out for per capita expenditure variations. The results show that a 10 percent higher level of per capita income was, on average, associated with between a 6.7 and a 7.2 percent higher level of per capita expenditures. More populous provinces spent significantly less in per capita terms, in both years. The introduction of an urbanization effect does not change this result.

These empirical results show that per capita expenditure disparities are less pronounced than per capita revenue collection disparities, suggesting that there is some degree of equalization in the system.[7] The explanation for this is to be found in the institutions. Tax retention rates for provincially collected income taxes are lower in richer provinces than in poorer income provinces, VAT sharing is to some degree equalizing, and these equalizing influences are not offset by the distribution of earmarked grants, which are not equalizing. The net result is that higher income provinces are still allowed to spend significantly more, but their higher spending level does not fully reflect their fiscal capacity advantage.

Provincial–Local Government Relations

The Chinese system of provincial–local relations is complex. The provincial government uses a variety of fiscal instruments. Some of these fiscal instruments – such as revenue distribution based on enterprise ownership, and local taxation – favor high income and more economically developed local government areas. Other fiscal instruments such as tax sharing, special grants and horizontal transfers among local governments are potentially equalizing, depending on how they are structured. Equalizing and counter equalizing fiscal instruments may all be part of the intergovernmental fiscal system in a single province. An interesting question regarding equalization *within* provinces is how all these instruments are combined to effect the distribution of government revenues and expenditures between rich and poor municipalities. Moreover, the way in which the fiscal instruments are used varies widely from province to province, because the provincial governments in China are given a surprising amount of latitude to shape their intergovernmental fiscal policy.

Jiangsu Province

In a case study of Jiangsu Province using 1995 data, a purely empirical approach is used to investigate the use of these fiscal instruments to equalize. Jiangsu Province has a population of 70 million and a land area of 102 thousand kilometers. About 19 percent of the population lives in 11 cities and the remainder lives in 65 counties.

There are great variations in socioeconomic makeup among these local governments. The population in the 11 city regions varies from about 1 million to about 10 million, and per capita GDP in the richest city is nearly 7 times that in the poorest city. The counties also vary greatly in their capacity to raise revenue. The richest has a per capita GDP 12 times greater than the poorest, raises nearly 30 times more in revenue, and spends 10 times as much.

We may examine the extent to which the provincial fiscal system equalizes when these disparities among the lower-level units of government are taken into account. Linear regressions on per capita revenue collections, per capita expenditures, and the expenditure–revenue ratio are reported in Table 2.3. The independent variables are per capita GDP and a dummy

Table 2.3 Linear regressions on selected fiscal and socioeconomic variables for city regions and county governments in Jiangsu Province, China in 1995[a]

	City region regression[b]			All local governments[c]		
	Per capita revenue collected	Per capita expenditure	Ratio of expenditure to collections	Per capita revenue collected	Per capita expenditure	Ratio of expenditure to collections
Constant	-3.68	0.11	8.40	3.85	0.38	8.90
Per capita GDP	1.10 (9.35)	0.63 (5.22)	-0.48 (-8.49)	1.02 (23.18)	0.57 (12.76)	-0.48 (-14.95)
City dummy variable				0.07 (7.48)	0.86 (8.66)	0.14 (1.81)
Adjusted R^2	0.91	0.75	0.89	0.92	0.84	0.89
N	11	11	11	75	75	75

Source: Adapted from Bahl, 1999, Chapter 5.

Notes

[a] All variables are expressed in logarithms with t-values shown in parenthesis below the regression coefficients.

[b] 'City region' is defined here as the total of all local governments assigned to the administrative control of the city.

[c] 'Local governments' are defined here as the 64 counties and the 11 city governments.

variable (= 1) to indicate that the observation is a city (= 0 if a county). The dummy variable is included to account for the far greater fiscal capacity of cities, their stronger capability to deliver services, and perhaps the broader range of functions that they provide. The results show that:

- Per capita revenue collections are significantly higher in central cities than in counties, and significantly higher in higher-income places, even when the 'city effect' is accounted for.
- The relationship between per capita income and per capita expenditures, controlling for city versus county, is also significant and positive. Higher-income places spend more per resident, irrespective of city or county status.
- There is another way to express this result. The amount of expenditure per yuan of revenue raised falls with increasing per capita GDP. Higher-income places end up spending a smaller share of the amounts collected within their boundaries than do low-income places. One explanation of this is the formal equalization program of the province; that is, the higher-income places are allowed to retain less, by formula. Another is that much of the revenue is distributed according to enterprise ownership, rather than by location, and the provincial government enterprises tend to be located in urban areas.
- Based on these results, we might posit the following: if a local government in Jiangsu has a 10 percent higher level of per capita GDP, we would expect its per capita revenue collections to be about 10 percent higher, but because it retains a smaller share of these collections, its per capita expenditure level would be about 5 percent higher. The difference will be transferred to the province for the direct expenditures of the provincial government, presumably including redistribution to lower-income counties.

What this analysis shows is that, on balance, the intergovernmental fiscal system in Jiangsu was equalizing in 1995. Higher-income local governments did collect significantly more revenue, but the combined effect of tax-retention rate differences and the distribution of grants reduced the advantage of richer places. A comparison with the inter-province equations (Table 2.2) suggests that the degree of equalization within Jiangsu Province is quite similar to that observed for the central government of China and all its provinces. If anything, the Jiangsu policies are a bit more equalizing.

Sichuan Province

A comparison of the results from Jiangsu with a case study of Sichuan province is valuable. An interesting question to explore is whether there are differences between rich and poor provinces in the extent to which their intra-province fiscal policies equalize. Sichuan is relatively poor with a per capita GDP in 1995 equivalent to about 40 percent of that in Jiangsu. While Jiangsu is a donor province in that some of the revenue collections within the province are sent to the central government, Sichuan is a deficit province that has traditionally retained all revenues collected within its boundaries, and received an additional subsidy.

The per capita GDP disparity among the 23 city regions in Sichuan is about the same as that within Jiangsu. The implication from this result is that despite their difference in wealth, Sichuan and Jiangsu Provinces have about the same equalization job to do. As is shown below, however, they go about this job in very different ways.

In Sichuan, all local governments are in a 'deficit' position; that is, they spend more than is collected within each of their areas. Nothing is sent back to the provincial government for redistribution. But, the provincial government may distribute the subsidy it receives from the center, and the taxes that it directly collects. In Jiangsu, all local governments are in a donor position, so that a share of the collections made within their boundaries is allocated to the provincial government. The provincial government plays a very different role in Sichuan than it plays in Jiangsu.

The disparities among local governments in per capita GDP in Sichuan cause us to expect a stronger revenue performance of the higher-income local governments. This is the case in Sichuan to a greater extent than it is the case in Jiangsu. The results of the regression analysis (for 23 city regions) reported in Table 2.4 show that a 10 percent higher level of per capita GDP is associated with a 12.3 percent higher level of revenue raised (vs. 11 percent for city regions in Jiangsu).[8] A 10 percent higher level of per capita GDP is associated with a 9.2 percent higher level of per capita expenditures in Sichuan (vs. 6.3 percent in Jiangsu).

Local governments in Sichuan all spend more than is collected in their boundaries. The size of the expenditure–revenue collections ratio may be viewed as the degree of subsidy provided to the local unit; that is, it is the increase in revenues that must be 'transferred in' to achieve the desired level of expenditures. There is a significant negative relationship between the expenditure–revenue ratio and the level of per capita GDP (see Table 2.4), therefore, we can say that significantly larger subsidies go to poorer places in Sichuan. We find the same pattern in Jiangsu. To the extent that one can make any inference from two observations, the evidence here is consistent with the hypotheses that a rich province will make more of an equalization effort than will a poor province.

Table 2.4 Linear regressions on selected fiscal and socioeconomic variables for city regions, in Sichuan Province, China in 1995[a]

	Per capita revenue collected	Per capita expenditure	Ratio of expenditure to collections
Constant	-5.00	-1.87	3.12
Per capita GDP	1.23 (12.19)	0.92 (4.44)	-0.32 (-2.28)
Adjusted R^2	0.88	0.48	0.20
N	23	23	23

Source: Adapted from Bahl, 1999, Chapter 5.

Note: [a] All variables are expressed in logarithms with t–values shown in parenthesis below the regression coefficients.

What can we say from these results about whether provincial–local equalization policies reinforce or offset central government policies in China? The answer is that they reinforce central policies, and that the provinces equalize among their local governments more than the central government equalizes among its provinces. For a 10 percent higher level of income, on average, the center transfers an amount equivalent to about 2.5 percent of revenues away from richer provinces. For a 10 percent higher level of income within Jiangsu province, the comparable number is 4.5 percent, and in the poorer province, Sichuan, the amount is 3.1 percent.

RUSSIA

Like the other countries of the former Soviet Union, the Russian Federation had a legacy of top-down central planning. The fiscal structure is also characterized by a vertical hierarchy. Though the Russian government is officially committed to some form of regional autonomy, progress has been slow. The sub-national governments (region and municipalities) still must rely on the central government for most of their revenues in the form of shared VAT, excises, personal income tax and enterprise profits taxes. The presence of expenditure mandates severely limits the fiscal discretion of regional governments.[9]

The intergovernmental fiscal system that governs the 89 regions (oblasts) has been modified a number of times since 1991. The mid and late 1990s brought some important changes. Sharing rates for central government taxes came to be uniform across regions, although the actual sharing rates have changed from year to year. Legislation has been introduced to try and sort out revenue and expenditure assignment and sharing issues, budget processes, and the system of intergovernmental grants. The equalization grant program has been significantly changed to eliminate the deficit grants of the previous system and replace them with a formula aimed at equalization of revenues (based on revenue capacity and expenditure need). Though the sub-national governments have been given some discretion in controlling the finances of their subordinate local government units, the determination of overall revenues available remains highly centralized.

Federal–Region Relations: Equalizing?

The Russian government uses several fiscal instruments to equalize expenditures among its regions. It may subsidize pro-poor services more heavily, mandate higher minimum levels of expenditures, distribute grants to regional governments by a different formula, or lower tax sharing rates to increase the pool of funds available for redistribution. It tends not to use all of these instruments for redistribution.

The present system of federal grants has three major components: transfers from the Federal Fund for Support of Regions (FFSR grants), earmarked grants through federal projects and *ad hoc* transfers known as 'mutual settlements'. The *FFSR* is the largest component (about 65 percent of all federal grants in 1997) and was equivalent to approximately 15 percent of tax collections from internal transactions in 1997. These are block grants distributed by a formula that includes expenditure needs and fiscal capacity. *Earmarked financial assistance to regions* may be used for capital and current expenditure, and is determined by the Duma after a negotiation between regions and the federal government. In 1998, these grants accounted for about 15 percent of total grants to regional governments.

Mutual settlements are used to balance the budgets of lower levels of government when deficits are created by changes in tax legislation or by adoption of federal laws prescribing new expenditure mandates (for example, if a law is enforced or enacted in the middle of a financial year). Some are budgeted and some are not. There is no formal method of distribution of mutual settlements among the regions, or of determining the total value of mutual settlements to be distributed in any year. Mutual settlements accounted for about 20 percent of all federal grants in 1998.

We follow Martinez-Vazquez and Boex (1999) in using a regression analysis to analyse the equalization effect of federal grants to the regions. The disparities among regions are large and have grown significantly over time. By 1997, the highest per capita regional revenue was 90 times that of the lowest (Martinez-Vazquez and Boex, 1999).

Our regression analysis across 77 Russian regions for 1999 does not give a clear picture of the equalization impacts of either the FFSR grant or other types of grants. As shown in the far right columns in Table 2.5, significantly higher per capita amounts of these transfers were allocated to regions with lower per capita GRP, which suggests equalization. However, less was allocated to regions with other needs (a greater share of pensioned population), suggesting that the system is not equalizing if expenditure needs is taken as the barometer. The positive coefficient on the number of school-aged children suggests otherwise. Martinez and Boex (1999) reached a similar conclusion in their analysis of the 1994–1997 period.

Table 2.5 Linear regressions on selected fiscal and socioeconomic variables for 77 Russian regions in 1998[a]

	Per capita expend-itures	Per capita revenue collections	Per capita federal fund grants		Per capita total transfers	
Constant	-10.95	-8.41	-17.23	10.29	-14.54	12.21
	(-10.52)	(9.45)	(-5.07)	(1.38)	(-5.42)	(2.19)
Per capita GRP	0.85	1.13	0.10	-0.68	0.06	-0.75
	(12.21)	(18.79)	(0.44)	(-2.21)	(0.36)	(-3.28)
Percent of population under working age	1.22	-0.52	4.72	0.41	4.19	0.45
	(5.32)	(-2.63)	(6.27)	(0.33)	(7.06)	(0.48)
Percent of pensioners				-2.49		-2.34
				(-4.19)		(-5.27)
Percent of poor farmers				0.17		-0.15
				(0.41)		(-0.50)
Adjusted R^2	0.67	0.83	0.34	0.47	0.36	0.38

Note: [a] All variables are expressed in logarithms with t-values shown in parenthesis below the regression coefficients.

Federal–regional expenditure assignments (the expenditure 'norms') and tax sharing practices also have important implications for the equalization of the intergovernmental system in the Russian Federation. We have taken a more aggregated look at the equalization question, and study the distribution of per capita revenues and per capita expenditures across regions as was done above for China. We have estimated an OLS regression for the Russian regions where the dependent variables are per capita revenues collected within the boundaries of the region (including the federal shares) and per capita expenditures made by regional and local governments. The independent variables are per capita gross product and the percentage of the population under working age. The results of this regression are also reported in Table 2.5.

On the revenue side, total collections (defined as the federal and regional–local amounts) are positively and significantly related to regional GRP for 1997. The income elasticity is above unity. This is the expected counter-equalizing effect, in other words, the greater the fiscal capacity, the greater the collections.

There is also a positive and significant relationship between per capita expenditures and per capita GRP, signaling two effects: higher income regions may demand and require greater expenditures per capita, and a share of the revenue collections 'stick where they hit'. However, there is also an equalizing effect associated with regional expenditures in the Federation, because higher expenditures are positively and significantly correlated with expenditure needs (measured as a percentage of the young population).

Taken together, these results suggest that the total impact of federal allocation of resources to the regions is equalizing. A 10 percent higher level of GRP is associated with an 11.3 percent higher level of revenue collections in the region, but only an 8.5 percent higher level of expenditures (Table 2.5). Richer oblasts do spend more on a per capita basis, but the advantage is not in proportion to their income level advantage. There is some equalization to the system.

Regional–Local Fiscal Relations

Until the late 1990s, in most Russian regions, the municipalities had virtually no revenue authority, and were spending units of the oblast government. In 1998, the central government embarked on a 'Concept of Reform of Intergovernmental Fiscal Relations in the Russian Federation'. This Concept mandated a set of recommendations for oblast–municipal relations. The main issue was whether or not to mandate that region–municipal relations be structured as federal–region relations. The Ministry of Finance, Department of Intergovernmental Relations, published their recommendations in 2000. In principle, the MOF restated the case that according to the Constitution of the Russian Federation and the Budget Code, the federal government cannot dictate to the regions how they interact with their subordinate municipalities.

The need for the central government to understand regional–local fiscal relations has thus taken on more importance.

Currently, the structure of intra-regional relations in the Russian Federation is a combination of central and regional regulation and local autonomy. While there are federal regulations for overall budget structure, increasing regulations on minimum expenditure norms, and constraints on the local use of the most important taxes, the regions themselves have much discretion over their relations with their subordinate governments. The MOF recommendations continue to support this discretion.

There are 89 regional (oblast) governments and over 30 000 municipalities in the Russian Federation. Each region now determines the level of fiscal autonomy of its municipalities, and case studies in a number of regions suggest that budget development and reporting can be very restrictive in some regions. In Leningrad Region, for example, the level of compliance required of municipalities is reminiscent of a highly centralized fiscal structure (Bahl *et al.*, 1999).

Leningrad Oblast[10]

The formal fiscal autonomy of regional and municipal governments in Leningrad is circumscribed to a considerable degree. Each is dependent on higher-level governments for determination of their total expenditure budget. Sub-national governments have some discretion in determining their *mix* of expenditure but little ability to determine the *total amount* available for them to spend. Even the composition of spending is partly dictated. Regional and local governments are subject to stringent (funded and unfunded) mandates from higher-level governments. These mandates are an important constraint on fiscal autonomy in that they prescribe specific subsidies for various population groups, or prescribe exact payments to workers or enterprises (Morosov, 1998; Lavrov, 1998).

The regional government is the key authority in determining the allocation of fiscal resources within the region. It decides – implicitly or explicitly – the degree of equalization that will take place within the region, the extent to which the maintenance of infrastructure in more developed local areas will be supported, and whether it will introduce revenue-sharing features that will stimulate or dampen incentives for increased revenue mobilization. The region may decide whether a local government will be given a predictable and adequate stream of revenue that will enable efficient budgetary planning, and even whether local governments will have a capability to repay loans.

In 1997, the Leningrad region determined minimum expenditure needs for municipalities, based on a complicated formula. To evaluate the equalization impact of the minimum needs budget, we correlated the per capita minimum budget amounts with selected indicators of fiscal capacity across all municipalities in the region. We find a pattern of counter-equalization. The simple correlation of per capita minimum expenditures with the average wage was 0.30, and the correlation with the level of enterprise profits was 0.51. This counter-equalizing effect is consciously built into the formula to determine the minimum expenditure level. Minimum levels of expenditure are set higher for the more prosperous places because the formula bases expenditure needs on existing levels of services (for example, the more hospital beds, the more required maintenance expenditure). Certainly this element of the intergovernmental system does not favor the poorer local governments.

The region sets the tax sharing rates for the local governments. This is potentially a significant method for redistributing revenues from rich to poor municipalities. Unlike the central government, the Leningrad regional government uses the sharing rates as an instrument for redistribution of resources and varies them year-by-year and municipality-by-municipality. To examine the hypothesis that the variable sharing rates are equalizing in nature, we have examined the variation in two series. The first is *own source revenues*, which include all revenues raised by the local governments and designated 'local revenues' by law. Since these are local collections within the municipal boundary, one would expect a strong positive correlation with income level. The greater the capacity, the greater the revenue expectation. The second is *assigned revenues*, which include own source revenues plus shares of all taxes that are assigned to the municipalities. Under an equalizing system of tax sharing, one would expect that the distribution of assigned revenues would show a less pronounced relationship with income level than would be the case for own source revenues.

To test this hypothesis, we regress these two measures of revenue against the average wage of municipalities, which is our proxy for income level, and the percentage of the population that is under working age. The results, presented in Table 2.6, show a clear pattern of counter-equalization. The tax-sharing scheme enhances the already greater fiscal capacity of higher income municipalities. A 10 percent higher level of average wage suggests a 9.6 percent higher level of per capita own source revenues, but a 14.6 percent higher level of assigned revenue.

The final way in which the regional government may equalize is to allocate grants more heavily to the lower income municipalities. The types of grants used by the regional governments are similar to those used by the federal government: subventions (earmarked grants), subsidies (gap-filling grants based on the minimum expenditure needs budget, distributed in an *ad hoc* manner), and mutual settlements (another form of earmarked financing). The shares of these three forms of grants in the Leningrad region were, respectively, 10 percent, 44 percent, and 46 percent, in 1997. We estimate the relationship between total per capita grants to municipalities, the average wage and measures of expenditure need (the number of students per capita). The results show strong evidence of equalization in the distribution of grants. A 10 percent lower average wage is, on average, associated with a 14.9 percent higher level of per capita grants (Table 2.6).

Table 2.6 Linear regressions of selected fiscal variables against average wage and percentage of population below working age for Leningrad region[a]

	Per capita own source revenues	Per capita assigned revenues	Per capita expenditures	Per capita total grants
Constant	0.86 (0.42)	-4.01 (-1.34)	10.94 (3.86)	19.93 (6.99)
Average wage	0.96 (4.51)	1.46 (4.64)	-0.07 (0.25)	-1.49 (-5.00)
Per capita students	0.16 (0.25)	-0.28 (-0.30)	1.64 (1.85)	2.13 (2.39)
Adjusted R^2	0.50	0.50	0.06	0.56
N	21	21	21	21

Note: [a] All variables are expressed in logarithms with t-values shown in parenthesis below the regression coefficients.

We may summarize the net equalization impacts of the Leningrad system by the following analysis. We regress per capita expenditures against the average wage, and the per capita number of students. The results show no significant relationship with the average wage (Table 2.6).

The overall results of this analysis are interesting in that they show an ambivalence about equalization on the part of the Regional Government. On the one hand, the determination of the level of 'minimum' expenditures and the variable tax sharing rates are driven by a counter-equalizing approach. This advantage given to the higher income municipalities is then erased by a highly equalizing grant system. On balance, the distribution of per capita expenditures is not related to the level of income of the municipality.

We may conclude that the intergovernmental fiscal policy in the region is considerably more equalizing than that of the Russian Federation. A 10 percent higher level of income is associated with a 2.8 percent transfer of revenues from rich to poor regions in the case of the federation. The taxable capacity advantage of the higher income regions is partially offset by the transfer system. In the case of Leningrad Oblast, an equalization grant system is sufficient to fully offset a shared tax system that appears to be distributed on a counter-equalizing basis. On balance, higher income municipalities do not spend significantly more than lower income places. From this, we might conclude that the region has a more equalizing program than the center. Whether this holds true for other regions is an open question.

THE UNITED STATES

The long-standing tradition of fiscal decentralization in the USA has its roots in the 10th Amendment to the US Constitution, which sets a wide berth for activities of sub-national governments (states): 'The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people'. Article 1, Section 8 states that Congress is empowered 'to pay the Debts and provide for the common Defense and general Welfare of the United States'. The call for the federal government to provide for the general welfare of the people opened the door for direct federal involvement in this area (Rosen, 1999).

Almost every President in the last forty years has introduced his brand of 'new federalism'. The pivotal changes have been around which level of government will have responsibility for income distribution services, and what will be the level of federal grants to state and local governments. Though federally imposed mandates have increased in numbers, the basic right of state governments to determine state–local fiscal relations remains unchallenged. From the early 1960s through to the present time, we have seen significant shifts in the importance of federal grants in aid to state and local governments. In 1980, federal grants constituted 28.9 percent of state and local government receipts; in 1999, this was 23.4 percent. The expenditure levels of the federal and the combined state–local governments are about the same.

The questions are whether or not the basic distribution of revenues, expenditures and grants from the federal government to the states is equalizing or counter-equalizing, and whether state–local equalization mirrors this pattern. The data in Table 2.7 present the results of an OLS estimation of per capita state and local government expenditures and own source revenues, and per capita federal grants to state and local governments for 49 states in the USA in 1997. Per capita income is introduced as an independent variable to measure fiscal capacity. The expectation is that income will be positively related both to own-source revenues and to expenditures. Two additional control variables are introduced in the equations to account for interstate variations in the level of expenditure needs or in the structure of fiscal capacity. These are: the percentage of school-aged children (population 5 to 17 years) and population density. A separate regression of per capita federal grants against income and these control variables should show a negative relationship with income if the grant system is equalizing of fiscal capacity.

Table 2.7 Linear regressions of US state and local government revenue, expenditures and grants against selected variables in 1997[a]

	Expenditures per capita	Own-source revenue per capita	Grants per capita
Constant	6.98	6.33	10.98
	(4.12)	(4.13)	(3.10)
Per capita income	0.661	0.872	-0.256
	(4.56)	(6.69)	(0.85)
Population density	-0.021	-0.032	-0.049
	(1.15)	(1.95)	(1.27)
Percent school-aged children	-0.085	-0.147	-0.608
	(0.30)	(0.57)	(1.02)
Adjusted R^2	0.33	0.52	0.07

Note: [a] N=49, Alaska and DC are excluded. All variables are expressed in logarithms with t-values shown in parenthesis below the regression coefficients.

The regression results presented in Table 2.7 show that state and local government own source revenues and expenditures are positively and significantly related with per capita income. Those state and local governments with higher per capita income generate more own-source income per capita and spend more per capita than do those with lower levels of per capita income. Neither of the control variables significantly affects the level of spending. A comparison of the revenue and expenditure equations does support the hypothesis that the federal government does some equalization of state and local government expenditures. Rich states still spend more than poor states, but their spending advantage is not commensurate with their own source revenue advantage. A 10 percent higher level of income is associated with an 8.7 percent higher level of own source revenues but only a 6.6 percent higher level of spending. The grant system leads to an equalization swing of about 2.1 percent.

The results of the federal grant analysis do not support this hypothesis of equalization. Per capita income is not a significant determinant of the level of per capita grants (Table 2.7). Relatively little of the variation in per capita grants can be explained.

State–Local Fiscal Relations

Currently, state governments in the USA act with relative independence from the federal government. Unlike the cases of China and Russia, state governments in the USA develop their budgets with very little direct oversight from the federal government, and determine the overall size of their budgets. States in turn apply their own restrictions on local governments. Some states give a great deal of autonomy to their local governments, while some exert substantial control over local revenue and spending levels. But like the cases of China and Russia, the US state governments are not uniform in their approach to equalization.

There are very wide fiscal disparities within states in the United States, which gives rise to a difficult task of equalization among local governments within states. Our case studies in the United States are the states of Georgia and New York. In the year studies, per capita personal income in New York State was 4.6 percent above the national average while that in Georgia was 7 percent below the national average. There is significant variation around this average within both states. Coefficients of variation indicate that the higher per capita income in New York State is not spread as uniformly within the state as it is in Georgia. The same is true for the distribution of population density within the state. New York is a richer state, but it has much more equalization to do than Georgia.

We developed tests of the equalization of public finances for these two states using data from the Census of Governments for 1992, with additional information from the annual Census. First, we defined the total level of expenditures (revenues) by county, to include the expenditure (revenue) of all local governments operating within the county (for example, county, city, school district and other special district governments). Intergovernmental transfers were defined in a comparable way. Second, we recorded these data for New York's 57 counties and Georgia's 159 counties. The independent variables are per capita personal income (to measure inter-county differences in fiscal capacity) and two control variables: the percentage of school-aged children and population density. A dummy variable (= 1.0 for metropolitan counties) has been included to account for the special impacts of urbanization on fiscal outcomes. Third, we estimated the relationship with an OLS regression against the revenue and expenditure dependent variables, and against per capita state grants to local governments. As in the cases of Russia and China noted above, we will take the difference between the cross-section income elasticities of revenues and expenditures to be evidence of fiscal equalization.

We find that counties with higher incomes spend more in both states, but that the relationship is more pronounced in Georgia (Table 2.8). For a 10 percent higher level of per capita income in Georgia, we may expect a 8.4 percent higher level of per capita expenditures (holding constant the population density, the percentage of school-aged children, and metropolitan status). The comparable number in New York is 5.2 percent.

On the own source revenue side, a 10 percent higher level of income leads to an expected 12.4 percent higher level of revenue in New York, but only an 8.4 percent higher level in Georgia. After all grants and transfers are taken into account, the 12.4 percent advantage in per capita own source revenues in New York is reduced to a 5.2 advantage in per capita expenditures, a swing of 7.2 percent. In Georgia, the 11.7 percent own source revenue advantage is reduced to an 8.4 expenditure advantage, a swing of 3.3 percent. New York carries out more fiscal equalization than Georgia.

The equalization result is primarily due to the different systems of state grants. In New York, state grants are significantly higher in counties with lower levels of per capita income and higher population densities. For Georgia, we cannot find a systematic relationship between per capita income and grants. However, per capita grants and both the percentage of school-aged children (positive) and metro location (negative) were significantly related.[11] At least the income-equalizing features of the New York grant system are greater than that of Georgia.

What may we conclude from this analysis? Certainly, we find that state grants to local governments differ greatly between the two states studied. The income elasticity of per capita grants is not significantly different from zero in Georgia, but is estimated at –1.15 in New York. By contrast, there is no significant relationship between per capita federal grants to states, and the income level of the states. Second, we find that the cross-section income elasticity of own source revenues is greater in New York and Georgia than it is across all states. This suggests that US states are forced to be more involved with equalization than is the federal government, presumably

Table 2.8 Linear regressions of revenues and expenditures against selected socioeconomic variables for Georgia and New York states, by county, 1997[a]

	Georgia			New York		
	Per capita expenditures	Per capita own-source revenues	Per capita state grants	Per capita expenditures	Per capita own-source revenues	Per capita state grants
Constant	-6.55 (3.42)	-10.89 (3.77)	0.222 (0.16)	-3.922 (2.47)	-11.497 (5.84)	11.255 (6.96)
Per capita income	0.836 (4.02)	1.169 (3.73)	0.127 (0.83)	0.524 (3.09)	1.246 (5.94)	-1.150 (6.68)
Population density	0.067 (2.33)	0.111 (2.54)	0.004 (0.21)	-0.023 (0.84)	-0.076 (2.24)	0.116 (4.16)
Percent school-aged children	0.723 (2.85)	0.531 (1.39)	1.014 (5.47)	-0.049 (0.35)	-0.125 (0.72)	0.081 (0.57)
Metro dummy	-0.307 (4.59)	-0.360 (3.57)	-0.200 (4.10)	-0.406 (0.85)	-0.058 (0.87)	-0.017 (0.32)
Adjusted R^2	0.18	0.17	0.26	0.17	0.45	0.45

Note: [a] Number of observations for Georgia = 158, for New York = 57. All variables are expressed in logarithms with t–values shown in parenthesis below the regression coefficients.

because their tax systems are less progressive. Finally, it would appear that the richer state (New York) has greater expenditure disparity with which to deal, and carries out more equalization than the poorer state (Georgia).

CONCLUSIONS

In this chapter we ask three questions:

- Do central governments equalize in terms of their distribution of intergovernmental transfers?
- Do provincial or state governments offset or reinforce central government equalization policies?
- Is there uniformity in the equalization policies of provincial governments within countries?

The answer to the first question is that all three of the countries in this sample – China, Russia and the US – do pursue fiscal equalization. The cross-section own source revenue–income elasticity is greater than the expenditure–income elasticity by roughly the same amount in the three countries (about 0.25). If a province or state has a 10 percent higher level of per capita income in any of these countries, it can, on average, expect its revenue raising advantage to be reduced by about 2.5 percent.

The answer to the second question is that provincial government equalization policies are stronger than central equalization policies in all three countries. In China, both provinces studied show a stronger fiscal equalization program than the central government. In Russia, the same is true for the one region studied. In the USA, it is true for both of the states studied.

With respect to the third question, our sample is too small to provide a general answer. However, we can note that the income–equalization program in the (poorer) state of Georgia is not as strong as that in the wealthier state of New York. In China, the program in the poorer Sichuan Province is less equalizing than that in the richer Jiangsu Province. One tentative hypothesis that emerges here is that the equalization policies are driven more by the wealthier state disparities in income than by the average income level.

What are the policy implications of all of this? Suppose, as we think likely, that the middle tier does have preferences that are different from those of the center, and that the central government has the wherewithal to track the fiscal actions of its provinces or states. What actions should it take?

The answer is that it depends on the degree to which the government has embraced fiscal decentralization as the right economic strategy for the country. If it has made this decision, then the response should be to devolve more fiscal decision-making powers and allow the sub-national governments to 'go their own way', subject only to the externality constraints. Based on these results, one would expect more equalization rather than less, but this sample is much too small to make such an inference.

If the central government has not fully embraced decentralization, as might be the case in a developing economy with large regional income disparities, an unstable economy and an unfinished basic infrastructure, another strategy is called for. In this case one might expect a more controlled sub-national government sector in terms of expenditure mandates, grant conditions, required pass-through formulae, and limits on taxing and borrowing powers. Our results suggest that this strategy might lead to less equalization.

This question of the role of the middle tier and the response of the local governments is an important one. But the issues are barely researched and the discussion of these issues is only just beginning to find its way into the decentralization policy discussion. It is an area ripe for new thinking and policy research.

NOTES

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1. For reviews, see Bahl (1999), Bird and Vaillancourt (1998), Tanzi (1996), Bird et al. (1995), McLure (1996), Ter-Minassian (1997), Litvak *et al.* (1998), and Inter-American Development Bank (1994).
2. There are some notable exceptions to this, particularly the continuing work of Wong (1996) and Wong *et al.* (1995) on Chinese provincial–local fiscal relations. See also Bahl (1999) for work on China, Bahl *et al.* (1999) and Bahl and Wallace (1994) for work on Russia, and Horva'th (2000).
3. Many have argued that general-purpose grants can discourage local tax effort, for example, Wetzel and Papp (1999) for Hungary, and OECD (1998) for Germany. But as Bird (2000) points out, there is no consensus from comparative work that supports the existence of a dampening effect on local tax effort by intergovernmental transfers.
4. This section draws heavily from Bahl (1999).
5. Strictly speaking, China has a central, provincial and local level of government. Previously, there was a prefecture level between the province and the local governments. In more recent times, the prefectures have come to be called 'cities' in some provinces, have been abolished in other provinces, and still exist in some other areas. Local level governments consist of cities, urban counties that are subordinate to cities, rural counties, towns and townships (see Bahl, 1999, page 139).
6. For an earlier version of this same approach to evaluating central–provincial relations, see Bahl and Wallich (1992).
7. There is always the question of the standard against which one measures equalization. In the case of China, we use per capita income level as the barometer, and do not use measures of expenditure need. In the Russian and US case studies presented below, available data permit us to use other baselines for measuring equalization.
8. Revenues in this case do not include grants from the province.

9. For a description of the powers and functions of regional and local governments in Russia, see Kurlyandskaya (2001).
10. This section draws heavily from Bahl *et al.* (1999).
11. When metropolitan location was dropped as an independent variable, per capita income did not gain significance.

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