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## Intergovernmental Transfers in Latin America: A Policy Reform Perspective

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A Policy Reform Perspective**

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# *Intergovernmental Transfers in Latin America: A Policy Reform Perspective*

**Jorge Martinez-Vazquez and Cristian Sepulveda\***

**May 2011**

## *Abstract*

This paper reviews some of the main issues with intergovernmental transfers in Latin America. The analysis is set against the backdrop of the basic normative principles of revenue assignments and the practice of sub-national government financing in the region. Own revenue collections and an equalization transfer program are key components of a sound sub-national fiscal structure. However, in most Latin American countries own revenue collections represent a minor share of sub-national revenues and equalization programs, if present, are generally not properly designed. Instead, sub-national finances in the region heavily rely on revenue sharing schemes with often multiple and unclear objectives and with negative effects on equity and economic efficiency. In this paper we provide a critical analysis of those revenue sharing schemes utilized in Latin America, and propose an alternative approach to the structuring of the transfer systems and more generally of the sub-national revenue systems in the region.

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## 1. Introduction

A number of Latin American countries have now accumulated several decades of experience with fiscal decentralization reforms. Although considerable progress has been made in many fronts, that experience has not helped to avoid some serious common pitfalls in the assignment of revenue sources to sub-national governments in the region.<sup>1</sup> Sub-national finances in Latin America are generally characterized by relatively small shares of own revenue collections and non-existing or –with some rare exceptions– poorly designed equalization transfer programs.<sup>2</sup> In this paper we argue that the use (and abuse) of revenue sharing schemes in the region has prevented the development of sound financial structures at the sub-national level.

The comparative advantages of sub-national governments with respect to the central government are usually concentrated in the expenditure side of the budget. Because of this reason, expenditure decentralization is usually more pervasive than revenue decentralization, and intergovernmental transfers are called to play a crucial role in the fiscal balance of almost all fiscally decentralized systems. The main challenge for an intergovernmental transfer system is the computing and timely delivery of the right amount of transfers to each sub-national government. Failing to do this well can result in setting the wrong signals regarding the efficient level of public expenditures at the sub-national level, and therefore end eroding the efficiency gains expected from the decentralization process itself. These are, in our opinion, some of the risks currently faced by many Latin American countries. Their heavy reliance on revenue sharing schemes and the lack of clarity about the role and proper composition of the transfer system has led in many cases to an inefficient distribution of revenues combined with significant horizontal fiscal imbalances.

The situation has not been helped by the fact that the academic literature does not provide definite advice about what the optimal composition of sub-national revenues should be. In particular, the current academic literature does not provide concrete guidance on how revenue sharing schemes should be combined with other transfer programs to achieve more optimal revenue assignments.

In this paper we take on these topics. One of our main conclusions is that revenue sharing schemes should be limited to finance only those expenditure functions where sub-national governments do not enjoy any significant degree of discretion. In contrast, those functions where sub-national governments do enjoy a significant degree of discretion should be financed primarily by own revenues and carefully designed equalization transfers.

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<sup>1</sup> We follow a common practice in the literature and use the term “sub-national” to refer all government units under the central (or national) level. We distinguish two sub-national levels of government: The intermediate or regional level, which in Latin America may also be said to consist of states, departments or provinces; and the local or municipal level.

<sup>2</sup> The little importance of own revenues and the absence of equalization transfers might have a common origin. In particular, heavier reliance on own revenues typically come together with great disparities in the economic base and thus make the introduction of an equalization transfer programs much more necessary.

The rest of the paper is organized as follows. In the next section we provide an overview of the main principles to be considered in the design of sub-national financial structure, paying particular attention to revenue sharing schemes. In section three we review the characteristics of Latin-American transfer systems; we highlight the most common patterns in the region and evaluate their performance. In section four we propose a simple framework for the redesign of the system of intergovernmental transfers in the region. The last section concludes.

## **2. The Role of Intergovernmental Transfers in Fiscally Decentralized Systems**

The classic economic justification for fiscal decentralization is due to Oates (1972), and focuses on the comparative advantages of sub-national governments to determine the optimal provision of public goods within their jurisdiction. He argued that if preferences are not homogeneous across jurisdictions and sub-national governments are capable of providing goods and services efficiently, then allowing for the expenditures decisions to be made “closer to the people” would result in a better fit of each jurisdiction’s preferences and therefore in welfare gains for society.<sup>3</sup> This argument translates into the so called “subsidiarity principle,” by which an expenditure responsibility should be assigned to the lowest level of government capable of efficiently providing that function. Those services with spillover benefits beyond single jurisdictions should be provided by higher levels of government. In general, there seems to be agreement about what are the expenditure responsibilities that should be assigned to sub-national governments, and in practice most countries around the world decentralize similar expenditure functions.<sup>4</sup>

On the revenue side of the budget, however, both the debate and the practice of fiscal decentralization reforms are far from having reached consensus. In order to devolve effective decision making powers and promote efficient expenditure choices at the sub-national level, it is generally accepted that it is necessary to ensure some degree of revenue autonomy. Revenue autonomy is also important because it enhances the accountability of government officials and citizens’ participation. The problem lies in that revenue autonomy is also related with important efficiency costs. The presence of economies of scale in tax administration, collections and enforcement usually implies that the sub-national governments are less effective than the central government in raising a given amount of revenues for most tax instruments. After weighting benefits and costs of own revenue collections, it is generally efficient to provide less than full

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<sup>3</sup> Oates (1999, 2006) offer updated discussions about the gains and challenges of fiscal decentralization reforms.

<sup>4</sup> McLure and Martinez-Vazquez. (2004) and Shah (2004) provide overviews on the international practices in expenditure assignments.



budgetary autonomy at the sub-national level, thus decentralizing revenue sources in amounts that are insufficient to cover all sub-national expenditures.<sup>5</sup>

The overall asymmetric decentralization of expenditure responsibilities and revenue sources leads to fiscal disparities, roughly defined as the difference between the costs of providing the goods and services that a government is responsible for and the revenue that the same government is able to gather from its assigned revenue sources. The magnitude of fiscal disparities varies across different levels of government and among governments at the same level, creating what are known as vertical and horizontal imbalances, respectively. In terms of vertical imbalance the central government typically exhibits a negative fiscal disparity, whose absolute value is (by definition) equal to the sum of all fiscal disparities at the sub-national level. In addition, horizontal imbalances are also common because governments of the same level normally face dissimilar economic conditions, including the costs of public service delivery, the needs of different population groups, the size and elasticity of tax bases, and so on. Reducing vertical and horizontal imbalances necessarily requires the use of intergovernmental transfers, which thus become a fundamental component of any well functioning fiscally decentralized system of government.

Although there is wide consensus among scholars and policymakers that own source revenues and intergovernmental transfers are both indispensable sources of sub-national finance; there are no clear guidelines regarding their optimal combination.<sup>6</sup> The academic literature stresses the importance of own revenue collections at the sub-national level, but the exact extent of own revenue collections is not precisely defined.<sup>7</sup> In the following discussion we provide some principles to be considered for the design of an efficient structure of sub-national revenues.

## **Towards a normative prescription for optimal (sub-national) revenue structure**

A widely accepted principle of fiscal decentralization design states that “finance follows function.” This principle emphasizes that both the amount of revenues required by a government as well as the adequate choice of its revenue sources depend on the specific characteristics of the assigned expenditure responsibilities and the cost of financing them.<sup>8</sup> Although there are many ways to categorize expenditure assignments to sub-national governments, an essential distinction

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<sup>5</sup> Another important aspect to be considered is the decentralization of tax administration. Local government accountability may be enhanced when local governments administer and enforce their own taxes (Martinez-Vazquez and Timofeev, 2010)

<sup>6</sup> Sub-national borrowings are an additional financial source for sub-national governments, but in practice few countries, most of them developed, have been able to extend successfully the use of financial debt among sub-national governments. In developing countries it is common to observe that only the capital and few other large municipalities have gained access to private credit markets.

<sup>7</sup> Some general rules of thumb have been provided. One is that autonomous revenues should be sufficient to finance the expenditure responsibilities of the richest sub-national governments. In the following discussion we will see that even though it can be a good approximation, this can fall short of typifying an optimal assignment of revenues.

<sup>8</sup> See, for example, Bahl (1999).

is whether: (i) the assignments correspond to own sub-national responsibilities, which explicitly call or rely on discretionary decisions made by sub-national governments; or (ii) they correspond to responsibilities that have been delegated to the sub-national governments by the central government, which fundamentally involve non-discretionary decisions by sub-national governments. Note that, strictly speaking, sub-national autonomy is required if and only if an expenditure function has been assigned as an exclusive or own responsibility to the sub-national level. In contrast, even though delegated functions are implemented by sub-national governments, the ultimate responsibility over these functions may be interpreted as falling upon the central government. So discretion, if allowed, could only be exerted within certain limits and controls. Frequent examples of delegated expenditure responsibilities are education and health services. Service delivery in these sectors is normally assigned to sub-national governments, and regardless whether or not the distinction is made in the law between own and delegated, significant shares of the sub-national education and health budgets are devoted to meet national standards regarding quality and coverage. In contrast, service delivery, for example, for street cleaning and lighting, whether or not the laws make the distinction between own and delegated responsibilities, generally are associated with decisions that are fully discretionary at the sub-national level.

Figure 1 illustrates the ideal correspondence between sub-national expenditures, divided in discretionary and non-discretionary categories, and sub-national revenues. Assuming for expositional purposes and convenience that there are no savings, sub-national revenues must be equal to sub-national expenditures. The presence of a vertical imbalance typically implies that sub-national expenditures are larger than sub-national own revenue collections, and in order to eliminate this vertical imbalance the central government must provide additional resources in the form of intergovernmental transfers.<sup>9</sup>

Non-discretionary (delegated) expenditure responsibilities should be primarily financed, as it is conventionally accepted, by conditional intergovernmental transfers. If the central government is committed with achieving certain national standards then it should provide the funds required to ensure that those standards are met nationwide. Intergovernmental transfers are also necessary to finance own sub-national responsibilities, but this financing must be unconditional in order to allow for discretionary sub-national decisions.

Revenue sharing is a particular type of intergovernmental transfers in which a predetermined proportion of central government collections from one or more tax instruments is set aside and distributed either in a derivation basis or by formula among sub-national governments. This arrangement exploits the central government's advantage in tax collection

**Figure 1.** Basic structure of sub-national governments' budget

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<sup>9</sup> Estimating the size of the vertical imbalance is a complex task. As argued in Canavire-Bacarreza et al. (2010), any estimation of the vertical imbalances requires, among other things, an explicit methodology for estimating expenditure needs (corresponding to the current expenditure assignments) and estimates of own revenue capacity and all types of transfers. In practice, the decision about the actual amount of intergovernmental transfers tends to rest more on political than technical considerations (Bird and Tarasov, 2004).

<b>Sub-national expenditures</b>	<b>Sub-national revenues</b>
<i>Discretionary</i> decisions (on “own” responsibilities)	Own SNGs revenues
	Equalization transfers
<i>Non-discretionary</i> decisions (on “delegated” responsibilities)	Revenue sharing
	Conditional transfers

while allowing sub-national governments to gain access to buoyant revenue sources and minimizing distortions due to uncoordinated tax administration and tax competition (Rao, 2007). Revenue sharing schemes are widely used in the world and represent a significant share of intergovernmental transfers in most Latin American countries. In part, this is because they are considered an adequate means of providing greater revenue autonomy to sub-national government. Sometimes, due to a certain perception of entitlement, revenues shared in a derivation basis are (wrongly) labeled as sub-national “own” revenues.<sup>10</sup>

Even though revenue sharing and other intergovernmental transfers are an important source of sub-national revenues in many countries, unfortunately the literature has not yet provided clear normative prescriptions regarding the extent to which sub-national finances should rely on these revenue sources. The conventional decentralization theory only states that sub-national governments should be able to control the level of revenues *at the margin* (McLure, 2000); but autonomy at the margin refers only to the ability to alter the amount of own revenue collections and says nothing about the revenue structure.

In particular, the existing literature has not properly emphasized the fact that intergovernmental transfers are costless from the recipient governments’ perspective, which means that they may not provide adequate information about the marginal cost of public funds. The marginal costs of public funds include the marginal costs of administering and collecting additional revenues as well as their social welfare costs, and they indicate the (minimum) level of marginal benefits required for the last unit of public expenditures to be economically desirable.

<sup>10</sup> Strictly speaking, the label of “own” revenues should be reserved for those taxes for which sub-national governments have some control over the rates or the tax base; or at least over the final amount of revenue collections. By definition, all forms of revenue sharing are excluded from that category.

Intergovernmental transfer substitute away own tax revenues (and financial debt), and since the marginal cost of public funds usually increases with the amount of own revenues, then the marginal cost perceived by the sub-national governments can be expected to decrease with the level of intergovernmental transfers, and at any rate not to match the actual marginal cost.<sup>11</sup>

Efficient autonomous decisions in both public expenditures and own revenues collections require a government to be faced with a correct measure (or at least a close approximation) of the marginal costs of public funds, and aligning the marginal cost of funds is one of the main objectives of the intergovernmental transfers.<sup>12</sup> As Bird and Smart (2002, 899) put it, “(t)he basic task in transfer design is to get prices ‘right’ in the public sector.”

Although not readily obvious, the objective of aligning the prices faced by sub-national governments is entirely compatible with the traditional objectives reserved for an equalization transfer program. Equalization transfer programs are meant to reduce differences on the ability of sub-national governments of the same level to cover the cost of providing a standard package of public goods and services.<sup>13</sup> In this context, the “right” marginal cost of public funds correspond to that level at which sub-national governments collect the revenues required to finance the standard package of public goods and services. In this sense, an equalization transfer program can serve to provide to the sub-national governments with the conditions required to make efficient autonomous decisions. Of course, the greater the equalization transfer fund is the greater the room to effectively equalize sub-national fiscal conditions.

We must note that besides the equalization transfers there is no need for additional transfer programs aimed to fostering decision making autonomy at the sub-national levels of government. Moreover, in order to ensure that the equalization transfer program can effectively reach its objective, it would be desirable not to allow the sum of conditional transfers and revenues shared on a derivation basis to exceed the amount of expenditures needed for delegated or non-discretionary functions (Martinez-Vazquez and Sepulveda, 2010). This condition should hold not only for each level of sub-national governments taken as a whole, but also for each sub-national government. Complementarily, discretionary expenditure responsibilities should be financed primarily via own revenue collections and equalization transfers, which can jointly inform sub-national policy makers about the correct level of the marginal cost of public funds.

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<sup>11</sup> In the same line, Smart (1998) argues that (equalization) transfers reduce the marginal cost of funds for sub-national governments.

<sup>12</sup> According to optimal taxation theory, sub-national revenues should be assigned in such a way that the marginal cost of public funds is equalized across levels of government and governments of the same level. See, for instance, Dahlby and Wilson (1994).

<sup>13</sup> In section 4 we discuss the objectives and design of equalization transfer programs in more detail.

### 3. Intergovernmental Transfers in Latin America

Even though most Latin American countries have been engaged in lengthy fiscal decentralization processes, sub-national revenue autonomy is still limited. Revenues collected by regional and local governments in the region frequently represent a small fraction of their revenues and in the few cases where they represent a sizable share of local budgets, generally they are not especially important in the national context. Table 1 shows the share of own tax collections over total revenues at the local and regional levels in a group of Latin American countries, as well as the relative importance of the two levels of government in terms of the distribution of revenues in the public sector. All local governments in the sample collect less than 50 percent of their own revenues. Chilean municipalities display the greatest share of own tax collections, but in that case revenue autonomy is tempered by the limited extent of the fiscal decentralization process in that country. At the regional level the experience is mixed. The Argentine provinces collect a significant share of their revenues through turnover, stamp and property taxes, and the Colombian departments are able to raise some revenues from excise taxes. In other countries like Bolivia, Mexico, Paraguay and Peru, however, regional governments collect few or no taxes.

**Table 1.** Share of own taxes and fees on local revenues in 10 Latin American countries

Country (year)	Local governments		Regional governments	
	share of own tax collections on local revenues	share of local revenues on general gov. revenues	share of own tax collections on regional revenues	share of regional revenues on general gov. revenues
Argentina	2.0% (2004)	8.4% (2004)	68.9% (2004)	<sup>a</sup> 16.6% (2008)
Bolivia <sup>b</sup>	17.2% (2007)	23.3% (2007)	0.0% (2007)	21.0% (2007)
Brazil	<sup>c</sup> 20.1% (2007)	<sup>c</sup> 9.0% (2007)	--	<sup>d</sup> 34.8% (2008)
Chile	48.1% (2006)	9.6% (2006)	--	--
Colombia	<sup>e</sup> 34.8% (2008)	22.9% (2003)	<sup>e</sup> 27.7% (2008)	17.6% (2003)
Costa Rica	36.2% (2006)	5.9% (2006)	--	--
Ecuador <sup>c</sup>	34.6% (2007)	12.0% (2007)	--	--
Mexico	<sup>c</sup> 15.6% (2007)	<sup>c</sup> 6.0% (2007)	<sup>f</sup> 2.7% (2006)	<sup>f</sup> 40.6% (2006)
Paraguay	41.3% (2006)	6.2% (2006)	0.0% (2006)	2.1% (2006)
Peru	10.8% (2005)	13.7% (2005)	0.0% (2005)	19.0% (2005)

Sources (and notes): Government Finance Statistics (Sept. 2010), <sup>a</sup> Instituto Nacional de Estadística y Censos, Argentina (considers only tax revenues), <sup>b</sup> Zapata (2007), <sup>c</sup> Martínez-Vázquez (2010), <sup>d</sup> National Treasure of Brazil, <sup>e</sup> Dirección Nacional de Planificación (Colombia) and <sup>f</sup> Instituto Nacional de Estadística y Geografía (Mexico, 2009).

This evidence suggests that most countries in the region suffer from significant vertical imbalances and a high level of dependency on intergovernmental transfers from the central government.<sup>14</sup> In order to address these problems all countries in the region are currently implementing a variety of intergovernmental transfers programs. In the following discussion we provide an overview of Latin American transfer systems, and then we examine the possible equalizing and efficiency effects of the main transfer programs.

### 3.1 Current practices in transfer design in Latin America<sup>15</sup>

Given the great diversity of intergovernmental transfer programs observed in Latin America it is difficult to describe common strategies and approaches to address the problem of vertical imbalances. Programs vary widely in terms of their funding rules, the distribution mechanisms and the conditions imposed on their use. In part, these variations respond to the different objective to be accomplished, but it is also common in the region to observe programs where there is no clear correspondence between design and objective, or where there are two or more rather incompatible objectives.

Examples of well designed and effective transfer programs can be found among the numerous conditional transfer programs implemented in the region. The use of this type of transfers in Latin America is not as extensive as in other regions of the world, but still a significant share of sub-national revenues is subject to one or more conditions. In general, they are especially effective in facilitating the fulfillment of (minimum) national standards of services and in increasing the delivery of services with positive externalities. Most countries have sizable transfer programs earmarked to either capital expenditures or to important sub-national functions like education and health. For example, Bolivia, Guatemala, Nicaragua and Paraguay provide examples of capital transfers to local governments; El Salvador and Peru are cases where the municipal governments compete for the capital transfers through project proposals. In Brazil conditional transfers for education and health are directed first to the states, primary responsible for these functions; while in Chile the transfers for these functions are distributed directly to the local governments. There are also several examples of conditional transfer programs directed to vulnerable groups. In Bolivia, for example, there is a program (*Seguro Materno Infantil*) aimed to finance health services for infants and mothers, and in Peru a similar program (*Vaso de Leche*) covers basic nutrition needs of poor children, pregnant women and mothers.

The funding mechanisms can be defined with independence from the conditions imposed to the use of the transfers. One of the most common ways to finance transfer programs in the region is by defining revenue sharing schemes, and there are several major conditional transfer

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<sup>14</sup> Although the presence of vertical imbalances is rather obvious, their actual extent is unknown due to the lack of estimates of the expenditure needs and fiscal capacity of the different levels of government in each country.

<sup>15</sup> This section draws partially on Martinez-Vazquez (2010), who offers an exhaustive review of governments' financing practices at the local level in Latin American countries.

programs in the region that use this alternative.<sup>16</sup> In Colombia and Guatemala the use of revenue sharing funds for local governments is conditioned to basic education, health, and infrastructure spending; and 25 percent of revenues from hydrocarbons and mining must be spent in roughly the same functions in Venezuela. In addition, Nicaragua and Paraguay set a minimum proportion of the revenue sharing transfers received at the local level to be spent on capital infrastructure, and in Peru a similar rule applies to the funds received by regional governments, part of which can only be spent on capital investments and infrastructure maintenance.

Given a certain amount of revenues collected from the shared sources, the most important effect of revenue sharing schemes is that they set, most times unambiguously, the size of the transfer funds. This characteristic makes revenue sharing schemes useful to provide sub-national governments with buoyant and predictable revenues and for the same reasons they seem to be very attractive in ensuring certain degree of budgetary autonomy. This is likely the reason explaining the popularity of revenue sharing schemes in Latin America, and why the countries in the region often prefer to impose no condition to the use of the most important transfer programs.

Virtually all Latin American countries use some form of revenue sharing scheme defined on the basis of central government general revenues or a group of their most important taxes, such as the personal income tax, the value added tax and other taxes on corporate profits or sales. In principle, this approach can be harmless, but serious problems can arise when: (i) the bases are volatile; (ii) when the criteria to distribute them among sub-national governments are not related with relative expenditure needs; and (iii) when they represent a significant share of sub-national revenues.

An important example of volatile transfers is given by those cases where the sharing bases are taxes on extractive industries, a situation rather common among countries with abundant natural resources. In Mexico, one fifth of the revenues collected by the states must be shared with their municipalities; tax sharing revenues for municipalities in Bolivia and Nicaragua are also defined over natural resources; and in Peru 50 percent of the revenues collected from the corporate income tax on extractive industries are shared with regional and local governments. In all these examples, the size of the transfers' pool has been subject to wide fluctuations associated with changes in the international prices of natural resources.

Revenues from taxes on extractive industries can be especially distortionary when shared on a derivation or origin basis. For example, the sub-national share of the corporate income tax on gas, oil and minerals' extractive industries in Peru, the *canon* and *sobre canon*, is distributed exclusively among the regions, provinces and municipalities where the extraction of the natural resources has taken place. A similar allocation arrangement is found in Bolivia, where most of the revenues shared go to the regions in which they are collected, but a small fraction (less than 10 percent) is reserved for regions with no natural resources. Ecuador and Venezuela are other examples of countries where the revenues from extractive industries are shared in a derivation

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<sup>16</sup> Jiménez and Podestá (2009) provide a comprehensive overview of intergovernmental transfer systems in Latin America and emphasize the volatility of the central taxes shared with sub-national governments.

basis. The presence of natural resources is unlikely to be correlated with the public expenditure needs in each jurisdiction; therefore, this allocation criterion can create severe economic distortions at the sub-national levels of government, as well as a perception of unfairness regarding the way public funds are being distributed across the country. An additional problem related with this type of revenues is that they might provide a strong sense of entitlement to the beneficiaries, who perceive them as a legitimate right that cannot be taken away. In Peru, for instance, the discussions about how to solve the existing horizontal fiscal disparities have only led to proposals requiring new funds to compensate the losers, and any reform to the distribution mechanism of the (already excessive) available funds is currently considered as politically unviable.

Less detrimental, but not harmless, forms of sharing revenues on a derivation basis are defined over bases more homogeneously distributed across the national or regional territory. The Brazilian states, for instance, have a tax sharing scheme funded with 25 percent of their regional VAT revenues. From this fund, 75 percent is distributed among municipalities on a derivation basis, and the rest by a formula that considers population, land area and other variables.

A much better (if not the best) way to allocate unconditional shares of revenues consists in using formulas that contain some equalization features. This is a quite common approach in Latin America, although each country seems to choose different equalizing objectives and implements its own combinations of funding mechanisms and distribution criteria. In Brazil the amount of the Federal District and State Participation Fund (FPE) and the Municipalities Participation Fund (FPM) are defined, respectively, as a 21.5 percent and 22.5 percent of the revenues collected from the three most important federal taxes (the personal income tax, the corporate income tax and the value added tax.) The FPE is distributed in fixed proportions among the five macro-regions, with the objective of reducing historical disparities. The poorest macro-region, the northeast, receives 52.46 percent of the fund; an additional 25.37 percent is allocated to the north, and the rest to the center-west, southeast and south. The FPM is distributed mainly in proportion to the population of each municipality, but for large municipalities an adjustment by per capita income is introduced.

Equalization transfers in the region are most commonly financed by the central governments and distributed across sub-national governments in accordance to some proxy for poverty or (expenditure) needs. Examples of these programs can be found in virtually all Latin American countries, although they broadly differ in their design and importance on sub-national public finances. Of course, equalization transfer programs do not need to be financed exclusively by the center. An alternative approach in the region is given by the Chilean Common Municipal Fund, which is financed by own revenues from the richest governments and distributed among the rest of the municipalities with a formula that considers population, poverty and other variables. This financing method is known in the literature as a “fraternal” system, in contrast to the traditional “paternal” system in which the central government provides all the funds of the program. Another distinctive experience is the HIPC (Heavily Indebted Poor Countries



Initiative) transfers program implemented in Bolivia, where the funds are provided by international organizations like the World Bank and the IMF, and distributed among local governments in accordance to their relative population and poverty levels.

Equalization transfers are usually unconditional, but there are some interesting exemptions to this rule. The Peruvian Regional Compensation Fund (*Fondo de Compensacion Regional*) and the Chilean National Fund for Regional Development (*Fondo Nacional de Desarrollo Regional*) provide funds conditioned exclusively to capital expenditures at the regional level, and their distribution are based on equalizing objectives with explicit consideration of poverty indicators.

However, addressing horizontal disparities with a sizable transfer program exclusively devoted to the objective of equalization is not frequent in the region. Revenue sharing schemes can easily incorporate proxies for relative expenditure needs –like population and poverty ratios, but it is much more difficult to correct for differences in fiscal capacity.<sup>17</sup> In reality, the equalizing mechanisms used in the region do not provide explicit estimates of expenditure needs; and the equalization of fiscal capacity is usually not considered in the distribution formulas. The problem in this case is that one monetary unit that cannot be collected is exactly equivalent to one monetary unit that is not available to cover expenditure needs. Thus, when fiscal capacity is disregarded it may simply be not possible to equalize the ability to provide comparable public services across the country.

### 3.2 Critical assessment of Latin American transfer systems

Certain common characteristics of the intergovernmental transfer systems in Latin American countries are peculiar in the international context. In particular, the heavy reliance on revenue sharing schemes and their distribution in accordance to some equalizing criteria are distinctive features of Latin American sub-national finances (Martinez-Vazquez, 2010). Instead of adequate adaptations to the regional reality, however, these arrangements suggest some degree of confusion regarding the role and consequences of this revenue source in a fiscally decentralized system of government.

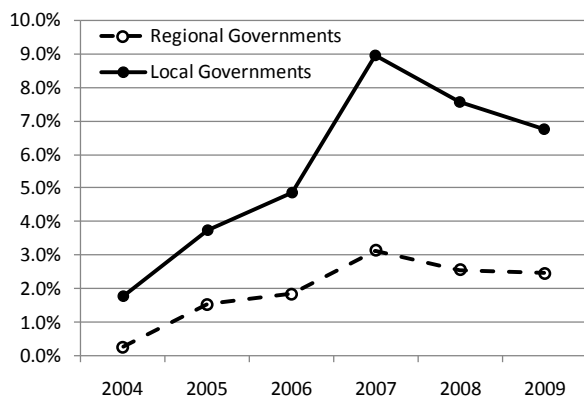
Revenue sharing schemes provide sub-national governments with predictable and usually buoyant revenues, but they might also be associated with important costs to the public sector and the economy as a whole. If the revenues shared represent a significant proportion of the public budget then they can be expected to reduce the ability of the central government to implement desirable tax and expenditures policies. One example of this situation is observed in Peru, where the revenues shared increased their relative importance due to greater international prices paid

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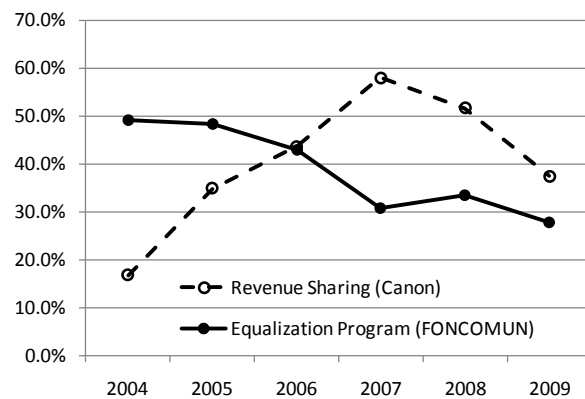
<sup>17</sup> Higher fiscal capacity calls for fewer transfers, but implementing a downward adjustment of the transfer amounts can be technically challenging or politically difficult. Theoretically, there would not be any problem if the proxies used to account for expenditure needs are negatively (and perfectly) correlated with fiscal capacity, but that would be rarely the case.

for Peruvian natural resources. Figure 1 presents the evolution of the ratio of revenues shared with sub-national government over total central government tax collections. At the beginning of the period, in 2004, the revenues shared with regional and local governments represented only 2 percent of the total taxes collected by the central government. When international prices reached their peak in 2007, however, the transfers to sub-national governments explained by revenue sharing schemes represented more than a 12 percent of central government tax collections. Even though these transfers are conditioned to be spent on capital investments, they have been quite effective in boosting sub-national expenditures and, as a consequence, the central government has seen its ability to control the growth of the public sector in the margin diminished.

**Figure 1.** Revenues shared over central government tax collections in Peru



**Figure 2.** Composition of intergovernmental transfers to local governments in Peru



Revenue sharing transfers to local governments have also reduced the effectiveness of the FONCOMUN, the only equalization transfer program implemented at that level in Peru. Figure 2 shows the importance of the equalization transfer program and the revenues shared in the transfers received by local governments. In 2004 the equalization transfer program represented half of the transfers received by local governments, but its importance was reduced during the period 2007-2009, mainly due to the increase in revenue sharing. Shared revenues were especially significant during 2007, and they remain the most important transfer program for both local and regional governments in the country.

A peculiar characteristic of some revenue sharing schemes in Latin American is their multi-purpose design, which in some cases includes the equalization objective. This practice might help not only to avoid the creation of new horizontal inequalities, but also to improve, to some extent, the disparities already encountered in the region. This is a particularly relevant topic in Latin America, where individual and regional disparities are relatively large by international standards.<sup>18</sup> Table 2 presents two simple measures of regional disparities in GDP per capita for

<sup>18</sup> Goñi et al. (2008) describe the extent of individual inequalities in the region and discusses the causes of the poor performance of redistributive policies.

five Latin American countries. Mexico has the greatest regional disparities. The ratio of per capita GDP between the richest state (Campeche) and the poorest state (either Oaxaca or Chiapas) is greater than 14 times and does not show any decreasing tendency. On the other hand, the coefficient of variation of per capita GDP for the sample of Mexican states is greater than 1 for the whole period and reaches a peak of 1.57 in 2006.<sup>19</sup> Other three countries like Argentina, Brazil and Peru display smaller disparities but they are still large compared to those found in other economies in the world. Rodriguez-Pose and Gill (2004), for instance, compute the coefficient of variation for several developed countries, all of which are smaller than 0.30 in 2000, while other developing countries like China and India, display a coefficient of variation of 0.58 and 0.44, respectively. Bolivia is the country with the lowest fiscal disparities in the sample, but this result is partially explained by the high poverty rates present throughout the whole country.

**Table 2.** Disparities in regional per capita GDP in five Latin American countries

	2000	2001	2002	2003	2004	2005	2006	2007
Argentina								
max / min	7.89	8.10	8.79	8.14	7.94	7.84	--	--
coefficient of variation	0.70	0.69	0.84	0.77	0.76	0.77	--	--
Bolivia								
max / min	2.69	2.81	2.64	2.69	3.06	4.14	3.51	4.02
coefficient of variation	0.27	0.28	0.28	0.29	0.35	0.49	0.49	0.55
Brazil								
max / min	--	--	8.45	9.60	9.51	9.45	9.06	9.05
coefficient of variation	--	--	0.44	0.54	0.54	0.54	0.54	0.53
Mexico								
max / min	14.66	15.07	14.35	15.09	17.05	17.26	19.28	18.48
coefficient of variation	1.14	1.17	1.16	1.24	1.40	1.40	1.57	1.40
Peru								
max / min	--	--	--	--	10.89	11.29	12.25	11.37
coefficient of variation	--	--	--	--	0.60	0.61	0.69	0.65

Source: ECLAC, based on national official statistics.

Per capita GDP can be expected to be negatively correlated with needs but positively with tax collection capacity. In that context, a sizeable and well designed equalization transfer program is particularly important to ensure that similar standards of quality and quantity in the provision of public goods are met nationally. In Latin America, however, the equalizing objective does not always play a significant role in the financing of sub-national governments. Table 3 presents the correlation between per capita GDP and per capita transfers received from

<sup>19</sup> The coefficient of variation is computed as the ratio between the standard deviation and the simple average of per capita GDP.

revenue sharing schemes and other transfer programs for the same group of countries. In Argentina virtually all transfers to the intermediate level of government are provided through revenue sharing mechanisms; and the positive correlation between this revenue source and regional GDP suggest that the overall transfer system has an unequalizing outcome. In Brazil revenue sharing transfers display a negative sign since 2003, implying that they are benefiting more those states with low per capita GDP. That is the intended role of those transfers in Brazil, which, as we saw above, are set as fixed proportions favoring the poorer macro-regions of the country. In contrast, other transfers in that country appear to be positively correlated with per capita GDP, suggesting poor equalizing effects in terms of per capita GDP. In Mexico and Peru the two transfer aggregates also show a positive and high correlation, although the transfers different from revenue sharing –those with equalization criteria– display a lower unequalizing effect.

**Table 3.** Correlation between regional per capita GDP and transfers to the regions in five Latin American countries

	2000	2001	2002	2003	2004	2005	2006	2007
Argentina								
GDP – revenue sharing	0.23	0.21	0.36	0.29	0.25	0.23	--	--
Bolivia								
GDP – revenue sharing	--	0.71	0.72	0.78	0.81	0.76	0.68	0.71
Brazil								
GDP – revenue sharing	--	--	0.03	-0.22	-0.30	-0.30	-0.29	-0.31
GDP – other transfers	--	--	-0.17	0.06	0.41	0.35	0.39	0.40
Mexico								
GDP – revenue sharing	0.51	0.57	0.46	0.58	0.64	0.59	0.62	0.57
GDP – other transfers	0.23	0.09	-0.12	-0.13	-0.02	0.14	0.18	0.20
Peru								
GDP – revenue sharing	--	--	--	--	0.19	0.72	0.79	0.80
GDP – other transfers	--	--	--	--	0.31	0.50	0.38	0.07

Source: Own computations based on ECLAC data.

Notes: For Argentina all transfers to provincial governments are considered as shared revenues. Revenues shared in Bolivia consist of royalties and taxes applied on the exploitation of natural resources. Brazilian revenue sharing transfers are computed as the participation on the federal revenues plus the compensation for the exploitation of natural resources. In the case of Mexico, the revenues shared are given by the “participaciones” and the other transfers by the “aportaciones,” which are generally defined as conditional transfers. Revenue sharing transfers in Peru consist of canon, sobrecanon and mining royalties, all of them defined over the corporate income tax on extractive industries.

The results in Table 3 are suggestive but much more data based evidence would be necessary in order to assess the overall equalizing effects of intergovernmental transfer programs currently implemented in Latin America. Per capita GDP might be related with the fiscal

capacity of sub-national governments, but that is not necessarily the case nor is it entirely clear how per capita GDP might be related with the needs for sub-national public services.

With the limited data available, a complementary way to evaluate the equalizing effects of the intergovernmental transfer programs is to verify whether they have served to reduce the variability of per capita sub-national revenues. In Table 4 we present a set of basic statistics about per capita revenues at the municipal level in Peru during 2008. Some municipalities collect no revenues, but there is one municipality (Santa Maria del Mar, in Lima) that collects US\$ 930.3 per capita. The simple and weighted averages for the 1,834 municipalities are US\$14.6 and US\$31.4, respectively, and the coefficient of variation is 1.6, which suggests that the variability of own revenue collections among Peruvian municipalities is rather high. The second column describes the distribution of transfers different from the equalization program, including those from revenue sharing schemes. The total amount of these transfers is more than twice the amount of own revenues, and with the simple average larger than the weighted average, it is implied that less populated municipalities tend to receive higher transfers per capita. Again, there are some municipalities that receive no transfers, but others receive substantial amounts, mainly from the canon, sobrecanon and mining royalties which, as explained above, are distributed on a derivation basis. Note that the greatest amount of per capita transfers received by a municipality, US\$8,520.3 –transferred to the municipality of Ilabaya in Tacna, is 68 times greater than average per capita (total) revenues in the country, equal to US\$123.9. The coefficient of variation for these transfers is 5.5, indicating huge differences in the allocation of transfers across municipalities.

**Table 4.** Variability of per capita revenues in Peruvian municipalities, 2008 (in US dollars) (\*)

	Own revenues	Transfers other than equalization	Total revenues minus Equalization transfers	Equalization transfers	Total revenues
	(1)	(2)	(1)+(2)	(3)	(1)+(2)+(3)
simple average	14.6	125.8	140.5	46.3	186.7
weighted average	31.4	64.0	95.3	28.5	123.9
minimum	0.0	0.0	0.0	3.5	19.9
maximum	930.3	8,520.3	9,158.1	448.1	9,184.4
standard deviation	48.8	350.4	370.0	42.9	374.5
coefficient of variation (**)	1.6	5.5	3.9	1.5	3.0
count	1,834	1,834	1,834	1,834	1,834

Source: Own computations based on data from the Ministry of Economy and Finance, Peru.

(\*) 1 US dollar = 2.87885 nuevos soles.

(\*\*) The coefficient of variation is computed as the ratio between the standard deviation and the weighted average.

Even though we are not considering local expenditure needs in these calculations, it is safe to conclude that transfers (other than those for equalization) are creating major horizontal imbalances at the local level in Peru. The total amount of municipal revenues minus the equalization transfer has a coefficient of variation equal to 3.9, which is very large under any standard. On the other hand, equalization transfers (distributed through the program FONCOMUN) also display a relevant degree of variability, but that variability seems to be helping to reduce horizontal disparities, given that the coefficient of variation is falling from 3.9 to 3.0. In any case, either because of its limited size or problems with its design (distribution criteria, etc.), horizontal disparities remain very large and the equalization program has had a limited equalizing effect in that country. Note that the minimum amount of per capita equalization transfers is greater than zero, which implies that even those municipalities receiving disproportionate amounts of resources from the revenue sharing scheme are defined as beneficiaries of the equalization transfer program.<sup>20</sup>

The case of Peru is not representative of all countries in the region, but there are some common aspects that deserved to be emphasized. Latin American countries often understand the fiscal decentralization system itself simply as the sharing of central government revenues, without requiring the additional revenues to be properly linked to the level and type of sub-national public expenditures (Martinez-Vazquez, 2010).

In general, the excessive reliance on revenue sharing and the corresponding small share of own sub-national revenue collections have led to limited accountability and to a soft budget constraint problem in the region (Ahmad and Brosio, ~~2004~~2008). In order to solve this problem we suggest strengthening the link between revenues and expenditure by implementing equalization transfer programs that are capable of correcting the marginal cost of funds faced by the sub-national governments. This solution must be accompanied with the introduction of adequate measures of expenditure needs and fiscal capacity, as well as with initiatives to improve own revenue collections in the region.<sup>21</sup> In addition, revenues shared on a derivation basis should be reduced to a magnitude at which they do not prevent the equalization transfer system of correcting the marginal cost of public funds faced by the sub-national governments.

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<sup>20</sup> Of course, the equalizing effect of the program could easily be increased by excluding these municipalities from its benefits, but this has not been done yet.

<sup>21</sup> A natural consequence of incorporating fiscal capacity into the equalization formula would be that those sub-national governments better able to cover their expenditure needs would be excluded from the benefits of the program. This means that the available funds can reduce horizontal imbalances more effectively because more resources would be available to the jurisdictions with greater fiscal disparities.

## 4. The Architecture of an Ideal Intergovernmental Transfer System

A sound financial structure at the sub-national level is essential for the success of the fiscal decentralization process. Unfortunately, despite extensive international practice and academic research on this issue, it is still unclear what the ideal structure of the intergovernmental transfer system should be. In this section we review the basic principles for structuring the intergovernmental transfer system and take a look at very simple alternatives to implement an efficient and fair sub-national fiscal structure.

There are different types of intergovernmental transfers available to policy makers, but the proper choice is necessarily linked to the specific objectives that are being pursued. The literature distinguishes several possible objectives, among which the followings may be the most important:<sup>22</sup>

- reducing vertical imbalances;
- ensuring national standards of certain public goods and services;
- financing development programs;
- correcting for positive and negative externalities;
- reducing horizontal imbalances;
- enhancing fiscal autonomy.

Provided that sub-national governments are generally not able to collect by themselves all the funds required to fulfill their expenditure responsibilities, any transfer from the central government to the sub-national governments helps reduce any existing vertical imbalance. The main questions on this regard are: (1) what is the size of the vertical imbalance; and (2) to what extent the country is willing and able to close that imbalance.<sup>23</sup> Once the total amount of funds available for intergovernmental transfers has been determined, the specific allocation criteria can be chosen in accordance with the other objectives that are going to be pursued. Each policy objective can better be served with certain types of intergovernmental transfers, and it is usually recommendable to use a separate transfer program to pursue each single objective. This allows for clarity of purpose and design and facilitates the evaluation of particular transfer programs.

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<sup>22</sup> The literature on intergovernmental transfers is extensive. Introductory expositions can be found, for instance, in Bahl and Linn (1994), Bird and Smart (2002), Schroeder and Smoke (2003), Boadway (2007) and Martinez-Vazquez and Searle (2007).

<sup>23</sup> There is no single best way to measure vertical imbalance, but most of the measures used look at what share of sub-national government responsibilities cannot be financed with own revenues. Clearly, how well the vertical imbalance is close depends on how the expenditure needs of sub-national governments are defined. For a given set of expenditure standards, the country may be willing or able to satisfy only a part or all of those expenditure needs. The lower the standards defined for the expenditure needs the easier becomes to close the vertical imbalance. Thus the existence and measurement of vertical imbalance depend critically on the quantification of expenditure needs and the extent of revenue autonomy at the sub-national level.

One of the most important objectives of intergovernmental transfer programs is to ensure that minimum quantity and/or quality standards are met across the national territory. This objective is very broad and it implies that sub-national governments may not be given full discretion over expenditure decisions. In this sense, we can think of minimum standard requirements as a way to define delegated or non-discretionary responsibilities –or non-discretionary components within certain responsibilities, as opposed to own responsibilities where the sub-national governments enjoy full autonomy or discretion over expenditure decisions.<sup>24</sup> In other words, these transfers may be conditional in nature. There are many possible examples, but two especially important cases are transfers for education and health, where the central government usually set national standards and retains a great deal of control over sub-national expenditures decisions. Other examples are the transfer programs for supporting pregnant women, children at risk, and the elderly.

Development programs can have national or sub-national scope, depending on the design of the development strategy. Transfers in support of this objective are usually conditional to be spent in capital expenditures, but can plausibly be given for current expenditures as well.<sup>25</sup> The theoretical literature gives especial importance to the role of correcting externalities. Additional transfers, plausibly determined through matching schemes, can help to encourage greater expenditures of sub-national governments in those functions with positive externalities outside the borders of sub-national jurisdictions.

Once all revenue sources have been determined and the central government has transferred the resources necessary to attain national standards and development goals, then governments of the same level will most surely display significant differences in financing abilities. These differences are referred to as horizontal imbalances, and are addressed through equalization transfers programs. Presuming that the central government has provided the funds necessary to fund all delegated functions, the need for equalization is fundamentally related to the financing of own expenditure functions. As a consequence, equalization transfers should serve to enhance sub-national fiscal autonomy, and thus they usually are defined as unconditional. Fiscal autonomy is a necessary condition for efficient sub-national decisions, and because of that reason it is by itself considered as an objective of the transfer program. Provided that there is some degree of tax autonomy, with a sizable unconditional equalization program in place, however, there is no need for any other transfer program to pursue the objective of fiscal autonomy.

All in all, the design of the transfer system can roughly be organized in four types of transfers to be applied sequentially. First, the central government should attempt to provide conditional transfers in amounts close to the cost of delegated functions, such that national

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<sup>24</sup> In some countries the minimum standards are notional (as opposed to compulsory) and they are only employed for budgetary computations. For instance, minimum standards can be implicitly defined in the estimation of expenditure needs in an equalization formula, and sub-national governments can employ the received funds without any conditionality. This is the practice, for example, in Ukraine (Martinez-Vazquez and Thirsk, forthcoming.)

<sup>25</sup> Searle and Martinez-Vazquez (2007) offer an extensive discussion on conditional or tied grants.



standards of quality and quantity can be met by all sub-national governments. Second, a different program of conditional transfers could be set in order to finance development programs, either of regional scope or as a part of local development initiatives. Third, matching grants, which are essentially conditional, could be provided in order to foster expenditures in socially desirable and sensitive services, including those with positive externalities.<sup>26</sup> Forth, the equalization transfer program based on differences in expenditure needs and fiscal capacity acts as the balancing instrument for the whole system of sub-national revenues. If defined as unconditional it allows for adjusting the amounts of discretionary expenditures; while the precise amount given to each sub-national government also helps bring the cost of public funds faced by each jurisdiction closer to the optimal level.

These transfers can be defined separately for any level of sub-national government and for both current and capital expenditures. Of course, limiting the use of transfers to capital purposes makes them conditional, but such a broad limitation might still leave room for autonomous choices as well as for additional conditions in terms of specific functions and services (Herrero-Alcalde et al., 2010). Note that from a theoretical viewpoint, revenue sharing schemes are simply not necessary, and that the only key components of the transfer system are the conditional transfers and the equalization program. Indeed, absent externalities it is possible to think of a situation where only these two types of programs provide all the funds that sub-national governments require in addition to their own revenue collections.

## **The architecture of equalization transfer programs**

Bahl and Bird (2008) argue that an intergovernmental transfer system capable of offsetting the dis-equalizing effects of sub-national taxation is a precondition for a successful decentralization of significant revenue raising powers. This is largely a non-controversial issue in the design of decentralized systems; however, most countries in Latin American do not have an equalization program in place, and the existing equalization mechanisms usually have very limited equalizing power. In the following discussion we briefly describe some of the most important concepts related with the design and implementation of an effective equalization transfer program.

Equalization transfers are intended to provide sub-national governments of the same level with similar opportunities to deliver public goods and services of comparable quality in spite of their dissimilar conditions. On the one hand, some of the dissimilar conditions can be observed on the expenditure side of the budget. Different governments are faced with different costs and even production functions, as well as with different needs of the population arising, for example, from age composition. The concept summarizing these factors is called expenditure needs, defined as the cost of providing a standard amount and quantity of public goods and services to

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<sup>26</sup> Creating disincentives for certain expenditures with negative externalities would require economic sanctions, which might be implemented, for instance, as a reduction of equalization transfers.

the local community. On the other hand, on the revenue side of the budget governments are faced with different administration capacity, tax bases, compliance culture and behavioral responses to taxation. These factors determine that jurisdictions can differ in their ability to collect revenues to cover their expenditure needs. In this context, fiscal capacity can be defined as the ability of a government to collect revenues from the assigned sources at a given marginal cost or level of fiscal effort.

The difference between expenditure needs ( $EN$ ) and fiscal capacity ( $FC$ ) is equal to what in the literature has been called fiscal disparity ( $FD$ ):

$$FD_i = EN_i - FC_i,$$

where the subscript  $i$  denotes any jurisdiction.<sup>27</sup> If the fiscal disparity of jurisdiction  $i$  is positive (negative) then its government has, under standard conditions, less (more) funds than required in order to cover its expenditure needs. In this context, horizontal imbalances might be defined as the differences in per capita fiscal disparities across jurisdictions, and the objective of the equalization transfer problem is the reduction of those differences.<sup>28</sup> In practice, however, equalization transfer programs around the world vary in terms of what their objective is (see Table 5). In some cases the equalization is based only on expenditure needs; in others only on fiscal capacity; and there are also many examples where both factors are considered.

**Table 5.** Equalization Goals, Allocation Factors and International Practice

Goals	Factors	Country examples
Enable similar levels of service affordability	<i>Expenditure needs</i> indicators, or national expenditure standards	India, Italy, Nigeria's Federation Account, South Africa's Equitable Shares, Spain, Uganda's Unconditional Grant
Enable similar levels of fiscal resource availability	<i>Fiscal capacity</i> indicators	Canada's Equalization Grant
Enable similar levels of service at similar levels of taxation	<i>Fiscal disparity</i> = Expenditure needs – Fiscal capacity, or some other combination of need and capacity	Australia, China Germany, Indonesia, Japan, Korea, Latvia, Netherlands' Municipal Fund, Russia, Uganda's Equalization Grant, United Kingdom

Source: Boex and Martinez-Vazquez (2007).

By considering exclusively either expenditure needs or fiscal capacity one would implicitly assume that the other factor does not significantly vary across jurisdictions. This could plausibly be true; but it does not seem to be the case in Latin American countries where regional inequalities are pronounced and in most cases arising (to different extents) from both sides of the

<sup>27</sup> Boex and Martinez-Vazquez (2007) and Dafflon (2007) provide surveys on alternative definitions of fiscal disparity, most of which are directly related with the concept of expenditure needs, fiscal capacity, or their combination.

<sup>28</sup> Fiscal disparities are more easily defined in per capita terms for comparability purposes.

budget. Moreover, since one additional monetary unit of expenditure needs is equivalent to one monetary unit loss of fiscal capacity, then it is correct to consider both factors as equally important.

The implementation of an equalization transfer program can be structured in three steps. First, it is necessary to determine the size of the transfer fund. The total amount of equalization transfers should be, in principle, related to the excess of expenditure needs over potential revenues different from the equalization transfer itself. In practice, however, the size of the transfer fund depends more generally on the chosen funding system,<sup>29</sup> the availability of financial resources at the national level, and on political constraints. Although some countries attempt to almost fully equalize horizontal disparities (for example, Germany), typically the overall funds made available are insufficient to fully eliminate existing fiscal disparities.

The second step consists of estimating relative fiscal disparities. It is usually not possible to accurately compute the actual fiscal disparity of each sub-national government. Instead, and depending on the quality of the information available, a country can rely on a number of methodologies to estimate expenditure needs and fiscal capacity in relative terms for all sub-national governments.<sup>30</sup> In general, it is not recommendable to base the estimation of fiscal disparities on historical data related to actual spending and revenues. On the one hand, historical budgets might have been poorly assigned, and thus not associated with efficient fiscal decisions. On the other hand, doing this would provide perverse incentives because sub-national authorities would easily learn to spend more and collect less in order to increase transfers in the future.

There are several methodologies available for estimating expenditure needs; unfortunately, the most attractive options are also the most information intensive and require data that are usually unavailable in developing countries. A feasible and effective option may be the computation of per client expenditure norms adjusted for cost differences across jurisdictions. Under this methodology we only need to determine the total amount of resources to be spent in the most important sub-national functions or programs, and then compute the norm by dividing this amount by the total number of clients that are intended to receive the benefits of the program. The expenditure norm might be adjusted to reflect costs differences across jurisdictions, and it corresponds to a nationwide per client expenditure need. The client-based expenditure norm may have a prescriptive or suggestive character, but in any case it facilitates the national debate about fiscal policy reforms.

The estimation of fiscal capacity determines how much revenue each government can raise from its own sources with a standard level of tax effort (and allowing for all other transfers received different from equalization). When sub-national governments have some degree of

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<sup>29</sup> The funding rule could be a revenue sharing scheme or left as an *ad hoc* decision to be determined in the annual national budget. Predictable and stable sources of revenues are preferable because they provide more certainty for sub-national budgets.

<sup>30</sup> A revision of the methodologies described in the literature can be found in Boex and Martinez-Vazquez (2007). See also U.S. Advisory Commission on Intergovernmental Relations (1986, 1990, 1993) for more detailed discussions on fiscal capacity estimations.

discretion over tax sources, the standard level of effort is sometimes represented by the effective tax rate, defined as the ratio of revenue collections over the tax base. In general, however, what matters is not only the tax rate but the marginal collection costs faced by each local government. From an optimal taxation perspective, and in order to minimize the costs of tax system, the marginal cost of public funds collected must be equalized across all governments of the same level. Moreover, since the resultant measure of fiscal capacity is based on equal conditions for all sub-national governments of the same level, then it can be considered as both fair and efficient.

In practice, however, the estimation of fiscal capacity in developing countries is very challenging due to limited data availability. There are methodologies, like the representative tax system, that provide appropriate approximations to fiscal capacity, but the data requirements may be out of reach for most Latin American countries.<sup>31</sup> More practical solutions might be to consider, at least temporarily while the information systems are developed, either averages of historical collections, or proxies for the size of the tax bases assigned to the sub-national governments. The first of these alternatives is not ideal because historical revenues might not be obtained under fairly equal and efficient conditions, but at least the use of an average of several years would reduce the perverse incentives on revenues and expenditure decisions. The second methodology is preferable, but good proxies such as the GDP in the jurisdiction are usually unavailable. The implementation of this methodology might be more feasible in a second stage of the reform, when more and better data is available for sub-national governments.

The third step in the implementation of an equalization transfer program is to compute the amount of transfers to be assigned to each sub-national government. If the fiscal disparity of a government is positive then its expenditure needs exceed its fiscal capacity and a transfer will be necessary in order to improve its fiscal situation. On the contrary, if the result is negative then the municipality will have more resources than it needs (according to the established standards) and no transfer will be justified. Excluding those sub-national governments with negative fiscal disparities from the benefits of the equalization transfer program is a simple and effective way to improve the equalizing power of the equalization transfer program.<sup>32</sup> Equalization transfers can be assigned simply in proportion to the size of the positive fiscal disparities, or prioritizing the governments with the greatest fiscal disparity per capita.

Finally, it is important to note that equalization transfers are not necessarily restricted to current expenditures. The expenditure responsibilities assigned to sub-national government require both current and capital expenditures, and as such autonomous efficient decisions over a flow of capital financing might also result in economic gains from greater allocation efficiency. This is a rather unexplored topic in the literature, and where international experience is still not developed. A good example is given by the Regional Compensation Fund, the equalization

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<sup>31</sup> A description of this methodology can be found, for instance, in U.S. Advisory Commission on Intergovernmental Relations (1993).

<sup>32</sup> Under a “fraternal” (or Robin Hood) system like the one used in Chile the pool of funds would be fed with contributions from those jurisdictions with negative fiscal disparities. This is a way to perform faster equalization across jurisdictions but is not always politically acceptable.

transfer program for capital expenditures at the regional level in Peru. In reality, however, the implementation of this program is more an attempt to constraint the use of the equalization funds than an innovative solution to the problems of improving equity and efficiency. Indeed, in Peru regional governments do not receive unconditional equalization transfers; and at the local level the governments are not given equalization transfers for capital spending.

In a recent paper, Herrero-Alcalde et al. (2010) suggest a methodology for a new capital transfer program for Spanish autonomous communities, where a portion of the transfer is given with the objective of equalizing the ability of governments to regularly improve and maintain their stock of capital, and another portion is meant to offset historical differences in the accumulated stock of capital. This is a new area of research that offers alternatives to decentralized countries to improve the allocation of the available funds among sub-national governments for capital investment purposes.

## **5. Conclusions**

Latin American countries have for long been involved in fiscal decentralization reforms, but in general they have not yet come up with efficient arrangements for sub-national government financing. Some of the main problems in the region are the excessive dependency on revenue sharing arrangements, poor revenue collection performance at the sub-national levels, and inadequate or unimportant equalization schemes. This situation has weakened the accountability mechanisms and the perceived linkages between tax and expenditure decisions, preventing the governments and constituencies of facing the incentives they need in order to behave efficiently in a fiscally decentralized system of government.

The fiscal decentralization literature describes some of the necessary conditions for a well functioning sub-national fiscal structure, but it is rather ambiguous regarding its composition and the extent to which revenue sharing schemes might be used without distorting the incentives faced by sub-national governments. In this paper we provide a novel analysis of the problem and conclude that revenue sharing should be used, if at all, to finance only non-discretionary (or delegated) expenditures functions. Own (discretionary) expenditure functions, in contrast, should be associated with an efficient (positive) marginal cost of public funds, which can plausibly be set in a combination of own revenue collections and a well designed equalization transfer program.

Our analysis suggests that Latin American countries might significantly improve their decentralization systems by reducing their reliance on revenue sharing schemes and expanding and improving the design of sizable equalization transfer programs. These programs can help reduce horizontal imbalances and, when combined with significant own revenue autonomy, provide sub-national governments with the right incentives to spend efficiently and develop their own tax collection capacity.

This paper also provides general guidelines on how to proceed with the design and implementation of equalization transfers systems in Latin American countries. Sophisticated methodologies for the computation of expenditure needs and fiscal capacity might not be feasible due to limited data availability, but useful good alternatives exist that can be readily implemented in the region.

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