Intergovernmental Fiscal Relations in Developing and Emerging

The Reform of Intergovernmental Fiscal Relations in Developing and Emerging Market Economies

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Foreword

In its policy advice to developing countries, the World Bank has, in recent years, recognized the fundamental need to restructure the public sector to make it more responsive to efficient and equitable provision of public services and the needs of private sector development, thereby enhancing its contribution to economic growth. An important dimension of public sector reform in developing countries has been the loosening of central control over the private sector and lower level governments both to nurture a vigorous and productive private sector and to foster local public institutions that are morresponsive to local preferences and needs. To be successful, however, this process of fiscal decentralization must be carefully charted and implemented. Unfortunately, much of the relevant economic literature on this subject remains largely inaccessible to policymakers in developing and transitional economies.

Responding to these concerns, the Public Economics Division of the Policy Research Department initiated a modest research program on the reform of intergovernmental fiscal relations in developing and emerging market economies. This program aims to distill lessons about practical policy from a review of the existing fiscal federalism literature as well as to undertake studies to develop a better understanding of public institutions and arrangements that foster economic growth and impart a greater sense of political and economic participation on the part of member units and constituents of a state. This paper takes a first step in this direction by providing an overview of fiscal federalism principles and practices to guide policy debates on restructuring intergovernmental fiscal arrangements in developing and emerging market economies. I hope public officials and students of public finance in developing and emerging market economies find it useful in their work.break

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Abstract

An important dimension of public sector reform in developing and emerging market economies has been the loosening of central control over the private sector and lower level governments. Anwar Shah's overview of the principles and best practices of fiscal federalism should help guide policy debates on restructuring intergovernmental fiscal arrangements.

Strong emphasis on central planning impedes innovative responses to local issues by local governments and stymies private sector development. Decentralization should be the rule, Shah contends, unless a strong case can be made for centralizing specific responsibilities. Local public services can be provided more efficiently if expenditures more closely match local needs and preferences. More closely linking benefits to costs also promotes accountability.

Increased fiscal autonomy can also help mobilize more revenue from local sources, improving a country's fiscal position. And decentralized decisionmaking encourages local participation in development.

Constitutional responsibilities should be stated clearly and precisely. Tax and spending assignments should be determined simultaneously, so revenue means are matched as closely as possible to spending needs at each level of government.

In most developing countries, subnational governments have limited access to their own tax bases and depend on higher level transfers. A grant's design should reflect the situation and objectives. Shah gives practical examples.

Situation : Fiscal deficiencies caused by spending needs being greater than revenue−raising capacity. *Calls for* : Nonmatching transfers; changes in taxing and spending responsibilities or in tax base or revenue−sharing mechanisms.

Situation : Different net fiscal benefits in, or fiscal imbalances among, different jurisdictions. *Calls for* : General nonmatching equalization transfers.

Situation : Benefit spillover. *Calls for* : Compensation through open−ended matching transfers, with the matching rate determined by the benefit−spillout ratio.

Situation : Ensuring minimum standards of service across the nation. *Calls for* : Conditional nonmatching (block) transfers.

Situation : Stimulating public spending in areas with high national but low local priority. *Calls for* : Conditional open−ended matching transfers.

Although most countries give a high priority to limiting interregional fiscal disparities, no developing or transitional economy has adopted an explicit standard for equalization. Revenue sharing should be supplemented by an equalization program with a specified standard rather than by combining several factors into one formula.

Local borrowing to meet capital expenditures is a major issue in most developing countries. In such cases, autonomous bodies can supervise and assist local borrowing for capital projects.

The decentralization of responsibilities and the rationalization of intergovernmental transfers should be supported by strengthening local institutional capabilities. Monitoring, auditing, and inspections functions in most developing nations especially need to be strengthened.

Transitional economies also need to give high priority to establishing or improving framework laws on property rights, corporate legal ownership and control, bankruptcy, and financial accounting and control.break

Executive Summary

The design of taxing, spending, and regulatory authorities and the structure of intergovernmental transfers are fundamentally important to efficient and equitable provision of public services in a given country. This paper reviews principles and practices of fiscal federalism in developing and industrial economies and suggests reform of intergovernmental fiscal arrangements. It provides a broad framework for assessment and presents plans to help developing nations chart their own courses of action. Except for centrally planned economies in transition to market economies and the Republic of South Africa, these arrangements will probably not be fully realigned, but major economic gains may be possible in some countries by simply fine−tuning the existing structure of invergovernmental transfers without reassigning expenditure and taxing responsibilities.

Design of Economic Constitutions and General Issues

Three types of constitutional division of powers exist: unitary, federal, and confederal.

• A *unitary* form of government emphasizes centralized desionmaking to further national objectives. A majority of developing countries have adopted a unitary form of government.

• A *federal* form of government is more conducive to decentralized decisionmaking. Many industrial countries have a federal form of government.

• A *confederal* form of government empowers the central authority to coordinate the decisions of sovereign members. Few countries, but several economic unions, have confederal forms of government.

Economic theory suggests that decisionmaking should occur at the lowest level of government consistent with the goals of allocational efficiency, reflecting economies of scale and benefit−cost spillouts. Achieving optimal number and size of jurisdictions occurs in several ways: voting with feet, voting by ballots or other community formation processes, and redrawing jurisdictional boundaries.

Strong emphasis on central planning in developing countries impedes innovative responses to local issues by local governments and stymies private sector development. Unless a convincing case can be made for centralization of a specific responsibility, decentralization of authority should be the rule. Fiscal decentralization can contribute to more efficient provision of local public services by matching expenditures more closely with local priorities and preferences. Clearer and closer linkage of the benefits of local public services with their costs promotes accountability, especially in large and diversified economies.

Increased fiscal autonomy can also be instrumental in mobilizing more revenues from local sources, which helps to improve a country's overall fiscal position. Decentralized decisionmaking enlarges possibilities for increased local participation in development.

Constitutional responsibilities should be stated clearly and precisely. For better accountability, tax and expenditure assignment should be determinedcontinue

simultaneously, so that revenue means are matched as closely as possible to expenditure needs at each level of government. This will help reduce the role of fiscal transfers, thereby minimizing their potentially distortionary effects.

Revenue decentralization without a corresponding decrease in expenditure responsibilities can constrain the federal government. In transition economies, expenditure decentralization has taken place without increasing revenues for subnational governments, passing federal deficits on to the subnational level.

Issues in the Allocation of Responsibilities

In developing and transitional countries, widespread problems occur in the assignment or allocation of responsibilities for expenditures and taxation. In most countries, the intrusive role of national government in local functions is being questioned.

National governments should have responsibility for national public services, defense, security, international affairs, monetary policy, regulation, transfers to persons and businesses, fiscal policy coordination, regional equity, redistribution, and preservation of internal common markets. State governments should be responsible for education, health, social insurance, intermunicipal infrastructure, and issues concerning financial assistance and oversight to local governments. Local services should be assigned to local governments. In areas of shared responsibilities, the role of each level of government should be clarified.

Assignment of public services to local or regional governments can be based on such considerations as economies of scale, economies of scope, benefitcost spillovers, proximity to beneficiaries, consumer preferences, and flexibility in budgetary choices for public spending. The responsibilities of various local governments should reflect population size, rural−urban classification, and fiscal capacity criteria, but do not imply that the same government should be directly engaged in provision of public services. Such decisions should be based on careful evaluation of public and private sector alternatives, using efficiency and equity criteria.

Issues in Tax Assignment

In most developing countries, subnational governments have limited access to their own tax bases and depend on higher level transfers, which undermines accountability. In transition economies this situation is reversed: the central government may not have full control over its tax bases because of local administration of taxes. This encourages better collection effort for taxes retained at the local level, but relatively less effort for taxes that are transferred upward. In a country with conflict among levels of government, subnational administration of national taxes is not advisable.

Problems are also caused by overlapping, uncoordinated administration of certain taxes, especially sales and excise taxes.

Corporate income taxes and resource rent taxes should be assigned to the national government, with subnational governments compensated through revenue sharing or stabilization pools.

In general, tax assignment should reflect two broad principles: efficiency in tax administration and fiscal need. Taxes on mobile factors—such as corporate and personal income taxes, multistage sales taxes such as VAT, tax policy instruments to further national policy objectives, and progressive redistributive taxes—should be assigned to the federal government.

State governments should levy residence−based taxes, sales taxes, excises, supplementary income taxes, sin taxes, and congestion tolls, as well as benefit charges such as payroll taxes, vehicle taxes, business registrations, court fees and stamps, resource royalties and fees, poll taxes, and other user charges.

Local governments should levy property taxes, frontage taxes, tolls on local roads, taxes on fairs and markets, poll taxes, and user charges.

Issues in Intergovernmental Transfers

Properly structured specific−purpose transfers can support such important policy objectives as:

• Bridging fiscal gaps.

• Benefit spillover compensation.

• Ensuring minimum standards of public services.

• Fulfilling the government's redistributive function.

• Preserving common internal markets.

• Reducing net fiscal benefits across jurisdictions.

• Achieving stabilization objectives.

Grant objectives should determine grant design, reflecting specific situations and requirements:

Situation : Fiscal deficiencies caused by expenditure needs being greater than revenue means.break

Requirement : Nonmatching transfers, changes in taxing and spending responsibilities, or tax base or revenue sharing mechanisms.

Situation : Differential net fiscal benefits across jurisdictions or horizontal fiscal imbalances.

Requirement : General nonmatching equalization transfers.

Situation : Benefit spillover.

Requirement : Compensation through openended matching transfers, with the matching rate determined by the benefit−spillout ratio.

Situation : Ensuring minimum standards of services across the nation.

Requirement : Conditional nonmatching (block) transfers.

Situation : Stimulating public expenditure on areas with high national but low local priority.

Requirement : Conditional open−ended matching transfers.

In most developing or transitional economies, conceptual guidance on grant objectives and design continues to be ignored. A typical developing country has many specific−purpose programs for which objectives are either not specified or specified vaguely. In some instances, grant objectives are reviewed only after the release of funds.

There are some obvious reasons for this state of affairs. Central governments can exercise complete discretion over grant funds without any accountability. Enhanced flexibility is achieved at the cost of transparency, objectivity, and accountability; specific−purpose grant programs are used for pork barrel politics rather than for national objectives. Some specific−purpose grant programs provide perverse economic incentives, raising deficits to qualify for higher grants. A review of these grant programs should be high on any agenda for public sector reform.

Grants can legitimately be used to equalize fiscal capacities of subnational governments as long as they incorporate explicit standards of equalization. Such grants should transfer resources from rich states to poor states so that the net transfer equals zero.

Despite a high priority in most countries for limiting interregional fiscal disparities, no developing or transitional economy has adopted an explicit equalization standard and a fiscal equalization transfer program to disadvantaged subnational governments that takes into consideration their fiscal capacities and the equalization standard in determining entitlements. Revenue sharing should be supplemented by an equalization program with a specified standard rather than by combining several factors into one formula.

Federal−local and state−local transfers in most developing countries need major restructuring. In none of the countries reviewed do these transfers consider the fiscal capacity or revenue potential of local governments. Funds are usually allocated on a case−by−case discretionary basis—negating transparency, predictability, and autonomy objectives.

The government of a large country usually does not have the administrative capacity to monitor finances of individual municipalities closely, making a weak case for direct federal transfers to local governments. Such transfers should be the responsibility of state governments, which can restructure transfers to local governments more objectively. Recognizing municipal taxable capacity would also help the state monitor utilization of local revenue bases and offer corrective action on a timely basis.

Institutional Considerations

Local borrowing to meet capital expenditures remains a major issue in most developing countries. Local governments are generally not permitted to borrow in credit markets, relying exclusively on higher level capital transfers to undertake capital investments. In such cases autonomous bodies can supervise and assist local borrowing for capital projects.

Reform of intergovernmental fiscal relations requires comparable institutional arrangements for intergovernmental coordination, planning, budgeting, and implementation. Intergovernmental coordination and consultation through regular meetings of officials are critical to improved public sector management. The structure of transfers should be periodically reviewed either by intergovernmental committees or by autonomous grant commissions.

For decentralized institutions to succeed, it is important to loosen the grip of central planning over subnational governments. Such planning imposes a central view of public investment requirements and often impedes innovative responses to local issues by local governments. In general, it is best to strengthen monitoring and audit of lower level performance. These functions are often conducted by several agencies in an uncoordinated fashion, but consolidation in a single agency would improve their effectiveness.

Decentralization of responsibilities and rationalization of intergovernmental transfers should becontinue

supported by strengthening local institutional capacities. Higher level governments can identify training needs, offer training programs, facilitate staff transfers, provide guidance on organizational structure and management issues, and provide technical assistance and operational tools for personnel management, service planning, monitoring, and delivery.

In transitional economies, framework laws on property rights, corporate legal ownership and control, bankruptcy, and financial accounting and control are not fully developed. The establishment or improvement of these laws should have high priority.

Monitoring, audit, and inspection functions are weak in most developing nations. There is a need to strengthen these functions and to grant greater authority and independence to the auditor general.

How taxing, spending, and regulatory authorities are determined and how intergovernmental transfers are structured are vital to the efficiency and equity of public services provision. Few developing countries pay serious attention to this guidance in the design of their transfers. Making this guidance accessible to policymakers in developing countries and adapting this guidance to suit individual circumstances are essential. This paper takes a small step in this direction. Significant work lies ahead.break

1—
Design of Economic Constitutions

How taxing, spending, and regulatory functions are allocated among governments and how intergovernmental transfers are structured are of fundamental importance to the efficient and equitable provision of public services.

Much theoretical and empirical work has been done on fiscal federalism—public finances of a state with more than one fiscal tier—in industrial countries. Unlike other branches of economics, fiscal federalism offers specific guidance for nations attempting to reform or restructure their fiscal relations. Much of this literature, however, remains inaccessible to government and nongovernment officials in developing and transitional economies. This paper distills practical lessons from this literature relevant to the reform of intergovernmental fiscal arrangements in developing or transitional economies.

The principal objectives of this paper are to provide a broad framework for assessing intergovernmental fiscal arrangements in individual countries and general guidelines for helping developing nations institute appropriate reforms. In centrally planned economies moving toward market economies these arrangements may have to be fully reorganized. In developing economies, full restructuring may be unrealistic, but major economic gains may be possible simply by fine tuning the existing structure of intergovernmental transfers without reassigning expenditure and taxing responsibilities.

This section covers the design of economic constitutions, that is, assigning taxing, spending, and regulatory responsibilities and specifying tax base and revenue sharing mechanisms.[1] The conceptual basis of expenditure assignment is discussed first, using examples from selected countries. A review of the theory of tax assignment follows with a discussion of current issues. Finally, tax base or revenue sharing concepts are introduced.

Forms of multilevel government

The constitutional divisions of powers among various levels of government fall into three categories: unitary, federal, and confederal.

Unitary

A unitary country has a single or multitiered government in which effective control of government functions rests with the central government. A unitary form of government facilitates centralized decisionmaking to further national unity objectives. It places greater premium on uniformity and equal access to public services. An overwhelming majority of countries have adopted a unitary form of government. The city states of Singapore and Monaco are single−tiered governments. China, Egypt, Prance, Indonesia, Italy, Japan, Korea, New Zealand, Norway, the Philippines, Portugal, Spain, Sweden, Turkey, and the United Kingdom have multitiered governments based on unitary constitutions. Some unitary countries like China are quite decentralized. In China during the 1980s subnational governments secured a significant degree of autonomy from the central government; as a result, China retains the legal structure of a unitarycontinue

form of government but is considered a decentralized federation.

Federal

A federal form of government has a multitiered structure with decisionmaking shared by all levels of governments. A federal form of government promotes decentralized decisionmaking and therefore is conducive to greater freedom of choice, political participation, innovation, and accountability. It is also better adapted to handle regional conflicts. Such a system, however, is open to a great deal of duplication and confusion and may not be able to secure national unity and preserve an internal common market.

Federal countries broadly conform to one of two models, dual federalism and cooperative federalism (figure 1). Under dual federalism, fiscal tiers are organized so that national and state governments have independent authority in their areas of responsibility and act as equal partners. National and state governments often assume competitive, noncooperative roles under such an arrangement. Local governments do not have any constitutional status and are simply extensions of state governments. In the layer cake model of dual federalism, local governments implicitly derive their authority from state governments. In the coordinate−authority model of dual federalism, such authority is explicitly derived. The working of Canadian and Indian federations resembles the coordinate−authority model of dual federalism.

In the marble cake or cooperative federalism model various levels of government have overlapping and shared responsibilities, and all levels are treated as equal partners in the federation (Bowman and Kearney 1990). Brazil and the United States share some affinity with this approach.

Countries with a federal form of government vary considerably with federal influence on subnational governments (table 1). Such influence is very strong in Australia, India, Malaysia, Mexico, and Pakistan; moderately strong in the Federal Republic of Germany, Nigeria, and the United States; weakin Brazil, Canada, and Switzerland. In the last group of countries, central control over subnational expenditures is quite limited, and subnational governments have considerable authority to determine their own tax bases and tax rates. In centralized federations, conditional grants by the federal government play a large role in influencing the priorities of lower level governments. In Australia, a centralized federation, the federal government is constitutionally required to follow regionally differentiated policies.

Federal countries also vary by the process of subnational influence on national policies. In some countries, there is a clear separation of national and subnational institutions ("executive" or "interstate" federalism) and the two levels interact through meetings of officials and ministers, as in Canada (Courchene 1986). In Germany and the United States, subnational governments have a voice in national institutions ("intrastate" federalism). In the United States, regional and local coalitions play an important role in the Congress; in Germany, state government delegates are represented on the Bundesrat. In some federal countries, constitutional provisions require that all legislation recognize that ultimate power rests with the people. For example, all legislation in Canada must conform to the Canadian Charter of Rights. In Switzerland, a confederation by law but a federal country in practice, major legislative changes require approval by referendum. Such provisions indirectly reinforce the decentralized provision of public services.

Confederal

In a confederal system of government, the central government serves as the agent of member units, usually without independent taxing and spending powers. The United States had a confederal system from 1776 to 1787. The United Nations, the European Union (formerly the European Community), and the Commonwealth of Independent States (CIS) of former Soviet Republics approximate the confederal form of government. A confederal system suits communities that are internally homogeneous but as a group completely heterogeneous.

Economic Basis of Jurisdictional Design

In designing economic constitutions, governments must take into consideration both theory and implementation.

Theory

Several accepted theories provide strong rationale for decentralized decisionmaking on the grounds of efficiency, accountability, manageability, and autonomy.break

Stigler's menu . George Stigler (1957) identifies two principles of jurisdictional design:

• A representative government works best the closer it is to the people.

• People should have the right to vote for the kind and amount of public services they want. These principles suggest that decisionmaking should occur at the lowest level of government con−sistent with the goals of allocational efficiency. Thus optimal size jurisdiction would vary with specific instances of economies of scale and benefit−cost spillouts.

The principle of fiscal equivalency . A related idea on the design of jurisdictions has emerged from the public choice literature. Olson (1969) argues that if a political jurisdiction and benefit area overlap thecontinue

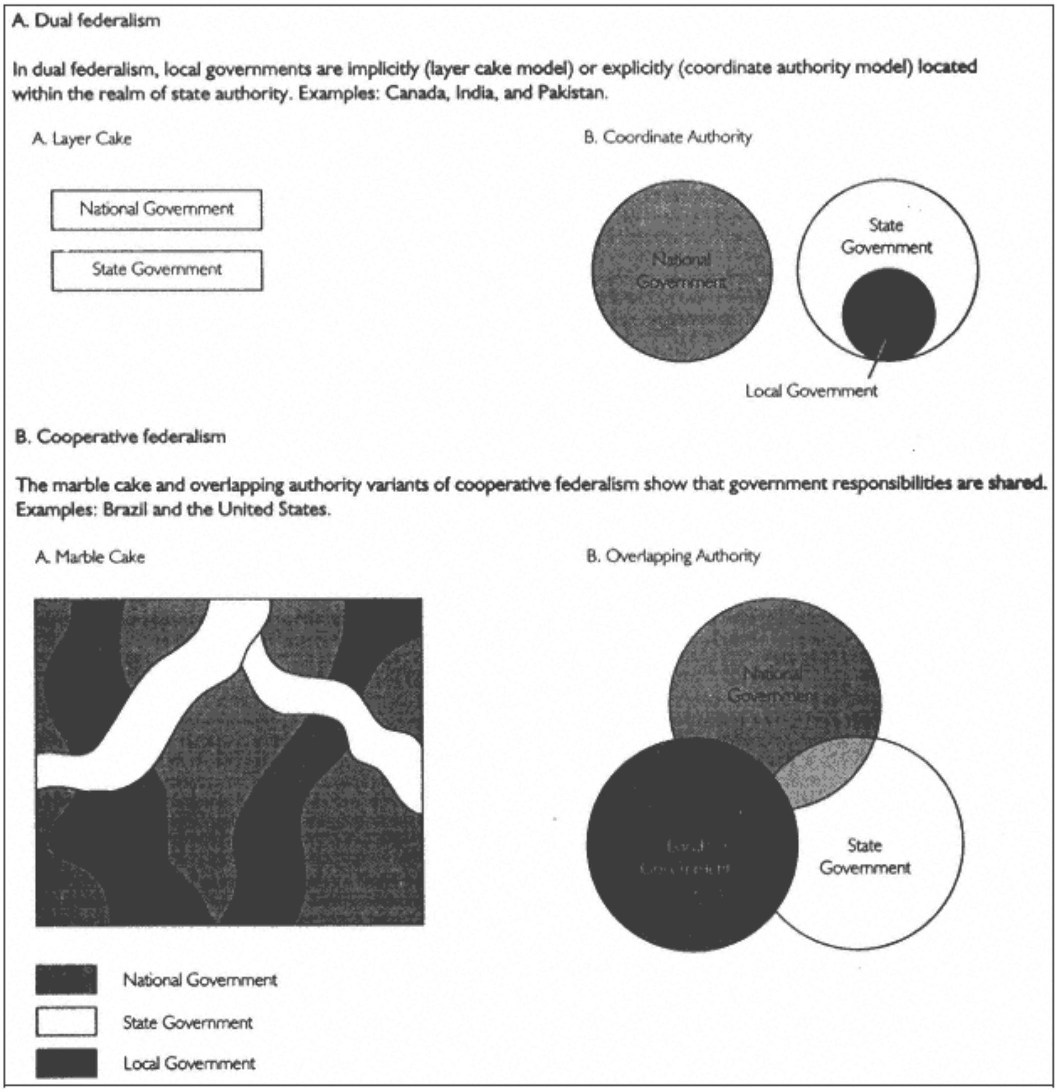

Figure 1.
Alternate models of federalism
Source : Adapted from Bowman and Kearney (1990).

Table 1. A comparison of selected fiscal systems

	Tax separation		Tax overlapping		Tax sharing		
Selected indicators	Australia	Mexico	Canada	United States	Germany	Nigeria	Brazil
State influence on federal policymakers	Fairly strong	Weak	Strong	Fairly weak	Strong	Strong	Strong
State government constitutional status	Strong	Weak	Fairly strong in law; very strong in fact	Fairly weak	Strong	Strong	Strong
Actual state control of local government	Strong	Strong	Strong	Varies from fairly strong to fairly weak	Strong	Strong	Weak
Range of local government responsibilities	Limited	Limited	Fairly extensive	Extensive	Limited	Limited	Extensive
Local government influence on state policymakers	Weak	Weak	Fairly strong	Fairly strong	Weak	Weak	Strong
Local government influence on state policy	Weak	Weak	Fairly strong	Fairly strong	Weak	Weak	Strong
Local government influence on federal policy	Weak	Weak	Weak	Fairly strong	Weak	Weak	Very stro
The character of fiscal federalism	Two−tiered; centralized	Three−tiered; centralized	Two−tiered; decentralized	Three−tiered; unstructured	Two−tiered; integrated	Three−tiered; decentralized	Three−tie decentrali
Federal−state intergovernmental transfers	Important; emphasis on conditional grants	Important	Important; emphasis on unconditional grants	Important; emphasis on conditional grants	Unimportant; emphasis on tax sharing	Important	Important
Federal/interstate equalization performance	Very strong; revenue and expenditure disparities reduced substantially	Weak	Strong; revenue disparities reduced substantially	Very weak	Strong; revenue and some expenditure disparities reduced substantially	Weak to fair	Weak
State tax performance	Fairly weak	Weak	Strong	Fairly strong	Fairly strong	Weak	Strong
Local government fiscal independence	Fairly strong	Weak	Fairly strong	Fairly strong	Weak	Weak	Weak

Equalization formula	Federal−state explicit and complex	Implicit and piecemeal	Federal−state fiscal equalization	Implicit and piecemeal	Explicit and complex	Implicit and piecememal	Implicit a piecemem
State tax base conformity	Yes	No	Yes	No	Yes	Yes	No
State tax rate uniformity	Yes	No	No	No	Yes	Yes	Yes
State−local revenues more or less match responsibility	No	Yes	Yes	Yes	Yes	No	No

Source : Some data for this table are extracted from Advisory Commission on Intergovernmental Relations (1981).

free−rider problem is overcome, and the marginal benefit equals the marginal cost of production, thereby ensuring optimal provision of public services. Equating the political jurisdiction with the benefit area is called the "principle of fiscal equivalency" and requires a separate jurisdiction for each public service. A related idea, the "correspondence principle" is proposed by Oates (1972). According to this principle, the jurisdiction determining the level of provision of each public good should include precisely the set of individuals that consume it. This generally requires a large number of overlapping jurisdictions.

The decentralization theorem . According to the "decentralization theorem" advanced by Oates, "each public service should be provided by the jurisdiction having control over the minimum geographic area that would internalize benefits and costs of such provision" (Oates 1972, p. 55). Practical implications of this theorem again require a large number of overlapping jurisdictions.

Implementation Mechanisms

Achieving the optimal number and size of jurisdictions requires operation of voting with feet, voting by ballots or other community formation processes, and redrawing of jurisdictional boundaries. These ideas are briefly discussed below:

Voting with feet . According to Tiebout (1956), people consider tax prices and the public services menu offered by various jurisdictions in deciding where to live. Thus, voting with feet leads to jurisdiction formations creating a market analog for public service provision. Oates (1969) argued that if people vote with their feet, fiscal differentials across communities will be capitalized into residential property values. This conclusion has been rejected by formal tests of allocative efficiency proposed by Brueckner (1982) and Shah (1992b).[2] Both tests suggest that optimal provision of public services is not ensured by voting with feet alone, but also depends on rational voting behavior.

Voting by ballot . This line of research suggests that collective decisionmaking may not ensure the electorate's welfare maximization because of different goals of citizens and their governmental agents.

Voluntary associations . Buchanan (1965) postulates that provision of public services through voluntary associations of people (clubs) ensures the formation of jurisdictions consistent with the optimal provision of public services.

Jurisdictional redesign . An important process for community formation in modern societies is redrawing boundaries of existing jurisdictions to create special or multipurpose jurisdictions.

Allocation of Responsibilities

The "assignment problem," or the allocation of expenditure and tax functions to various levels of governments, is the most fundamental issue in a federation. The literature on fiscal federalism argues that assigning responsibility for spending must precede assigning responsibility for taxation, because tax assignment is generally guided by spending requirements at different levels and cannot be determined in advance. It may be desirable to decentralize taxation at the same time as decentralizing spending, so that subnational governments will not have to rely exclusively on grants from higher levels of government. If subnational governments are not responsible for raising at least some of their revenues, they may have too little incentive to provide local public services in a cost−effective way. If subnational governments are assigned more revenues than their spending requires, they may have an incentive to reduce taxes or increase public sector wages. For example, in 1990 some municipalities in Brazil increased public sector wages and lowered property taxes and other charges because of generous federal funding. It seems sensible to consider decentralizing spending at the same time as considering tax decentralization; Brazil is experiencing difficulties after doing the reverse.

It may be noted here that the Maastricht Treaty introduced a guiding principle, the "principle of subsidiarity," for the assignment of responsibilities among members of the European Community. According to this principle, taxing, spending, and regulatory functions should be exercised by lower levels of government unless a convincing case can be made for assigning these to higher levels of government. In practice, policy guidance emanating from this principle is consistent with the guidance provided by the fiscal federalism literature as discussed in the following sections.

Expenditure Assignment: Theory and Practice

Fiscal federalism literature provides broad guidance in delineating expenditure responsibilities among member units in a federation. The basic principles enunciated by this literature are relevant even for unitary states where subnational governments arecontinue

simply extensions or agents of higher level governments. By following these principles, the central government's agents face just the right incentives for efficient and equitable delivery of public services. These principles are discussed below and qualifications where appropriate for unitary governments are stated.

Efficient Provision of Public Services

Public services are provided most efficiently "by the jurisdiction having control over the minimum geographic area that would internalize benefits and costs of such provision" (Oates 1972, p. 55), because:

• Local governments understand the concerns of local residents.

• Local decisionmaking is responsive to the people for whom the services are intended, encouraging fiscal responsibility and efficiency, especially if financing of services is also decentralized.

• Unnecessary layers of jurisdiction are eliminated.

• Interjurisdictional competition and innovation is enhanced.

A decentralized system ideally ensures a level and combination of public services consistent with voters' preferences, while providing incentives for the efficient provision of such services. Nevertheless, some degree of central control or compensatory grants may be warranted in the provision of services when the following considerations apply:

• *Spatial externalities* . Spatial externalities arise when benefits and costs of public services are realized by nonresidents. In the case of benefit spillouts, the jurisdiction providing the service does not consider the proportion of benefits of a public service accruing to nonresidents and therefore under provides such a service. The reverse result is obtained in the case of cost spillouts, where the public service could be financed by exporting taxes to other jurisdictions. There are also public services whose benefits are considered national in scope, such as defense and foreign affairs. As a corollary, these services would be best provided by the federal government.

• *Economies of scale* . Certain services require areas larger than a local jurisdiction for cost−effective provision, for example, public transportation, water, and sewerage in metropolitan areas.

• *Administrative and compliance costs* . Centralized administration generally leads to lower administrative and compliance costs associated with financing public services.

Fiscal Efficiency

Decentralized decisionmaking in a federation results in differential net fiscal benefits (imputed benefits from public services minus tax burden) being realized by citizens depending on the fiscal capacities of their place of residence. A richer jurisdiction can provide a higher level of public services at a lower tax rate. It is argued that such differential net benefits (NFBs) would encourage people to move to a resource−rich area, although appropriate economic opportunities may not exist. Thus, resource allocation would be inefficient, because people in their relocation decisions would compare gross income (private income plus net fiscal benefits minus cost of moving) at new locations, whereas economic efficiency considerations warrant comparing private income minus moving cost. It is argued that the national government should have a role in correcting such a "fiscal inefficiency" (Boadway and Shah 1993; Boadway, Roberts, and Shah 1994).

Regional (Horizontal) Equity

Differential net fiscal benefits across various jurisdictions also lead to unequal treatment of citizens with identical private incomes depending on their place of residence. This is because their after−tax income inclusive of NFB would be different depending on their residence. This calls for a role by the national government in dealing with these fiscal inequities.

Redistributive Role of the Public Sector

It is commonly argued that effective redistribution is possible only through national programs (progressive income taxes and transfers to persons), suggesting that local jurisdictions attempting to carry out redistributive policies are likely to drive out the rich. While such arguments have merit, they leave a number of questions unanswered. National governments often prefer to strengthen their own power bases rather than to benefit citizens at large. In such situations, the central government may not redistribute from the rich to the poor in a symmetric fashion in the nation as a whole. Further views on standards for equity and methods to achieve such standards are likely to vary across a nation, making subnational government involvement critical to determining policies appropriate for each area. While the center may assume a dominant role in pursuit of vertical equity, involvement of sub−soft

national governments in implementing specific programs is essential so that such programs can be tailored to meet individual jurisdictions' circumstances (Boadway 1992).

Provision of Quasi−Private Goods

Modern governments provide many services that by virtue of their technologies are essentially private goods, for example, health, education, and social insurance. Public provision of these private services is justified on grounds of equity. Since benefits accrue mainly to residents of separate jurisdictions, such services would be better provided by subnational governments. Central government's involvement is nevertheless justified to ensure horizontal equity and minimum standards of service in all jurisdictions. Except for minimum standards in environmental protection—the absence of which would not adversely affect interregional trade—such standards for most services encourage the free flow of goods and services in the nation as a whole.

Preservation of Internal Common Market

Preservation of an internal common market remains an important area of concern to most nations undertaking decentralization. Subnational governments in their pursuit of attracting labor and capital may indulge in beggar−thy−neighbor policies and in the process erect barriers to goods and factor mobility. Thus, decentralization of government regulatory functions creates a potential for disharmonious economic relations among subnational units. Accordingly, regulation of economic activity such as trade and investment is generally best left to central governments. It should be noted, however, that central governments themselves may pursue policies detrimental to the internal common market. Therefore, as suggested by Boadway (1992), constitutional guarantees for free domestic flow of goods and services may be the best alternative to assigning regulatory responsibilities solely to the center.

Economic Stabilization

It is customary to argue that federal government should be responsible for stabilization policies because such policies cannot be carried out effectively by a local jurisdiction. Local pursuit of such fiscal policies leads to much of the gains being lost to outside jurisdictions. A monetary policy has little scope for being carried out at a local level. These guidelines for a centralized fiscal policy have, however, only limited relevance for a country with a decentralized constitution.

Decentralized fiscal policies have worked well in highly decentralized federations like Canada, Switzerland, and the United States, but the concept of a decentralized monetary policy does not exist. The proposition that monetary authority should be independent of any level of government conflicts with a parliamentary system of government. In both Canada and Switzerland, the monetary policy function is delegated by the federal government to an independent central bank, while fiscal policy is a responsibility shared by all levels of government. The federal governments in these countries use their powers of the purse (transfers) and moral suasion through joint meetings to induce a coordinated approach. The Swiss practice of allocating a portion of the profits of the central bank (seigniorage) to cantons promotes a wider sense of ownership of the monetary authority and could be a useful policy for other countries. An independent central bank should have exclusive jurisdiction in monetary policy. The central government should ensure fiscal policy flexibility by appropriately structuring tax assignments and by coordinating fiscal policy through regular meetings of officials of central and subnational governments.

Spending Power

In a federation, there is always some degree of conflict among priorities established by various levels of government. One way to induce lower level governments to follow priorities established by the higher level government is for the higher level government to use its powers of the purse, the so−called spending power. Matching transfers are often used to influence lower level priorities. Both the national and state governments could legitimately pursue such policies.

Besides having exclusive authority to carry out monetary policy and provide public services that are national in scope, the central government has a role in correcting fiscal inefficiencies and regional inequities arising from differential fiscal capacities of various jurisdictions. It has also a redistributive role, exercised through a tax and transfer system or through the joint provision of such public services as education and health, which are "transfers in kind" (Boadway 1992). The central government may also provide compensatory grants to cover the spillovers of benefits from provincial−level services.continue

Both the central and provincial governments could provide matching transfers to influence lower level priorities to further their own objectives. All other services are best provided by local governments, with central and provincial governments defining minimum standards. Table 2 presents an assignment of major public services based on theoretical considerations discussed above. The table shows that a significant number of major services would be suitable for concurrent assignment to two or more levels of government. For such services, it is important to specify clearly and precisely the roles of various levels of government to avoid duplication and confusion and to ensure accountability to the electorate. Such precise specification is critical for infrastructure and social services in most developing countries.

Assigning Responsibilities for Local Public Services

In a federation, local governments are either extensions of state governments ("dual federalism") or they are equal partners with higher level governments ("cooperative federalism"). Thus state governments assume varying degrees of oversight in the provision of local public services. In a unitary state, on the other hand, subnational governments act on behalf of the central government. Therefore, a useful set of guidelines for assignment of responsibilities for local public services would be: policy development and standards of service and performance to be determined at the national level; implementation oversight to be carried out at the state or provincial level; and services to be provided by the local or regional−level government.

Production of services could be public or private, at the discretion of local or regional governments. Responsibilities for public services other than those of a purely local nature, such as fire protection, should be shared using these guidelines. Assignment of public services to local or regional governments can be based on various considerations such as economies of scale, economies of scope (appropriate bundling of local public services to improvecontinue

Table 2. Conceptual basis of expenditure assignment

	Responsibility		
Expenditure category	Policy, standards, and oversight	Provision/ administration	Comment
Defense	F	F	Benefits and costs are national in scope
Foreign affairs	F	F	Benefits and costs are national in scope
International trade	F	F	Benefits and costs are national in scope
Monetary policy, currency, banking	F	F	Benefits and costs are national in scope
Interstate commerce	F	F	

			Benefits and costs are national in scope
Transfer payments to persons	F	F	Redistribution
Subsidies to business and industry	F	F	Regional development, industrial policy
Immigration	F	F	Benefits and costs are national in scope
Unemployment insurance	F	F	Benefits and costs are national in scope
Airlines and railways	F	F	Benefits and costs are national in scope
Fiscal policy	F,S	F,S,L	Coordination is possible
Regulation	F	F,S,L	Internal common market
Natural resources	F	F,S,L	Promotes a common market
Environment	F,S,L	S,L	Benefits and costs may be national, regional, or local in scope
Industry and agriculture	F,S,L	S,L	Significant interjurisdictional spillovers
Education	F,S,L	S,L	Transfers in kind
Health	F,S,L	S,L	Transfers in kind
Social welfare	F,S,L	S,L	Transfers in kind
Police	S,L	S,L	Primarily local benefits
Water, sewerage, refuse	L	L	Primarily local benefits
Fire protection	L	L	Primarily local benefits
Parks and recreation	F,S,L	F,S,L	Primarily local responsibility, but national and provincial governments may establish own parks.
Highways			
Interstate	F	S,L	Internal common market
Provincial	S	S,L	Provincial benefits and costs
Interregional	S	S,L	Interregional benefits and costs
Local	L	L	Local benefits and costs
Spending power	F,S	F,S	Fiscal transfers to advance own objectives

Note : F is federal responsibility, S is state or provincial responsibility, and L is local responsibility.

efficiency through information and coordination economies and enhanced accountability through voter participation and cost recovery) and cost/benefit spillovers, proximity to beneficiaries, consumer preferences, and budgetary choices on composition of spending (Break 1973; Hirsch 1964). The particular level of government to which a service is assigned determines the public or private production of the service based on considerations of efficiency and equity. Table 3 presents a matrix for and a subjective assessment of how various allocative criteria favor either local or metropolitan assignment and whether public or private production is favored on efficiency or equity considerations for each service. The criteria and the assessment presented in this table are arbitrary; practical and institutional considerations should be brought to bear on this analysis, and the reader may well reach different conclusions using the same criteria.

Private sector participation can take a variety of forms including contracting through competitive biddings, franchise operations (local government acts as a regulatory agency), grants (usually for recreational and cultural activities), vouchers (redeemable by local government to private providers), volunteers (mostly in fire stations and hospitals), community self−help activities (for crime prevention), and private nonprofit organizations for social services. Thus, a mix of delivery systems is appropriate for local public services. As local governments' financial capacities are quite limited in most developing countries, fostering private sector participation in the delivery of local public services assumes a greater significance. Such participation will enhance accountability and choice in the local public sector.

Assigning responsibility for the provision of service to a specific level of government does not imply that government should be directly engaged in its production. Limited empirical evidence suggests that private production of some services promotes efficiency and equity. For example, a study in the United States examined the relative cost of public and private production of eight municipal services: street cleaning, janitorial services, residential refuse collection, payroll, traffic signal maintenance, asphalt overlay construction, turf maintenance, and street tree maintenance (Stevens 1984). The study found that except for payroll, public provision of these services was 37 to 96 percent more costly. James and Birdsall (1992) argue that in developing countries the case for delegating public service responsibilities to the private nonprofit sector is even stronger. They present evidence to showcontinue

Table 3. Assignment of local public services to municipal and regional/metropolitan governments

	Allocation criteria for provision							*Allocation criteria for public vs. private production*		
Public service	*Economies of scale*	*Economies of scope*	*Benefit−cost spillout*	*Political proximity*	*Consumer sovereignty*	*Economic evaluation of sectoral choices*	*Composite*	*Efficiency*	*Equity*	*Composite*
Fire fighting	L	L	L	L	L	M	L	P	G	P
Police protection	L	L	L	L	L	M	L	P	G	G
Refuse collection	L	L	L	L	L	M	L	P	P	P
Neighborhood parks	L	L	L	L	L	M	L	P	G	G
Street maintenance	L	L	L	L	L	M	L	P	P	P
Traffic management	L	M	L	L	L	M	L	P	P	P
	L	M	L	L	L	M	L	P	P	P

Local transit service										
Local libraries	L	L	L	L	L	M	L	G	G	G
Primary education	L	L	M	M	L	M	M	P	G	P,G
Secondary education	L	L	M	M	L	M	M	P	G	P,G
Public transport	M	M	M	L,M	M	M	M	P,G	G	P,G
Water supply	M	M	M	L,M	M	M	M	P	G	P,G
Sewage disposal	M	M	M	M	M	M	M	P,G	P,G	P,G
Refuse disposal	M	M	M	M	M	M	M	P	P	P
Public health	M	M	M	M	M	M	M	G	G	G
Hospitals	M	M	M	M	M	M	M	P,G	G	P,G
Electric power	M	M	M	M	M	M	M	P	P	P
Air and water pollution	M	M	M	M	M	M	M	G	G	G
Special police	M	M	M	M	M	M	M	G	G	G
Regional parks	M	M	M	L,M	M	M	M	G	G	G
Regional planning	M	M	M	L,M	M	M	M	G	G	G

Note : L is local government, M is regional/metropolitan government, P is private sector, and G is public sector.

that inefficiency in public production often implies inequitable provision of public services, suggesting that efficiency in providing public services through private contracting furthers equity goals as well.

A Framework for Asymmetric Decentralization of Local Urban Public Services

Based on the principles of expenditure assignment and the guidelines discussed above, the following options for decentralization may be appropriate.

Local Public Services That Could Be Decentralized to All Local Governments

These are services for which economies of scale are not a major consideration, political proximity is essential, no significant cost−benefit spillovers are anticipated, and distributional considerations are not important. The following are examples of such services:

- Fire protection
- Police protection
- Primary education

- Refuse collection
- Neighborhood parks and recreation
- Street maintenance
- Local transit
- Traffic management
- Local libraries
- Local bylaws enforcement.

These services could be decentralized to local governments regardless of their size or financial capability. For police protection, local governments in smaller towns and rural areas might be given the option of organizing their own service or entering into arrangements with higher level governments to provide the service for a fee.

Local Public Services That Could Be Decentralized to Larger Urban Municipalities (Population Over 100,000 and Meeting a Specified Standard of Property Assessments)

These are services for which there is some degree of scale economy but government proximity to the people is important, distributional considerations are less relevant, and benefit spillouts are not serious. Examples of such services include:

- Land use planning
- Secondary education.

Note that the population size criteria suggested above is arbitrary, because hard evidence on scale economies for these services is not available. Nevertheless, the literature suggests that for most of these services in industrial countries scale economies obtain when population exceeds 100,000. This suggested cutoff could be adjusted for each country.

Local Public Services to Be Provided By Metropolitan or Regional Governments (Combined Population of One Million and a Specified Value of Property Assessments)

These are services for which important economies of scale and scope exist, cost−benefit spillovers can be serious, political proximity is important, and distributional considerations are of minor importance:

- Transportation
- Water supply
- Sewage disposal
- Refuse disposal
- Public health
- Hospitals

- Electric power
- Air and water pollution
- Special police services
- Special libraries
- Regional parks
- Regional planning.

At the present time, regional governments based on a voluntary association of contiguous municipalities do not exist in developing countries. Regional governments as envisaged here could be created for some selected regional functions (multipurpose bodies) through proportional representation by member municipalities. Member municipalities would contribute to financing through formula−based contributions incorporating population and property assessments as factors. Regional governments would have councilors nominated from among elected members by municipal councils. To be accountable to member municipalities, they would serve for a fixed term and be financed by the municipalities.

In industrial countries, a wide range of regional public services are delivered by special−purpose agencies or bodies, that include: health, planning, recreation, environmental protection, and library boards; transit and police commissions; and utilities providing water, gas, and electricity. These agencies usually deal with public services whose delivery areas transcend existing political jurisdictions and are better financed by loan and user charges and earmarked benefit taxes, such as a supplementary mill rate on a property tax base to finance local school boards. If kept to a minimum,continue

such agencies help to fully exploit economies of scale in the delivery of services for which political boundaries are not consistent with service areas. A proliferation of these agencies, on the other hand, undermines accountability and budgetary flexibility at local levels. Accountability and responsiveness to voters is weakened if members of special−purpose bodies are appointed rather than elected. Budgetary flexibility is diminished if a majority of local expenditures falls outside the control of local councils. A few recently completed Canadian studies suggest that school boards and police commissions crowd out municipal expenditures and that delivery through special−purpose bodies did not result in any cost savings for such services as water and transit (Kitchen 1993).

General−purpose regional governments, entities, and enterprises are quite common in Germany and are effective in delivering a variety of regional public services. A similar regional government provides areawide public services in metropolitan Toronto in Canada. In general, a multipurpose regional government entity is preferable to a large number of special−purpose entities for the provision of metropolitan or regionwide public services.

For all local functions in unitary countries and for a limited number of functions in federal countries, a provincial government will have an oversight role and the central government will develop overall policy and standards. Thus, the provision of public services is a shared responsibility, but the role of different levels of government for each service is clearly articulated and better coordinated with others involved.

Summary

The intent of these recommendations is to present a framework for decentralization that could be implemented uniformly across a country to avoid potential controversies arising from nonuniform application. It is wrong to presume, however, that all subnational governments of a particular category and size in a developing country would be equally capable and interested in taking on particular functions. It is essential, therefore, to retain some element of flexibility regarding who does what and how it is done. A municipal rating exercise that rates municipalities based on economic and financial data and institutional capacities could provide a basis for such flexibility. With an acceptable and credible municipal and provincial government rating system, it is easy to envisage a scenario in which public housing and secondary education is provided by larger local governments in some areas, by provincial government in others, and by regional units of provincial or central authorities in others. These deviations from the norm must be justified by objective criteria, and the financing and provision responsibilities should be clearly delineated. The framework for decentralization presented here is relevant for asymmetric assignment of responsibilities to local and municipal governments only and should not be considered for state and provincial governments. Application of this framework to rural municipalities would require modification of the basic criteria to include population size, rural assessments, and land area.

Expenditure Assignment Issues in Selected Countries

Expenditure assignment in developing and transitional economies varies considerably, and actual responsibilities varies considerably, and actual responsibilities can often be at variance with constitutional assignment. Table 4 presents data on the degree of subnational government involvement in major functions in a sample of 13 countries (for details, see appendix C). It shows that such involvement is quite extensive in infrastructure and social services. Coordinating these shared services can be quite difficult in developing countries. Various lev−soft

Table 4. Summary statistics on division of powers in selected developing countries

	Number of countries with shared and/or subnational assignment	
Expenditure category	Responsibility	Provider
Defense	0	0
Foreign affairs	0	0
International trade	0	0
Currency banking	0	0
Interstate trade	0	0
Immigration	0	1
Air and rail	1	1
Unemployment insurance	2	2
Environment	5	5
Highways	6	5
Education	8	10
Natural resources	8	7
Social welfare	8	8

Industry and agriculture	9	7
Police	9	9
Health	10	10
Residual functions	4	4

Note : Sample countries (13): Argentina, Bangladesh, Brazil, China, India, Indonesia,

Malaysia, Nigeria, Pakistan, Philippines, Russian Federation, Thailand.

Source : Appendix C.

els of government are often involved in an overlapping and uncoordinated manner, resulting in much confusion and duplication. Difficulty also arises from national government involvement in local functions. In many developing countries, governments are also involved in provision of private goods and services while neglecting provision of public services.

Countries vary a great deal in division of powers among levels of government. Table 5 shows that national government expenditures account for about 85 percent of total public sector expenditures in Argentina and Indonesia, whereas in Canada, China, and India subnational expenditures exceed national expenditures. Before its dissolution, the federal government of Yugoslavia had a limited role in national economy except for national defense. In countries such as Argentina, India, Indonesia, Mexico, and Pakistan the national governments' role in public and private sectors of the economy is all too pervasive. In Brazil and Nigeria, the role of federal and subnational governments in various functions is uncoordinated. The following examples illustrate the complexity of expenditure assignment.

• *Brazil* . The 1988 Constitution made a reasonably clear assignment of public service provision and revenue raising responsibilities to federal, state, and municipal sectors (Shah 1991c; Bomfim and Shah 1991, 1994). Purely local functions such as intracity transport, zoning, preventive health care, and elementary education were assigned exclusively to the municipal level. Responsibility for national services such as defense and foreign affairs was assigned to the federal level, and the remaining functions were designated shared responsibilities of the federal and state governments. The federal government sets standards for public services, and the state governments are responsible for delivery. Unfortunately, practice in Brazil differs substantially from the constitutional assignment, and the federal government's direct involvement in local functions is pervasive. This involvement is likely to disappear in the near future in view of the fiscal squeeze put on the federal government by the new fiscal arrangements.

Federal authority for macroeconomic management in Brazil has experienced a profound change as a result of the changes in the mechanisms for intergovernmental relations. Three interrelated problems have emerged concerning the conduct of fiscal policy: (1) the federal government has lost considerable control over some fiscal policy instruments; (2) the effectiveness of the instruments that have remained under federal jurisdiction can be potentially undermined by the fiscal behavior at lower levels of government; and (3) the federal government has come under a fiscal squeeze because decentralization of tax authority and transfer of revenues have not been accompanied in practice by a transfer of expenditure responsibilities.

The implications of these developments for monetary policy seem to have been more favorable than the ones mentioned for fiscal policy. Two important events that helped enhance the federal government's ability to conduct a sound monetary policy are (1) the end of the "Monetary Budget," or, the consolidation of the federal budget into a single budget, and the end of mechanisms that effectively allowed authorities to use the printing press of the central bank to finance transfers and other public expenditures, and (2) the reduced importance of the National Monetary Council; the new Constitution vested a more clear assignment of monetary policy responsibility with the central bank. A potential obstacle to macroeconomic equilibrium through monetary stabilization is in the nature of relations between the central bank and state banking institutions. The recurrent bailouts of troubled state banks by the federal monetary authorities are a factor contributing to monetary instability. In 1987, for instance, nearly one half of the monetary base was constituted by debt of the state banks to the central bank.

• *Indonesia* . In 199091, 76 percent of government expenditure was undertaken directly by the center, and another 8 percent was effectively controlled by the center through the conditionality of its transfers to local governments. Even for the remaining 16 percent of the expenditure, the center exercises some influence through its planning and budget approval process (table 5). In contrast, in China for example, which is also a unitary state, direct spending by the center accounts for only about 40 percent of total government spending, central conditional transfers another 10 percent, and for the remaining 50 percent central control is virtually nonexistent.

• *India* . The federal government exercises strong control over states' priorities by withholding federal grants and approving the states' capital expenditures (Gulati and George 1987).

• *Mexico* . In this highly centralized federation, more than 80 percent of public expenditures are controlled by the central government. Besides the usual functions of a central government—de−soft

Table 5. Expenditures by function and level of government

	Percentage by level of government		
Function	National	Subnational	Total
Argentina (1988)			
Total	85.5	14.5	100.0
1. General public services and public order	68.2	31.8	100.0
2. Defense	100.0	0.0	100.0
3. Education	70.3	29.7	100.0
4. Health	57.1	42.9	100.0
5. Social security and welfare	97.1	2.9	100.0
6. Housing and community amenities	18.6	81.4	100.0
7. Recreation, culture, and religion	82.7	17.3	100.0
8. Economic affairs and services	90.2	9.8	100.0
Canada (1989)			
Total	47.8	52.2	100.0
1. General public services and public order	53.2	46.8	100.0
2. Defense	100.0	0.0	100.0

3. Education	14.0	86.0	100.0
4. Health	18.1	81.9	100.0
5. Social security and welfare	67.8	32.2	100.0
6. Housing and community amenities	49.6	50.4	100.0
7. Recreation, culture, and religion	36.1	63.9	100.0
8. Economic affairs and services	52.5	47.5	100.0
China (1990)			
Total	40.0	60.0	100.0
India (1988)			
Total	44.4	55.6	100.0
1. General public services and public order	14.8	85.2	100.0
2. Defense	99.0	1.0	100.0
3. Education	13.9	86.1	100.0
4. Health	28.4	71.6	100.0
5. Social security and welfare	0.0	100.0	100.0
6. Housing and community amenities	72.7	27.3	100.0
7. Recreation, culture, and religion	0.0	100.0	100.0
Indonesia (1992)			
Total	84.9	15.1	100.0
1. General public services and public order	83.4	16.6	100.0
2. Defense	100.0	0.0	100.0
3. Education	81.6	18.4	100.0
4. Health	60.6	39.4	100.0
5. Social security and welfare	88.8	11.2	100.0
6. Housing and community amenities	84.6	15.4	100.0
7. Recreation, culture, and religion	55.5	44.5	100.0
8. Economic affairs and services	82.2	17.8	100.0
9. Subsidies to lower level	93.5	6.5	100.0
10. Reserves and adjustments	100.0	0.0	100.0
United States (1990)			
Total	52.7	47.3	100.0
1. General public services and public order	47.2	52.8	100.0

2. Defense	100.0	0.0	100.0
3. Education	5.5	94.5	100.0
4. Health	55.6	44.4	100.0
5. Social security and welfare	72.4	27.6	100.0
6. Housing and community amenities	67.0	33.0	100.0
7. Recreation, culture, and religion	15.4	84.6	100.0
8. Economic affairs and services	56.6	43.4	100.0

Source : International Monetary Fund (1992); China: Ministry of Finance, unpublished tables; Indonesia: budget papers, 199293.

fense, justice, external affairs, commerce, and finance—the federal government assumes responsibilities for health and education. Evidence suggests that education expenditures in Mexico are distributed equitably, but health expenditures and per capita health spending is positively correlated with per capita income of the state. States are responsible for only public transport and infrastructure expenditures. Mexico is expected to decentralize or relax federal authority over a number of functions, including health and education, in the near future.

• *Pakistan* . Federal control over concurrent and provincial responsibilities is quite strong. Control is exercised by the plan review and approval process, by monetary transfers, and by federal civil service officials who hold important administrative positions at provincial and local levels.

• *Russia* . Respective roles of various levels of government in public service provision have not been legislated, but in practice these roles are well understood. The federal government has a dominant role in transportation and education but has transferred responsibilities for investment in highways, military housing, and airports to local governments. Local governments are also responsible for health and social services, primary and secondary education, and public utilities. State−owned enterprises fulfill many local government functions such as local roads, schools, and clinics. Local governments will have to assume these functions as ownership of these enterprises is transferred to the private sector.

• *South Africa* . An interim constitution that goes into effect in May 1994 has not specified areas of exclusive responsibility for the nine provincial governments. This task is assigned to an independent Commission on Provincial Governments. The Constitution specifies the following as areas of shared central−provincial responsibilities: agriculture; casinos, racing, gambling, and wagering; cultural affairs; education at all levels except university and technical education; health services; housing; provincial language policy; local government; conservation; police; provincial public media; public transport; regional planning and development; road traffic regulation; roads; tourism; trade and industrial promotion; traditional authorities; urban and rural development; and welfare services. Water, sanitation, transportation facilities, electricity, primary health, education, housing, and security have been designated as local government functions.

Tax Assignment: Theory and Practice

The division of revenue sources among federal and subnational governments constitutes the tax assignment problem. Once expenditure assignment has been agreed on, tax assignment and design of transfers become critical elements in matching expenditure needs with revenue means at various levels of government. Although tax assignment can be undertaken independently of expenditure assignment—a common practice in developing countries—the advantages of centralized tax administration and decentralized provision of public services become apparent when tax assignment reflects anticipated spending. Such arrangements prevent overdependence of lower levels of government on intergovernmental transfers, which can otherwise distort local spending priorities. Where theoretical guidance on tax assignment is unclear, expenditure assignment can provide a powerful argument for assigning responsibility to the government with the greatest need for more money. Musgrave (1983) uses equity (consistency of revenue means with expenditure needs) and efficiency (minimizing resource cost) criteria to suggest the following broad principles in tax assignment:

• Progressive redistributive taxes should be centralized.

• Taxes suitable for economic stabilization should be centralized; lower level taxes should be cyclically stable.

• Unequal tax bases between jurisdictions should be centralized.

• Taxes on mobile factors of production should be centralized.

• Residence−based taxes, such as excises, should be levied by states.

• Taxes on completely immobile factors should be levied by local authorities.

• Benefit taxes and user charges can be levied appropriately by all levels.

An alternate framework for tax assignment would use the following criteria:

• *Efficiency in tax administration* . The level of government likely to have the best information on a tax base would be the level responsible for levying taxes on such a base. For example, for corporate income taxes, national government is likely to have more accurate information on corporate income originating from various jurisdictions at home and abroad. For property taxes, on the other hand, a local government is better positioned to assess property values. Based on this criterion, corporate incomecontinue

taxes would be assigned to the national government and property taxes to a local government.

• *Fiscal need* . According to this criterion, revenue means should be matched as closely as possible to revenue needs. Thus, tax instruments to further policy objectives should be assigned to the level of government having the responsibility for such a service. Progressive redistributive taxes, stabilization instruments, and resource rent taxes are suitable for assignment to national government, and tolls on intermunicipal roads to state governments.

Table 6 presents assignment of major taxation instruments to various levels of government based on these two criteria. The characteristics of each instrument is described below:

• *Customs* . Taxes on international trade such as import/export duties and other charges are suitable for administration only at the federal level.

• *Personal income taxes* . Individual income is a mobile factor and taxes are levied on redistributive grounds. Place of residence rather than place of employment is used as a basis for taxation, since benefits from public services at place of residencecontinue

Table 6. Conceptual basis of tax assignment

Type of tax	*Determination of* Base	Rate	Collection and administration	Comments
Customs	F	F	F	International trade taxes
Corporate income	F	F	F	Mobile factor, stabilization tool
Resource taxes				
Resource rent (profits, income) tax	F	F	F	Highly unequally distributed tax bases
Royalties, fees, charges; severance taxes; production, output, and property taxes	S,L	S,L	S,L	Benefit taxes/charges for state−local services
Conservation charges	S,L	S,L	S,L	To preserve local environment
Personal income	F	F,S,L	F	Redistributive, mobile factor; stabilization tool
Wealth taxes (taxes on capital, wealth, wealth transfers, inheritances, and bequests)	F	F,S	F	Redistributive
Payroll	F,S	F,S	F,S	Benefit charge, e.g., social security coverage
Multistage sales taxes (value−added tax [VAT]	F	F	F	Border tax adjustments possible under federal assignment; potential stabilization tool
Single−stage sales taxes (manufacturer, wholesale, retail)				
Option A	S	S,L	S,L	Higher compliance cost
Option B	F	S	F	Harmonized, lower compliance cost
"Sin" taxes				
Excises on alcohol and tobacco	F,S	F,S	F,S	Health care a shared responsibility
Betting, gambling	S,L	S,L	S,L	State and local responsibility
Lotteries	S,L	S,L	S,L	State and local responsibility
Race tracks	S,L	S,L	S,L	State and local responsibility
Taxation of "bads"				
Carbon	F	F	F	To combat global/national pollution

BTU taxes	F,S,L	F,S,L	F,S,L	Pollution impact may be national, regional, or local
Motor fuels	F,S,L	F,S,L	F,S,L	Tolls on federal/provincial/local roads
Effluent charges	F,S,L	F,S,L	F,S,L	To deal with interstate, intermunicipal or local pollution issues
Congestion tolls	F,S,L	F,S,L	F,S,L	Tolls on federal/provincial/local roads
Parking fees	L	L	L	To control local congestion
Motor vehicles				
Registration, transfer taxes, and annual fees	S	S	S	State responsibility
Driver's licenses and fees	S	S	S	State responsibility
Business taxes	S	S	S	Benefit tax
Excises	S,L	S,L	S,L	Residence−based taxes
Property	S	L	L	Completely immobile factor, benefit tax
Land	S	L	L	Completely immobile factor, benefit tax
Frontage, betterment	S,L	L	L	Cost recovery
Poll	F,S,L	F,S,L	F,S,L	Payment for services
User charges	F,S,L	F,S,L	F,S,L	Payment for services received

Note : F is federal, S is sate or province, L is municipal or local.

exceed similar benefits at the place of employment for most individuals. Since the federal government assumes primary responsibility for redistribution, a progressive personal income tax is suitable for imposition by that government. It should be noted that in low−income agrarian societies and lowermiddle income countries, the coverage of the personal income tax is quite limited and its role as a redistributive element of the fiscal system is further clouded by widespread tax evasion. Shah and Whalley (1991) have argued that when one considers the rural−urban migration effects associated with a tax on urban incomes, as well as the reverse redistribution effects of the income tax through the bribe system, the personal income tax may not be viewed as a progressive element of the tax structure in lower−middle income countries. Under such circumstances, an exclusive federal role for the personal income tax is difficult to justify. Furthermore, provincial governments have also come to assume an increasingly important role in redistribution and therefore should have access to this tax base. If local governments provide a range of services beyond those clearly related to property, a local income tax may correspond better to benefits than other more traditional local taxes. Uncoordinated access by various levels of government to this revenue source would result in a disharmonized and complicated tax system. Such a situation can be avoided by giving the federal government exclusive authority in determination of tax base but allowing subnational governments to use the federal tax base to levy supplementary rates, preferably flat rate charges on federal tax liability. This piggybacking potential remains to be exploited in the developing world. In Canada, in the interest of achieving a harmonized system, the federal government vacated tax room to enable provinces to levy supplementary rates on the federal tax base.

• *Corporate income tax* . Corporate income tax is also a tax on a mobile factor and is therefore more suitable for assignment to the central government. Subnational imposition of such a tax opens possibilities for shifting income to low tax jurisdictions through transfer pricing practices by corporations. It is best for subnational governments to piggyback on the federal tax and that overall corporate tax rates by place of residence do not diverge significantly. Corporate income can be apportioned by a formula among subnational jurisdictions. In Canada, payroll and gross sales are given equal weight. In the United States, payroll, property assessments, and gross sales are used for formula apportionment of corporate income among states.

• *Wealth taxes* . Taxes on capital, wealth, wealth transfers, inheritances, and bequests are more suitable for imposition by the center, to avoid tax competition among subnational jurisdictions and resulting misallocation of capital.

• *Resource rent taxes* . Resources are immobile and therefore could be easily taxed by subnational jurisdictions. However, since resources tend to be distributed unevenly across a nation, taxation by subnational jurisdictions perpetuates regional inequalities and may encourage fiscally induced migration to resource−rich regions, resulting in inefficient allocation of resources. Because of their instability and unpredictability, natural resource revenues are not considered an appropriate source of revenues for subnational governments. It is desirable to have national ownership of resources, with sharing of associated rents through national taxation of resource rents accompanied by equalization transfers.

Some resource taxes designed to cover costs of local service provision, such as property taxes, royalties and fees, and severance taxes on production and output could be assigned to local governments. In addition, subnational governments could also impose taxes to discourage local environmental degradation. This explains why in Australia, Canada, and the United States, intermediate−level governments (and some local governments in the United States) impose such taxes on natural resources.

• *Sales taxes* . Single−stage sales taxes can be levied by any level of government. Retail, wholesale, or manufacturing sales taxes are suitable for all levels provided the tax base is harmonized. A multistage tax, such as a value−added tax (VAT) presents special difficulties in federal countries. Imposition of such a tax by subnational governments creates major administrative difficulties in taxing goods and services that cross more than one jurisdiction. The system of crediting under a VAT requires that cross−border transactions be accounted for to be able to credit taxes paid on earlier stages of sales across state borders. With the possibility of differential subnational tax rates and bases, tax administration may become too difficult. Thus, a uniform system of VATs administered by the center is desirable.

• *"Sin" taxes* . Excises on alcohol and tobacco could be jointly occupied by federal and provincial levels, as both health care and prevention of accidents and crimes is usually a shared responsibilitycontinue

in most federations. Games of chance and gambling usually falls within the purview of state and local governments, making taxes on betting, gambling, and racetracks and on lottery revenues suitable for assignment to subnational governments only.

• *Taxation on "bads."* Taxation to control environmental externalities such as congestion and pollution, are suitably imposed by the level of government having the responsibility for their curtailment. This would suggest that carbon taxes to combat global and national pollution issues should be a federal responsibility. BTU taxes, taxes on motor fuels, and congestion tolls could be levied by all levels in their own spheres of authority. Effluent charges to deal with interstate pollution should be a federal responsibility. Intermunicipal pollution would be a state responsibility, but intramunicipal pollution should rest with local governments. Parking fees to influence intermodal choices and thereby regulate local traffic congestion should be a local responsibility.

• *Business taxes* . Business registration and similar taxes are more suitable for assignment to provincial governments than to local governments, because business taxes at the local level are an attractive alternative to shift tax burdens to nonresidents. While lowering the cost to local residents, such taxes distort local decisions and promote excessive local services. In the presence of such taxes, local taxes do not adequately signal costs of local services.

• *Motor vehicles taxes and driving licenses* . For efficiency in tax administration, these are suitable for assignment at the state level only.

• *Property taxes and frontage charges* . Taxation of real estate is a suitable instrument local governments can use to recover costs of public service provision related to properties. In addition to urban land and improvements, such a tax may also cover nonresidential assessments such as electric power, telephone, cable lines, and gas pipelines. Frontage charges or betterment levies are usually assessed per linear front foot of the property and are designed to cover capital costs associated with extension of infrastructure services to new areas. These should also be seen as a benefit charge for local services. In rural areas, an agricultural land tax could be imposed by rural municipalities for incorporated areas and by state governments in unincorporated rural areas. Intermediate−level governments might profitably be involved in ensuring uniformity in assessment and audit for land and property taxes.

• *User charges* . Poll taxes, user charges, or benefit taxes are suitable for imposition by all levels of government.

Tax Assignment Issues in Selected Countries

A summary of subnational involvement in tax administration in a sample of 15 developing countries is presented in table 7; appendix D provides further details on tax assignment in these countries. It is interesting to note that customs duty, theoretically a central levy, is administered by local governments in Malaysia (and China through December 1993) on behalf of the national governments. Resource taxes are centralized, except in India. Sales taxes are either centralized or shared, except in Nigeria. The VAT is a state tax in Brazil but a central levy in Mexico, where it is administered by states. Property tax is a central levy in Indonesia, a provincial tax in Pakistan, and a truly local tax only in Colombia, Mexico, and Nigeria. Rights to residual taxation rest with the central government in India but with state governments in Argentina and Brazil. In Nigeria, the federal government assigns personal income taxation to the 22 states. In Mexico, lower level governments have access only to fees, charges, and property taxes. All other taxes are assigned to the federal government for redistribution. Pakistan also does not give lower levels of governments direct access to major revenue sources but shares revenues from major sources using population as the principal criterion. China has recentralized tax administration, effective January 1,1994; the center assumed direct responsibility for administration of customs, continue

Table 7. A summary view of subnational tax assignment in 15 developing countries

	Number of countries with subnational determination of		
Type of tax	Base	Rate	Tax collection and administration
Customs	1	1	2
Income and gifts	1	1	6

Estates	4	4	4
Corporate	1	1	4
Resource	3	3	6
Sales	4	5	7
VAT	1	1	4
Excises	8	8	12
Property	11	12	14
Fees	10	10	12
Residual powers	2	2	2

Data include Argentina, Bangladesh, Brazil, China, Colombia, India, Indonesia, Malaysia, Mexico, Nigeria, Pakistan, Papua New Guinea, Philippines, Russian Federation, Thailand.

Source : Appendix D.

corporate income taxes on central government enterprises, business and income taxes on railroad, banking and insurance, VAT, resource taxes, and security exchange tax. Revenues from the latter three taxes will be shared with provincial governments. All other taxes will be assigned to subnational governments.

The following sales tax assignments are in effect in selected countries.

• *Australia* . The central government retains exclusive authority over the use of sales taxes in Australia but has not levied any general sales tax.

• *Brazil* . The federal government levies a manufacturer sales tax (IPI), states are assigned a broadly based credit method VAT (ICMS) at 17 percent, and municipalities administer a services tax (ISS). Under the ICMS, interstate sales are taxed on the origin principle—12 percent for north−south and 7 percent for south−north transactions—and international trade is taxed on a destination basis. In domestic trade, the relatively less developed northern states are given preferential treatment. In international trade, most of the imports are destined for the southern states and a disproportionate amount of exports go through the northeastern states, so most of the revenues are collected by the richer states and export rebates are given by poorer states. An area of emerging interstate conflict is the use of ICMS as a tool for state industrial development. Some northeastern states are offering fifteen−year ICMS tax deferral to industry. In a highly inflationary environment such as in Brazil, unless such tax liability is indexed, it would wipe out all ICMS tax liability.

• *Canada* . Canada presents an interesting case study in implementing a VAT in a federal country. The Canadian Constitution restricts provincial government access only to "direct" taxes, but Canadian courts have interpreted a retail sales tax to be a direct tax. Before 1991, Canada had a manufacturer sales tax at the federal level and retail sales taxes in nine of the ten provinces. The federal government tried but failed to win support for a combined federal−provincial VAT. It then acted alone and introduced a VAT, the "goods and services tax" (GST) at 7 percent in 1991. Under this tax, basic groceries, prescription drugs, and medical devices are rated zero and residential rents, health services, aid services, legal aid, educational services, and financial institutions are exempt from taxation. The GST at the present time is not harmonized with provincial retail sales taxes except in the Province of Quebec. Quebec has announced that its sales tax would be "substantially harmonized with the GST, subject to certain Quebec characteristics." A substantially harmonized multistage sales tax (QST) was introduced by Quebec in July 1992 at 8 percent. Exports are zero rated. The most notable exception of GST is that financial institutions are zero rated by Quebec. Quebec has also sought to administer the GST within its boundaries and discussions are under way to formalize Quebec administration of GST and QST. Newfoundland and Prince Edward Island began a process of full harmonization with GST in 1992 but later halted this process. Pressure from business groups for harmonization of federal and provincial taxes continue to mount. In the long run, the federal tax should be fully harmonized with provincial sales taxes in some provinces, but the retail stage of the tax will be fully harmonized in all the provinces. Zero rating of provincial exports adopted by Quebec appears to offer a simple alternative for such harmonization.

• *China* . The national government introduced a centrally administered VAT with proceeds to be shared with provinces on a 50:50 basis, effective January 1,1994.

• *Japan* . Effective 1989, the national government introduced a subtraction method VAT (gross sales minus purchases of intermediate inputs) at 3 percent.

• *Germany* . VAT at 7 to 14 percent is collected by states. Proceeds are shared among states: 75 percent by population and the remaining 25 percent to states with below−average tax receipts, to enable them to attain 95 percent of the federal average, excluding Berlin.

• *United States* . Forty−five states impose retail sales taxes. Michigan imposes an addition−method VAT applied to the sum of wages, profits, and payments to other factors of production, minus payments for intermediate inputs.

• *India* . The country faces major difficulties in the assignment of sales, excise, and related taxes. Sales taxes are assigned to the state level; excises are administered by the federal government, and the proceeds shared with the states; octroi is a local tax on intermunicipal trade. Sales taxes are administered on narrow bases at rates that vary by state from 6 percent in Orissa to 19 percent in Bihar and Gujarat (Rao and Chelliah 1990). Some states consider the sales tax an important element of redistributive policy. To reform the existing sales tax structure, a broadly based national VAT has been proposed, but is strongly opposed by the states. The states are also dissatisfied with the centrally administered excise tax because it limits their powers of taxation. The federal government prefers to raise additional rev−soft

enues from administered prices rather than from excises because the proceeds from excises have to be shared with the state governments. The octroi tax on intermunicipal trade is a source of significant revenue for local governments and remains popular in spite of its antitrade bias.

Tax Base and Revenue Sharing Mechanisms

Tax base and revenue sharing mechanisms are customarily used to address fiscal imbalances or mismatched revenue means and expenditure needs arising from constitutional assignment of taxes and expenditures to different levels of governments. Tax base sharing means that two or more levels of government levy rates on a common base. Tax base determination usually rests with the higher level government with lower levels of government levying supplementary rates on the same base. Tax collection is by one level of government, generally the central government in market economies and the local government in centrally planned economies, with proceeds shared downward or upward depending on revenue yields. Tax base sharing is quite common in industrial countries and almost nonexistent in developing countries.

A second method of addressing vertical fiscal imbalances is revenue sharing, whereby one level of government has unconditional access to a specified share of revenues collected by another level. Revenue sharing agreements typically specify how revenues are to be shared among federal and lower level governments, with complex criteria for allocation and for the eligibility and use of funds. Such limitations run counter to the underlying rationale of unconditionality. Revenue sharing mechanisms are quite common in developing countries. They often address multiple objectives, such as bridging fiscal gap, promoting fiscal equalization and regional development, and stimulating tax effort at lower levels.

Revenue sharing mechanisms vary considerably. In Brazil, India, and Nigeria, for example, complex grant allocation formulas are employed using factors such as population, per capita income, school enrollments, and indexes for "backwardness" (India) and "minimum responsibilities" (Nigeria). In other countries, criteria are quite simple; for example, Mexico and Pakistan use population and derivation (point of collection), while China and Malaysia use derivation as the primary basis for revenue allocation.break

2—
Theory and Practice of Intergovernmental Transfers

Intergovernmental transfers are the dominant source of revenues for subnational governments in most developing countries. Central transfers finance 85 percent of subnational expenditures in South Africa, 72 percent of provincial and 85 percent of local expenditures in Indonesia, 67 to 95 percent of statelocal expenditures in Nigeria, and 70 to 90 percent of expenditures in less prosperous states in Mexico. The design of these transfers is of critical importance for efficiency and equity of local public services provision and the fiscal health of subnational governments. This section covers the theory and practice of intergovernmental transfers, providing a taxonomy of grant programs based on objectives and outlining the economic rationale for intergovernmental transfers. Issues and options in the design of equalization programs to reduce regional fiscal disparities are also presented. Mechanisms for fiscal transfers are reviewed, with emphasis on special problems in the design of state−local transfers.

Conceptual Perspective

In attempting an economic evaluation of intergovernmental transfers in developing or transitional economies, it is instructive to review the economic rationale of transfers in a federation. This review serves as a framework for making qualitative judgments on design of existing transfers and predicting the general direction of influence a grant may have on the recipient's behavior. Some knowledge of the general direction of grants is useful in designing grant programs to meet specific objectives and in evaluating the existing structure of transfers. For the purpose of economic analysis, intergovernmental transfers or grants broadly classified fall into two categories: nonmatching and selective matching (McMillan, Shah, and Gillen 1980).

Nonmatching Transfers

Nonmatching transfers may be either selective (conditional) or general (unconditional). Selective nonmatching transfers offer a given amount of funds without local matching, provided they are spent for a particular purpose. The effect on a lower level or local government's budget constraint is shown in figure 2, where the postgrant budget line (ACD) is the pregrant budget line (AB) shifted right by the amount of the transfer (AC). Since from the local perspective OE (equal to AC) of the assisted activity is a free good, at the minimum OE will be acquired.

Selective nonmatching grants are best suited for subsidizing activities considered high priority by a higher level government but low priority by local governments. Such a case would occur if such a program generates a high degree of spillovers up to a given level of provision (OE), after which the external benefits terminate abruptly. For example, although no evidence suggests that state and local governments in Brazil assign such priorities to the provision of education, health, regional development, and agriculture, almost all funding through *convenios* (negotiated transfers) is selective nonmatching.break

If the nonmatching grant is unconditional or general, no constraints are put on how it is spent and, unlike conditional grants, no minimum expenditure in any area is expected. In this case, the recipient's budget line increases by the amount of the grant (AC = BD) and the new budget line becomes CD (figure 3). Since the grant can be spent on any combination of public goods or services or to provide tax relief to residents, general nonmatching assistance does not modify relative prices and is the least stimulative of local spending. Typically, local spending will increase by less than $0.50 for each additional $1.00 of unconditional assistance; the remaining funds go toward tax relief, that is, they are made available to local residents to use for private goods and services. The portion of grants retained for greater local spending tends to exceed local government's own revenue relative to resident's incomes; that is, grant money tends to stick where it first lands. This is referred to as the "flypaper effect" (Gramlich 1977). The implication is that for political and bureaucratic reasons, grants to local governments tend to result in more local spending than if the same transfers were made directly to local residents (McMillan, Shah, and Gillen 1980). The federal tax transfers to states and municipalities in Brazil are examples of grants of this kind, and evidence suggests that such transfers induce municipalities to underutilize their own tax bases.

Given an amount of available assistance, grant recipients prefer unconditional nonmatching transfers, which provide maximum flexibility to pursue their own objectives. Because such grants augment resources without influencing spending patterns, a recipient can maximize his own welfare. Grantors, however, may be prepared to sacrifice some recipient satisfaction to ensure that the funds are directed toward expenditures on which they place a priority. This is particularly so when federal objectives are implemented by line agencies or departments (for example, planning, health, education) rather than through a central agency, such as the Ministry of Finance, with a broader mandate. Federal departments do not want their program funds to be shifted, or apparently shifted, by local governments toward expenditures in other areas. In this situation, conditional (selective) nonmatching (block) grants can ensure that the funds are spent in a department's area of interest (for example, health care) without distorting local priorities among alternative activities or inducing inefficient allocations in that expenditure area. This appears to be one of the objectives of nonmatching health transfer programs in Brazil, although as presently structured these programscontinue

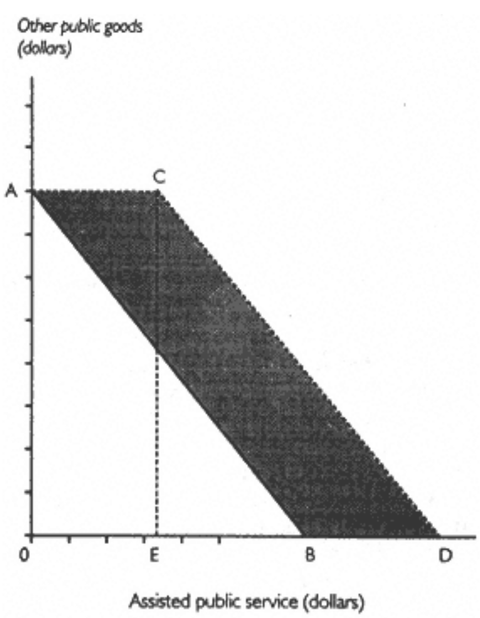

Figure 2.
Conditional nonmatching grant

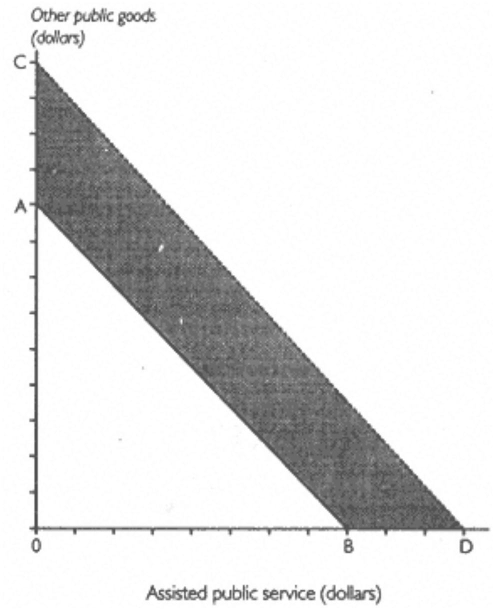

Figure 3.
Unconditional nonmatching grant

may not be attaining these objectives in the most cost−effective manner.

Selective Matching Transfers

Selective (conditional) matching grants or cost−sharing programs require that funds be spent for specific purposes and that the recipient match the funds to some degree. The effect of a 25 percent subsidy program for transportation on a local government budget is shown in figure 4. AB indicates the combinations of transportation and other public goods and services a city can acquire with a budget of OA = OB. A federal subsidy for 25 percent of transportation expenditures (or $3.00 of local funds for each $1.00 of grant) shifts the budget line of attainable combinations to AC. At any level of other goods and services the community can obtain one−third more transportation services.

If the community chooses combination M before the grant, it will likely select a combination such as N afterward. At N, more transportation is acquired.

The subsidy has two effects:

• The *income effect* —the subsidy gives the community more resources (higher income), some of which go to acquiring more transportation services.

• The *price or substitution effect* —since the subsidy reduces the relative price of transportation services to the community, the community acquires more from a given budget.

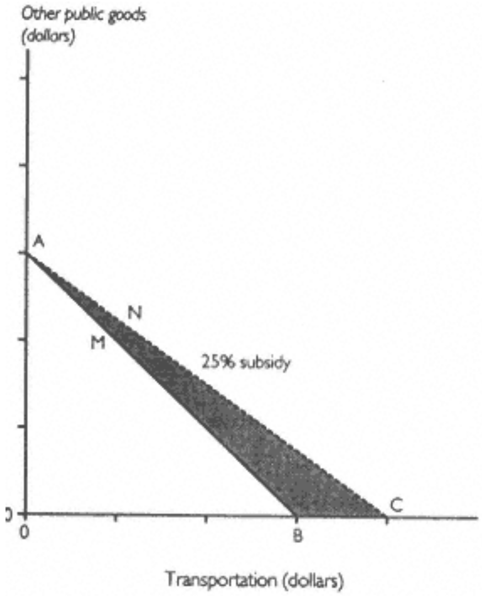

Figure 4.
Open−ended matching grant

Hence, both the price and income effects of the subsidy stimulate the acquisition of more transportation services.

Although the grant is for transportation, more of other public goods and services may also be acquired, although they become more expensive as the price effect works against them. If the positive income effect is sufficiently large, it will dominate; a part of the grant's effect will be greater consumption of other goods and services. Most studies find that for grants of this kind, spending in the specified area increases by less than the amount of the grant, the remainder shifting toward other public output and tax relief. For example, $1.00 of grant tends to increase expenditures in the assisted area by $0.80; the other $0.20 is diverted to finance other public services (McMillan, Shah, and Gillen 1980; Shah 1979, 1989b).

Open−ended matching grants, in which no limit is placed on available assistance through matching provisions, are suited for correcting inefficiencies in public goods provision arising from benefit spillovers. Benefit spillovers, or externalities, occur when services provided and financed by a local government also benefit members of other local governments that do not contribute to their provision. Because the providing government perceives all the costs but obtains only a portion of the benefits, it tends to underprovide the goods. If the affected communities cannot negotiate compensation, the situation can be corrected by a higher government subsidizing provision of the service with the extent of spillover determining the degree of subsidy, or the matching ratio.

Matching grants can correct inefficiencies from spillovers but do not address uneven or inadequate fiscal capacities among state and local governments. Local governments with ample resources, such as the State of São Paulo, Brazil, can afford to meet matching requirements and acquire a substantial amount of assistance. Sister states of Para and Ceara, with limited fiscal capacities, may be unable to match federal funds and fail to obtain as much assistance even though their expenditure needs may be the same or greater. To equalize fiscal capacities in such cases, other forms of assistance are needed.

Closed−ended matching transfers, in which funds are provided to a certain limit, are usually preferred by grantors, since these transfers permit them to retain control of their budgets. The effect of closed−ended matching grants on the local budgetcontinue is shown in figure 5, where AB is the original budget line. When assistance is available at 66.7 percent up to a limit, the budget line is ACD. Initially, costs are shared on a 1:2 basis to point OF, at which the subsidy limit of CD' (= CE) is reached. Expenditures beyond OF receive no subsidy, so the slope of the budget line is 1:1 rather than 1:3 along the subsidized segment, AC.

Empirical literature typically finds that closed−ended grants stimulate expenditures on the subsidized activity more than open−ended grants (Gramlich 1977; Shah 1979, 1989b). The estimated response to an additional $1.00 of this kind of grant is typically $1.50. Institutional factors may explain this rather surprisingly large response.4

One might reasonably ask why selective closed−ended matching grants are common in industrial countries when they seem ill−designed to solve problems and inefficiencies in public goods provision. The answer seems to be that correcting for inefficiencies is not the sole and perhaps not even the primary objective. Instead, grants are employed to help local governments financially while promoting spending on activities given priority by the grantor. The selective aspects, or conditions on the spending, ensure that the funds are directed toward an activity the grantor sees as desirable. The local

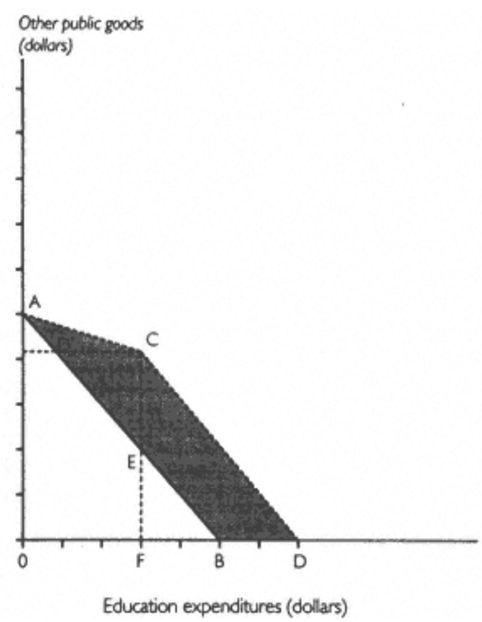

Figure 5.
Closed−ended matching grant

matching or cost sharing component affords the grantor a degree of control, requires a degree of accountability by the recipient, and makes the cost known to the granting government.

The conditional closed−ended matching grant has advantages and disadvantages from the grantor's perspective. While such grants may result in a significant transfer of resources providing financial assistance, they may distort output and cause inefficiencies. The reason is that this aid is often only available for a few activities, causing overspending on these functions, while other functions are underfinanced. A common argument is that local priorities are distorted and capital outlays are subsidized, while operating costs are not, resulting in selecting capital−intensive alternatives.

A summary of the impact of selective transfers suggests that open−ended selective matching grants are the most suitable vehicles to induce increased spending on the assisted function by lower level governments (table 8). If the objective is simply to enhance the welfare of local residents, general nonmatching transfers are preferable.

The Economic Rationale for Intergovernmental Transfers

Major economic arguments for grants are summarized as follows (Boadway 1992; Boadway, Roberts, and Shah 1994b):

Fiscal Imbalance

Unmatched revenue means and expenditure needs at various levels—a fiscal gap—create structural imbalances resulting in revenue shortfall, usually for a lower level government. Reasons for this imbalance are:

• Inappropriate expenditure and tax assignment.

• Limited or unproductive tax bases available to lower levels of government, making tax rates inefficiently high.

• Regional tax competition, for example, state and local governments fearful of losing capital, labor, and business to other jurisdictions do not fully exploit business tax potentials and thus provide lower levels of public services.

• Level of federal government taxation limits state and local revenue−raising potential.

To correct problems associated with the first two sources of imbalance, joint occupancy of some tax fields or decentralization of some taxes is advocated.break

Unconditional grants or revenue sharing based on the "derivation principle" or the point of tax collection are also appropriate solutions to these problems. To deal with tax competition, higher revenue effort by the federal government and unconditional grants are required. To deal with the last source of imbalance, some form of tax abatement by the federal government is necessary to provide more tax room in fields jointly occupied with the lower levels of government.

Redistributive Role of the Public Sector

For certain services, expenditure assignment to state and local governments may be based on efficiency of public service provision and responsiveness to local needs and concerns even though it may conflict with national equity and efficiency objectives. Musgrave (1976) argues that the redistributive role of the public sector is best performed by the federal government. In a federation mobility of factors severely limits the redistributive role of local governments, New York city being a prime example. Redistributive policies adopted by the city in the 1970s created a major fiscal crisis, and the federal government had to reverse these policies to restore the financial health of the city.

Some public services typically assigned to state and local governments for efficiency or accountability are strongly redistributive. Social insurance, health care, education, and welfare are examples of such services. Health and education services are quasi−private goods and in terms of technological efficiency are best provided by the private sector. In the United States health care is by and large treated as a private good. Some economists have advocated private provision of health and education services in developing countries based on this view of economic efficiency. Such a viewpoint completely ignores information asymmetries such as moral hazard and adverse selection. Fiscal federalism literature argues that informational inefficiencies alone do not provide a convincing case for the public provision of health care and education. Most governments treat health care as a fundamental public responsibility and strive to provide these services on a uniform basis because these services are considered "redistributions in kind." The case for public provision of these services rests primarily on equity objectives. In the case of health services, the incidence of disease is directly correlated with the incidence of poverty and inversely with economic wellbeing. Thus, public finance and provision of health care enhances the redistributive role of the public sector. Similarly, public education, by improving access for the poor, serves to further equality of opportunity. The relative importance of expenditures on health, education, and social services further suggests that redistribution by the tax system or direct cash transfers pale in comparison with the in−kind redistribution made possible by public services.

In a federal system, lower level provision of such services—while desirable for efficiency, preference matching, and accountability—create difficulties in fulfilling federal equity objectives. Factor mobility and tax competition create strong incentives for lower level governments to underprovide such services and to restrict access to those most in need, such as the poor or the old. This is justified by their greater susceptibility to disease and potentiallycontinue

Table 8. The conceptual impact of conditional grants

	Income effect			Price (substitution) effect			Total effect				Rank by objective function	
Type of grant	*a* i	*A*	*U*	*a* i	*A*	*U*	*a* i	*A*	*U*	∂ *A* /∂ *G*	*Increase in expenditure*	*Wefare*
Selective matching												
Open−ended	↑	↑	↑	↑	↑	↓	↑↑	↑↑	↑↓	> 1	1	3
Closed−ended												
Binding constraint	↑	↑	↑	↑	↑	↓	↑↑	↑↑	↑↓	≥ 1	2 or 3	4
Nonbinding constraint	↑	↑	↑	n.a.	n.a.	n.a.	↑	↑	↑	≤ 1	3	2
Selective nonmatching	↑	↑	↑	n.a.	n.a.	n.a.	↑	↑	↑	≤ 1	3	2
General nonmatching	n.a.	↑	↑	n.a.	n.a.	n.a.	n.a.	↑	↑	< 1	3	1

ai = Assisted subfunction.

A = Assisted function.

U = Unassisted functions (services).

G = Grant.

n.a. Not applicable.

Soure : Shah (1979).

greater risks for cost curtailment. Such perverse incentives can be alleviated by conditional (selective) nonmatching grants from the federal government. Such grants do not affect local government incentives for cost efficiency but do ensure compliance with federally specified standards for access and level of services.

Preservation of Internal Common Market

Common minimum standards for public services in a federation are advocated on economic efficiency grounds. Common minimum standards help reduce interregional barriers to factor and goods mobility and thereby contribute to efficiency gains. Establishing minimum standards for social services encourages labor mobility and for infrastructure capital, factor and goods mobility. Boadway (1992) has emphasized that harmonization of expenditures improves gains from interregional trade and helps foster a common internal market.

Common minimum standards for public services across different states can be encouraged through conditional nonmatching or conditional closed−ended matching programs. Conditional nonmatching programs are preferred because they are unobtrusive, allowing state governments to spend grant monies as they choose so long as they meet certain minimum standards of service and access. The higher level government simply monitors compliance with these standards.

Interjurisdictional Spillovers

Intergovernmental transfers can be used to correct for inefficiencies arising from interjurisdictional spillovers. Spillovers usually occur because the benefits of a locally provided good or service itself spills beyond the local jurisdiction to benefit those not contributing to the costs (air and water pollution control, locally educated students who relocate) and because nonresidents enjoy the services provided (parks; cultural, recreational, and transportation facilities; state universities; and state welfare and health care systems). In planning and administering such benefits, state and local governments consider only their own benefits and therefore underprovide public services. To compensate, governments may redraw jurisdictional boundaries or create separate jurisdictions for each service (McMillan 1975), but intergovernmental transfers are often the most practical means of alleviating the inefficiencies from spillovers. Open−ended conditional matching grants that modify relative prices are the most appropriate kind of transfers for implementing these corrections. The extent of cost sharing by the higher level of government should be consistent with the degree of spillover.

Differential Net Fiscal Benefits Across States

Net fiscal benefits vary from state to state for a number of reasons:

- Some states have more valuable natural resources and therefore better access to an enlarged revenue base.

- Some states or localities have relatively higher incomes and therefore greater ability to raise revenues from existing bases.

- Some states or localities have inherited higher cost disability factors (low thresholds for scale economies, difficult terrain) or higher need factors (greater proportion of young, old, or poor).

The presence of differential net fiscal benefits encourages fiscally induced migration. Labor and capital may move to areas with positive net fiscal benefits for fiscal considerations alone. In the process, negative externalities such as unemployment imposed on the jurisdictions they leave and enter may be ignored. The result of fiscally induced migration is that too many of the factors will move, creating social and economic problems in resourcerich areas. Factor movement in response to fiscal considerations alone creates inefficiency. Treating identical persons differently by the public sector in various states creates inequity. National welfare is reduced by the externalities imposed by fiscally induced migration.

Fiscal equalization grants to eliminate or reduce differential net fiscal benefits across states can enhance the efficiency and equity of a federal system. An ideal form of such transfer is an interstate revenue pool providing negative and positive equalization grants to member states such that net transfers equal zero. Thus, the program by design becomes self−financing. Such a grant system must be unconditional and must not reward strategic behavior to enhance positive grant entitlement or minimize negative transfer by member states. Thus, grant design must incorporate factors over which states have little control. Three grant programs that have endured and are broadly consistent with these are the Australian, Canadian, and German systems of equalization transfers (see appendix A). The German system is a fraternal system of equalization among the German states; the federal governmentcontinue

simply acts as an observer and occasionally as a mediator. The Australian and Canadian systems are federal programs that are not self−financing. The Canadian system attempts to augment the fiscal capacity of member provinces up to a five−province average. The system measures the fiscal capacity of a state by the revenue that could be raised in that state if the state government employed all of the standard revenue sources at the average intensity of use nationwide. The Australian system analyses expenditure needs as well (Shah 1983c, 1984a).

Another infrequently mentioned objective of these transfers is to advance stabilization policies of the federal government.

Stabilization Objectives

Intergovernmental transfers can also be used to help achieve economic stabilization objectives. Grants could increase in periods of slack economic activity to encourage local expenditure and diminish during the upswing of the economic cycle. Capital grants would be a suitable instrument for this purpose. Care must be exercised in ensuring that funds are available for operating expenditures associated with such initiatives.

Criteria for the Design of Intergovernmental Fiscal Arrangements

• *Autonomy* . Subnational governments should have complete independence and flexibility in setting priorities, and should not be constrained by the categorical structure of programs and uncertainty associated with decisionmaking at the center. Tax base sharing—allowing subnational governments to introduce their own tax rates on central bases, formula−based revenue sharing, or block grants—is consistent with this objective.

• *Revenue adequacy* . Subnational governments should have adequate revenues to discharge designated responsibilities.

• *Equity* . Allocated funds should vary directly with fiscal need factors and inversely with the taxable capacity of each province.

• *Predictability* . The grant mechanism should ensure predictability of subnational governments' shares by publishing five−year projections of funding availability.

• *Efficiency* . The grant design should be neutral with respect to subnational government choices of resource allocation to different sectors or different types of activity. The current system of transfers in countries such as Indonesia and Sri Lanka to finance lower level public sector wages contravenes this criterion.

• *Simplicity* . The subnational government's allocation should be based on objective factors over which individual units have little control. The formula should be easy to comprehend so that "grantsmanship" is not rewarded, as appears to occur with plan assistance in India and Pakistan.

• *Incentive* . The proposed design should provide incentives for sound fiscal management and discourage inefficient practices. There should be no specific transfers to finance the deficits of subnational governments. The current system of central transfers to finance subnational government deficits in India, South Africa, and Sri Lanka, and state transfers for the same purpose in Malaysia, clearly violate this criterion.

• *Safeguard of grantor's objectives* . The grant design should ensure that certain well−defined objectives of the grantor are properly adhered to by the grant recipients. This is accomplished by proper monitoring, joint progress reviews, and providing technical assistance, or by designing a selective matching transfer program.

The various criteria specified above could be in conflict with each other and therefore a grantor may have to assign priorities to various factors in comparing policy alternatives.

The Design of Fiscal Equalization Grants

In addition to safeguarding national objectives of providing certain minimum levels of public services across the nation, an equalization program can foster a greater sense of participation in a federation of member states and therefore is often viewed as the glue that holds a federation together. Economic literature has long recognized that equalization is justified on grounds of horizontal equity and, in recent years, that under certain conditions it could promote economic efficiency.

In principle, a properly designed fiscal equalization transfers program corrects distortions caused by fiscally induced migration by equalizing net fiscal benefits across states and thereby promoting economic efficiency. To measure net fiscal benefits a reasonable approximation of costs and benefits of public services provision in various states is essential. This requires developing measures of differential revenue−raising abilities and the costs of provision of public services of the member states. Equalization of net fiscal benefits could then be at−soft

tempted by adopting a standard of equalization and establishing the means of financing these transfers. These and related issues of unconditionality, tax effort, stabilization effects, and employment of strategy are discussed in the following sections.

Measurement of Fiscal Capacity

Estimating fiscal capacity—the ability of governmental units to raise revenues from their own sources—is conceptually and empirically difficult. The two most prominent measures are macroeconomic indicators and the representative tax system.

Macroeconomic indicators . Various measures of income and output serve as indicators of ability of the residents of a state to bear tax burdens. Among the better−known measures are:

• *Personal income* of a state is the sum of all incomes received by its residents. It is a reasonable measure of ability to bear tax burdens but an imperfect and partial measure of ability to impose them and therefore not a satisfactory measure of overall fiscal capacity.

• *Personal disposable income* is personal income less direct taxes. This concept shares the weaknesses of personal income as a measure of fiscal capacity.

• *State gross domestic product* represents the total value of goods and services produced within a state. It is also an imperfect guide to the ability of a state government to raise taxes, since a significant portion of income may accrue to nonresident owners of factors of production.

The representative tax system (RTS) . RTS measures the fiscal capacity of a state by the revenue that could be raised if the government employed all of the standard sources at the nationwide average intensity of use. To estimate equalization entitlements using the representative tax system, information on the tax bases and tax revenues for each state is required. Fiscal capacity of the have−not states is brought up to the median, arithmetic mean, or other norm. Using the arithmetic mean of all states as a standard, the state equalization entitlement for a revenue source is determined by the formula:

$$E_x^i = (POP)_x \{[(PCTB)_{na}^i \times t_{na}^i] - [(PCTB)_x^i \times t_{na}^i]\}$$

where E_i is equalization entitlement of state x from revenue source i, POP is population, $PCTB_i$ is per capita tax base of revenue source i, t_i is national average tax rate of revenue source i, subscript na is national average, and subscript x is state x. The equalization entitlement for a state from a particular revenue source can be negative, positive, or zero. The total of these values indicates whether a state receives a positive or a negative entitlement from the interstate revenue sharing pool.

Since data on tax bases and tax collections required to implement RTS are usually published regularly by various levels of government, RTS does not impose new data requirements and can be readily implemented in many developing countries.

Measurement of Expenditure Needs

Economic theory suggests that an ideal equalization transfer program should consider the expenditure side of the provincial−local budgetary operation. Many economists have argued for taking expenditure needs and costs of providing public services into account and several countries follow this approach.

The case for fiscal equalization rests on different net fiscal benefits across states because of differences in revenue−raising capacity or costs of providing public services. For example, two states have the same revenue−raising capacity and public service requirements, but the cost of providing them differs because of supply factors. Differences in the degree of urbanization affect the costs of salaries and wages, land, and construction, as well as services such as pollution control, public transit, police and fire protection, and the provision of utilities. Differences in population density affect the cost of providing public utilities and the costs of highways. Differences in age distribution affect the need for schools, hospitals, and recreational facilities.

These cost differentials are likely to cause substantial variations between the two jurisdictions in the level and mix of public goods provided, resulting in different net fiscal benefits. A strong case for equalization can, therefore, be established on grounds of efficiency and equity to compensate for cost differentials that give rise to different net fiscal benefits.

The fiscal federalism literature, in general, treats differential costs as synonymous with differential needs but it must be noted that some cost differences may arise from deliberate policy decisions of the provincial governments and do not constitute need. Compensation for unavoidable cost variations resulting from differences in the costs of inputs and from dissimilar input−output relationships that might arise because of distance from sources of supply and geographic features can be justified on equity grounds. Equalization grants should offset suchcontinue

inherent disabilities but should disregard cost differences because of differences in the efficiency with which resources are used.

Expenditure need is more difficult to define and derive than is the measure of fiscal capacity. The difficulties include:

- Defining an equalization standard.
- Determining cost differentials from input−output relationships.
- Understanding differences in service areas, populations, local needs, and policies.
- Understandingstrategicbehavior of recipient states.

The experience of Australia, Germany, and Switzerland with federal unconditional transfers, of the United States with highway grants, and of the Canadian provinces with provincial−municipal transfers indicates that these concerns can be addressed and expenditure need incorporated in formula grants in a manner acceptable to both the donor and recipients.

Expenditure need should be defined as the "cost of supplying average performance levels for the existing mix of provincial−local programs," without applying subjective standards such as "minimum service levels" or "reasonable levels of services." Relative expenditure needs are determined empirically using direct imputation or a simpler representative expenditure system. The later approach has the advantage of objectivity and ease of computation, and it enables the analyst to derive measures based on actual observed behavior rather than ad hoc value judgments. The relative weights assigned to various need factors are determined by econometric analysis. This method requires specifying determinants for each service category including relevant fiscal capacity and public service need variables. A properly specified regression equation yields quantitative estimates of the influence each factor has in determining spending levels for a category of public service. This information can be further analyzed to determine what each state would actually have spent if it had average fiscal capacity and average demands but actual need factors (see Shah 1991a, 1994).

More specifically, the formula for equalization entitlement on account of expenditure classification *i* for state *x* could be stated as follows:

$$EE_x^i = (POP)_x\,[(PCSE)_x^i - (PCSE)_{na}^i]$$

where EE_x^i is equalization entitlement for expenditure classification *i* for state *x*, POP_x is population of state *x*, $PCSE_x^i$ is per capita standardized expenditure by state *x* on expenditure classification *i*, or the estimated amount a state would have spent to meet actual needs if it had national average fiscal capacity, and $PCSE_{na}^i$ is national average per capita standardized expenditure for classification *i*. This is the estimated expenditure for all states, based on national average values of fiscal capacity and need. Equalization entitlement on account of a particular expenditure classification could be positive, negative, or zero. The total of these entitlements in all expenditure categories is considered for equalization.

A comprehensive system of equalization determines the overall entitlement of a state by considering its separate entitlements from the representative tax system (RTS) and the representative expenditure system (RES). Only those states with positive entitlements are eligible for transfers of all or some fraction of the total amount, the fraction determined by the central government depending on the availability of funds.

A phased approach to comprehensive equalization may be advisable. Initially, a representative tax system might be implemented for a five−year period, after which a representative expenditure system might complement the RTS in the next five years. A joint federal−state fiscal arrangements subcommittee may be instituted to monitor the system.

The Equalization Standard

Equalizing net fiscal benefits requires that an explicit standard of equalization—the level to which each state is entitled to be raised to provide public sector net benefits per household comparable to other states. Simplicity dictates choosing either the arithmetic mean or the median of the governmental units involved as the standard. Arithmetic mean provides a good representation of the data as long as extremes are not present. If sample values have a wide range, the median, or the arithmetic mean after eliminating extreme values, provides a better representation of the sample. Mean is preferable to median, however, for ease of computation.

Costs and financing. An ideal fiscal equalization program is self−financing. Member governments are assessed positive and negative entitlements that total zero, with the federal government acting as a conduit. If an interstate revenue sharing pool creates administrative difficulties in practice, the equalization program can be financed out of general fed−soft

eral revenues derived in part from the states receiving equalization.

Unconditionality . There is general consensus in the academic literature that an equalization system should enable state governments to provide a standard package of public services if the government imposes a standard level of taxes on the bases at its disposal. State governments or their citizens should, however, be permitted to substitute lower rates of taxation for comparable levels of services. In such cases, the equalization payments should be in the nature of unconditional grants having only income effects. Service areas in which there appears a good reason to set minimum national standards are better handled by conditional grants and shared cost programs. By raising a state's fiscal capacity, the unconditional equalization grants enable poor states to participate in the shared cost programs more easily.

Tax effort . Incorporating tax effort into the formula for determining equalization would involve making the equalization entitlement a function of the ratio of actual tax collections in a state to the state's tax base. Potential nonrecipient states may wish to see such a factor incorporated into the program to prevent states with a positive fiscal deficiency in an area from collecting equalization payments even if they may not levy a tax in the area. Potential recipient states may wish to see tax effort incorporated because without it, extra tax effort on their part will be relatively unproductive compared with a wealthy state. Several problems exist with incorporating tax effort into the program:

- The inclusion of tax effort will cause the program to depart from its unconditional nature. A state should be free to substitute grant funds for revenue from own sources.

- If a state raises taxes to provide a package of services higher than the standard, it should not receive equalization for doing so; for example, other states should not have to pay most of the cost if a state decides to paint its roads.

- Incorporating tax effort ties the federal government to expenditure philosophies of the various states.

- Some states do not have tax bases in all areas.

- Incorporating tax effort may encourage the employment of strategy by a state.

- In view of the different abilities of the states to export taxes, the measurement of tax effort would be crude.

- Incorporating tax effort could result in an increase in taxes on the poor states.

In view of such considerations, a program of equalization payments would not be improved by including tax effort.

Stabilization Effects

If the equalization payments are based on relative measures of fiscal capacity, they should have a stabilizing effect on state revenues. The level of payments will move in a direction opposite to that in which the states' own revenue−raising capacity moves. Maximum stabilization of state−local revenues will occur when the payments are based on all revenue sources, when a national average standard of equalization is used, when cyclical fluctuations in provincial economies are small, and when the time lag in calculating the grants is relatively short. When any large component of the total base, such as natural resource revenues, is volatile, the destabilizing effects can be quite large, and some sort of averaging formula should be employed to ease difficulties associated with provincial budgeting in the face of uncertainty.

Strategy

Strategy refers to actions that provincial governments can take to influence the level of payments they receive. A program that enables a state to employ strategy is undesirable, because in general the extra payments received may not have any relation to actual disparities. For example, a program employing tax effort could enable states to raise their entitlements by imposing heavy taxes in areas in which they have a tax base below the national average. This problem is less serious in practice than it might appear, since the room for additional taxation from sources in which the potential have−not states are not well endowed is extremely limited.

Conclusion

Economic theory provides strong rationale for fiscal equalization because it allows the replication of the financial structure of a unitary state in a federation while promoting decentralized decisionmaking. Thus, efficiency and equity considerations coincide.

Intergovernmental Transfers in Practice

In general, design of grants in developing countries is not consistent with the economic principles enu−soft

merated above. Details pertinent to the overviews that follow are in appendixes E and F.

• *General nonmatching transfers, tax base sharing, and revenue sharing mechanisms to deal with fiscal gaps* . Revenue sharing mechanisms are used in a number of countries but tax base sharing has generally not been tried. General unconditional transfers are not popular, but deficit grants have been tried in a number of countries including India, Malaysia, Pakistan, South Africa, and the former Soviet Union.

• *Conditional nonmatching or equal per capita transfers to ensure minimum standards of service across the country* . Few such transfers are used in developing countries. Central government transfers to provincial and local governments in Indonesia, central per capita transfers for education in Colombia, and the capitation grant to Malaysian states come close to the concept of such a transfer.

• *Benefit spillover compensation using selective open−ended matching transfers* . Although benefit−cost spillout is a serious factor in a number of countries such transfers have not yet been implemented in any developing country.

• *Equalization transfers to reduce or eliminate differential net fiscal benefits among subnational governments* . Despite serious horizontal fiscal imbalances in a number of countries, explicit equalization programs are untried, although equalization objectives are implicitly attempted in the general revenue sharing mechanisms used in Brazil, Colombia, India, Mexico, Nigeria, and Pakistan. These mechanisms typically combine diverse and conflicting objectives into the same formula and fall significantly short on individual objectives. Because these formulas lack explicit equalization standards, they fail to address regional equity objectives satisfactorily.

• *Conditional open−ended matching transfers to encourage certain expenditures* : India, Malaysia, and Pakistan use conditional closed−ended matching transfers, but open−ended matching transfers are not in use.

Revenue Sharing Mechanisms

• *Brazil* . One of the main instruments for federal−state revenue sharing is the State Participation Fund. The federal government transfers a specified share of certain federal taxes to a pool, and the Council of States determines state shares using a formula that incorporates population and per capita income as its main components. A proposal currently under discussion extends the components to include such factors as land area, interstate trade, and fiscal effort. In recent years, shares determined by this formula have been unacceptable to the Council, which has resorted to a compromise allocation based on an arbitrary adjustment to formula shares.

The principal merits of this program are the consistency of its design with objectives of transparency, predictability, and local autonomy. The program addresses some fiscal equalization objectives but has design flaws that inhibit achievement of its objectives. For example, one measure of fiscal capacity is state per capita income; this is an imperfect guide to the ability of a state government to raise taxes, because a significant proportion of income can accrue to nonresident owners of factors of production. Furthermore, only a small portion of total state revenues is raised from income taxes. Estimates of state per capita income are subject to significant errors and are available only after a long delay. For example, estimates are currently available only through 1980. These difficulties diminish the usefulness of per capita income as a determinant in a program of fundamental importance to federal−state fiscal relations.

The State Participation Fund further combines diverse and sometimes conflicting objectives, such as revenue sharing and fiscal equalization at the state level, into a single formula in a multiplicative manner and therefore falls significantly short on individual objectives. The program is redistributive in its overall impact, but does not assure consistency of individual state shares with the formula objectives, so states with similar fiscal capacity receive widely different entitlements. Since the formula lacks an explicit equalization standard, it also fails to address regional equity objectives satisfactorily. These failings explain why the Council of States finds it easier to strike political compromises rather than accept results of the formula.

The program to channel federal revenue sharing monies to municipalities in Brazil is called the Municipal Participation Fund (FPM). This program considers municipal population and state per capita income to determine shares to individual municipalities. This program has two major drawbacks: first, the formula for this program fails to incorporate differential fiscal capacity of the municipalities in a meaningful way, and therefore does not result in a fair and equitable distribution of funds. Because there is no local income tax in Brazil (and none is called for because of capital and labor mobility), per capita income is a poor indicator of a local government's ability to raise revenues. In each state rich and poor municipalities exist sidecontinue

by side, and state per capita income, by definition, cannot distinguish between the two classes. Second, this program discourages local fiscal efforts by meeting nearly two−thirds of municipal revenue requirements from federal revenue sources. Such overwhelming dependence by municipal governments on outside revenues creates a dichotomy between spending and revenue−raising decisions and contributes to reduced financial accountability at the local level.

• *China* . Revenues from each province are transferred upward according to negotiations with the central government. This system is known as the Provincial Overall Contracting System. The central government has entered into five−year contracts that expire in 1993 with 14 of the 29 provinces to receive fixed sums annually. The remaining 15 provinces receive fixed annual subsidies (Wu and Lou 1991). The system of sharing fixed amounts is intended to encourage higher tax efforts at lower levels. Starting in January 1994, this system is replaced by a revenue sharing program, with 50 percent of central revenues from VAT, resource taxes, and securities exchange taxes returned by origin.

As a supplement to the new revenue sharing program, a new "tax payment system" has been instituted effective January 1994. Under this system, the central government will examine the fiscal position of subnational governments and will determine the surplus of revenues (own plus shared revenue and transfers) over authorized expenditures to be transferred to the central government. The amount to be transferred upward will have to increase at a specified rate in subsequent years. For subnational governments in a deficit position, central transfers will fill the gap and such transfers will also grow at a prespecified rate in subsequent years. It is interesting to note that Pakistan had such a system in place until 1991 but abandoned it in view of the perverse incentives it created for fiscal management at the subnational level. The system rewarded lower tax effort and higher spending by subnational governments.

• *India* . A significant proportion of national revenues is returned to the states using population and some measure of income relative to the average. Therefore, some degree of implicit equalization is attempted by the formulas. Since the formulas embody factors to achieve multiple objectives, the extent to which each of the objectives is accomplished requires further analysis. The formulas do not pay special attention to fiscal capacity (revenue means) of individual states in grant determination.

• *Mexico* . In 1990 the country restructured its assistance to states and municipalities, allocating 18.1 percent of sharable federal revenues to a general fund, 6.5 percent of sharable federal revenues (up to 1997) to a contingency fund, and 2 percent of sharable federal revenues to the Municipal Fund. The allocation criteria for the general fund gives equal weight to population and previous state shares adjusted by annual increases in federally administered excises on petroleum, motor vehicles, alcohol and tobacco, and locally administered water charges and property charges. The contingency fund is designed to compensate states that lose allocated funding through this restructuring. The Municipal Fund uses an inverse of the allocation for the general fund to provide states with pass−through funds intended for final distribution to their municipalities. Using population as a criterion for determining general fund revenues is a welcome change, because it enhances autonomy and equity objectives. Reliance on adjusted historical shares to allocate remaining funds perpetuates anomalies created by high petroleum revenues accruing to certain states in the early 1980s and will clearly favor oil−rich states. The Municipal Fund makes only a minor contribution toward rectifying this problem.

• *Nigeria* . The federal government shares 45 percent of revenues with states and municipalities. Ninety−five percent of revenue shared with states uses minimum responsibilities—population, primary school enrollment, and internal revenue effort—as formula factors; the remaining 5 percent is distributed to mineral−producing states on the basis of origin. Transfers to municipalities are based 25 percent on equal shares to recognize minimum needs and 75 percent on population. Several aspects—equalization to a standard and instability associated with resource revenues—require further attention in fine−tuning existing revenue sharing arrangements. The former can be addressed by adopting some form of the representative tax system and the latter by establishing an oil fund managed jointly by the federal and state governments.

• *Pakistan* . Revenue sharing is based on population and revenue collection by origin. Equalization to a standard by considering the revenue means of the provinces has not yet been tried.

• *Papua New Guinea* . Minimum unconditional grants are based on expenditures in the base year FY1976. Some revenues are shared using the derivation principle. It is not clear why base year expenditures should be consistent with the priorities andcontinue

economic−demographic dynamics two decades later.

• *The Philippines* . Population, land area, equal shares, and ethnic derivation are factors used to determine revenue sharing allocations. While the factors are objective and reasonable, they do not correct for horizontal imbalances. Revenue−raising potential of subnational governments should be incorporated into the formulas.

Federal Transfers

In a federation, specific−purpose transfers support important policy objectives such as benefit spillover compensation; bridging fiscal gaps; ensuring minimum standards of public services across the nation; fulfilling the redistributive function of the federal government; creating common internal markets; reducing net fiscal benefits across jurisdictions; and achieving economic stabilization objectives. In most cases grant objectives determine grant design.

In developing countries, funds for specific−purpose transfers are usually distributed in an ad hoc manner at the discretion of the central government. The practice of intergovernmental transfers is, therefore, at variance with the economic principles enunciated above and significant opportunities exist for the reform of these arrangements in developing or transitional economies.

• *Bangladesh* . The government offers a number of closed−ended matching and nonmatching grants for upgrading infrastructure, with allocation based on verifiable indicators of general assistance. These grants provide general budgetary support to lower level governments rather than special incentives for higher spending on infrastructure as matching rates are small and nonbinding. Bangladesh also provides budget deficit grants that create incentives for running higher deficits.

• *Brazil* . The federal and state governments engage in many specific−purpose programs or *convenios* . For many of these programs, program objectives are typically not specified or specified vaguely, and in some instances grant objectives are determined after funds are released. In recent years, specific−purpose transfers have increasingly served not to safeguard federal objectives but as vehicles for pork barrel politics, and only a handful of programs have desirable features. One such program is for unified, decentralized health care, in which federal financing is provided to achieve certain minimum standards of health care across the nation. The intent of this program is for the federal government to specify policies and for state and local governments to implement federally mandated programs. In practice, however, the federal government is heavily involved in program administration, and decentralization has not been fully achieved. The existing program also gives preferential treatment to private contractors over state and local government agencies. New fiscal arrangements are likely to constrain federal funding for this program.

• *India* . The national government offers specific−purpose grants that provide assistance to relatively less prosperous states and encourage tax effort at subnational levels. The complex review and approval processes used for grant allocation work against some of these goals. India also provides budget deficit grants.

• *Indonesia* . Central grants currently finance about 64.9 percent of expenditure at the provincial level and 71.4 percent of expenditure at the district level. These transfers are of two kinds: block grants, for general purpose local spending subject to some broad central guidelines; and specific grants, for expenditure on uses specified by the center and subject to relatively detailed central controls. Block grants include INPRES block transfers to each of the three main levels of local government—provinces, districts, and villages. Specific grants include SDO, a transfer that covers virtually all local government personnel expenses, and INPRES sectoral transfers for specific development expenditures on roads, primary schools, public health centers, and reforestation. As part of its policy of gradual decentralization, the government has incrementally raised the share of block grants in total transfers (from 15.9 percent in 198687 to 20.3 percent in 199394) and has also allowed local governments somewhat greater flexibility in the use of some specific grants.

The design of the Indonesian intergovernmental grant system has several positive features: the distribution of grants is transparent, determined by formulas utilizing objective criteria; the structure of grants is simple, as both the grants and the criteria used for distribution are few in number; and the grants achieve an overall equalizing effect on regional revenue availabilities. In its transparency and simplicity, the Indonesian grant system compares favorably with the grant systems typically found in other developing countries.

Nonetheless, several improvements can be considered in the design of the Indonesian grant system that would allow it to achieve its efficiency and equity objectives more effectively. First, the recent trend toward increasing the share of block grantscontinue

in total grants should continue. Second, regional disparities in overall fiscal capacities (revenue−raising potential) could be better reflected in the distribution formulas for block grants by including a fiscal capacity equalization factor. The criteria currently used for distribution—area, population, equal shares—are all focused primarily on capturing the differential needs of local administrations. Better means of capturing differential fiscal capacities to meet those needs would contribute to making the distribution of grants more equitable. Third, the SDO grant could be consolidated with the general purpose block grants to the respective levels of government. As presently designed, this grant creates strong incentives for higher government employment, and thus a higher wage bill, at the local level. The center tries to circumvent this perverse incentive by retaining major control over government employment at all levels, but this undermines local autonomy and flexibility in the allocation of budgetary resources between personnel and other expenditures. Fourth, the main improvement that can be made in the specific sectoral grants is to continue the shift toward using broad guidelines rather than detailed controls and physical targets in influencing the use of these grants. The allocation criteria for these grants are broadly appropriate, as they adequately serve their main objective of ensuring minimum standards of the targeted basic services across regions. One improvement would be to change the allocation of the reforestation grant from a project to a formula basis, as for the other specific sectoral grants. Fifth, consideration could be given to assigning provinces a role in the allocation of central grants to the lower levels, by making some of the grants pass through them. The rationale for doing so is that provinces are better placed than the center, especially in a large and diverse country, to assess the needs and fiscal capacities of individual lower level jurisdictions.

• *Malaysia* . Most transfers are based on objective criteria except for deficit grants through the state reserve fund, which are only granted in exceptional circumstances.

• *Mexico* . Specific−purpose transfers lack transparent criteria and have often been mired in political controversy and debate.

• *Nigeria* . The government has a mixed record on the design of transfers. Some specific−purpose grants to states follow objective criteria, and the federal government sets standards of service to be achieved. Other programs lack any transparency in the allocation of funds.

• *Pakistan* . Federal transfers have worked as vehicles for federal bureaucratic control over provincial spending priorities. Most central transfers do not consider central objectives, fiscal needs, or relative fiscal capacities at the provincial level. Examples include deficit grants (discontinued in 1992), which encouraged provinces to run higher deficits to have a greater claim on central resources, and education grants to finance provincial expenditures above their 1983 level, encouraging excessive spending. Most are capital grants with no provision for financing maintenance expenditures. As a consequence, the grant structure encourages capital−intensive technology that deteriorates because of inadequate funds for upkeep. Central grants are unpredictable, discouraging long−term planning at lower levels. Economic criteria—efficiency, equity, spillover compensation, and autonomy—are not usually recognized in current grant programs but grantsmanship is rewarded.

• *China, Colombia, the Philippines,* and *Thailand* . Specific−purpose grants lack transparent criteria for allocation.

State−Municipal Transfers

The same economic principles govern state−municipal fiscal relations as those for center−state fiscal relations. In many countries local governments are simply extensions of state governments and are subject to a high degree of interference and control. In turn, the dependence of local governments on state transfers is usually greater than the dependence of states on central transfers. In industrial nations, local governments typically account for more than 20 percent of general government spending and finance less than 30 percent of their expenditures from higher level transfers. Figure 6 provides a comparative view on local tax effort in selected countries. Property taxes are the mainstay of local government revenues in most industrial nations, except for Scandinavian countries where local governments rely heavily on local income taxes. In many countries, property tax is a state responsibility with proceeds shared with local governments and sometimes with the central government. Property tax is generally not a productive revenue source, since its base can be eroded by exemptions and dated assessments.

In developing countries local governments typically account for less than 10 percent of consolidated general government spending but derive more than two−thirds of their revenues from highercontinue

level transfers. In some instances, increased revenue sharing transfers contribute to reduced local tax effort. For example, in the early 1980s Mexico more than doubled its transfers to municipal governments and gave them exclusive access to property tax revenues. Nearly half of these transfers were directed to increased local expenditures, and the rest were used as a tax relief to municipal residents. As a result, municipal reliance on self−generated revenue declined from 75 percent of total spending in 1980 to 40 percent in 1984. In Brazil high federal transfers to municipal governments in 1989 and 1990 also led to lower tax effort (Shah 1991c). In principle, it should be easy for state governments to structure their transfers to local governments objectively, in view of easy access to their economic data. In practice, state transfers to local governments are arbitrary and discretionary. Only a few countries—Brazil, India, and Nigeria—have made serious attempts to structure at least part of their assistance in a nondiscretionary fashion (appendix G).

Borrowing by local governments remains a major issue in most developing countries, where local governments are not permitted to borrow in credit markets and must rely on transfers for undertaking capital investments. This is an area where the potential exists for autonomous bodies to supervise and assist local borrowing for capital projects. State governments can establish municipal finance corporations or loan councils to provide technical assistance in project selection and appraisal and to assist in securing loans on preferred terms with state guarantees.

Except for Brazil and Mexico, information on state−local transfers is scanty and not suited to detailed analysis.

• *Brazil* . State−municipal transfers have two important components. One is the constitutionally mandated state−municipal revenue sharing arrangements, or state−municipal tax transfers. For the most part, distribution of such transfers follows the origin principle: 75 percent of the municipal share of state VAT revenues is distributed in proportion to the value added in each municipality. For the remaining 25 percent, states have discretion to incorporate other fiscal need factors, population and area being the most common. Some states have also used fiscal effort as a special factor. A major criticism of the existing arrangement is that current formulas do not address fiscal equalization by varying a proportion of funds inversely with fiscal capacity (munici−soft

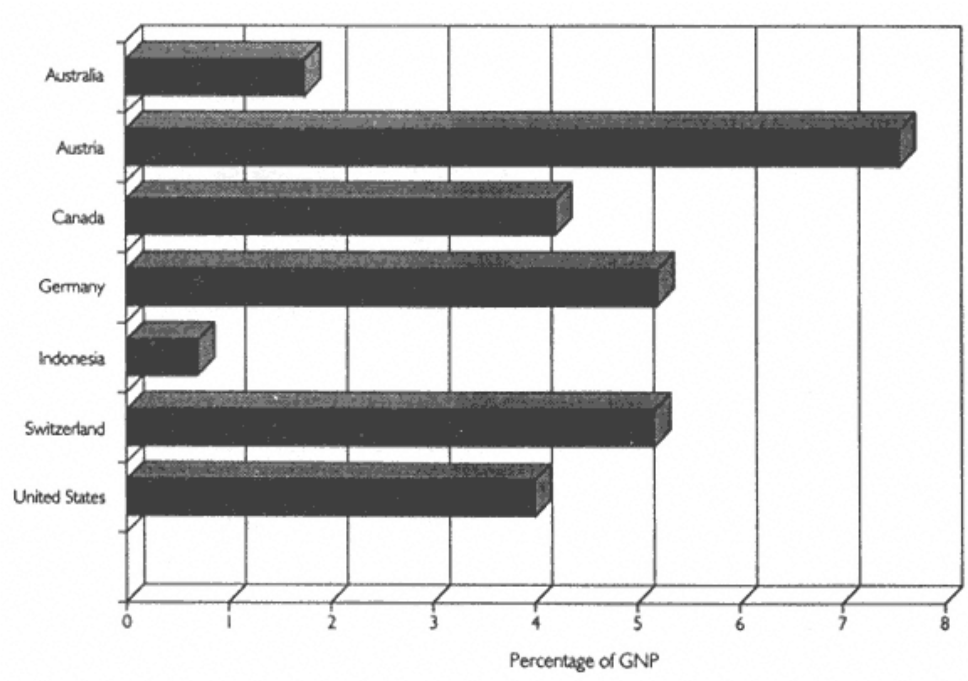

Figure 6.
Local government tax effort as a percentage of GNP

pal tax bases). In fact, municipal tax bases hardly enter into consideration. The fiscal effort component is usually poorly designed, benefiting larger municipalities without regard for their fiscal effort.

A second component of state transfers to municipalities is specific−purpose or negotiated transfers. Most states have a large number of convenios—usually thousands—to provide project assistance. The sheer number of these transfers defies analysis, but anecdotal evidence suggests that political considerations dominate in the distribution of grant funds.

• *Mexico* . Several states use the derivation principle, while others follow the United States' former revenue sharing formula that varies grant funds directly with population and tax effort and inversely with per capita income. Municipal fiscal capacity is not considered in these formulas, and in some states grant allocation is arbitrary. In many states, criteria for allocating grants is approved by state legislatures annually, making it difficult for municipalities to carry out a long−term projection of revenues and expenditures.

Conclusion

Industrial countries offer examples of grant programs that recognize some of the economic principles enunciated above. German experience suggests that a well thought out revenue sharing system can obviate the need for many specific−purpose transfers. Canadian federal transfers for health and post−secondary education recognize the redistribution−in−kind nature of these public services and provide per capita transfers to provinces conditional on universal access to these services. Canadian experience with federal equalization transfers based on the representative tax system approach suggests that an objective equalization program that helps members establish minimum standards of basic services can endure and strengthen the federation. Australian experience with equalization is also instructive but much more difficult to replicate elsewhere.

United States experience with road transportation assistance holds important lessons in structuring specific−purpose transfers. The program used objective indicators of need in allocating funds among states and established matching provisions to induce local participation.

Switzerland provides spillover compensation and equalization transfers to its cantons (Dafflon 1990). Canadian provinces, the United Kingdom, and the Victoria (Australia) Grants Commission use objective criteria in their transfers to local governments (Shah 1983b). Many of these models can be readily implemented in developing countries and ample conceptual and practical guidance is available on the design of these transfers. Specific circumstances in each developing country require tailoring and adapting this guidance. Few developing countries have devoted serious attention to the design of these transfers, and therefore monumental and important work lies ahead.break

3— Fiscal Imbalance

Vertical fiscal imbalance is the disparity between revenue means and expenditure needs at various levels of government in a federation. Horizontal imbalance is inconsistency between revenue−raising ability and fiscal needs of governments at the same level in a federation. Some degree of mismatch between revenue means and expenditure needs at various levels is inevitable in all federations. Efficient tax administration for certain revenues requires central administration, which contributes to the vertical imbalance problem. After expenditure and tax responsibilities have been assigned, revenue sharing and transfers can correct for imbalances that result. Difficulties in design or conflicting claims of needs by various levels of government mean that revenue sharing and transfer mechanisms may not fully resolve the imbalance.

Vertical Imbalance

Out of 15 countries for which data on revenue and expenditure shares at the national and subnational levels are examined, only Australia and China are successful in completely eliminating vertical imbalances (table 9). Seven of the remaining 13 countries report fiscal deficiency at the national and 6 at the subnational level. Fiscal deficiency at the national level does not show any correlation with the degree of central control over subnational governments.

An aggregate measure of vertical imbalance incorporating some measure of national control would be instructive. One measure of vertical balance, the coefficient of vertical imbalance (Hunter 1977) or an index of subnational autonomy (Shah and Qureshi 1994), attempts to measure the degree of control exercised by the federal government over lower levels of governments (table 10, figure 7). By this measure, a coefficient of zero indicates absolute federal control over state and local governments; a coefficient of one indicates that lower levels of governments are autonomous in their decisionmaking. While a high coefficient value is consistent with the assignment principles enunciated above, absolute subnational autonomy has never been a goal in any federation. Central control is strong in Australia, Colombia, India, Indonesia, and Pakistan. In Brazil, federal influence over local priorities is quite limited—with the 1990 tax assignment and transfer system, the federal government's control over state and local governments has deteriorated significantly. States now command the value−added tax base, one of the most dynamic revenue bases, and municipalities are guaranteed a large share of federal and state revenue collections. While a precise calculation of the new fiscal arrangements needs further analysis, federal and state governments' revenue in Brazil falls significantly short of expenditure needs. The opposite holds for municipal governments. The federal government will face severe financial difficulties if it continues to follow the current pattern of responsibilities. State−level governments face some difficulties, but these may not persist if thecontinue

Table 9. Vertical imbalance in selected countries

Country	Level of government	Revenue share	Expenditure share	Surplus/ deficit
Argentina	Before transfers:			
(1989)	National	0.62	0.53	0.09
	Subnational	0.38	0.47	0.09
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.57	0.53	0.04
	Subnational	0.43	0.47	0.04
	All levels	1.00	1.00	0.00
Australia	Before transfers:			
(1991)	National	0.71	0.51	0.20
	Subnational	0.29	0.49	0.20
	All levels	1.00	1.00	0.00
	Including transfers:			
	National	0.51	0.51	0.00
	Subnational	0.49	0.49	0.00
	All levels	1.00	1.00	0.00
Brazil	After transfers:			
(1990)	National	0.36	0.34	0.02
	Subnational	0.64	0.66	0.02
	All levels	1.00	1.00	0.00
Canada	Before transfers:			
(1989)	National	0.49	0.34	0.15
	Subnational	0.51	0.66	0.15
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.31	0.34	0.03
	Subnational	0.69	0.66	0.03
	All levels	1.00	1.00	0.00
China				

	Including transfers:			
(1988)	National	0.36	0.36	0.00
	Subnational	0.64	0.64	0.00
	All levels	1.00	1.00	0.00
Colombia	Before transfers:			
(1986)	National	0.85	0.67	0.18
	Subnational	0.15	0.33	0.18
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.63	0.67	0.04
	Subnational	0.37	0.33	0.04
	All levels	1.00	1.00	0.00
Germany (former German Federal Republic)	Before transfers:			
	National	0.66	0.58	0.08
	Subnational	0.37	0.42	0.08
	All levels	1.00	1.00	0.00
	After transfers:			
(1991)	National	0.57	0.58	0.01
	Subnational	0.43	0.42	0.01
	All levels	1.00	1.00	0.00
India	Before transfers:			
(1989)	National	0.68	0.54	0.14
	Subnational	0.32	0.46	0.14
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.44	0.54	0.10
	Subnational	0.56	0.46	0.10
	All levels	1.00	1.00	0.00
Indonesia	Before transfers:			
(1990)	National	0.94	0.83	0.11
	Subnational	0.06	0.17	0.11

	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.82	0.83	0.01
	Subnational	0.18	0.17	0.01
	All levels	1.00	1.00	0.00
Malaysia	Before transfers:			
(1991)	National	0.90	0.85	0.05
	Subnational	0.10	0.15	0.05
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.87	0.84	0.03
	Subnational	0.43	0.46	0.03
	All levels	1.00	1.00	0.00
Mexico	Before transfers:			
(1987)	National	0.88	0.92	0.04
	Subnational	0.12	0.08	0.04
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.87	0.92	0.05
	Subnational	0.13	0.08	0.05
	All levels	1.00	1.00	0.00
Nigeria	After transfers:			
(1986)	National	0.90	0.74	0.16
	Subnational	0.10	0.26	0.16
	All levels	1.00	1.00	0.00
Pakistan	After transfers:			
(1988)	National	0.78	0.71	0.07
	Subnational	0.22	0.29	0.07
	All levels	1.00	1.00	0.00
United Kingdom	Before transfers:			
	National	0.89	0.70	0.19
(1990)	Subnational	0.11	0.30	0.19

	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.71	0.70	0.01
	Subnational	0.29	0.30	0.01
	All levels	1.00	1.00	0.00
United States	Before transfers:			
	National	0.58	0.49	0.09
(1990)	Subnational	0.42	0.51	0.09
	All levels	1.00	1.00	0.00
	After transfers:			
	National	0.42	0.49	0.07
	Subnational	0.58	0.51	0.07
	All levels	1.00	1.00	0.00

Source : International Monetary Fund (1992). Brazil, Nigeria, Pakistan: Shah (1991b). Indonesia: Government of Indonesia, budget documents.

current growth in sales tax revenues continues. Municipal governments in Brazil, on the other hand, should be the envy of all governments in developing as well as industrial countries.

Horizontal Imbalance

While empirical evidence on horizontal fiscal imbalance or regional fiscal inequities is scarce, it appears to be more serious than vertical imbalances in developing nations. For example, per capita income in Rondonio, Brazil, one of the poorest states in the nation, is only 12 percent of per capita income in São Paulo, the richest; and per capita own revenues in the former are only 20 percent of those in the latter (Shah 1991c). In China, per capita tax collections vary from Rmb 40 in Tibet to Rmb 1,492 in Shanghai (Wu and Lou 1991). In Sri Lanka, revenues range from 66 rupees in the North Central province to 237 rupees in the Western province (Shah 1990). Such disparities exist in most other developing nations, yet not a single country has attempted to deal with these disparities by equalizing per capita fiscal capacities to a standard.break

Table 10. Index of subnational autonomy for selected countries

Country	Period	Coefficient
Indonesia	1990	0.19
Australia	1987	0.43
India	198286	0.45
Colombia	197983	0.50
Pakistan	198788	0.53

Malaysia	198488	0.65
Canada	1988	0.79
Germany (former German Federal Republic)	1988	0.79
United States	1988	0.88
Brazil	1988	0.89

Note : Index of subnational autonomy = I − [(*TR* ST + *TR* GP , + *REV* SH + B) / *EXP*]

Where: *TR* SP = Specific−purpose central transfers to subnational govements.

TR GP = General−purpose central transferS to subnational governments.

B = Borrowing by subnational governments.

EXP = Subnational government expenditures.

REV*SH* = Shared revenues.

Source : Indonesia: Government of Indonesia, budget documents. Other countries,

see Shah (1991 b).

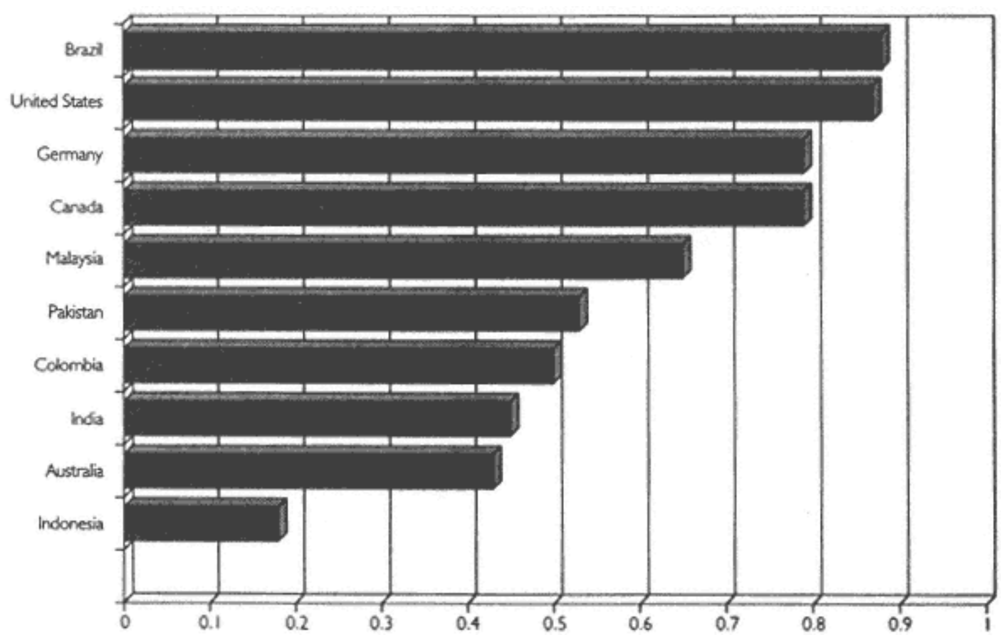

Figure 7.
Index of subnational government autonomy in selected countries

4— Blueprints for Restructure and Reform

As an overview of results from previous sections, an analysis of fiscal systems in developing or transitional economies reveals certain common themes.

General Issues

Today's developing and transitional economies are more centralized than industrial countries were in their early stages of development. Strong emphasis on central planning in developing countries has contributed to the centralization of authority but acts as an impediment to innovative responses to local issues by local governments and stymies private sector development. Experiences of industrial countries suggest that decentralization of authority should be a guiding principle unless a convincing case can be made for centralization of specific responsibility. Fiscal decentralization can contribute to more efficient provision of local public services by allowing a better match of expenditures with local priorities and preferences.

Accountability is promoted through clearer and closer linkage of the benefits of local public services with their costs, especially in large and diverse countries. Increased fiscal autonomy can also be instrumental in mobilizing more revenues from local sources, helping to improve a country's overall fiscal position. Decentralized decisionmaking also expands possibilities for increased local participation in development. In a decentralized environment, national objectives can be served through conditional grants, interstate agreements, and regulation.

Constitutional responsibilities should be clearly and precisely stated to avoid overlap and duplication of authority and to prevent court challenges. Political processes in developing countries too often favor narrow regional interests to the detriment of national concerns. To enhance accountability, it is desirable to determine tax and expenditure assignment simultaneously so that revenue means can be matched as closely as possible to expenditure needs of various levels of governments. This will help reduce the need for fiscal transfers, minimizing their potentially distortional effects. Revenue decentralization without a corresponding decrease in expenditure responsibilities can constrain the federal government, as happened in Brazil in 1988. In transitional economies such as the Russian Federation, expenditure decentralization has taken place without concomitant increase in revenues for subnational governments, passing federal deficits on to the subnational level.

Expenditure Assignment Issues

In expenditure assignment, some countries recognize that past decentralization efforts may have circumvented the role of federal government in stabilization and redistribution. In such situations, a conscious effort is needed to restore to the federal government its rightful role. The role of national government in defense and security is clear, but in most countries the pervasive, intrusive role of national government in purely local functions is being questioned. A review of the theory and practicecontinue

of expenditure assignment suggests that problems arise not from the constitutional assignment being at variance with the theory but with actual assumption of responsibilities. This suggests that reforms are possible through administrative orders without resorting to constitutional changes.

It is desirable for the national government to assume responsibility for national public services, international affairs, monetary policy, regulation, auditing, transfers to persons and businesses, fiscal policy coordination, regional equity, redistribution, and preservation of an internal common market. State governments should be responsible for education, health, social insurance, intermunicipal infrastructure, and financial assistance and oversight to local governments. All local services must be assigned to local governments. In areas of shared responsibilities, the role of each level of government should be clarified.

Assignment of public services to local or regional governments can be based on economies of scale and economies of scope—the appropriate bundling of local public services for efficiency, coordination of information, and enhanced accountability through voter participation and cost recovery. Other considerations included cost−benefit spillovers, proximity to beneficiaries, consumer preferences, and flexibility in budgetary choices on composition of public spending. Assignment of responsibilities to various local governments can be based on population size, rural or urban classification, and fiscal capacity criteria. Assigning responsibility for the provision of service to a specific level, however, does not imply that government should be directly engaged in production. Such decisions should be based on a careful evaluation of public and private sector production alternatives using efficiency and equity criteria. In some countries, state enterprises engaged in production of private goods also carry out local service delivery responsibilities. This should be discouraged as it presents difficulty in evaluating the economic performance of these enterprises.

Tax Assignment Issues

A number of issues arise in assigning taxes in developing and transitional economies. In most developing countries, subnational governments have limited access to their own tax bases and depend on higher level transfers. This undermines accountability. In transitional economies this situation is reversed and the central government may not have full control over its tax bases because of local administration of these taxes. In China and Russia, for example, revenues are collected at the local level and then shared upward. This creates incentives at the local level to make better collection effort for taxes they fully retain and relatively less effort for taxes that are largely transferred upward. Local governments in these countries like to receive transfers in kind or contributions from their own enterprises rather than collect higher corporate taxes from these enterprises. Thus, revenue sharing on a tax−by−tax basis is not desirable. In a country with conflict among levels of government, subnational administration of national taxes is not advisable. China, for example, is strengthening central tax administration to collect revenues from central and shared taxes.

Other problems are caused by overlapping, uncoordinated administration of certain taxes, especially sales and excise taxes. For example, in Brazil the bases for federal taxes on manufacturer sales partially overlap state−level VAT and local services taxes. The same is true in Argentina with bases for federal VAT and provincial−level turnover taxes. Experiences of Brazil, the European Union, Russia, and the state of Michigan suggest that a multistage sales tax such as VAT is not suitable for assignment to subnational governments.

Corporate income taxes and resource rent taxes are not suitable for assignment to subnational governments, because the tax base of the former can be eroded as a result of interjurisdictional tax competition, and the tax base of the latter is highly variable because of instability in revenues and geographically uneven distribution of tax bases. It is desirable to assign both these taxes to the national government. Subnational governments can be compensated through a general revenue sharing pool, with a revenue stabilization pool for resource rents or other widely fluctuating revenues.

In general, tax assignment should be undertaken using two broad principles: efficiency in tax administration and matching revenues as closely as possible with expenditure needs. Efficiency in tax administration suggest that taxes on mobile factors such as corporate and personal income taxes and multistage sales taxes such as VAT should be assigned to the federal government. Fiscal need criteria suggest that tax policy instruments to further national policy objectives should be assigned to the federal government, as should progressive redistributive taxes such as taxes on personal incomes, wealth, and inheritances; taxes on highly unequally distributed tax bases such as resource rent taxes; stabilization tools such as corporate and personalcontinue income taxes and VATs; taxes on international trade; excises on national and global "bads" such as carbon, alcohol, and tobacco; and user charges and benefit taxes for national public services. Tax harmonization and coordination to preserve an internal common market should also be a federal responsibility.

Efficiency in tax administration dictates that state governments levy residence−based taxes, such as single−stage consumption taxes on wholesale−, manufacturer−, and retail−level sales and excises. State and local governments may also levy supplementary rates on the federal personal income tax base. Fiscal need criteria suggest that state governments can also levy sin taxes on alcohol, effluent charges, motor fuels, energy use, betting, lotteries, racetracks, congestion tolls on provincial roads, and benefit charges such as payroll taxes, vehicle taxes, business registrations, court fees, stamps, resource royalties and fees, poll taxes, and user charges.

Efficiency in tax administration suggests that local governments should levy taxes on immobile factors such as property. Fiscal need criteria suggest that they should also levy cost recovery charges such as property taxes; frontage taxes; tolls on local roads, fairs, and markets; poll taxes; and user charges.

Issues in Intergovernmental Transfers

The literature of fiscal federalism stresses that every objective specified by a grantor should be reflected in the grant design. To deal with a fiscal gap, for example, general nonmatching transfers or tax base revenue sharing mechanisms are needed. To address differential net fiscal benefits or horizontal fiscal imbalances, general nonmatching equalization transfers are required. To correct for benefit spillout compensation, open−ended matching transfers are desirable, with the matching rate determined by benefit−spillout ratio. To ensure minimum standards of services across the nation, conditional nonmatching (block) transfers are suggested. To stimulate public expenditures on areas of high national importance but low local priority, the solution may lie in conditional open−ended matching transfers. A review of intergovernmental transfers in developing or transitional economies suggests that such considerations tend to be ignored in grant design.

Despite the high priority in most countries attached to limiting interregional fiscal disparities and the apparent simplicity and practicability of design, not a single developing or transitional economy has adopted a program of equalization to a specified standard along the lines of the representative tax system. Brazil, India, and Nigeria have made sophisticated but less than successful attempts at equalization, but the formulas adopted by these countries lack explicit standards and fail to address regional equity objectives satisfactorily.

Specific−purpose transfers, if properly structured, can support such important national policy objectives as compensation for benefit spillovers, bridging fiscal gaps, ensuring minimum standards of public services, fulfilling the redistributive function of the federal government, creating common internal markets, reducing net fiscal benefits across jurisdictions, and achieving stabilization objectives. Developing countries, however, almost without exception, have incredibly large numbers of specificpurpose programs. In many of these programs, objectives are not specified or are specified vaguely, and in some instances grant objectives are determined only after release of funds. In many cases, central governments exercise complete discretion over funds without having any accountability. Enhanced flexibility is being achieved at the expense of transparency, objectivity, and accountability, and grants are frequently used for political ends rather than for key national objectives. Some specific−purpose grant programs provide perverse economic incentives. For example, several developing countries provide transfers to cover deficits or public sector wages at subnational levels. Such grants—contrary to the intentions of the grantor—encourage borrowers to qualify for still higher grants on the basis of lower tax effort, higher deficit, and excessive spending on public sector wages. A review of these grant programs should be high on any agenda for public sector reform.

Federal−local and state−local transfers in most developing countries need major restructuring. In none of the countries reviewed do these transfers give special attention to the fiscal capacity or revenue potential of local governments. Fund allocation is usually arbitrary and discretionary, negating the objectives of transparency, predictability, and autonomy. Furthermore, the federal government in a large country usually does not have the administrative capacity to monitor finances of individual municipalities closely. Such transfers should be delegated to state governments, which can restructure transfers to local governments objectively because they have access to local economic and fiscal data. Recognizing municipal taxable capacity would also help states to monitor local revenue bases andcontinue

help with timely corrective action. Useful guidance for restructuring these transfers is available from industrial country practices.

Institutional Considerations

In most developing countries, local governments may not borrow in credit markets and therefore rely on higher level capital transfers for undertaking capital investment. Autonomous bodies to supervise and assist local borrowing for capital projects can be helpful.

Reform of intergovernmental fiscal relations requires complementary adaptations in the institutional arrangements for intergovernmental coordination, planning, budgeting, and implementation. Intergovernmental coordination and consultation through regular meetings of officials is critical to improved public sector management. The structure of transfers should be periodically reviewed either by intergovernmental committees or by autonomous grant commissions. For decentralized institutions to succeed, it is important to loosen the grip of central planning over subnational governments. Such planning imposes a central view of public investment requirements at the local level and often works as an impediment to innovative responses to local issues by local governments. In general, it is best to avoid detailed central control over local government use of funds and financial management. Instead, there is a need to strengthen higher level monitoring and audits of lower level government performance. Because these audits and inspections are often conducted by several agencies in an uncoordinated fashion, consolidation in a single agency would improve effectiveness.

Decentralization of responsibilities and rationalization of intergovernmental transfers must further be supported by strengthening institutional capacities at the local level. Higher level governments can play a crucial role in this capacity−building effort by identifying training needs, offering training programs, facilitating staff transfers, providing guidance on organizational structure and management issues, and providing technical assistance and operational tools for use for personnel management and service planning, monitoring, and delivery.

In transitional economies, framework laws on property rights, corporate legal ownership and control, bankruptcy, and financial accounting and control are not fully developed. The establishment or improvement of these laws should be given a high priority.

Monitoring, audit, and inspection functions are considered weak in most developing nations. There is a need to strengthen these functions as well as to grant greater authority and independence to the auditor general in the exercise of his mandate.

In conclusion, there is now universal recognition that the way taxing, spending, and regulatory authorities are determined and the manner in which intergovernmental transfers are structured have an important bearing on the efficiency and equity of public services provision. Fortunately, much useful guidance in the design of intergovernmental fiscal relations in developing and transitional economies is available from the theoretical and practical literature on fiscal federalism, but few developing countries have paid serious attention to this guidance in the design of their transfers. Making this guidance accessible to policymakers in developing countries and adapting this guidance to suit individual developing country circumstances are essential. This paper takes a small step in this direction. Significant work lies ahead.break

Appendixes

Appendix A—
The Practice of Federalism in Four Industrial Countries

Australia, Canada, Germany, and the United States have a long tradition of federalism. In this appendix, selected aspects of these mature federal systems are highlighted.

Australia

Australia has a two−tiered highly centralized system. The center emphasizes uniformity of public services across the nation and uses conditional grants to achieve that purpose. Tax administration and collection is central, representing 80 percent of revenues. Local governments are extensions of states but are given reasonable autonomy in local service delivery.

The national government has sole responsibility for defense, trade, immigration, external affairs, social security, and employment. States are responsible for education, health and social services, transport, railways, electricity, and water. The federal government nevertheless exercises strong influence in these areas through conditional transfers. In tax assignment, customs and excises are reserved for the center, and concurrent responsibilities are assigned in all other areas. One half of customs proceeds are mandated for states. The Uniform Taxation Act of 1942 eliminated the role of states for income taxes, and subsequent court rulings closed sales and excise taxation fields to states. State−local governments are responsible for 50 percent of the total outlay of the public sector but raise less than 20 percent of revenues.

Of all federal countries, Australia is best noted for its balanced emphasis on expenditure need and revenue means factors in determining state relativities for the distribution of unconditional equalization transfers. Section 13(3) of the States (Personal Income Tax Sharing) Act 1970 contains general guidelines concerning equalization as follows:

. . . respective payments to which the states are entitled under this act should enable each state to provide, without imposing taxes and charges at levels appreciably different from the levels of the taxes and charges imposed by other states, government services at standards not appreciably different from the standards of government services provided by other states.

The total equalization pool is determined by 39.87 percent of personal income tax collections for the previous year. The Commonwealth Grants Commission is entrusted with the task of developing state relativities based upon the above principle for use in grant allocation. These relativities are defended in open adversary proceedings by the Commission and a final report is presented to the federal cabinet for review. The federal cabinet occasionally revises the recommended relativities based on its own view of relative fiscal needs. Following this review, a final determination is made in the annual Premiers Conference. The Commission's approach to fiscal equalization is summarized here briefly.

Tax sharing entitlement of state *i* :

$$G_i = (B_i / \Sigma B_i) G$$

where *G* is 40 percent of personal income tax collection in the preceding year, G_i is state *i* 's entitlement, and $B_i / \sum B_i$ is state *i* 's proportion of total entitlement.

Assessed grant:

B_i = revenue needs + expenditure needs assessed needs met by other federal transfers.

Revenue needs:

$$=P_i(R_s/P_s)\,\theta_i \equiv P_i\,(R_s/P_s)(Y_s/P_s - Y_i/P_i)$$

where *P* is population of state *i* , R_s/P_s is per capita standard tax revenue, θ_i is relative revenue capacity of state *i* , Y_s/P_s is per capita standard tax base, and Y_i/P_i is per capita tax base of state *i* .

The Commission measures each states' expenditure needs for a service or category of expenditure by calculating the differential cost, for the state whose needs are being assessed, of providing services of a standard level, range, and quality. Thus, per capita expenditure need is per capita differential cost—or per capita standardized expenditure minus per capita standard expenditure. Standardized expenditure is the amount the state would need to spend to provide a standard level and range of public services and operate at standard efficiency, and standard expenditure is the population weighted average expenditure of all six states.

Standard expenditure:break

$$= \frac{\text{Total of six states' expenditure on category}}{\text{Total population of six states}}$$

Mathematically,

$$\begin{aligned}\text{Expenditure need} &= P_i(E_s/P_s)V_i \\ &= P_i\,(E_s/P_s)[(U_iS_id_ie_i) - 1]\end{aligned}$$

where P_i is the populations of state *i* , E_s/P_s is per capita standard expenditure, V_i is expenditure need of *i* relative to standard, U_i is eligible population, S_i is scale factor, d_i is dispersion factor, and e_i is social, cultural, and environmental factors.

Expenditure need factors can be categorized as follows:

• Scale factors

• Population and related factors

• Dispersion

• Urbanization

• Social composition

• Age structure

• Environment factors

• Physical

• Economic.

An example:

Expenditure category: Health

Subexpenditure: General medical services

Units of use: Total population

Other adjustment factors:

• Age and sex composition factor based on hospital bed use data.

• Index of health status based on standardized mortality rates adjusted by female fertility rates.

• Social composition factor based on aboriginal population.

A state's expenditure need as measured by these procedures is either positive or negative. Sociodemographic composition, population density, urbanization, and physical environment factors figure predominantly in assessing differential costs.

The Australian approach to fiscal equalization is more comprehensive than that found in Canada and Germany. An attempt is made to equalize both the revenue−raising capacity and the ability to provide a given level of services. Municipal revenues are, however, not included in revenue equalization. The Australian procedure for the assessment of expenditure needs has some elements of subjectivity. Determinants of expenditure need are sometimes arrived at using broad judgment rather than hard quantitative analysis. These calculations are done every five years and projected for interim years. The data used for some of the need calculations can be quite dated. Past allocations influence current entitlements, and any major change in fiscal position is accommodated with a significant delay. The fixed nature of overall allocations negates open−ended commitment. While the Australian Grants Commission's philosophical attachment to a comprehensive system of fiscal equalization is commendable, actual procedures used by the Commission may be open to further refinement.

Canada

Canada has a two−tiered, highly decentralized system. In 1988, 59 percent of total expenditures were undertaken at the state−local level. Tax and expenditure assignment is transparent. Tax assignment is overlapping but harmonized. Money, banking, trade, airlines, railways, foreign affairs, defense, and unemployment insurance are federal responsibilities. Pensions, immigration, agriculture, and industry are shared by federal and provincial governments. Education, health, social welfare, police, natural resources, and highways are provincial matters. Equalization to a standard by using the representative tax system is the hallmark of federal equalization transfers and some provincial−local transfers.

Fiscal equalization is a federal program of annual, unconditional payments to provinces, which have a substandard capacity to derive revenues by means of taxation and, therefore, a substandard capacity to finance public services for their citizens. A commitment to a federal program with comparable levels of public services at reasonably comparable levels of taxation is set out in the Canadian Constitution (the Constitution Act, 1982, 36[2]):

Parliament and the Government of Canada are committed to the principle of making equalization payments to ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public services at reasonably comparable levels of taxation.

The present system of fiscal equalization in Canada has the following characteristics:

• Use of the representative tax system approach to the measurement of fiscal capacity.

• Comprehensive coverage of provincial−local revenues from own sources extending to virtuallycontinue

the whole range of provincial−local revenues from own sources plus federal revenues from taxation shared with provinces on a point−of−origin basis.

• Use of a "five−province standard" consisting of British Columbia, Saskatchewan, Ontario, Manitoba, and Quebec.

• Application of national average rates of taxation to revenue bases.

• Use of total provincial population as a means for comparing provinces of different size, and as a proxy for the relative needs for and costs of public services in each province.

• Special feature consisting of:

• A *sliding−scale floor* to protect individual provinces against large year−over−year decreases in their equalization entitlements.

• *A ceiling provision* whereby total equalization entitlements may not increase more rapidly from a base year than GNP increases from the same base year.

Mathematically, the equalization entitlement of province *a* from revenue source *i* :

$$E_a = [(R_{10}/B_{10} \times B_5/P_5) - (R_{10}/B_{10} \times B_a/P_a)]\, P_a$$

where R 10 is total revenues obtained by ten provinces, B 10 is tax base in ten provinces, B 5 is tax base in five provinces (standard), P 5 is population of five provinces, B a is tax base in province *a* , and P a is population in province *a* .

Equalization per capita for revenue source *i* for province *a* :

= (national average tax rate)*i* [(per capita base in five provinces)*i* (province's own base per capita)*i*]

= (per capita potential revenue in five provinces) (per capita standardized revenue in province *a*)

A province may have positive equalization entitlements from some revenue sources and negative from other revenue sources. These are added, and if the overall sum is positive the province receives a transfer from the federal government of the equivalent amount. A negative sum is ignored. Figure A.1 provides an illustration of the working of this program for the fiscal year 198990.

The Canadian Fiscal Equalization Program has endured and is often referred to as the "glue that holds the federation together" (Courchene 1986). It is a comprehensive per capita fiscal capacity equalization program and considers all provincial−local revenues. Since the program uses fiscal capacity as a criterion, it allows the federal government to monitor fiscal positions of subnational governments on a timely basis. The program is largely free of grantsmanship and strategy, and both the size of the pool and allocations are determined objectively. The program, however, implicitly assumes that per capita expenditure needs are the same across all provinces. It is a federal program and, therefore, it constrains the federal government's fiscal position. The program also neglects other federal transfers in calculating equalization transfers. Finally, it separates taxing and spending decisions in a major way, in Atlantic Canada resulting in reduced accountability for provincial−local governments (see Shah 1991a for a critique of this program and the effect on provincial allocations under a comprehensive equalization program).

Germany

A unique feature of the German federation is that the state ministers or their deputies are represented in the Upper House of the Parliament (Bundesrat) and vote at the direction of their governments. This provides a check to any centralizing tendency in the federation. The expenditure assignment is as follows:

Federal : Defense, foreign affairs, immigration, railways, air transport, and post office.

Concurrent : (Carried out by states) Public welfare; regulation of commerce, industry, banking, insurance, and labor relations; promotion of social responsibility; public roads; and shipping.

States : Education, culture, and residual powers.

The federal government has exclusive authority over customs and federal monopolies such as alcohol and priority over other taxes. Taxes are primarily collected by the center and shared with state and local governments on agreed percentages. The German equalization program has three distinct components:

- Seventy−five percent of value−added tax is shared with states on a population basis. Twenty−five percent of the proceeds from this tax go to states with below−average tax receipts to enable them to attain 95 percent of the federal average.

- Contributions from financially strong to financially weak states according to an equalization formula.break

- Federal supplementary allocations to states with below−average per capita revenue yields.

Interstate equalization entitlements are worked out as follows: the tax capacity of each state is calculated by adding revenues from state taxes, the state's share of the joint taxes according to local yields, and half the property and trade taxes of municipalities according to local yields and uniform assessments. Deductions are made for extraordinary expenditures facing a particular state, determining an adjusted tax capacity. The adjusted tax capacity of each state is compared to the average tax capacity per capita of all states. The average tax capacity is multiplied by the population of each state, the result being the equalization yardstick for each state. In calculating the equalization yardstick, consideration is given to population density, higher tax yields of the city states, and the size of municipalities. Inasmuch as strong states tend to have higher population densities, the intensity of the financial settlement is somewhat reduced. The financial settlement yardstick is calculated for each state as the difference between its adjusted tax capacity and its equalization yardstick. This three−step process is described below:

Fiscal capacity, or adjusted taxable capacity of state *i* :

$$ATC_i = (TC)_i - (SB)_i$$

where *TC* is taxable capacity and *SB* is special burdens.

Fiscal need:

$$NEED_i = \frac{\Sigma TC_i}{\Sigma POP_i}(PDC_i)(POP_i)$$

where *PDC* is the population density adjustment factor. For all local governments of more than 500,000 inhabitants, the "number of inhabitants" (used in determining the average tax revenue per capita) is increased by 2 percent for those communities with a density of 1,500 to 2,000 inhabitants per square kilometer; and by 6 percent for those communities with a density of more than 3,000 inhabitants per square kilometer. break

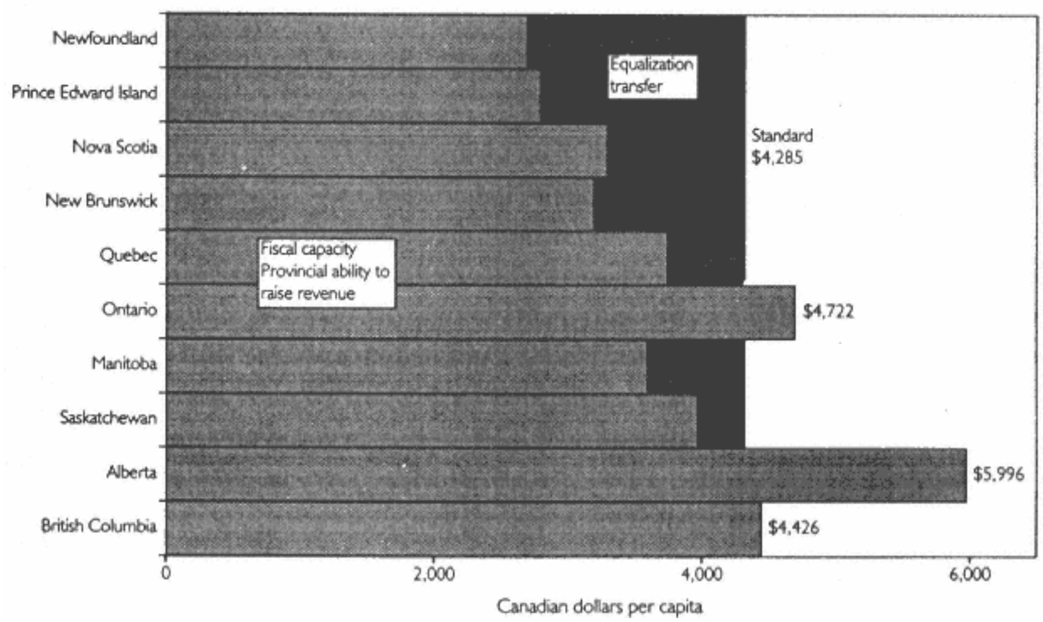

Figure A.1.
Fiscal capacity and equalization in Canada, FY 1989/90
Source : Department of Finace, Government of Canada, Ottawa.

The last step is the equalization contribution:

$$E_i = ATC_i - NEED_i$$

if *E* i >0 contributions to the pool
i < 0 receipts from the pool.

The emphasis is on a fraternal settlement as opposed to the paternal settlement in Australia and Canada. The Federal Government in Germany simply acts as a broker to ensure that the rules agreed upon are followed (Bird 1986; Hunter 1977). The program, however, does suffer from subjectivity in determining special burdens.

United States

The United States has a highly decentralized three−tiered fiscal system with states traditionally the weakest link. In the past, states were often bypassed in federal−local fiscal relations. Since the early 1980s, the states have assumed greater responsibilities and have taken greater interest in monitoring local governments in their respective jurisdictions. The hallmark of the U.S. federal system is diversity.

Other than taxes on international trade, reserved exclusively for the federal government, and property taxes at state and local levels, all other tax fields are open to all levels of government. Federal, state, and local governments have overlapping and uncoordinated personal and corporate income tax administration. Defense, foreign affairs and space administration, foreign and interstate commerce, the postal service, coinage, weights and measures, patents and copyrights, and certain criminal issues are reserved for the federal government. The federal government is sometimes involved in such local functions as fire protection, pothole repair, rat control, urban transit, local libraries and museums, and zoning regulations. All three levels are involved to varying degrees in housing, education, transportation, and social welfare.

The federal government often exercises strong control over local priorities through specific−purpose transfers (in the early 1980s there were 492 federal programs) or court orders: for example, racial integration of school pupils and teachers; highway speed limits; and withholding of federal highway funds from states not raising the drinking age to 21. Fiscal equalization is done on a piecemeal basis by introducing a fiscal equalization component in some specific−purpose transfers such as grants to school boards.

In conclusion, Australia, Canada, Germany, and the United States present four alternate models of federal systems. Australia and Germany are centralized federations whereas Canada and the United States are decentralized. These countries also differ in their approaches to setting national standards (table A.1). Conditional block grants and fiscal equalization are important instruments for preserving an internal common market in Canada. Canada does not emphasize concurrency provisions. The United States does not have a fiscal equalization program. Australia does not use concurrency provisions, charter of rights, or interstate agreements to achieve national standards. break

Table A. Setting national standards in federal systems

Principal instrument	Australia	Canada	Germany	United States
Conditional grants	X	X	X	X
Revenue equalization	X	X	X	—
Concurrency provisions	—	—	X	X
Charter of rights	—	X	X	X
Interstate agreements	—	X	X	X
Constitutional amendments	X	X	—	X

Source: Queen's University (1991).

Appendix B— Municipal−Local Fiscal Needs and State−Municipal Unconditional Transfers in Australia, Canada, and the United States

State−municipal transfers address essentially the same objectives as the federal−state transfers: spillover compensation, fiscal gaps, and equalization. In many countries, such as Australia and Canada, municipal−local units are extensions of state governments, and both unconditional and conditional transfers are used to encourage fiscal effort. Selected examples of unconditional transfers used in Australia, Canada, and the United States are presented.

Australia: the Distribution Model Used by the Victoria Grants Commission

The Victoria Grants Commission assesses revenue needs on the basis of municipal fiscal capacity by class of assessed properties.5 Expenditure needs are determined by assessing differential costs and disabilities over the range of municipal functions as described below.

General Formula

$$G_e = R_e + E_e$$

where G is grants, subscript e indicates the relevant municipality (claimant), R is the revenue component, and E is the expenditure component.

The revenue component R for any municipality can be expressed as:

$$R_e = P_e[t_s\,(T_s - T_e)]$$

where P is population, number of assessments or other parameter; t is rate in dollars (tax rate), subscript s is standard; and T is revenue or tax (value of ratable property) per head, or assessment, or other parameter.

The expenditure component E can be expressed as:

$$E_e = E_s g_e$$

so that the general formula becomes:

$$G_e = P_e[(t_s)(T_s - T_e)] + E_s g_e$$

Revenue component

$$R_e = P_e[(t_s)(T_s - T_e)]$$

This is the basic formula used by the Commission. The weighted average of the top 25 percent of municipalities in the state T s , measured in assessment terms, is derived as follows:

$$T_s = \frac{\text{Total value of ratable property of top 25 percent}}{\text{Total number of assessments in top 25 percent}}$$

and

$$t_s = \frac{\text{Total rates collected by top 25 percent}}{\text{Total value of ratable property of top 25 percent}}$$

The top 25 percent is obtained by ranking municipalities in order of value of ratable property per assessment.

Assessments are classified by three property types—residential, commercial and industrial, and rural and other. Allowances for differences in capacity to raise revenue can be weighted to take account of the different mixes of property within a municipality.

For residential,

$$T_{sr} = \frac{\text{Total value of residential property of top 25 percent}}{\text{Total number of residential assessments in top 25 percent}}$$

and

$$t_{sr} = \frac{\text{Total rates collected from residential property by top 25 percent}}{\text{Total value of ratable property of top 25 percent}}$$

where subscript *r* indicates residential.

For commercial and industrial *C* and rural and other *O* , the relevant figures replace the residential property figures, and the subscript *c* indicates commercial and industrial and subscript *o* other. The total allowance for revenue−raising capacity for each municipality is the sum of the allowances calculated for each of the three property classes for each municipality.

The weighting that makes allowances for the contribution of each property class to the rate base for each municipality is accomplished by adjusting the assessment numbers for each municipality according to a standard distribution of the three prop−soft

erty classes. This standard distribution is obtained by dividing the number of assessments for the state for each type of property by the total number of all assessments for the state:

$$\frac{\Sigma\ \text{Residential assessments in state}}{\Sigma\ \text{All assessments in state}}\ (= RES) +$$

$$\frac{\Sigma\ \text{Commercial and industrial assessments in state}}{\Sigma\ \text{All assessments in state}}\ (= COM) +$$

$$\frac{\Sigma\ \text{Rural and other assessments in state}}{\Sigma\ \text{All assessments in state}}\ (= OTH) = 1$$

That is, $RES + COM + OTH = 1.$

The standard distribution is then applied to the total number of properties in each local authority to obtain a standardized property distribution for each authority. Adjusted values per property for each class of property are then obtained for each local authority by dividing the standardized property class number into the actual value for that class of property in the local authority. In terms of the basic formula, for each property class calculation, the relevant figures as derived would enter the equation as T_i .

Adjusted assessment numbers for i^{th} municipality

$$\begin{aligned} &= \Sigma_i \text{ assessment numbers} \times RES + \\ &\quad \Sigma_i \text{ assessment numbers} \times COM + \\ &\quad \Sigma_i \text{ assessment numbers} \times OTH \end{aligned}$$

$$\text{Then, } T_{rr} = \frac{\Sigma_i \text{ Value of residential property}}{\Sigma_i \text{ Assessment numbers} \times RES}$$

$$T_{cc} = \frac{\Sigma_i \text{ Value of commercial and industrial property}}{\Sigma_i \text{ Assessment numbers} \times COM}$$

$$\text{and } T_{oo} = \frac{\Sigma_i \text{ Value of rural and other property}}{\Sigma_i \text{ Assessment number} \times OTH}$$

and

$$\begin{aligned} R_e = {} & \Sigma_i \text{ Assessment numbers} \times RES\ [(t_{sr})(T_{sr} - T_{rr})] + \\ & \Sigma_i \text{ Assessment numbers} \times COM\ [(t_{sc})(T_{sc} - T_{cc})] + \\ & \Sigma_i \text{ Assessment numbers} \times OTH\ [(t_{so})(T_{so} - T_{oo})] \end{aligned}$$

$$\begin{aligned} R_e = {} & \Sigma_i \text{ Assessment numbers} \times RES\ [(t_{sr})(T_{sr} - T_{rr})] + \\ & COM\ [(t_{sc})(T_{sc} - T_{cc})] + OTH\ [(t_{so})(T_{so} - T_{oo})] \end{aligned}$$

Expenditure component

$$E_e = E_s g_e$$

Allowances for expenditure components can be separated into two elements: a needs allowance and a disabilities allowance. The needs allowance takes account of the differences between municipalities in the number of eligible units to be served, while the disabilities allowance recognizes differences in the cost of providing the relevant service that arise because of differences in the inherent characteristics of municipalities. The following examples apply to specific services:

Roads . Using the number of assessments as the parameter for assessing needs (comparing the length of road per assessment against the standard length per assessment) the formula is:

$$A_e C_s [(Km_e/A_e) - (Km_s/A_s)]$$

where A_e is the municipality's number of assessments, C_s is the standard cost per kilometer, Km_e/A_e is the municipality's length of road responsibility per assessment, and Km_s/A_s is the standard length of road responsibility per assessment.

Road cost disabilities are calculated by the formula:

$$Km_e C_s g_e$$

where Km_e is the municipality's total length of road responsibility in kilometers, C_s is the standard cost per kilometer, and g_e is the municipality's cost disability factor.

To establish the impact on taxpayers (some part of road expenditure is already being met by government grants) a discount factor is applied in both the road needs and the road disabilities calculations, the discount factor being the proportion that the municipality's expenditure from its own resources bears to its total expenditure on roads. Because funding arrangements for main roads differ from those for unclassified roads, separate discount factors are calculated for the two categories. The discount factors are applied to the relevant lengths of road for each municipality to give implicit road lengths of full financial responsibility.

The expenditure allowance for roads is the sum of the two calculations minus the needs and disabilities calculations. The final formula is:break

$$GR_e = A_e C_s\,[(Km_e/A_e) - (Km_s/A_s)] + Km_e C_s\, g_e$$

where *GR* e is the municipality's grant for road needs and disabilities.

The standard cost per assessment may vary according to the type of road surface. Calculations for needs and for disabilities take account of the proportions of sealed, formed and surfaced, formed only, and unformed roads.

Health and welfare . As for road, calculations can be made to assess needs and disabilities related to particular health and welfare functions. For services to the pensionable group, the formula is:

$$GA_c = \{P_c C(A)_s\,[(A_c/P_c) - (A_s/P_s)] + P_c C(A)_s\, g_c\}\, D$$

where *GA* c is the allowance for expenditure needs and disabilities in relation to services for the pensionable group, *P* c is the municipality's population, *C* (A)*s* is the standard cost of services for pensionable group per head of eligible population, *A* c /Pc is the proportion of persons in municipality receiving pensions and supplements, *A* s /Ps is the standard proportion of pensionable group (such as state average proportion), and *D* is the discount factor.

Similarly, calculations can be made for needs and disabilities in relation to any function where a demographic characteristic is an appropriate parameter by substituting the relevant characteristic for *A*, the pensionable group.

In other areas of local government expenditure, where needs are not a factor, the calculations are simply related to cost disabilities and are based on the general formula:

$$G_c = (E_s g_c)\, D$$

where *G* c is the allowance for the function, *E* s is the standard gross cost of the function, *g* c is the disability factor for the municipality, and *D* is the discount factor.

This generally applies to specific services such as garbage, traffic control, street lighting, drainage, and the like. Using gross costs as the basis for deriving standard costs requires that a discount factor equal to the proportion that the municipality's expenditure on a function from its own resources bears to total expenditure on that function, be applied to all expenditure functions.

Disability Factors

If a municipality's expenditure on a function reflected no other factor than its costs of providing the function at a level no different from the level of service normally provided in other municipalities (that is, the level of service was standard), then its disability factor could be derived simply by:

$$g_c = E_c/E_s - 1$$

where *g* c is the disability factor, *E* c is the municipality's expenditure per unit on the function, and *E* s is the standard expenditure per unit on the function (subtracting 1 from *E* c /Es reduces the factor to a fraction).

However, a municipality's expenditure on a function might reflect factors other than cost disabilities, such as priorities set by the council that differ from those set by other councils, or the level of efficiency in providing the function. Neither of these factors should be allowed to influence the size of a grant to a municipality. For this reason, the fixing of disability factors for each municipality is largely a matter of judgment, based on the evidence available to the Commission and its knowledge of the circumstances of each municipality.

Canada: Approaches to Provincial−Municipal Unconditional Transfers

Table B.1 summarizes the equalization criteria used by the Canadian provinces to determine the distribution of unconditional grants to municipal governments. Most provinces attempt to vary grant funds inversely with revenue means (measured as per capita equalized assessment) and directly with expenditure needs and, in a few provinces, with tax effort. The Province of Saskatchewan uses the following formula for grant distribution:

$$G = X + (Y * POP) + (RE - RR)\,F$$

where *G* is the grant to municipality *i* ; *X* is a basic lump−sum grant that is the same for all municipalities regardless of size or urban−rural distinction; *Y* is per capita grant; *POP* is population; *RE* is recognized expenditures, hypothetical estimated expenditure representative of that incurred by municipalities of the same population, an average of total expenditure made by all municipalities with comparable populations (a step function estimated by regression analysis); *RR* is recognized local revenues (average effective mill rate applied to equalized assessment of the municipality); and *F* is availability of funds factor.

The Province of Saskatchewan has given a great deal of thought to grant assessment methodology,continue

yet the fiscal equalization methodology adopted by the province is not nearly as comprehensive as the approach adopted by State of Victoria (Australia) Grants Commission discussed earlier.

United States: Revenue Sharing System of the 1970s

Under the U.S. revenue sharing system of the 1970s, the total amount of grant funds was decided by the higher level government and formula factors were used to distribute these funds in a transparent manner among the recipients.

Mill Rate Formula

$$A_i = (PCY_A / PCY_i)(REV_i / PCY_i)(POP_i)$$

$$S_i = A_i / \Sigma A_i$$

Expenditure Formula

$$B_i = (PCY_A / PCY_i)(PCEX_i / PCEX_A)(POP_i)$$

$$S_i = B_i / \Sigma B_i$$

where *PCY* A is state average per capita income, *PCY* i is per capita income of municipality *i*, *REV* i is own source revenues of municipality *i* , *POP* is the population of municipality *i* , *PCEX* i is per capita expenditure in municipality *i* , *PCEX* A is average state per capita expenditures, and *S* i is the grant share of municipality i.

Formula A grant funds vary inversely with fiscal capacity (defined by per capita income) and directly with tax effort. Formula B grant funds are expected to vary inversely with fiscal capacity but directly with per capita expenditure, an indicator of expenditure need. break

Table B.1. Basis of provincial unconditional assistance to local governments in Canada

Province	Taxable capacity factors	Tax effort factors	Expenditure needs factors
Newfoundland	Loss of revenue with respect to exemptions provided to old age pensioners	Property tax revenues; water and sewer rates	• Population • Per capita assistance • Road mileage
Prince Edward Island	Property assessment (per capita and per road kilometer)	n.a.	• Sharable expenditures
New Brunswick	Property assessment (per capita and per road kilometer)	n.a.	• Sharable expenditures
Nova Scotia	Property assessment	n.a.	• Dwelling units • Standardized expenditure per dwelling unit by municipality class (population and urban or rural category).
Quebec	Property assessment	Taxes from local sources	n.a.
Ontario	Property assessment	Previous year's net levy	• Population • Population density • Location • Municipal grouping
Manitoba	n.a.	n.a.	• Population • Urban population
Saskatchewan	Property assessment	n.a.	• Population • Expenditure by population class and urban or rural category
Alberta	Property assessment	Total tax revenues	• Population growth in excess of 5% per year
British Columbia	Property assessment	n.a.	• Population • Expenditure

n.a. Not applicable.

Source : Shah (1983b).

Appendix C— Expenditure Assignment in Selected Countries

	Defense	*Foreign affairs*	*International trade*	*Environment*	*Currency banking*	*Interstate trade*	*Immigration*	*Unemployment insurance*	*Air and rail*
Argentina (1993):									
Responsibility	F	F	F	F,S	F	F	F	F	F,S
Provider	F	F	F	F,S	F	F	F	F	F,S
Bangladesh (1991):									
Responsibility	F	F	F		F				
Provider	F	F	F		F				
Bolivia (1994):									
Responsibility	F	F		F,L					F
Provider	F	F		F,L					F,L
Brazil (1991):									
Responsibility	F	F	F	F,S	F	F	F	F	F
Provider	F	F	F	F,S	F	F	F	F	F
Bulgaria (1994):									
Responsibility	F	F		F,L				F	F
Provider	F	F		F,L				F	F
China (1993):									
Responsibility	F	F	F		F		F		F
Provider	F	F	F		F		F		
India (1989):									
Responsibility	F	F	F	F,S	F	F	F	F,S	F
Provider	F	F	F	F,S	F	F	F	F,S	F
Indonesia (1993):									
Responsibility	F	F	F	F	F	F	F	F	F
Provider	F	F	F	F	F	F	F	F	F
Japan (1991):									
Responsibility	F	F	F						

Provider	F	F	F						
Malaysia (1991):									
Responsibility	F	F	F	L	F	F	F		F
Provider	F	F	F	L	F	F	F		F
Mexico (1991):									
Responsibility	F	F	F	F	F	F	F		F
Provider	F	F	F	F	F	F	F		F
Nigeria (1986):									
Responsibility	F	F	F	F,S	F	F	F		F
Provider									
Pakistan (1990):									
Responsibility	F	F	F	F	F		F,S	F	F
Provider	F	F	F	F,S,L	F		F,S	F	F
Philippines (1991):									
Responsibility	F	F	F	F	F	F	F		F
Provider	F	F	F	F	F	F	F		F
Russian Federation (1993):									
Responsibility	F	F	F	F,S	F		F	F,S	F,S
Provider	F,S	F	F	S	F		F	S,L	F,S,L
Thailand (1991):									
Responsibility	F	F	F	F	F	F	F		F
Provider	F	F	F	F	F	F	F		F

(continued on next page)

Appendix C. Expenditure assignment in selected countries (continued)

	Industry and agriculture	Education	Health	Social welfare	Police	Highways	Natural resources	Residual
Argentina (1993):								

Responsibility	F,S,L	F,S,L	F,S,L	F,S	F,S	F,S	S	S
Provider		F,S,L	F,S,L	F,S	F,S	F,S	F,S	S
Bangladesh (1991):								
Responsibility	L	L	L	L	L	L	L	
Provider	L	L	L	L	L	L	L	
Bolivia (1994):								
Responsibility		F,L	F,L	F,L			F.L	
Provider		F,L	F,L	F,L			F,L	
Brazil (1991):								
Responsibility	F,S	F,S	F,S	F,S	F,S	F,S	F,S	S
Provider	F,S	F,S,L	F,S,L	F,S	F,S	F,S	F,S,L	S
Bulgaria (1994):								
Responsibility		F,L	F,L	F,L	F	F		
Provider		F,L	F,L	F,L	F,L	F,L		
China (1993):								
Responsibility	F,S,L	F,S,L	S,L					
Provider								
India (1989):								
Responsibility	F,S	F,S	S	F,S	S	F	F,S	F
Provider	F,S	F,S,L	S,L	F,S	S	F	F,S	F
Indonesia (1993):								
Responsibility	F	F	F	S,L	S,L	F	F	F
Provider	F,S,L	F,S,L	F,S,L	S,L	L	F	F	F
Japan (1991):								
Responsibility	L	F,L	F,L	F,L	L		L	
Provider		L	F,L	F,L	F,L	L	L	
Malaysia (1991):								
Responsibility	F,S	F	F,S	F,S	F	F	S	F
Provider	F,S	F	F,S	F,S	F	F	S	F
Mexico (1991):								

Responsibility	F	F,S	F,S		S,L			S
Provider	F	F,S	F,S		S,L			S
Nigeria (1986):								
Responsibility	F,S	F,S	S,L		F	F,S,L	F,S,L	F
Provider								
Pakistan (1990):								
Responsibility	F,S,L	F,S	F,S,L	F,S	S,L	F,S	F,S,L	S
Provider	F,S,L	F,S,L	S,L	F,S,L	L	F,S,L	S,L	S
Philippines (1991):								
Responsibility	F	F	F	F	F	F	F	
Provider	F	S,L	F	S,L	S,L	F	F	
Russian Federation (1993):								
Responsibility	F,S	F,S,L	F,S,L	F,S	F	F	F,S	
Provider	F,S,L	F,S,L	F,S,L	S,L	F,S,L	F,S,L	S	
Thailand (1991):								
Responsibility	F	L	L	F	L	L	F	
Provider	F	L	L	F	L	L	F	

Note : F is federal or central government, S is state, provincial, republic, or departmental government, L is local government.

a. Allocation of expenditure responsibility between republics and local governments is still an open question.

Source : The data presented in this table are from various sources;

selected sources are listed for each country. For a complete source list, refer to the bibliography. Argentina: World Bank unpublished data. Bangladesh: U.N. (1991). Bolivia: World Bank staff, Brazil: Bomfirm and Shah (1991), Shah (1991c). Bulgaria: World Bank (1994). China: U.N. (1991). India: Indian Finance Commission (1989). Indonesia: World Bank unpublished data. Japan: U.N. (1991). Malaysia: U.N. (1991). Mexico: Campbell, Peterson, and Brakarz (1991). Nigeria: Ashwe (1986b). Pakistan: Akhtar (1990). Philippines: U.N. (1991). Russian Federation: Alexashenko (1990), Wallich (1992), Bahl, Martinez−Vasquez, and Wallace (1993). Thailand: U.N. (1991).

Appendix D—
Tax assignment in selected countries

	Customs	Income and gifts	Estates	Corporate	Resource	Sales	VAT	Excises	Property	Fees	Residual
Argentina (1993):											
Base	F	F	S	F	S	F	F	S	S,L	S	S
Rate	F	F	S	F	S	S	F	L	S	S,L	S
Administration	F	F	S	F	S	S,L	F	L	S	S,L	S
Bangladesh (1991):											
Base	F	F	F	F	F		F	L	L	L	
Rate	F	F	F	F	F		F	L	L	L	
Administration	F	F	F	F	F		F	L	L	L	

Bolivia (1994):											
Base	F		F	F			F		L	F	
Rate	F		F	F			F		L	F	
Administration	F		F	F			F		L	F	
Brazil (1991):											
Base	F	F	S,L	F	F	F,S,L	S		F,L		S
Rate	F	F,S	S,L	F	F	F,S,L	S		F,L		S
Administration	F	F	S,L	F	F	F,S,L	S		F,L		S
Bulgaria (1994):											
Base		F	F	F			F		F	L	
Rate		F	F	F			F		F	L	
Administration		FL	F,L	F			F,L		L	L	
China (1993):											
Base	F	F		F	F	F	F	F	F	F	
Rate	F	F		F	F	F	F	F	F	F	
Administration	S,L	S,L		S,L	S,L	S,L	S,L	S,L	S,L	S,L	
China (1994):											
Base	F	S,L	S,L	F,S,L	F	S,L	F	F,S	S,L	F,S	
Rate	F	S,L	S,L	F,S,L	F	S,L	F	S,L	S,L	S,L	
Administration	F	S,L	S,L	F,S,L	F	S,L	F	S,L	S,L	S,L	
Colombia (1988):											
Base	F	F		F	F	F	F	F,S	L		
Rate	F	F		F	F	F	F	F,S	L		
Administration	F	F		F	S,L	F	F	F,S,L	L		
India (1989):											
Base	F	F,S	F	F	S	F,S		F,S,L	F,S,L	F,S,L	F
Rate	F	F,S	F	F	S	F,S		F,S,L	F,S,L	F,S,L	F
Administration	F	F,S	F	F	S	F,S		F,S,L	F,S,L	F,S,L	F
Indonesia (1993):											
Base	F	F		F	F	F	F	F	F	F,S	
Rate	F	F		F	F	F	F	F	F	F,S,L	
Administration	F	F		F	F	F	F	F	F	L	

Malaysia (1991):											
Base	F,S	F		F	F,S	F		F,S	S,L	S,L	
Rate	F,S	F		F	F,S	F		F,S	S,L	S,L	
Administration	F,S	F		F	F,S	F		F,S	S,L	S,L	
Mexico (1991):											
Base	F	F	F	F	F	F	F	F	L	F,S,L	
Rate	F	F	F	F	F	F	F	F	L	F,S,L	
Administration	F	F	F	F	F	F	S	F	L	F,S,L	
Nigeria (1986):											
Base	F	F	S	F	F	S		F,S	L	S,L	
Rate	F	F	S	F	F	S		F,S	L	S,L	
Administration	F	F,S	S	F	F	S		F,S	L	S,L	
Pakistan (1990):											
Base	F	F	F	F	F	F		F,S	S	S,L	S
Rate	F	F	F	F	F	F		F,S	S	S,L	S
Administration	F	F,S	F	F,S	F	F		F,S	S,L	S,L	S

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Appendix D. Tax assignment in selected countries (continued)

	Customs	Income and gifts	Estates	Corporate	Resource	Sales	VAT	Excises	Property	Fees	Residual
Papua New Guinea (1991):											
Base	F	F		F	F	S		F,S	L	S	F
Rate	F	F		F	F	S		F,S	L	S	F
Administration	F	F		F	F	S		F,S	L	S	F
Philippines (1991):											
Base	F	F			F	F	F	F	F	F	F
Rate	F	F			F	F	F	F	F	F	F
Administration	F	F			F	F	F	S	S	S,L	F

Russian Federation (1993):											
Base	F	F	F,S	F	F	F	F	F	F	S	
Rate	F	F	F,S	F	F	F	F	F	S	S,L	
Administration	F	F,S,L	S,L	F,S,L	S,L	S,L	F,S	F,S	S,L	S,L	
Thailand (1991):											
Base	F	F		F				F,L	L		F
Rate	F	F		F				F,L	L		F
Administration	F	F		F				F,L	L		F

Note : F is federal or central government, S is state, provincial, republic, or departmental government, and L is local goverment.

Source : The data presented in this table are from various sources; selected sources are listed for each country. For a complete source list, refer to the bibliography at the end of this paper. Argentina: World Bank unpublished data. Bangladesh: U.N. (1991). Bolivia: World Bank staff. Brazil: Bomfim and Shah (1991), Shah (1991c). Bulgaria: World Bank (1994). China: U.N. (1991). (Colombia: Bird (1984). India: Indian Finance Commission (1989). Indonesia: World Bank unpublished data. Malaysia: U.N. (1991). Mexico: Campbell, Peterson, and Brakarz (1991). Nigeria: Ashwe (1986b). Pakistan: Akhtar (1990) Papua New Guinea: U.N. (1991). Philippines: U.N. (1991). Russian Federation: Alexashenko (1990), Wallich (1992), Bahl, Martinez−Vasquez, and Wallace (1993). Thailand: U.N. (1991).

Appendix E— Central−Subnational Revenue Sharing Mechanisms in Selected Countries

Country	Mechanism	Distribution criteria	Comments
Argentina (1993)	*Regional Governments* : Central revenues are shared with the provinces as follows: VAT (53.9%); income tax (48.7%); asset tax, excise taxes, and financial service taxes (49.0%); fuel tax (53.0%). Total weighted average: 49.1%.	Provinces' population (65%) Development gap (25%) Inverse of population density (10%)	
Brazil (1991)	*States* : State Participation Fund (FPE): 21.5% of the proceeds of federal taxes on income and industrial products	Predetermined share of federal taxes transferred to this pool. Council of States determines state shares based on area, population, and per capita income.	A proposal is under consideration to extend the formula for determining the shares of individual states to include land area (fiscal need), interstate trade (spillover factor), and ratio of own revenues to expenditures (fiscal effort).
	States in the northern, north−eastern, and centerwestern regions (less developed areas): 85% of FPE	Formula that includes: • Population • Inverse of per capita income share of each state i in FPE is $(pop_i * ypc_i) / \Sigma_{i=1}^{N} (pop_i * ypc_i)$ where popi is state *i* 's population factor, ypci is state *i* 's income per capita factor, and N is the total number of states. Pop is given by the	Merits of FPE: • Transparency • Predictability • Autonomy • Redistributive (some equalization) • Fiscal need (population) • Fiscal capacity (PCY) • Basic minimum

	"% of national population represented by each state" (%Npop); its value for each state ranges from 2.0 (if %Npop ≤ 2) to 10 (if %Npop > 10). Ypc depends on the ratio of per capita income of all states to per capita income of the state" (Rypc); its value ranges from .4 (if Rypc ≤ .00045) to 2.5 (if Rypc > .022).	grant assured. Flaws of FPE: • Income as a measure of fiscal capacity is an imperfect measure of the ability to raise revenues at the state level; significant measurement errors; dated. • Lacks explicit standard of equalization. • States with similar fiscal capacity receive widely differing entitlements. Para and Acre with PCY NCz $266 (NCz9 vs NCz49 per capita) Roraima with PCY of NCz $286 received NCz $123 per capita. • States Council finds formula results unacceptable.
States in the southern, and southeastern regions: 15% of FPE	Same as for less developed areas	
Tax on industrial products (10%)	Compensation to exporting states for loss of revenues from state VAT (ICMS) on account of federal export incentives	
Payroll tax (66.7%)	Derivation (earmarked for education)	
Taxes on hydroelectricity and on minerals (45%)	Origin	
Local Governments: Municipal Participation Fund (FPM): Federal taxes on income and on industrial products,	Municipal Participation Fund (FPM): • Prespecified share of federal taxes	

	22.5% of the proceeds of each.	• Municipal shares based on population and state per capita income • 2/3rd plus of municipal revenues.	

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Appendix E. Central−subnational revenue sharing mechanisms in selected countries (continued)

Country	Mechanisms	Distribution criteria	Comments
Brazil (1991) (continued)	State capitals and municipalities of 400,000 or more inhabitants (12% of FPM)	Formula similar to that for FPE, while the population factor is given by "percentage of total population in this category represented by each municipality" (%NpopL). This factor ranges from 1.0 (if %NpopL ≤ 1) to 5.0 (if %NpopL > 5). •	Merits of FPM: • Population (fiscal need) • Recognizes threshold in population size • State capital and larger municipalities treated separately • Predictability • Transparency and autonomy
	Small and medium−size municipalities of less than 400,000 (82% of FPM)	This factor is given by the municipality's population (P); ranging from 0.6 (P ≤ 16,188) to 4.0 (P > 156,216).	Flaws of FPM: • No municipal income tax but municipal fiscal capacity measured by state PCY; a poor indicator of local fiscal capacity • Does not distinguish poor and rich municipalities within each state • Inequitable allocation • Per capita transfers to Minas Gerais higher than Para • Generosity of
	Municipal Participation Reserve Fund: large and medium−size municipalities with population of more than 156,216, except state capitals (6% of FPM).	Same criteria adopted for state capitals and large municipalities' share discussed above	

			federal funding discourages local fiscal effort and contributes to reduced financial accountability • Own revenue effort declining in recent years.
	Rural property tax (50% to municipalities)	Derivation	
	Payroll deductions of municipal employees (100%)	Derivation	
	Tax on gold (70%)	Origin	
	2.3% of revenues from crude oil production	Origin	
	Taxes on hydroelectric power and on minerals (50%)	Origin	
Bulgaria (1993)	*Local Governments* :		
	Personal income tax (70% to municipalities)	Origin but share subject to annual budget negotiations	Before 1992, 100% of the personal income tax was allocated to the local governments. However, the relative importance of this tax in total revenues of the local governments has declined from 38.8% in 1990 to 30.7% in the first half of 1992. The current system does not provide stability and predictability of revenues from this important tax for

			all levels of government. There is a need to determine the sharing arrangement for a period of more than one year to ensure predictability of revenues.
	Turnover tax	Local governments receive 100% of the taxes paid by municipal and private enterprises; taxes paid by state enterprises go to the central government.	Local revenues from the turnover tax in the first half of 1992 were close to what was expected for the entire year in the consolidated budget for local governments. Revenues from this source represented 8.4% of total revenues in the first half of 1992. Similar figures for 1991 reveal the relative importance of the turnover tax.
	VAT (implemented from April 1994)	To be determined	

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Country	Mechanisms	Distribution criteria	Comments
Bulgaria (1993) (continued)	Corporate income tax	Municipalities keep the entire tax levied on municipal and private enterprises operating in their jurisdiction, and levy a 10% surtax on state enterprises in their jurisdiction. State enterprises pay the	The dual basis of origination and ownership have not helped the financial autonomy of local governments, as the 10% profits surtax on sate enterprises is by far a more important source of

		regular 40% company profit tax to the central government, and a 2% surtax earmarked for irrigation and environmental protection.	revenue for municipalities than the 40% levy on municipal and private enterprises. Only 15% of the company tax revenues collected by municipalities in the first six months of 1992 came from the levy of municipal and private enterprises. The company profit tax represents 17.1% of total local revenues in the first six months of 1992, down from 21.9% in the 1992 budget and 31.4% in 1991.
Chile (1992)	Fondo Comun Municipal (MCF): 45% of all local taxes are subject to redistribution among municipalities.	10% of the Fund is reserved for fiscal emergencies. The allocation of the remaining MCF Fund is based on: • Population • Equal share • A factor representing a revenue gap • The municipality's share of properties exempt from the real estate tax.	Chile doesn't have a system of sharing national taxes with subnational governments. Instead, it has this centrally mandated system for redistributing municipal tax revenues among municipal governments. Due to the dominance of the real estate tax in the generation of MFC revenues, the principal impact is to take revenues from municipalities with large number of taxable properties and shift them to those with fewer.
China (1993)	*Provinces* : Income tax and adjustment tax of locally owned enterprises; income tax from collectively owned enterprises; rural market trading tax on private traders; and taxes on	Derivation	Although all rates and tax bases are set by the center, most taxes are collected by the local authorities and then upwardly distributed according to the determinations from the

	housing, vehicles, urban maintenance and construction, individual income, wage bonus, self−employed entrepreneurs, slaughter, cattle trading, and contract. (100% retained by subnational governments)		center. Subnational governments have little formal power their budgets are determined as part of a consolidated central−provincial−local budget designed by the center. Provinces, however, approve the budgets and financial plans of localities.
	Sales tax collected from enterprises owned by the Ministry of Power, SINOPEC, and the China Nonferrous Metals Company. (30% to subnational governments)	Derivation	

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Appendix E. Central−Subnational revenues sharing mechanisms in selected countries (continued)

Country	Mechanisms	Distribution criteria	Comments
China (1993) (continued)	Tax on sales, profits, natural resources, construction, foreign joint venture, energy, salt, transportation	For each province, the center determines a share of the tax revenues it collects that it may retain. This determination is made on the basis of a combination of: • Derivation • Formula • Negotiation and ad hoc decisions. The last factor has become of increasing importance in recent	

		years. The 1988 formula was: $RR=\frac{(L86+S86)*R83-T88}{S86+L86-T88}$ where RR is proportion of shared taxes retained by subnational government, L86 is "local fixed revenue in 1986," S86 is shared revenue in 1986, T88 is the 13 taxes assigned to local governments in 1988, R83 is allowable expenditures in 1983 actual revenues collected in 1983, and L86 corresponds to the first two sources of revenue listed above.	
China (1994)	Value−added tax, resource tax, and securities exchange tax	On a 50:50 basis between central and subnational governments but 20:80 basis between central government and minority nationality areas	
Colombia (1993)	*Regions* (*Departments*):		
	Tax allowance: 23% of 1994 central government's "ordinary revenues", i.e., all current revenues not legally earmarked for specific purposes. Annual 0.5% increase until it reaches threshold of 25% in 1998.	• Equal shares (30%) • Population (70%) (Earmarked for primary education [74%] and health [26%])	These transfers are paid to the Regional Education Funds and the Sectional Health Services. These are closed−ended nonmatching conditional grants. In practice, the actual allocations, often and arbitrarily, differ from the ones just specified.
	Beer tax (40% of the proceeds)	Estimated beer consumption	

	Tobacco tax	Tobacco consumption (the Bogota District's share is limited to 20% of the revenues collected in Bogota and the Department of Cundinamarca)	
	Regions (Departments) and Municipalities : VAT (50% of the total proceeds). The percentage of revenue sharing will decrease by 10% a year, until it reaches 10% in 1998.	• Population in need (60%) • Total population and fiscal effort (40%) (If a municipality's population is < 100,000, then criterion is population and fiscal effort.)	Departments must transfer 28.5% of these revenues to their municipalities.
	Municipalities only : Tax allowance (15% of central government's 1994 ordinary revenues). Will increase 1% annually until it reaches 22% in year 2001.	• Population in need (60%) • Total population and fiscal effort (40%)	These revenues are intended to improve the coverage of education, health, other social services, and water and natural resource management

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Country	Mechanisms	Distribution criteria	Comments
Czech Republic (1993)	*Provinces* : Property income tax	50% to the subnational governments.	
Hungary (1991)	*Local Governments* : Personal income tax	25% of the personal income tax collection is allocated, on a derivation basis, to each locality (plus some additional personal	Local governments derived 13% of the estimated total revenues in 1991 from their share of the

		income tax for equalization).	personal income tax. Consideration was given, in the course of the preparation of the Act on Local Taxes, to ceding or sharing a variety of taxes with the localities; because of the unequal spatial distribution of revenues from taxes such as VAT, sales tax, or enterprise tax, as compared with the personal income tax, it was determined that the personal income tax should be the basic shared tax. In 1990, localities received 100% of the personal income tax collected two years prior. Their share has been fixed in the 1991 budget at 50% of total revenues, with the remaining 50% share added to the total available under the "normative grant"
India (1989)	*States and Territories* : Federal income tax (85% to states, 1.4% to Union Territories)	• "Contribution" (10%), as measured by the assessment of income tax for the years 198586 to 198788 • "Distance" of income per capita relative to state with higher per capita income × population (45%) • Population (22.5%) • "Backwardness" (11.25%), as measured by population of Scheduled Castes and Scheduled Tribes and the number of agricultural laborers—1981 Census	The "Finance Commission" meets at least once in every five years to make recommendations regarding the distribution of shared taxes between center and states, the allocation across state, the principles governing the allocation of grants−in−aid.

	• Population (11.25%).	
Union excise duties (45% to states) (all union excises except the additional duties of excises and the earmarked cesses)	• Population (25%) • "Income Adjusted Total Population" (IATP)(12.5%). IATP = pop71*ypc where pop71 is population in 1971, ypc is the inverse of the average per capita income of state for the triennium 198283 to 198485 • "Backwardness" (12.5%), defined above • "Distance" (33.5%), defined above • "Projected budget deficits" (16.5%)	The Finance Commission uses 1971 population data in the revenue sharing formulas with the exception of the Additional Excise duty which uses 1981 population (see below). The dated data on population is used purportedly to encourage population control activities by states.
Additonal excises instead of sales tax (include excises on textiles, tobacco, and sugar)	• State Domestic Product (50%) • State population (50%)	Adopted as a proxy for consumption of the goods previously covered by the sales tax given that the quality of the actual consumption data seems to be questioned by the Commission.
Grant instead of a tax on railway passenger fares (Rs. 150 crore annually for 199095)	In proportion to the average of the non−suburban passenger earnings in each state relative to national earnings (198488).	
Estate duty on property other than land and wealth tax on agricultural property (100% to states)	Derivation	

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Appendix E. Central−subnational revenue sharing mechanisms in selected countries (continued)

Country	Mechanisms	Distribution criteria	Comments
Indonesia (1993)	Provinces: Royalties on oil and gas sales, royalties on forestry and mining activities Motor vehicle tax Tax on land and buildings	• Derivation Forestry royalties: 65% federal (F), 35% state (S), local (L) (28% S, 7% L); mining royalties: 30% F, 70% S,L (56% S, 14% L) • 100%: 16.2% to provinces; 64.8% to local government	
Japan (1991)	Local allocation tax: 32% of the total of personal income tax, corporation tax, and liquor tax	• Derivation The largest share of the LAT is distributed by a formula that includes: • Basic Financial Need (BFN) • Basic Financial Revenue (BFR), where these two elements are factored according to a formula determined by the LAT Law and the Ministry of Home Affairs.	
	Local transfer tax	Formulas that include: • Total area of public roads.	
Malaysia (1991)	Import and excise duties on oil (30% to states)	Derivation	Revenue sharing in Malaysia is not intended to address horizontal imbalances. This suggests that a separate explicit equalization to standard programs is needed.

	Export duty on tin (10% to states)	Derivation	
	Export duties on other minerals	Derivation	
	Export duties on timber and other forestry products	Derivation (exclusively for the states of Sabah and Sarawak)	The states of Sabah and Sarawak were granted special privileges as a condition for joining the federation.
	Export duty on mineral products	Shortfall of state's royalty on minerals export from 10% of export duty payable. (Exclusively for Sabah and Sarawak)	
Mexico (1991)	*Regional Government* :		
	General Fund: 17.35% of federal revenues subject to sharing (the most important are taxes on income, VAT, foreign trade taxes, and fees from oil production)	• 50% to states and the federal district on the basis of population (starting from an initial 10% in 1990 and rising to 50% in 1994) • The division of the remaining 50% (starting from an initial 90% in 1990 and declining to 50% in 1994) is made on the basis of states' historic shares of federal administered excise taxes on gasoline, motor vehicles, alcohol and tobacco, and the state−local administered water and sewer charges and property taxes.	A welcome change toward more equitable revenue sharing was introduced in 1990. Arbitrariness and overemphasis on historical shares. Would result in an unnecessarily long transition to the origin (derivation) principle. Rewards higher tax effort on local taxes.
	Contingency Fund: 3.5% of sharable federal revenues. It will merge with the General Fund in 1997.	To compensate states that lose from the change in sharing arrangements	

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Country	Mechanisms	Distribution criteria	comments
Mexico (1991) (continued)	Municipal Development Fund: 0.4% of the revenue sharing funds. (It is intended to be passed through states to municipalities.)	The fund share of municipalities in each state varies in inverse proportion to the General Fund shares.	Reditribution is small and in effective.
	Import taxes petroleum export duties, and general export tax	Shared with petroleum refining and exporting cities (derivation principle) for 95% of the total.	
Nigeria (1986)	Federation Account (FA): Most revenues collected by the federal government. (Includes corporate income tax, capital gains tax, stamp duties, import duties, excise duties, mining rents and royalties, and radio and TV licenses.)	See below.	States collect and retain the federal personal income tax. This complicates taxation of personal income in Nigeria
	States Joint Account (SJA): 31.5 % of FA	95% of SJA distributed according to: • Minimum responsibilities of government (40%) (Proportion of recurrent expenditure to total federal revenue of the state with the smallest budget in the period 197677 to 197980) • Population (40%) • Social development factor (15%) of which: • Direct school enrollment (11.25%) • Inverse school enrollment (3.75%) • Internal revenue effort	A suggestion has been made to include a health indicator that would serve as a social development factor (in addition to primary school enrollment). The current scheme also ignores the different costs of providing public services in the different states.

		(5%) (Proportion of own revenues to total local expenditures of a state government). 5% of SJA distributed to mineral−producing states on the basis of derivation.	
	Local Governments : 10% of FA	• Equal shares (25%) • Population (75%)	The current program does not consider capacities local governments.
	Special Fund: 3.5% of FA	• Federal Capital Territory (2.5% of FA) • States according to ecological problems (1% of FA)	
Pakistan (1992)	*Provinces* : 80% of proceeds from federal income tax, sales tax, export duty on cotton, and excise duties on tobacco products and sugar	Provincial popuation	There is no account taken of provincial variation in per capita fiscal capacity.
	80% of excise duty and royalty on natural gas, surcharge on gas; royalty on crude oil and profits on hydroelectricity	Origin	

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Appendix E. Central−subnational revenue sharing mechanisms in selected countries (continued)

Country	*Mechanisms*	*Distribution*	*Comments*
Papua New Guinea (1991)	*Provinces* : "Minimum		

Unconditional Grant" (MUG): Income and corporate tax, customs, and excise duties	*Formula* : MUG = min(A+AB,A+AC) where A is amount of money spent on the activity in 1976/77; B is percent increase in the cost of living in the preceding fiscal year; and C is percentage change in the total of the payment to the Consolidated Revenue Fund (CRF) for the year of the grant as compared with the total for the preceding year from: (i) Shared taxes (ii) Mineral Resource Stabilization Fund (iii) Nonrepayable grants (conditional and unconditional from foreign government). When substantial increases in the distributable revenues are realized, extra funding, above MUG grants, can be authorized. Interprovincial sharing of these funds is determined by the National Finance Commission (NFC) on the basis of: • Population.
Vehicle registration and licensing fees (collected by the center and handed over to the provinces)	• Derivation
Royalties: minerals and petroleum,	• Derivation (These reduce the

	natural gas, timber, fish, and private hydroelectricity generation	amount of the derivation grant that the province is entited to.)	
Philippines (1991)	National internal revenue (20% to subnational governments)	• Population (70%) • Land area (20%) • Equal shares (10%)	All local governments are required to spend 20% of their revenue allotment to development to lay the groundwork for projects approved by Department of Local Governments. Mandatory local contributions to certain funds are as follows: Aid to hospitals (5 to 7% of local government income) and other smaller mandatory contributions and expenses. Tax sharing ignores tax effort and has tended to magnify horizontal imbalances by transfering more funds to richer states than to poorer.
	Tax on petroleum products (% shared with subnational governments: not available).	• Derivation	
Poland (1991)	*Local Governments (gminas)* : Personal income	85% to the central government and 15% to	The personal income tax was

	tax	gminas	transformed into the present and more effective form in 1992.
	Corporate income tax	95% to the central government and 5% to gminas.	

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Country	Mechanisms	Distribution criteria	Comments
Poland (1991) (continued)	Property income tax	100% to subnational governments	
	Wage tax	70% to the central government and 30% to gminas	
	Small business income tax	50% to the central government and 50% to gminas	
Romania (1991)	Property income tax	95% to the provinces	
Russian Federation (1992)	*Local Governments* : Personal income tax	• Derivation Assigned to the locality of the taxpayer's employment, not his residence. (100% to the subnational governments)	Income tax applies to most wage earners. While in principle it incorporates a schedule of rates ranging from 12 to 60%, it is essentially a flat rate tax: the bracket of 12% is very wide.
	Corporate income tax	Shared as follows: Federal: 40% Regions: 60%	Shortcomings: No adjustment to insulate taxable profit from inflation, and depreciation rules do not yet conform to any notion of economic depreciation.

	Value−added tax	Tax shares negotiated among the federal government and regions. 1993 shares: Federal: 50 to 80% Regions: 20 to 50%	VAT recently replaced the classical turnover tax and the 5% sales tax, which had gone into effect in January 1991.
	Excise on vodka	• Derivation 50% to the subnational governments	
	Other excise taxes	• Derivation Shared between the federal and subnational government, with rates identical for all municipalities, but with sharing rates dependent on the type of commodity. All excise taxes collected from beer, leather, fur, and other luxury items are retained locally and go to the subnational government.	Excises on motor vehicles are allocated entirely to the center.
	Property income tax	100% to the subnational governments	
Slovak Republic (1991)	Property income tax	100% to the subnational governments	
	Wage tax	13% to the subnational governments	
Thailand (1991)	Vehicle tax (100% of the proceeds)	• 50% to municipalities in equal shares • 25% to Sanitary Districts in equal shares. • 25% split evenly among Changwat Administration organizations (CAOs).	Municipalities are the closest form of local self−government in Thailand. Three types of municipalities: • Tambon • Town (at least 10,000 people, with the same population density as city municipalities and necessary financial resources; or the seat of the provincial government) • City (at least 50,000 inhabiants and an average population

			density of 3,000/km2).

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Appendix E Central−subnational revenue sharing mechanisms in selected countries (continued)

Country	*Mechanisms*	*Distribution criteria*	*Comments*
Thailand (1991) (continued)	Rice export tax (95% of the proceeds)	• 50% to sanitary districts (SDs) on the basis of population • 50% to municipalities, the Bangkok Metropolitan Authority (BMA), and the Pattaya City	The provincial government has no direct influence over municipal government; it has only a monitoring role.
	Surcharges on central taxes on business, liquor, nonalcoholic beverages, entertainment, petroleum products, cement, and gambling	• Collected by the center and returned to localities on the basis of derivation	Other special forms of local government are the SDs, the CAOs, the BMA, and the Pattaya City. • SDs are small concentrations of population not large enough to constitute a municipality. • CAOs provide services to rural areas.
Venezuela (1993)	From 1990 to 1995, 20% of central revenues will be shared with states on a temporary basis.	No clear criteria	A legal framework in place for transferring services and expenditure responsibilities to states, but actual transfers require voluntary, negotiated agreements, and

			revenue transfers take place regardless of whether or not expenditure agreements are reached.
Viet Nam (1991)	VAT, corporate income tax, personal income tax	100% to subnational governments	
	Other taxes	Most are collected at the local level. There is no fixed schedule that indicates what proportion of tax revenue provinces are allowed to retain; nor are there taxes dedicated to funding local expenditures. Instead, the center must approve the revenue and expenditure plans of each province; implicit in each province's plan is the amount to be transferred to the center or the amount to be transferred from the center to the province.	As a result of the decentralized system, most government revenue is collected at the local level. During 1989 about half of the provinces transferred some revenue to the center. The gross amount transferred was 1,066 million dong.

Source : The data presented in this table were drawn from a large number of sources. The major sources for each country are listed below. For a complete list of the articles and documents used, please refer to the bibliography at the end of this paper. Argentina: Campbell, Peterson, and Brakarz

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Appendix F— Federal/Central Transfers to Lower Levels of Government

Country	Mechanisms	Distribution Criteria	Comments
Argentina (1993)	*To Provincial Governments* : There are four different types:		
	1. Federal Revenue Sharing (Coparticipation Federal)		Initially, no transfers of expenditure functions were made. Later, as pressure on central budget intensified, expenditure functions were transferred, first for primary education and hospitals, then for water, electricity, adult education. These expenditure transfers led to more demand for revenue transfers and a breakdown of the system.
	2. Automatic earmarked transfers include the Highway Development Fund (Coparticipation Vial—50% of the revenues from taxes on fuel) and Social Security Funds transferred to pay pensions.	Different criteria by provinces. Most common: fiscal efficiency, provincial population, surface area, equal shares, indicators of underdevelopment, poverty, and unsatisfied basic needs.	All these are treated as current revenues from national sources, although they are collected for the provinces by the central government.
	3. Discretionary grants (Aportes del Tesoro Nacional)	Amount of nonreimbursable discretionary grants is restricted to 1% of the revenue obtained from	These are freely allocated by the provinces.

		coparticipated taxes.	
	4. Discretionary earmarked transfers come from the Regional Development Fund (FDR—1% of the Coparticipated Taxes), the Special Fund for Electrification the Interior (FEDEI), the National Housing Fund (FONAVI—40% of the revenue of the fuel tax), and the Energy Development Fund (EDF—34% of the Provincial Infrastructure Fund).	Annually assigned; criteria differ by provinces.	FONAVI transfers are considered as borrowing.
Bangladesh (1991)	Annual Upazila Development Fund	Not available	
	Rural Works Program	• Area (1/3) • Population (2/3)	Funds are earmarked for capital expenditures on physical infrastructure.
	Matching Block Grants for Collaborative Projects	• Population (20%) • Area (20%) • Backwardness (30%) • Work progress (30%)	
	Food for Work Program	• In−kind (wheat) trasfers to needy population	
	General Purpose Grants (includes budget deficit grants)		

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Appendix F. Federal/entral transfers to lower levels of government (continued)

Country	Mechanisms	Distribution criteria	Comments

Brazil (1991)	States: Statutory transfers, required to comply with specific ordinary laws Convenios and special investment funds	Allocation are made to the Federal District and to newly created states; royalties are paid to states for extracting oil in their jurisdiction. Negotiated transfers are not regulated by law, but are based on negotiations with each state or municipality.	• Convenios: All selective nonmatching project grants • Expenditure priorities of grantor and recipient are different. • Project review and approval process provides incentives for recipients to put forward their best and mutual interest projects and use the funds to finance services of interest only to recipients. • Large number of programs with unspecified or vague objectives. Vehicles for pork barrel politics, e.g., President Sarney's home state and Sao Paulo benefited disproportionately. • Integrated and decentralized health care system (SUDS): An important exception. Federal government heavily involved in program administration. Allocation to units are based on history of past health expenditures and capital projects. • Difficulties, current and potential: 1. Availability and predictability of funds financed out of social security contributions

			(range of social security benefits expanded by the Constitution). Also, tax−sharing squeeze. Fiscal strains likely to constrain federal funds for SUDS. 2. Degree of federal involvement: Federal government has the responsibility of setting norms and distributing funds, with 60% directly controlled by federal government and rest indirectly controlled. 3. Private providers receive preferential treatment, including a shorter lag and CPI adjustment Transfer lag N is 45 days vs. 70 days for public sector. Education: Convenio Unico to finance primary education and in−kind transfers through school lunches and textbooks. Primary education: local function with no significant spillovers.
	Transfers made through federal agencies	Arbitrary allocation criteria	• Foreign debt relief grants
	Local Governments :		
	Convenios, special investment funds, and transfers through federal agencies	Arbitrary allocation criteria	

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Country	Mechanisms	Distribution criteria	Comments
Bulgaria (1993)	Subsidies (transfers) coming from the central government	Transfers from the central government to the municipalities are determined by the application of the following formula: Transfer = Minimum required expenditure budget (own source and shared revenues). Since 1990, the Ministry of Finance (MOF) has determined the minimum expenditure budgets for each municipality on the basis of the past year budget following the incremental approach. In 1992, for the first time, municipalities prepared their own budgets, often using the old budget norms, which they submitted to the MOF for the determination of transfers. However, the figures used for the minimum budget requirements in the calculation of transfers were those of the MOF, which on the average were two−thirds of the figures proposed by the municipalities. There was some bargaining between municipalities and the MOF.	For 1992, subsidies to local governments were budgeted at Leva 9.13 billion, representing 46.2% of all budgeted revenues. However, in the first half of 1992, local governments received transfers of only about one−third of the budgeted amounts for the entire year, Leva 3.55 billion, making transfers represent only 32.8% of all local revenues for the first half of 1992. Nevertheless, the relative share of central government transfers in local budgets is up from 1991 when central government budget cuts reduced transfers to 21.5% of all local revenues.
Chile (1992)	Payments to cover transferred functional responsibilities (education and primary health care)	Annually assigned	Central revenue transfers covered service costs in a base year, but have failed to keep pace with subsequent inflation. Increasing demand for restoration of the

			real value of transfers by elected local governments.
	National Regional Development Fund (FNDR): reallocation of federal and local resources for development projects	Population Population in poverty Regional geographic product	The criteria used to distribute the FNDR do not necessarily favor regions with the higher concentrations of poverty.
China (1993)	*Province:* *(* Special−purpose nonmatching grants)	*Discretionary grants*	
China (1994)	Provinces and Local Governments: Fiscal surplus	Transfer to center	Incentives for fiscal mismanagement
	Fiscal deficit	Transfer to subnational government	Incentives for fiscal mismanagement
Colombia (1993)	*Departments* : National Road Fund and other earmarked and budgetary transfers		No formulas provide for uniform and predictable allocations.
Hungary (1991)	The Normative Grant for operation and maintenance expenditures	Grant is fully unconditional in nature, in keeping with the full autonomy of local governments with respect to their expenditure and economic management; but its allocation across localities is in large part a function of specific expenditure categories.	The grant is paid in 12 equal monthly installments, to the locality's agent bank. It represents 39% of total local revenues, and is localities' single most important source of funds.

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Appendix F. Federal/central transfers to lower levels of government (continued)

Country	Mechanisms	Distribution criteria	Comments
	Targeted Grants		

Hungary (1991) (continued)		Made available to localities undertaking investments consistent with central government priorities. Localities have a right to grants for all investments meeting the criteria set forth in the law. The matching requirement differs by sector, ranging from 25% to 60%. These matching requirements are not fixed by law. Grants are allocated on a competitive basis.	
	Specific (addressed) grants, intended to finance the completion of ongoing investments initiated during the earlier regime.	There is no matching requirement but the funds have to be spent only on the intended investment. Eligibility criteria are broadly defined to include projects that are large, of regional importance, and serve a diverse population.	In 1991, 3.2% of total local revenues were allocated to this grant, but this amount declined in later years.
	Grants for "Distressed Localities"	Beneficiaries appear to include localities whose population structure (old age pensioners; unemployed) implies a limited tax base or personal income tax share. These funds are intended to meet only current account shortfalls, and are for municipalities that cannot meet even minimal maintenance and ongoing expenditure.	
India (1989)	*Finance Commission* :		
	(i) Unconditional	Projected budget deficits for the next five−year period	

	(ii) Conditional	Disaster relief	
	Nonstautory Transfers : (Transfers made outside the Finance Commission) (i) Planning Commission (plan assistance)	For schemes approved by the Commission • Population (60%) • Tax effort (10%) • Backwardness (per capita income relative to national average) (20%) • Special problems (10%)	Diretionary transfers account for over 50% of all transfers and often lack objective allocation criteria.
	(ii) Other conditional federal discretionary grants	Often these are matching grants (see comment for nonstatutory transfers above)	
Indonesia (1993)	Specific−purpose grants:	(1986/87: 86.8% of all grants)	
	• Autonomous subsidies (SDO) (66.9% of all grants)		Subsidies are to pay wages and salaries of subnational government employees.
	• Soil Conservation Program (1.1% of all grants)	• Land to be regreened • Area to be conserved	• Field staff requirements
	• Development of Primary School Program (0.6% of all grants)	Funds are disbursed against school bills paid by school boards	
	• Health Services Program (2.9% of all grants)	Financial supervision; population criteria	
	• Road and Bridge Construction Program (3.3% of all grants)	The grant is based on a formula that takes into consideration the length and condition of the road and the unit cost of construction.	

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Country	Mechanisms	Distribution criteria	Comments
Indonesia (1993) (continued)	Block grants (13.2% of all grants)		
	• Village Development Program (2.5% of all grants)	• Rp 4.5 million per village	Program is to encourage communal activities of the villages.
	• Municipal Development Program (5.6% of all grants)	• Rp 4,000 per capita • Rp 750 million minimum subsidy per municipality	Program is to create and improve employment and participation in development.
	• Provincial Development Program (7.1% of all grants)	• Equal shares	Program is to harmonize sectoral and regional development.
Japan (1991)	National Treasury Obligatory Share	Disbursements to local public bodies are for part or all of specific local expenditures on functions under the responsibility of the central government or under the concurrent responsibility of both levels.	
	National Treasury Grants−in−Aid	Disbursements to execute specific services or to render financial assistance.	
Malaysia (1991)	*States* : Capitation Grant	• Adult population (In 1982: M$15 per capita for the first 50,000 of population and then dropping to M$4 for population over 200,000.)	
	Revenue Growth Grant	• Population (50%) • 10 poorer states, on the basis of growth in per capita State Domestic Product (50%)	
	State Road Grant	• Mileage of state roads that meets federal standards	

		• Average cost of maintaining a mile of road	
	Stage of Economic Development Grants, Commodity Export Grants, and other specific grants for approved schemes	The criteria are not well defined (adult population and relative backwardness are common factors).	
	State Reserve Fund	Fund is to assist states experiencing extraordinary problems. It is occasionally used to help states balance their budgets.	"Deficit Grants" provide perverse incentives.
	Special grant to the states of Sabah and Sarawak	40% of incremental state revenues since 1963	
	Local Governments : Operating grant from federal government (annual)	Adult population, local revenue generation	
Mexico (1991)	Federal−to−states program: Normally 51% of total sources of state funds. These are programs directed by central agencies (COPLADE).	Allocation criteria are internal to each federal ministry. Each year's allocation is based on the previous year's level of execution.	States typically "match" at 20% or so of federal contributions, although states have an incentive to increase their contribution. Criticized as being contrary to the spirit of decentralization and as not being able to reflect local priorities.

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Appendix F. Federal/central transfers to lower levels of government (continued)

Country	Mechanisms	Distribution criteria	Comments

Mexico (1991) (continued)	Convenio Unicos de desarollo (CUD): federal matching specific−purpose grants (awarded annually).	No clear allocation criteria	Grants provided to cover provincial deficits and to give incentive to investment projects. The budgetary situation in Mexico has caused a substantial cut in these programs, delaying the low of funds and causing a stop−go execution of projects.
Nigeria (1986)	*States* : Conditional grants for approved projects on agriculture, education, health, and water supply	No clear criteria In some cases, the prevailing criteria are: • Population • Equal shares.	
	Local Governments : Pension Fund for Local Governments; and funds training local officials (contributions from all three tiers of government)		
Pakistan (1992)	*Provinces* : Grants−in−Aid: (i) Block grants	Punjab: Rs 1,000 million per year for 3 years. Sind: Rs 700 million per year for 5 years. Northwestern Frontier Province: Rs 200 million per year for 3 years. Baluchistan: Rs 100 million per year for 3 years.	
	(ii) Specific transfers	Transfers are to finance "provincial outlays on behalf of the center." These grants are specific for development, highways, natural calamities, etc.	The interprovincial distribution of these grants has witnessed erratic fluctuations.

	(iii) Grants for budgetary support	Revenue deficits grants discontinued in 1992	Incentives for fiscal mismanagement
	(iv) Development grant for education	Excess of education expenditures over 1983 levels	Incentive for higher education expenditures
	(v) Discretionary grants	Arbitrary	
	Special Development Program (SDP)	• Program is to supplement provinces' efforts in the development of selected backward regions. Assistance is available only for projects approved by the center.	
	Provincial Annual Development Plan Assistance (PADP)	Plan approval process	The size of the funds to be distributed fluctuates in view of the resource constraints and priorities of the center.
	Local governments	Complex negotiations with each local government	
Papua New Guinea (1991)	Derivation grants: Amount is 1.25% of the value of goods exported from the province during the preceding fiscal year. If this is a negative value, the grant is zero.	• Derivation The total derivation grant is the above amount minus the value of royalties paid to the province during the year of calculation.	The following formula was proposed in 1989: PDER R*E*(I +RE) where PDER is present derivation, R is 125%, E is FOB value of provincial exports, and RE is the rate of growth of provincial exports.
	Conditional, staffing and other grants:	Medium−term development plan	

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Country	Mechanisms	Distribution criteria	Comments
Papua New Guinea (1991) (continued)	(i) Public Investment Programme (PIP)		
	(ii) Staffing grants	Payments are equal to all provinces for public servants carrying out national functions at the provincial level and are increased by a constant amount every year.	
Philippines (1991)	Central government grants	Ad hoc criteria	Grants have not been automatically released in accordance with the law. They do not take into account fiscal effort. Because they are distributed on an ad hoc basis, they hamper long−term planning by recipients. Increased degree of decentralization is quite high on the present political agenda.
Poland (1991)	Block grants	Grants are given to all gminas by the Ministry of Finance, according to a complex formula. There are three main components or elements to the block grant: (i) a needs element, which amounted to about 40% of the total in 1991. (ii) an equalization element, which amounted to about 59%, and (iii) an investment element, for about 10%. The "needs" element takes population into account, but gives additional money for special needs, such as	A fourth element, relative to education, is often presented as being a component of the allocation formula. About 95 gminas took over primary education, signed contracts to that effect with the Ministry of Finance, and receive grants for that purpose. But these grants are earmarked for primary education, and should be considered as specific grants.

		those associated with the existence of a national infrastructure or with degraded environmental conditions. The equalization element compensates partially differences in estimated own source revenues of gminas, according to the following formula: E = P * 0.9 * (0.85 * B—A), where E is the amount of the equalization element received by a given gmina, P the population of the gmina, A the average estimated per capita own−resources of all Polish gminas, and B the estimated per capita own revenues of the gminas. The investment element is determined as a function of the share of planned investment expenditures in total planned expenditures.	
	Specific grants	Grants are received from voivodships (administrative regions of the Polish central government) and are earmarked for specific purposes, such as road construction or welfare.	While the average share of transfers earmarked for own−functions in total fiscal transfers executed is low, it is significant for its recipients: for village recipients, transfers ranged between 30 and 37%, for towns, between 14 and 37%, and for cities, between 7 and 20%.
Romania (1991)	General purpose transfers	Transfers are allocated to local governments on the basis of negotiation and bargaining. Since there is no transparent formula−driven allocation mechanism for distributing	The present system of transfers appears to be lump−sum. In fact, however, the local branches of the Ministry of Finance continue to supervise

		government grants, the center controls not only the size of the transfers but also who gets them.	the implementation of local budgets closely and to make sure that the targets specified in the local budgets local budgets are achieved.

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Appendix F. Federal/central transfers to lower levels of government (continued)

Country	Mechanisms	Distribution criteria	Comments
Russian Federation (1992)	*Union−to−Republics* : Assistance to backward republics (with contributions from other republics)	The system is a series of ad hoc agreements, bargained and nontransparent.	Recently, many republics have refused to contribute to these centralized funds. Moreover, the differences in the standard of living among the "have" and "have−not" republics (the latter includes mainly the Central Asian republics) have increased rather than declined.
	The Russian system is shared upward, rayons to oblasts, and then to the federal budget.		
Thailand (1991)	Grants (subsidies):	Subsidies are to cover services administered by the local governments in lieu of the center.	Usually these subsidies constitute the bulk of local revenues. It is difficult, however, to access the real magnitude of these transfers given that many are made through central

			government enterprises.
	(i) General grant	• Population (60 baht per person)	
	(ii)Grants for local education	Grants are to support compulsory elementary education expenditures.	There is evidence of a downward trend in the role of the local governments since 1975, coupled with an expansion of central government enterprises.
	(iii) Specific−purpose grants	Grants are for public infrastructure construction, relief from disasters, and other tasks on which the center puts a high priority.	This downward trend is observable in the low yields of local taxes—the result of too many exemptions, pervasive evasions, low tax rates, and low elasticity of tax revenues.
Venezuela (1993)	"Situado Constitutional": 15% of central government revenues transferred to states. The share increases 1% a year to reach 20% in 1994.	Population (70%) Equal share (30%)	States have to spend 50% of the Situado in investment but they are not obliged to cofinance or agree with the central government. Problem: The transfer does not take into account redistributive concerns.
	Investment plan	No clear criteria	The emphasis is on collaboration. States and central governments should agree on how to finance a commonly defined investment plan.
	Regional Compensation Fund: constituted by 20% of	Relative needs Relative tax capacity	This type of grant constitutes a contingency fund.

	a fraction of the VAT revenues and taxes on alcohol and tobacco		
Viet Nam (1991)	Transfers to local governments	The center distributes some of the funds it collects to poor provinces to help them meet their expenses. There is no fixed schedule that indicates what proportion will be transferred to the local governments.	A majority of government expenditure occurs at the central level. As a result, the fiscal system in Viet Nam relies on a complex series of transfers between provinces and the central government. During 1989 the center transferred 244 billion dong to the provinces. Thus, the net transfers from provinces to the center was 822 billion dong.

Source : The data presented in this table were drawn from a large number of sources. Only the major sources for each country are listed below. For a complete list of the articles and documents used, please refer to the bibliography at the end of this paper. Argentina: Campbell, Peterson, and Brakarz (1991); Bangladesh: U.N. (1991). Brazil: Bomfim and Shah (1991), Shah (1991c). Bulgaria: World Bank unpublished data. Chile: World Bank unpublished data. China: U.N. (1991). Colombia: Bird (1984), Banco de La Republica (1990), Ricardo (1993). Hungary: Bird and Wallich (1992). India: Indian Finance Commission (1989). Indonesia: World Bank unpublished data. Japan: U.N. (1991). Malaysia: U.N. (1991). Mexico: Campbell, Peterson, and Brakarz (1991) Nigeria Ashwe (1986a and b). Pakistan: Akhtar (1990), Jamil (1991). Papua New Guinea: U.N. (1991). Philippines: U.N. (1991). Poland: Bird and Wallich (1993). Romania: Bird and Wallich (1993). unpublished World Bank data. Russian Federation: Alexashenko

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Appendix G—
State Transfers for Local Governments in Selected Countries

Country	Mechanisms	Distribution criteria	Comments
Argentina (1993)	Rural property tax, vehicle tax, and stamp tax: The percentage share varies by province.	Factors used with weights: • Population (40 to 100%) • Population growth (1 to 3%) • Land surface (0 to 10%) • Equal shares (5 to 30%) • Payroll expenditures (0 to 25%) • Fiscal effort (0 to 75%).	
Brazil (1991)	*Revenue Sharing* : State VAT (ICMS) (25% to municipalities)	*Formula* : A municipality's share of the distributable pool is given by: (VA/VAS)*p + X*(I−p) where VA is Municipalitys value added (average of past two years), VAS is the state's value added, p is the percentage of distributable pool to be distributed according to municipality's contribution to state's value added (by federal law p must be at least 75%), and X is other factors that may enter the criteria for distribution. States are given complete discretion over what, if anything to include in X, e.g., the state of Pará uses: • ratio of municipality to state population (7%)	Major criticism: Municipal tax bases hardly enter into the formulas. • Fiscal equalization by varying the proportion of funds with fiscal capacity (municipal tax bases) is not recognized. • Fiscal effort component is poorly structured and benefits larger municipalities without regard to their fiscal effort.

		• ratio of municipality to state tax receipts (9%) • ratio of municipality to state area (2%) • equal shares (7%). Value added is defined as the value of outflow of goods + value of services rendered within each municipality—value of inflow of goods.	
	Motor vehicle registration(50% to municipalities)	Derivation	
	Share of federal tax on industrial products accruing to states as compensation for loss of VAT revenues on account of exports: 25% to municipalities (pass−through revenues)	Same as VAT	
	Grants	Discretionary	Specific−purpose transfers: Opaque and arbitrary—large numbers defy analysis.
China (1993)	*Revenue Sharing* :	Each province determines the percentage of tax collections that will be retained by each of its local governments.	
	Grants	Discretionary	
Colombia (1993)	*Revenue Sharing* : Departments' share of national sales tax collections (40% to municipalities)	• Population	Departments must transfer 28.5% of VAT revenues from the central government to their municipalities.
	Grants	Discretionary	

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Appendix G. State transfers for local governments in selected countries (continued)

Country	Mechanisms	Distribution criteria	Comments
India (1989)	Revenue Sharing: (i) Urban authorities: motor vehicles	Derivation	The shares of the state taxes going to Municipalities vary across states.
	Entertainment	Derivation	
	(ii) Rural authorities land revenue	Rural population	
	Entertainment	Derivation	
	Grants	Specific−purpose transfers (Some states use population and local tax effort as distribution criteria.)	No uniform distribution criteria are followed. Autonomy of local government units is greatly undermined by the nature of these transfers.
Malaysia (1991)	Grants	Estimated budget deficits	
	Other discretionary grants	In addition to the above, local governments may apply for annual grants to federal and state governments.	No clear allocation criterion
Mexico (1991)	*Revenue Sharing* : At least 20% of what is received from revenue sharing (general and complementary funds)	Criteria are specified by the states individually. Several states use the derivation principle, others follow U.S. revenue sharing formulas.	The criteria followed are arbitrary (often lacking objective indicators like population and tax effort). The fact that the criteria have to be approved annually by each state legislature

			makes it hard for municipalities to projects revenues for the following five to ten years. Complementary funds are directed to be distributed according to tax collection (derivation) and the Muncipal Fund on a redistributive basis. However, several states fail to follow dear objective distribution criteria.
Nigeria (1986)	*Revenue Sharing* : 10% of internally generated revenues of states	Criteria vary for each state.	Local governments receive too little revenues. The current scheme does not address horizontal imbalances property.
	Grants : Pension fund for local governments and funds for training local officials (contributions from all three tiers of government)	Not applicable	
	Conditional grants for approved projects on agriculture, education, health, and water supply	No dear criteria. In some cases population and equal shares are the prevailing criteria.	
	Supplementary specific grants for primary school construction and for teachers' salaries.	Number of pupils	

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Country	Mechanisms	Distribution criteria	Comments
Pakistan (1991)	*Revenue Sharing* : Property tax (85 % of proceeds) 15% to provinces	Derivation	
	Grants : Matching grants for province−approved projects	Negotiated with each local government unit	

Source : The data presented in this table were drawn from a large number of sources. Only the major sources for each country are listed below. For a complete list of the articles and documents used, please refer to the bibliography at the end of this paper. Argentina: Campbell, Peterson, and Brakarz (1991). Brazil: Bomfim and Shah (1991), Shah (1991c). China: U.N. (1991). Colombia: Bahl and

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Notes

1. This paper is primarily concerned with *devolution* of responsibilities, meaning functions for which effective control is transferred to subnational governments. This contrasts with *deconcentration* (central line agencies provide local services) and *delegation* (subnational governments act as agents of the central government) of functions.

2. Brueckner's test is based on the theory that a negative relationship between public services and residential property values indicates overproduction of local public goods (beyond optimal levels) in communities having substantial business property. A test proposed by Shah (1992b) suggests that the level of public spending is optimal when a balanced budget change in local spending and residential property taxation does not influence residential property values. Thus, a positive impact of a balanced budget change would indicate underprovision of public services and a negative impact overprovision.

3. This section draws heavily on McMillan, Shah, and Gillen (1980), Boadway (1992), and Boadway, Roberts, and Shah (1994a).

4. Gramlich notes that this type of grant is frequently used to encourage spending in areas with elastic demand (that is, responsive to income and price effects). The grants are large compared with normal spending by recipients in these areas, and the granting governments take measures to discourage the reduction of recipients'

expenditures on these aided activities.

5. The source for this section is the Victoria Grants Commission *Annual Report,* 1982.break

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