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Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-Country Analysis

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Summary. — Fiscal decentralization consists primarily of devolving revenue sources and expenditure functions to lower tiers of government. By bringing the government closer to the people, fiscal decentralization is expected to boost public sector efficiency, as well as accountability and transparency in service delivery and policy-making. Decentralization also entails greater complexity in intergovernmental fiscal relations, and coordination failures in fiscal relations are likely to have a bearing on fiscal positions, nationally and subnationally. Evidence provided in this paper for a sample of 30 countries suggests that coordination failures in intergovernmental fiscal relations are likely to result in a deficit bias in decentralized policy-making, particularly in the case of developing countries, which may not meet important requirements for successful decentralization. © 2000 Elsevier Science Ltd. All rights reserved.

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1. INTRODUCTION

In recent years, a growing number of countries around the world have embarked on ambitious fiscal decentralization programs consisting, in broad terms, of reassigning expenditure functions and devolving revenue sources to subnational governments (states/provinces, and/or municipalities/communes). The decentralization of expenditure functions and revenue sources also calls for decentralization in fiscal policy-making. The latter includes greater autonomy in debt management, tax administration, and budget execution, so that the task of providing public goods and services and performing standard public sector functions can be shared across levels of government. The key motivation for decentralization in a number of countries has been the disenchantment of the electorate with the ability of the central government to meet adequately the increasing demand for public goods and services (Tanzi, 1999).

The potential benefits of devolving fiscal responsibilities to subnational levels of government are increased efficiency in service delivery, and reduced information and transaction costs associated with the provision of public goods and services (World Bank, 1997). Based on the public finance principle of subsidiarity, [1] the performance of the public sector can be enhanced by taking account of local differences in culture, environment, endowment of natural resources, and economic and social institutions. Local preferences and needs are believed to be best met by local, rather than national, governments. Information on these local preferences and needs can be extracted more cheaply and accurately by local governments, which are "closer" to the people and hence more identified with local causes. In this respect, accountability and transparency in government actions can also be enhanced by bringing expenditure assignments closer to revenue sources. Streamlining public sector activities and encouraging the development of local democratic traditions are also regarded as important goals of fiscal decentralization. Finally, to the extent that fiscal decentralization promotes allocative efficiency, it is expected to have a bearing on macroeconomic governance. Less severe economy-wide fiscal imbalances and debt-overhang problems improve macroeconomic performance, and scarce public resources can be channeled away from deficit financing and debt servicing toward funding growth-enhancing, externality-rich spending.

Decentralization is not, however, without pitfalls. A key issue in decentralization is the

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coordination of intergovernmental fiscal relations, which has puzzled theoreticians and practitioners in recent years (Poterba, 1996). Given the increased complexity in coordinating government actions when lower levels of government enjoy greater autonomy in policy-making, the key policy challenge in decentralization programs is to design and develop an appropriate system of multilevel public finances in order to provide local public services effectively and efficiently while, at the same time, maintaining macroeconomic stability. [2] The task consists of managing intergovernmental fiscal relations by taking into account, on the one hand, the growing need for local public goods and services and, on the other, the importance of preserving fiscal discipline, nationally and subnationally. When new budgetary rights and responsibilities are assigned to subnational governments, institutional clarity and transparency should be promoted in the budget-making process, such that spending matches revenues at the subnational level.

Without special attention to institutional clarity and transparency, intergovernmental fiscal relations may suffer from coordination failures. These coordination failures may induce subnational governments to spend inefficiently and beyond their means, when fiscal policy is designed and implemented in a decentralized fashion. These policy failures tend to manifest themselves as a deficit bias and higher costs of borrowing given the risk premium associated with a higher probability of default (Poterba & Rueben, 1997; de Mello, 1998). Fiscal decentralization may therefore aggravate, rather than reduce, fiscal imbalances [3] and consequently endanger overall macroeconomic stability (Prud'homme, 1995; Huther & Shah, 1996; Ter-Minassian, 1999), unless subnational governments are committed to fiscal discipline, and the decentralization package includes incentives for prudence in debt and expenditure management. The imposition of stringent constraints on subnational indebtedness and effective monitoring of subnational fiscal positions are additional important prerequisites for successful fiscal decentralization, in addition to the availability of expertise at the subnational level to manage efficiently an increased volume of resources (Fukasaku & de Mello, 1998).

In short, with regard to the three traditional Musgravian functions of government, the pitfalls of fiscal decentralization are related more closely to macroeconomic stability and redistribution, while its benefits involve gains in allocative efficiency (Inman & Rubinfeld, 1997). Against this background, the objective of this paper is to shed more light on the relationship between fiscal decentralization and budget balances from a cross country perspective. Attention is focused on a sample of 30 countries for which internationally comparable public finance indicators are available in the IMF's *Government Financial Statistics* for a sufficiently long time span over 1970–95 and for at least two levels of government.

The remainder of the paper is organized as follows. Section 2 provides an overview of intergovernmental fiscal relations and presents basic public finance indicators for the sample of countries under examination. These indicators allow for a deeper analysis of the extent of fiscal decentralization in different economies, so that a few stylized facts can be highlighted. Section 3 describes the most important sources of coordination failures examined in the literature. Section 4 provides empirical evidence and section 5 concludes.

2. INTERGOVERNMENTAL FISCAL RELATIONS: AN OVERVIEW

(a) *How do public finances differ across governments levels?*

Public finances differ significantly across government levels for a number of reasons. First, in terms of revenue mobilization, the tax bases that are efficient and simple to administer by local governments tend to be few and narrow (Bird, 1992). Non-tax revenues (user charges, rents, royalties, fees) tend to be limited in scope and revenue-generating capacity. Local tax bases are narrow due to the possibility of tax exportation, externalities in the provision of public goods and services, factor mobility, and economies of scale. Broad tax bases are best managed by higher levels of government. As a result, if subnational governments are to be important providers of public goods and services, it is necessary for higher-level jurisdictions to share part of their revenues with subnational governments to bridge the gap between spending and revenues mobilized locally. [4]

Second, with regard to expenditure management, if budgets are to be balanced, subnational spending is constrained by (i) the revenue-raising capacity of subnational governments which, as suggested above, tends to be limited, and (ii) vertical and/or horizontal revenue-sharing. The optimal size of subnational governments is hence determined on tax efficiency grounds, given the breadth of the tax bases that are best managed by these jurisdictions, and the willingness of higher-level governments to devolve expenditure functions to subnational governments, given that financing these expenditures may require extensive revenue-sharing. An important consequence of the above is that the composition of subnational revenues plays a crucial role in determining the level of autonomy over expenditure management enjoyed by subnational governments. For instance, local revenue mobilization is boosted when subnational governments control important tax bases. This gives them more legitimacy over the use of these resources, and hence leeway to manage them according to their own preferences and needs.

In the case of reliance on revenue-sharing to finance subnational spending, which can be horizontal and/or vertical, conditionality on how sharable funds are spent by subnational governments is likely to reduce their expenditure management autonomy. Fiscal decentralization may in this case turn out to be little more than mere delegation: subnational governments become spending agents of higher levels of government with limited decision-making autonomy over how public funds are spent. The merit of delegation in expenditure management is that it increases transparency and accountability in service delivery by bringing public sector spending closer to taxpayers. Local preferences and needs may not be entirely taken into account, however, given that conditionality on spending mandates reflects the preferences of the central, rather than local, government over particular expenditure functions. [5]

Policy-making autonomy over shared revenues allows for local preferences to be taken into account, when both resources and decision-making mandates are decentralized. Lack of conditionality in revenue-sharing may also pose additional challenges. First, it may reduce the incentive for subnational governments to manage shared funds efficiently, and weaken the scope for coordination across government levels. [6] Second, when preferences over expenditure functions do not coincide, the recipient may use the shared funds to finance expenditures that reduce the utility of the donor. This is particularly important at the horizontal level, when several recipients use shared funds to finance externality-generating expenditures and have different preferences over those spending functions. Conditional tax-sharing and devolution allow for service delivery at lower operational costs while, at the same time, reducing the risk of free-riding in the case of externality-rich, horizontally-financed spending.

Third, despite greater autonomy in budget-making due to fiscal decentralization, subnational governments tend to have limited power in debt issuance and management. These limitations may be institutional, given specific budget rules, and/or market-based. Budget rules may be of several types. [7] For instance, in many cases, subnational governments may be prohibited from using deficit financing for long periods of time, and local legislatures may be constrained to approve balanced budgets only. *Ex post* budget imbalances may occur despite anti-deficit provisions *ex ante*, as a result of, for instance, adverse shocks, wrong forecasts of revenues and expenditures, and failure to account for contingent liabilities. Should *ex post* budget imbalances occur, subnational governments may be constrained to correct such imbalances in a horizon of one or two fiscal years ("no carry-over" constraint). [8] If long-term financing is needed, in many countries, subnational governments may be allowed to issue "golden-rule," as opposed to general obligation, debt. Grants and transfers are additional instruments used to finance investment spending that would otherwise overwhelm the fiscal capacity of subnational governments. In general, the merits of fiscal rules have to be assessed in the light of the tradeoff between short-run budgetary flexibility and long-run fiscal sustainability. Whereas rules tend to impose fiscal discipline at lower levels of government, they also limit the ability of these governments to finance public provision at the local level, smooth taxes, and carry out countercyclical demand management (Bohn & Inman, 1996; Inman, 1996).

Subnational government indebtedness may also be constrained by market forces. In shallow capital markets, there may be a shortage of potential buyers of subnational debt, and hence no formal market for subnational bonds. In this case, the central government itself may be the main supplier of credit to subnational governments. This seems to be the case in a number of countries, and subnational bonds are little more than promissory notes signed by subnational governments and held by the central government. When these bonds are actually traded, however, market discipline is likely to ensure fiscal restraint at the local level, despite the smaller size of the subnational government debt market, relative to that of the corporate sector or the central government. When subnational debt is traded, market-induced discipline is likely to follow from stricter, corporate sector-like accounting standards, transparency in budgeting, independent auditing, and timely disclosure of subnational public finance data. These factors are complementary in limiting the scope for cosmetic accounting to circumvent rigid balanced-budget rules. Credit rating agencies are also likely to monitor subnational governments and contribute to the dissemination of best practices and high accounting standards, which is likely to improve governance in the public sector (Capeci, 1994).

(b) *Some preliminary evidence: basic public finance indicators*

In what follows, attention is focused on a sample of 30 countries for which public finance data, such as government spending and fiscal balances, are disaggregated between the central government and subnational governments [9] in the IMF's *Government Financial Statistics*, for 1970–95. [10] Countries with a sizeable discrepancy (over five percentage points) in the share of subnational spending in total public sector spending are presented in two subsamples. These countries and subsamples are Argentina (1970–85 and 1986–95), Brazil (1970–89 and 1990–95), Chile (1970–80 and 1981–95), Thailand (1970–80 and 1981–95), South Africa (1970–83 and 1984–95), Norway (1970–78 and 1979–95), and Spain (1970–89 and 1990–95).

Given the constraints imposed by the data, a number of public finance indicators can be constructed and a few stylized facts can be highlighted from a crosscountry perspective.

First, the relative importance of different levels of government in the provision of public goods and services is reflected in the size of subnational governments. Size can be measured in absolute terms, as in the case of the expenditure-GDP ratio, or, more interestingly, in relative terms, as in the case of subnational spending relative to central government spending. As for the absolute size of government, Figure 1 suggests that governments tend to be smaller in Latin America, and particularly Asia, than in the OECD sample. It is widely accepted that the demand for public goods and services increases with income such that government spending tends to be larger in richer countries, *ceteris paribus*. Central government spending ratios range from 20% of GDP in Asia, to 40% in the European countries of the OECD sample. In terms of relative government sizes, the subnational share of total government spending is below 5% in Asia, and ranges from 10% to 40% in Latin America, and from 12% to 60% in the OECD sample. Subnational governments tend to be large in countries where the central government is small in both OECD and Latin American countries. This is nevertheless not true in Asia, with the exception of India, where countries with small central governments also tend to have very small subnational government spending shares. In the OECD area and Latin America, unlike Asia, a reduction in central government spending is achieved chiefly by delegating public sector functions and spending responsibilities to subnational governments, thus increasing their share in total government spending.

Second, with regard to the composition of subnational revenues, Figure 2 suggests that, in Asia, subnational governments rely heavily on transfers from the center. In the OECD area, there is a clear distinction between the federations (Austria, Canada, Switzerland, Germany, United States), where emphasis is placed on local tax revenue mobilization; and the European countries (as well as Australia), where intergovernmental transfers prevail as the main source of finance of subnational spending. The picture is less clear-cut in Latin America. For instance, Peru, Bolivia and Mexico differ significantly as to how subnational spending is financed, despite comparable subnational spending shares. In the case of Peru, emphasis is placed on intergovernmental transfers and non-tax revenues, whereas local tax revenue mobilization prevails in Bolivia and Mexico. On the other hand, in Brazil, Chile and Colombia, subnational spending shares are higher and subnational financing is split more evenly between intergovernmental transfers and local tax revenue mobilization.

Third, budget deficits are much smaller at the subnational, rather than central government, level. This reflects the discussion above about the limited autonomy of subnational governments in terms of debt and expenditure management. Inspection of Figure 3 reveals

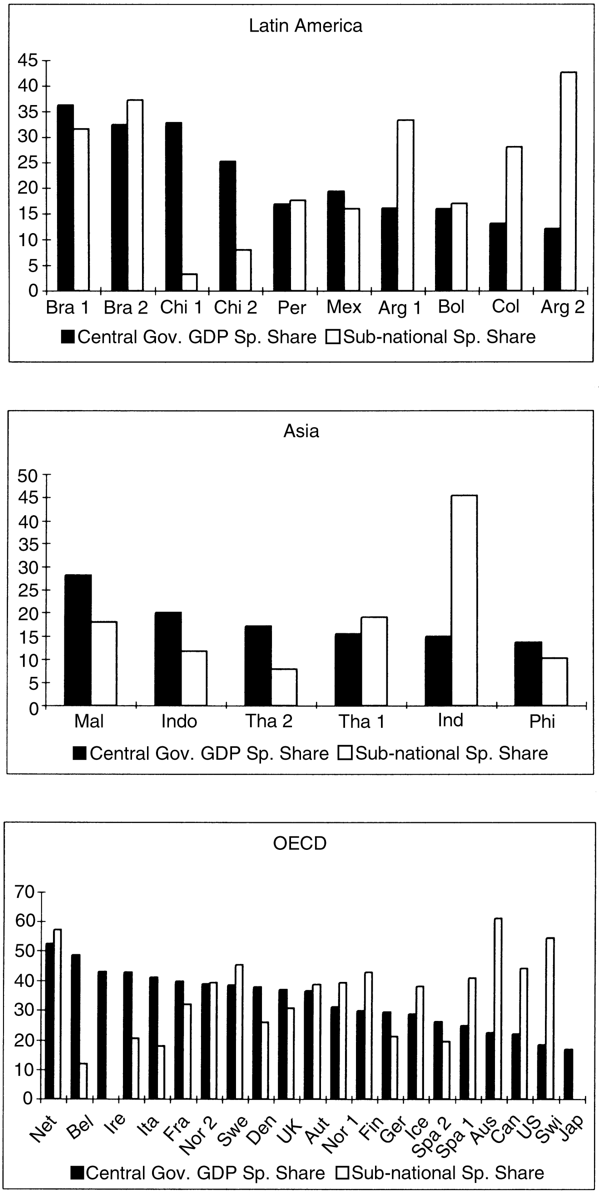


Figure 1. *Government size.*

that, in the OECD sample, where a clear-cut picture emerges in terms of the composition of subnational revenues, there does not seem to be a clear association between a country's subnational revenue structure and its budget stance, nationally and subnationally, despite relative high subnational spending shares. In Asia, fiscal centralism is associated with limited fiscal imbalances, nationally and subnationally. On the other hand, fiscal positions tend to be poor in Latin America with relatively high budget deficits, nationally and subnationally, despite the broad variety in the region's composition of subnational revenues.

Having highlighted a few cross-country stylized facts, it is also interesting, at this stage, to pay closer attention to the individual countries that experienced significant changes in the size

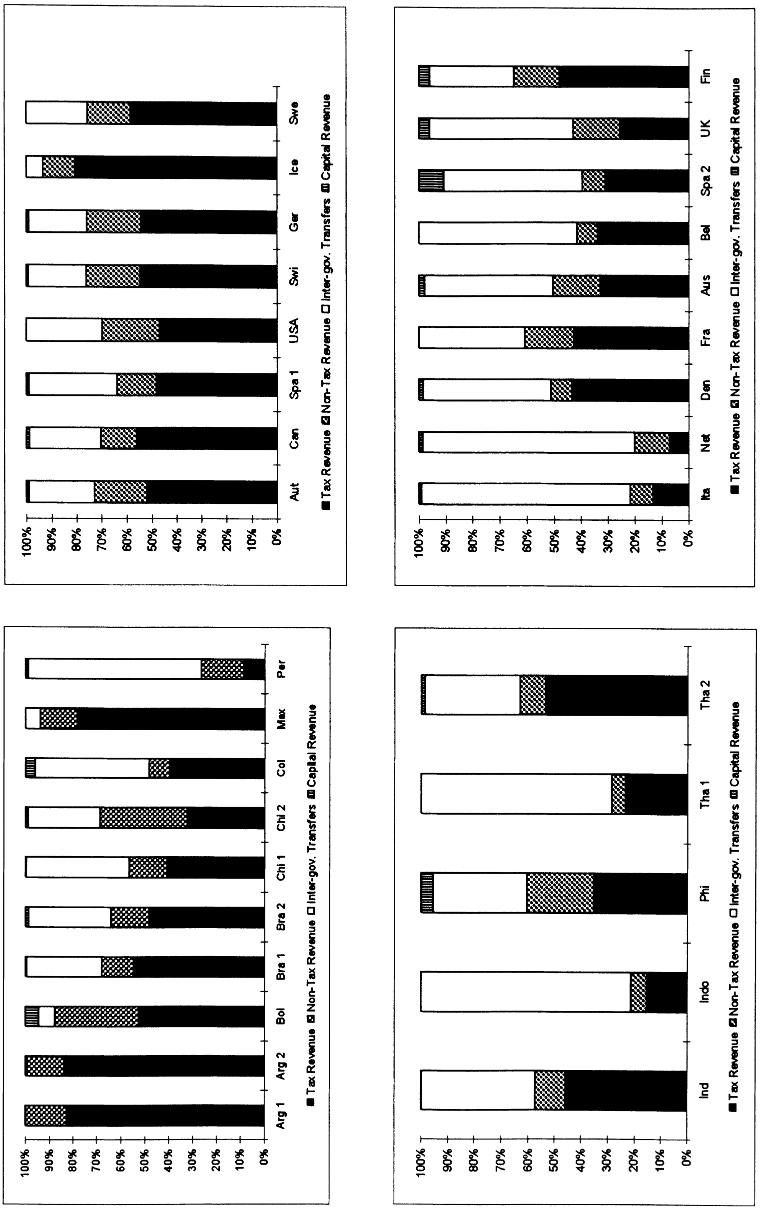


Figure 2. *Sub-national revenue sources.*

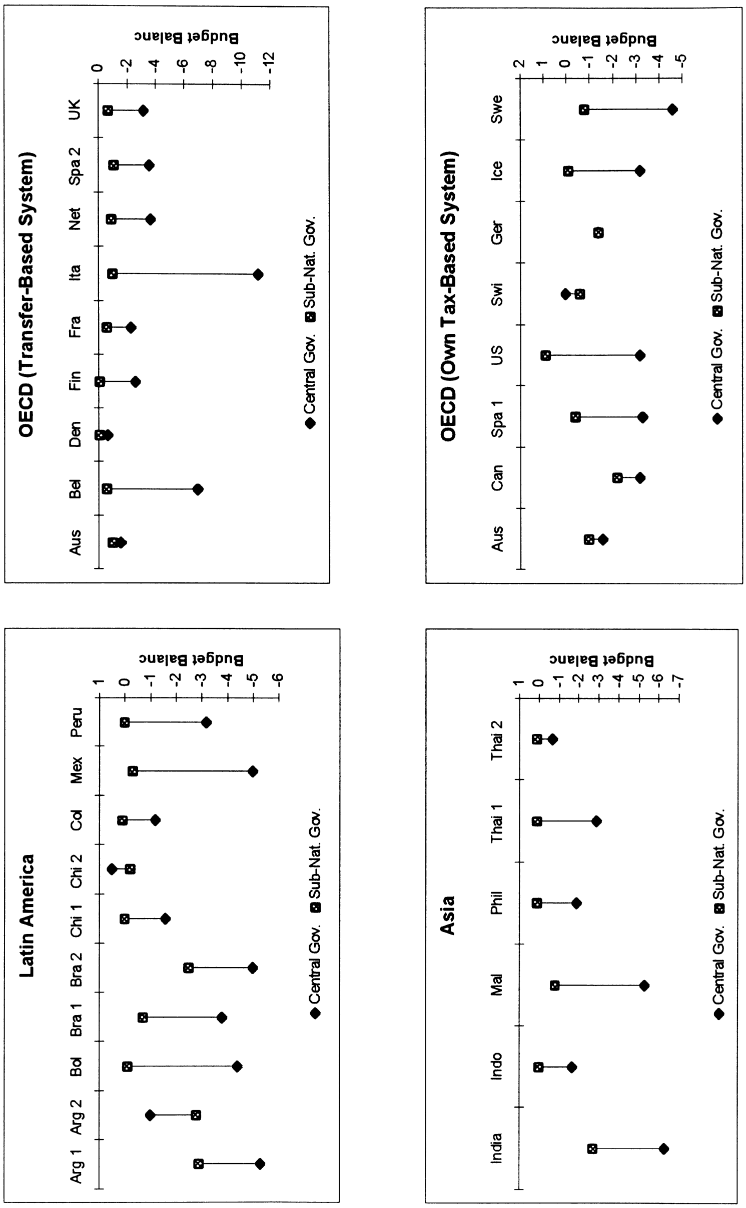
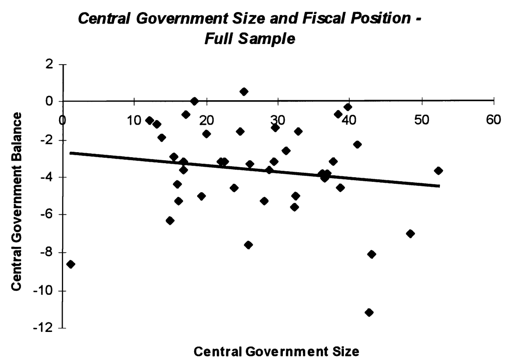


Figure 3. *Budget balances.*

of subnational governments in the period under examination. In the case of Chile, the degree of fiscal autonomy at the subnational level, measured as the share of taxes in total revenues, has fallen dramatically since 1981, despite significant fiscal decentralization in the period, given the increase in the share of subnational spending (Figure 1). Decentralization did not worsen subnational budget deficits significantly in Chile (Figure 3), and an increase in subnational spending was financed by higher subnational non-tax revenue (fees, sales, fines, royalties, etc.), instead of intergovernmental transfers and/or local tax revenues. In Brazil, the fall in the average subnational tax revenue share after 1989 was partly offset by an increase in intergovernmental transfers, thereby discouraging local revenue mobilization, given the modest increase in the non-tax revenue share. Turning to Asia, in the case of Thailand, the country's fiscal consolidation effort of the 1980s involved a significant reduction in the subnational spending share in favor of the central government. This process of fiscal centralization also led to a drastic change in the composition of subnational revenues from intergovernmental transfers toward local taxes in a policy move in favor of local revenue mobilization. In the OECD sample, Spain's decentralization initiative favored revenue-sharing to finance growing subnational spending (Figure 2).

Against this background, important empirical questions to be asked are, first, whether decentralized fiscal policy-making leads to a deterioration of subnational finances and, second, whether such deterioration worsens the fiscal position of the central government. The first question addresses the issue of whether fiscal decentralization creates incentives for subnational profligacy. The second question is concerned with the macroeconomic repercussions of worsening, decentralization-driven subnational budget imbalances. As suggested by Figure 4, fiscal positions are worse in bigger governments, nationally and subnationally. Nevertheless, according to Figure 5 (Panel A), an increase in the subnational share of total government spending does not seem to affect the central government's fiscal position. This finding suggests that fiscal decentralization may be a solution to the rather disappointing picture in Figure 4. This conclusion does not hold, however, if attention is restricted to the subsample of developing countries, in which an increase in subnational government spending as

Panel A



Panel B

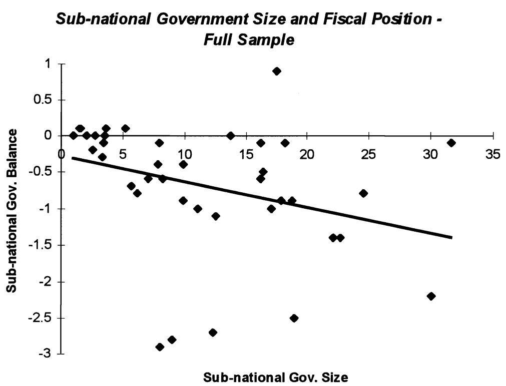


Figure 4. *Central/subnational government size and fiscal position: full sample.*

a share of total government spending tends to worsen the fiscal position of the central government (Panel B). [11] This negative correlation reveals an interesting relationship between policy outcomes and fiscal decentralization in developing countries, which will be examined more rigorously and in greater detail below.

3. INTERGOVERNMENTAL FISCAL RELATIONS AND FISCAL STANCE: THE GENERAL ARGUMENT

A growing literature has emerged in recent years to explain the association between fiscal decentralization and budget balances, as illustrated in Figures 4 and 5. The most persuasive argument in this literature is that decentralization may exacerbate coordination failures in

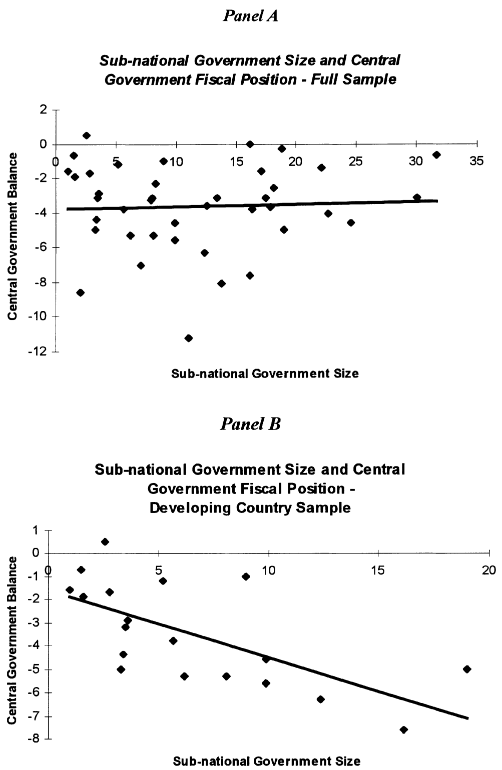


Figure 5. *Subnational/central government fiscal position.*

intergovernmental fiscal relations, which discourage fiscal discipline, first at the subnational level and subsequently at the economy-wide level. The most important sources of coordination failures examined in the theory are agency problems arising from the delegation of fiscal powers to subnational governments, and "common pool" problems associated with funding decentralized government spending through revenue-sharing.

In a nutshell, agency problems are due to the asymmetry of information on the costs and benefits of government spending between the center and the subnational governments to which fiscal powers are delegated. In broad terms, the association between delegation and information asymmetry is two-fold. On the one hand, delegation allows the center to provide goods and services according to local market information and, by separating responsibilities, more powerful incentives can be put in place to foster efficiency. Because local jurisdictions can identify community preferences more easily and cheaply, decentralized policy-making tends to reduce information costs and boost allocative efficiency (Radner, 1993; Bolton & Dewatripont, 1994; Martimort, 1996). Delegation brings the government "closer" to the people, thereby increasing accountability in, and favoring society's scrutiny of, public sector actions. Information asymmetries between society and the government can therefore be reduced by decentralizing fiscal responsibilities through the devolution of spending assignments to local governments.

On the other hand, by reducing the "informational distance" between the government and society—or the beneficiaries of the provision of public goods and services—fiscal decentralization tends to increase the distance between the center and the decentralized agencies or subnational governments to which fiscal responsibilities are devolved or delegated. This loss of control of the center over decentralized agencies and/or subnational governments entails an efficiency loss in delegation, which increases with the distance between both government levels, and hence renders the acquisition and processing of information within the government more costly (Tirole, 1994; Gilbert & Picard, 1996). On the expenditure side, the central government may be unable to monitor efficiency in expenditure management and service delivery. On the revenue side, when important tax bases are devolved to subnational governments, agency problems arise given that the central government may be unable to monitor how efficiently subnational governments utilize their revenue sources. If the devolution of important tax bases to subnational governments reduces efficiency in revenue mobilization across government levels, and induces underutilization of subnational tax bases, central and subnational budget positions are likely to deteriorate. Moreover, the transfer of revenue sources to subnational governments, following the devolution of expenditure functions, may deprive the center of important revenue sources in these countries, thus generating imbalances at the center (Tanzi, 1995). [12]

The essence of "common pool" problems [13] is that, as suggested above, local revenue mobilization is limited at the subnational level, and revenue-sharing is an important mechanism to correct vertical imbalances in intergovernmental fiscal relations. Revenue-sharing is not, however, without pitfalls. It drives a wedge between expenditures and revenue sources in subnational jurisdictions, and hence the costs and benefits of public sector provision. As a result, if a large share of subnational spending is financed through revenue-sharing, subnational governments may face the incentive to underutilize their own tax bases at the expense of national sharable revenues (Inman & Rubinfeld, 1996). In doing so, they minimize the costs of decentralized provision borne by local taxpayers, which can be financed by a common pool of resources mobilized elsewhere in the economy. In this case, the burden of providing public goods and services can be shared across government jurisdictions, whereas the benefits of public sector spending can be internalized and generate a political payoff to local governments. In addition, overspending can be attributed to "common pool" funding because free-riding induces competition among subnational governments to secure a larger portion of sharable funds in the form of grants and transfers from the central government.

An additional type of "common pool" problem which has an immediate adverse impact on the central government's budget position is the following. In the case of rigid revenue-sharing arrangements, in which transfers are automatic, every time a central government raises taxes to improve its own fiscal position, subnational governments receive a corresponding revenue benefit which they are free to spend. These windfall gains tend to inhibit the potential for reducing the consolidated fiscal deficit by increasing the tax burden. This is also the case of national spending programs that are sponsored and fully funded by the central government, without conditionality and/or subnational cofunding. [14] Incentives to delay adjustment is another consequence of the "common pool" problem, since individual jurisdictions have limited incentives to act alone and strong incentives to free-ride, if the burden of fiscal retrenchment can be shared horizontally across jurisdictional borders, and vertically across government levels. [15] Free-riding also induces overspending given that each subnational government has an incentive to inflate its budget for fear of losing sharable revenues to competing jurisdictions.

Both problems—"common pool" and agency—are intertwined, given that decentralization implies delegation of spending functions to subnational jurisdictions and hence creates vertical imbalances which tend to be corrected via revenue-sharing. Policy recommendations to solve one of these problems may well end up exacerbating the other. Against this background, in providing public goods and services, there seems to be a tradeoff between coordination, which requires some degree of centralization in policy-making, and the need for information on local needs and preferences over public sector provision and service delivery, which is better handled at the local level (Caillaud, Jullien & Picard, 1996). A strong case can be made in favor of centralized provision and policy-making as far as distributive and macroeconomic stabilization policies are concerned. In this case, efficiency gains, which are the main advantages of decentralization, may be dwarfed by the challenges of ensuring good macroeconomic governance and fiscal discipline in a decentralized government structure. In addition, both types of policy tend to be nationwide in scope, rather than regional, particularly in developing countries, thus rendering the potential gains of decentralization in terms of allocative efficiency less promising against the risks involved in macroeconomic stabilization.

4. INTERGOVERNMENTAL COORDINATION FAILURES AND FISCAL STANCE: STRONGER EVIDENCE

This section reports stronger empirical evidence on the relationship between fiscal decentralization, coordination failures in intergovernmental fiscal relations, and budget balances. [16] Because coordination failures cannot be measured directly, their impact on fiscal positions can be estimated indirectly when proxies for the potential sources of coordination failures are available. The budget balance, measured as the ratio of the fiscal deficit to GDP, can be regressed on a set of variables of two types: [17] (a) the proxies for the potential sources of coordination failures in intergovernmental fiscal relations, and (b) a number of control variables which have become standard in the public finance literature (e.g., Roubini & Sachs, 1989; Alesina, Cohen & Roubini, 1993; Eichengreen & Bayoumi, 1994).

The proxies for coordination failures used here are as follows: (a) the subnational government size, which measures the extent of fiscal decentralization and hence the scope for coordination failures in intergovernmental fiscal relations; (b) the subnational tax autonomy indicator, which measures the subnational local revenue mobilization, and is therefore likely to be a good proxy for moral hazards in decentralized policy-making; and (c) the subnational dependency on intergovernmental transfers, which is a proxy for coordination failures due to "common pool" problems. The control variables [18] are as follows: money creation, GDP growth, the terms of trade, and the age dependency ratio. Money creation proxies for the use of monetary, quasi-fiscal deficit-financing instruments; GDP growth controls for the cyclicality of fiscal policy, since deficits tend to fall in periods of expansion and increase in economic downturns; the terms of trade variable proxies for alternative sources of non-tax revenues; and the age dependency ratio proxies for longer-term, social security-related liabilities of the public sector, which are likely to exacerbate structural imbalances.

The equation is estimated for a panel of 30 countries for which the basic fiscal indicators shown in Figures 1–3 are available in the IMF's *Government Finance Statistics.* [19] The variables in the panel are constructed for five-year averages during 1970–95 to smooth out transitory fluctuations in the data. Given that the relationship between decentralization indicators and fiscal positions may differ across broad groups of countries, the equation is estimated for subsamples of 17 OECD and 13 non-OECD countries. [20] The distinction between OECD and non-OECD countries also reflects differences in institutional development across countries, as OECD countries tend to have more mature fiscal institutions than their counterparts in the non-OECD sample. The equations are also estimated simultaneously for different levels of government, to account for the information in the covariance of the error terms in each equation.

The results of the estimations are reported in Table 1. The preliminary findings provide *prima facie* evidence that fiscal stance is likely to be affected by coordination failures due to "common pool" and agency problems in decentralized policy-making, as hypothesized above. [21] An interaction term was included in the regression to measure the combined impact of subnational fiscal dependency and spending shares. This is because vertical imbalances tend to increase when subnational governments are large relative to the central government in terms of their spending assignments. The most important findings are as follows.

First, the subnational tax autonomy was found to worsen fiscal positions at the subnational level in the full sample and in the non-OECD sample, and at both levels of government in the OECD sample. This is suggestive of coordination failures due to moral hazards in decentralized policy-making. Second, evidence of coordination failures due to subnational fiscal dependency was found in the non-OECD sample, in which reliance on intergovernmental transfers was found to worsen fiscal positions at the central government level. The converse was nevertheless found in the full sample and in the OECD sample. In the OECD sample, the dependency of subnational governments on intergovernmental transfers tends to improve fiscal positions, as long as subnational spending is not too large relative to that of the central government. In this case, in the OECD sample, vertical imbalances, rather than measuring the scope for "common pool" problems, may provide evidence of the ability of central governments to constrain subnational profligacy by limiting their spending assignments to the availability of financing through intergovernmental transfers. Subnational fiscal positions may therefore improve. [22] Stricter control of the center over subnational finances and stringency of subnational balanced budget requirements [23] may also limit the scope for "common pool" problems in the OECD countries.

Finally, as for the control variables, in the non-OECD sample, money creation and the terms of trade were found to worsen fiscal positions. In both the OECD and the full samples, fiscal positions were found to worsen due to the social security liabilities associated with high age dependency ratios. Dealing with these long-term liabilities is the most important challenge facing policy-makers in rapidly aging societies. Finally, as expected, an improvement in the terms of trade tends to improve fiscal positions in the non-OECD sample. [24]

5. CONCLUDING REMARKS

Fiscal decentralization has been an integral part of overall public sector reform in a number of countries, both developed and developing, and consists primarily of re-assigning expenditure functions and revenue sources to lower tiers of government. Among the merits of fiscal decentralization, policy-makers have stressed efficiency gains, reduction in operational costs, and improved public sector performance in service delivery. The pitfalls of decentralized

Table 1. *Decentralization and fiscal positions (SURE Estimations)*[a]

	Full sample		OECD sample		Non-OECD sample	
	Central gov. balance	Subnat. gov. balance	Central gov. balance	Subnat. gov. balance	Central gov. balance	Subnat. gov. balance
Log subnational tax autonomy	−0.83	0.20**				0.15*
	(−1.483)	(3.002)				(2.383)
Lagged log sub-nat. tax autonomy	0.10*		0.16**	0.96**		
	(2.385)		(2.770)	(4.966)		
Log subnational fiscal dependency	−0.41**	0.12**	−0.40**	−0.02	0.05***	
	(−4.651)	(2.594)	(−4.073)	(−0.379)	(1.797)	
Lagged log sub-nat. dependency	−0.09*		−0.13**			
	(−2.382)		(−2.436)			
Interaction term (sub. dep. × sub. spending share)	0.47**		0.48**			
	(4.873)		(4.059)			
Log subnational spending share	0.11*	0.67**	0.01	0.02		0.82**
	(1.962)	(8.326)	(0.186)	(0.097)		(11.34)
Money creation	0.06*				0.08*	
	(1.947)				(2.565)	
GDP growth					−0.18**	0.22**
					(−3.269)	(3.156)
Lagged GDP growth	−0.02	−0.11	−0.05	−0.04	13.57*	
	(−0.486)	(−1.362)	(−0.939)	(−0.473)	(2.210)	
Log terms of trade					0.13	−0.41**
					(1.415)	(−3.428)
Lagged log terms of trade					−0.13*	
					(−2.214)	
Log age dependency ratio	0.40***	0.60***	0.39***	0.79*	−0.69	−2.36***
	(1.842)	(1.834)	(1.648)	(2.206)	(−0.719)	(−1.770)
$\bar{R}^2$	0.24	0.76	0.34	0.71	0.17	0.86
DW	1.71	1.58	1.13	0.71	2.23	1.95
Nobs.	150	150	85	85	65	65

[a] Five-year average panels, 1970–95. Heteroscedasticity-consistent *t*-statistics are reported in parentheses.
* Significant at the 5% level.
** Significant at the 1% level.
*** Significant at the 10% level.

provision and fiscal policy-making consist, in general, of loss of control over subnational finances and coordination failures in fiscal policy-making, often leading to pressures on subnational finances and, ultimately, macroeconomic stability. Overall, the merits of fiscal decentralization have to be weighed against the risks involved in increasing subnational spending power at the expense of higher levels of government.

The risks of boosting subnational spending are particularly high when it is financed by transfers and grants from higher levels of government, rather than local revenue mobilization. In this case, the subnational revenue-expenditure gap is bridged by higher levels of governments, using resources mobilized elsewhere in the economy to finance vertical imbalances in intergovernmental fiscal relations. Reliance on transfers from higher levels of government to finance subnational spending tends to put strain on intergovernmental fiscal relations, and deepen budget imbalances at the central government level. Against this background, it can be argued that minimizing the scope for coordination failures in intergovernmental fiscal relations—by imposing fiscal discipline at subnational levels of government, by market forces or a better design of institutions—is a crucial prerequisite for successful decentralization.

Cross-level coordination may be encouraged via such expedients as the enforcement of fiscal contracts in the legislature, centralization of budget-making processes, incentives for fiscal restraint, and punishment for excessive largesse.[25] In a number of countries, fiscal institutions may be better designed to prevent vertical imbalances in intergovernmental relations from worsening fiscal positions, nationally and subnationally. The OECD experience is a case in point. These countries have had higher subnational spending shares for a much longer span of time than most developing countries examined here, without significant fiscal imbalances at the center. More stringent control of subnational finances is believed to have prevented the deterioration of national and subnational fiscal positions and kept intergovernmental coordination failures in check.

In other cases, local revenue mobilization may not have been encouraged and important vertical imbalances have given rise to "common pool" problems, which tend to worsen fiscal positions at the central government level. In fact, a number of developing countries have recently gone a long way in fiscal decentralization, by raising subnational spending ratios substantially, devolving revenue sources and expenditure functions to subnational jurisdictions, and granting significant autonomy in policy-making at the subnational level. The devolution of tax bases to subnational governments, however, may have reduced the efficiency of tax instruments and created moral hazards in decentralized policy-making. The transfer of spending assignments to subnational governments may not have been matched by a proportional reduction in the spending share of the center in these countries. Finally, when fiscal decentralization is carried out in a haste as in the case of many developing countries, subnational fiscal imbalances may also be attributed to insufficient expertise building in local and state governments to handle larger resources and to deal effectively with expenditure management.

NOTES

1. See, for instance, Olson (1969), Oates (1972, 1977), and Wildasin (1988).

2. See, for example, Wildasin (1996) and Fukasaku and de Mello (1998), for a concise overview of problems of fiscal decentralization and macroeconomic governance.

3. See Boadway, Roberts and Shah (1994) and Tanzi (1995), for further details.

4. Revenue-sharing is also advocated for equalization purposes, given that different subnational jurisdictions have different revenue mobilization capacities.

5. See de Mello (1999b) and Fukasaku and de Mello (1998), for further details.

6. This is particularly true in the case of revenue-sharing formulas involving broad-base taxes to fill the gap between local revenues and expenditures. Block grants, on the other hand, tend to encourage more efficient use of transferred funds.

7. See Bohn and Inman (1996) and Lowry and Alt (1997), for further details.

8. The literature suggests that "no carry-over" rules with constitutionally-embedded *ex post* end-of-period balanced budget provisions tend to constrain deficits and induce adjustments via expenditure cuts, rather than tax increases.

9. For a small number of countries, disaggregated data are available for local and middle-tier governments. Despite the differences between municipal and state budgets and autonomy in fiscal policy-making, these subnational levels of governments were taken together to ensure comparability with the other countries in the sample, for which the level of disaggregation of public finance statistics is lower.

10. In fact, the IMF *Government Financial Statistics* is the most widely used internationally comparable data source on subnational finances. Although coverage is not universal, cross-country comparability is assured. In the sample of countries under examination here, no distinction is made between proper federations and those decentralized States in which subnational governments are responsible for substantial spending and revenue mobilization.

11. The negative relationship prevails even if the outliers are removed from the sample.

12. This is the case of, for instance, VAT in Brazil, which was devolved to middle-tier governments in the late 1980s (Afonso, 1996; McLure, 1997, de Mello, 1999a).

13. See Weingast, Shepsle and Johnsen (1981), for further details on the social choice aspects of "common pool" problems.

14. Matching grants tend to encourage more efficient use of transferred resources.

15. See Alesina and Drazen (1991), for further details.

16. This section draws heavily on de Mello (1999b).

17. A summary of data sources and variable descriptions is provided in Table 3, appendix. Descriptive statistics are reported in Table 2, appendix.

18. Additional variables that are expected to affect fiscal positions are related to electoral systems and budgetary institutions. These political economy variables do not normally survive if other, more powerful regressors, such as the fiscal decentralization indicators considered here, are included in the estimating equation. For further details, see Roubini and Sachs (1989), Roubini (1991), Grilli Masciandaro and Tabellini (1991), Alesina, cohen and Roubini (1993), Borrelli and Royed (1995) and von Hagen and Harden (1995). For the specific case of Latin America, see Alesina *et al.* (1996).

19. The countries in the panel are: seven Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Mexico, Peru), 17 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, UK, and USA), five Asian countries (India, Indonesia, Malaysia, Philippines, Thailand), and one African country (South Africa).

20. Given that Mexico has not been an OECD member country during most of the sample period under examination here, and in the face of the country's socioeconomic indicators, it is included in the non-OECD sample.

21. The non-tax autonomy indicator was also experimented with but failed to be statistically significant at classical confidence intervals. Non-tax revenues tend to be volatile, given that they comprise natural resource rents, and are therefore likely to worsen fiscal positions.

22. Australia has an interesting fiscal arrangement: although it is a federation, subnational governments have limited taxing powers. Taxes are collected by the center and subsequently transferred to subnational jurisdictions for equalization purposes. However, high dependency ratios have not been translated into sizeable subnational fiscal imbalances, which suggests limited "common pool" problems in intergovernmental fiscal relations.

23. See Eichengreen and Bayoumi (1994) for further details based on evidence for the US.

24. The stock of public debt was also experimented with as an additional control variable but found to be collinear with other controls, particularly the age dependency ratio.

25. See von Hagen and Harden (1996), for further details. For a review of the political economy aspects of budget enforcement, delegation and fiscal contracts, see Hallerberg and von Hagen (1998).

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APPENDIX A

Table 2. *Descriptive statistics*[a]

Variable	Mean	Std. deviation	Minimum	Maximum
Sub-nat. tax autonomy (%)	42.76	16.65	4.13	93.55
Sub-nat. non-tax autonomy (%)	17.23	10.04	4.55	52.21
Sub-nat. fiscal dependency (%)	37.43	20.44	2.66	84.48
Central gov. size (%)	27.93	11.41	10.10	56.70
Central gov. balance (%)	−3.32	3.22	−15.81	3.20
Sub-nat. spending share (%)	30.42	15.28	2.25	79.64
Sub-nat. gov. balance (%)	−0.72	0.98	−4.08	1.19
Age dependency ratio (%)	0.62	0.18	0.000	1.000
GDP growth (%)	3.42	2.35	−1.57	11.76
Money creation (%)	66.85	260.64	−7.50	2703
Terms of trade	99.67	21.03	43.40	194.30

[a] Sample 1970–95.

Table 3. *Data summary*[a]

Variable	Description	Source
Sub-nat. tax autonomy	Ratio of tax revenue to total revenue of subnational governments (tax, non-tax, intergovernmental transfers, and capital revenue net of grants)	GFS, IMF
Sub-nat. non-tax autonomy	Ratio of non-tax revenue (rents, fees, etc.) to total revenue of subnational governments	GFS, IMF
Sub-nat. fiscal dependency	Ratio of intergovernmental transfers to total revenue of subnational governments	GFS, IMF
Government size	Ratio of total government spending to GDP, per government level	GFS, IMF
Government balance	Government balance as a share of GDP, per government level	GFS, IMF
Sub-nat. spending share	Ratio of subnational government spending to total government spending	GFS, IMF
Age dependency ratio	Ratio of population aged below 15 and above 65 years in total working-age population	World Bank
GDP growth	Annual rate of growth of real GDP	GFS, IMF
Money Creation	Annual rate of growth of M2	World Bank
Terms of trade	Ratio of export prices to import prices (base = 1987)	World Bank

[a] Sample 1970–95.