FISCAL DECENTRALIZATION
AND LAND POLICIES

Edited by Gregory K. Ingram and Yu-Hung Hong

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Fiscal Decentralization and Income Distribution

Jorge Martinez-Vazquez and Cristian Sepulveda

*E*xtensive academic research and political debate have focused on fiscal decentralization and income distribution. While income distribution historically has been a matter of concern in most countries, an increasing number of countries have recently engaged in some form of decentralization process, and many others are preparing to do so in the near future. The effects of decentralization on income distribution, and on how income distribution issues may affect the decentralization process, have thus far been the subject of very little theoretical or empirical research, however.[1]

Decentralization and the distribution of income, as general concepts, can be analyzed in a variety of ways. This chapter focuses on (1) *fiscal* decentralization, as opposed to administrative and political decentralization, or mere deconcentration;[2] and (2) the income distribution of *households* (or individuals) at the *national* level, as opposed to alternative perspectives such as within-jurisdiction distribution of income among individuals or interregional differences in income distribution.

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1. An important exception is Beramendi (2003), who develops a political economy model linking political decentralization with income distribution outcomes.

2. See, for example, Rondinelli (1981) for an early discussion of the different concepts of decentralization.

The potential effects of fiscal decentralization on income distribution across individuals in a country must be distinguished from the potential redistributive role played by subnational governments. Whether or not the subnational governments should or, in fact, do actively participate in redistributive policies is not the focus of this chapter.[3] Instead, the central objective is to ascertain *how* fiscal decentralization, measured in a broad sense, might in practice alter a country's distribution of income. The policy relevance of this research question is clear: Governments and most bilateral and multilateral aid organizations are preoccupied with stopping, if not reversing, the deterioration in income distribution experienced by many countries since the 1980s. At the same time, an increasing number of countries around the world have embarked on decentralization reform devolving all kinds of fiscal powers to subnational governments. Therefore, the question is, are these two important policy thrusts actually working against each other, or are the two processes complementary?

Fiscal decentralization can affect the distribution of income via many channels. Some links between decentralization and income distribution can be uncovered in the recent literature on the economic effects of decentralization, such as that on the size and composition of public expenditures, on the size of welfare programs, or on poverty reduction. Other relevant links to be considered include the effect of decentralization on the level and source of government revenues and, more generally, on tax structure in a multilevel context, the interjurisdictional mobility of the population and other factors of production, and the resultant competition among localities.

In our analysis, we review relevant theories and empirical findings in the economic literature that can help explain the potential effects of fiscal decentralization on income distribution, and we discuss the data limitations and main challenges associated with an empirical examination of the problem. We identify several channels through which fiscal decentralization might affect the distribution of income. Later, we consider the limitations associated with the available data and then review the empirical literature to get a sense of the relative effect of decentralization on income distribution.

Theoretical Linkages Between Fiscal Decentralization and Income Distribution

Conventional public finance theory has advised against the active participation of subnational governments in redistributive policies (Brown and Oates 1987; Musgrave 1959; Oates 1968, 1972; Stigler 1957). The reasons behind this ad-

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3. Regarding the participation of subnational governments in redistributive policies, see, for instance, Bahl, Martinez-Vazquez, and Wallace (2002).

vice are based on efficiency considerations, particularly the potential mobility of population and productive factors. The attempt of one jurisdiction to redistribute welfare benefits from the rich to the poor would, other things being equal, require an increase in the tax burden imposed on nonbeneficiaries, who might eventually move out. At the same time, the poor in neighboring jurisdictions would try to immigrate, leaving the jurisdiction with a smaller tax base.[4] In practice, however, there are few policies where the line between central and local intervention in redistributive policies is clearly drawn. For example, regulatory policies carried out at the local level, like land use and rent controls, almost certainly have the potential to alter the distribution of income (Sewell 1996). In addition, outright redistributive policies are a common practice of subnational governments in decentralized countries.[5]

The involvement of subnational governments in redistributive policies is not, however, the only source of the potential influence of fiscal decentralization on income distribution. By itself, interjurisdictional mobility can have direct and important effects on income distribution. On one hand, mobility may be seen as a response of individuals and households who seek to increase their real income, and so the "pure" self-sorting processes of individuals among jurisdictions offering alternative bundles of public services and tax burdens may well be able to alter income distribution. On the other hand, mobility certainly affects the supply of productive factors and thus also their marginal productivity and return (Wildasin 1994). Fiscally induced migration is considered a source of inefficiencies and thus implies a welfare loss for society.

Interjurisdictional mobility plays an important role in the dynamic effects of fiscal decentralization on allocation efficiency and income distribution. At one extreme, when population and production factors are perfectly immobile, the redistributive policies carried out at the local level might inflict no efficiency costs at all.[6] In such a case, potentially large gains could be obtained by decentralizing some redistributive decisions and bringing them nearer to the poor. Based on the observation that mobility tends to be relatively low in developing countries, some authors have suggested that subnational governments could make a valuable contribution to fighting poverty. Of course, in that context, the concerns would include the accountability of local government officials and

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4. Clearly, the case against an active redistributive role of subnational governments critically depends on interjurisdictional mobility. When mobility is imperfect or costly, subnational governments may become efficient players. Assuming limited mobility, Pauly (1973) shows not only that under some conditions (majority voting and utility interdependence) the size of redistributive programs increases with decentralization, but also that the performance of local governments is superior to the centralized redistribution.

5. See, for instance, Bahl, Martinez-Vazquez, and Wallace (2002).

6. Some countries (e.g., the former Soviet Union and China) have used internal passports to restrict interjurisdictional mobility.

the potential of local/elite capture as well as the administrative capabilities of subnational governments.

The design of any decentralized fiscal system requires the assignment of expenditure responsibilities, revenue authority, borrowing capacity, and the implementation of a transfer system. Each of these four interdependent elements of government finances may have its own effect on income distribution.

The expenditure and revenue sides of the budget can be distinguished as two separate channels through which income distribution may be altered. Consequently, expenditure decentralization and revenue decentralization can be regarded as alternative, but complementary, sources of changes in income distribution.[7] On the expenditure side, public resources can be transferred directly to the poor, increasing their disposable income, or could also have a pro-poor nature as long as they are intended for or serve their benefit. Important examples of pro-poor expenditures, with an immediate redistributive effect, are primary health and basic education, which per se can also contribute to improve the distribution of income in the short and longer term. Likewise, the progressiveness of the tax system can be used to reduce income inequalities directly; for example, subnational governments might be largely financed by indirect taxes, which tend to be more regressive, or by direct taxes, which generally are more progressive.

Of course, the extent of decentralization—or the degree of autonomy assigned to subnational governments—typically differs for each budgetary component. In practice, either because of the economies of scale associated with the collection of tax revenues or simply because the central government prefers to keep for itself the most buoyant tax bases, the decentralization of expenditure responsibilities is usually not accompanied by comparable tax revenue autonomy. These asymmetric fiscal decentralization arrangements create vertical imbalances and thus require transfers from the center to balance the budget across different levels of government. Equalization transfers are used to address horizontal fiscal imbalances, but, of course, they can have a significant effect on income distribution if, for example, fiscally poorer jurisdictions are also jurisdictions with a higher incidence of the poor. Intergovernmental equalization transfers are also justified on efficiency grounds as a way to reduce spillovers created by autonomous decisions at the local level. Finally, borrowing can alter income distribution by affecting the intergenerational distribution of tax burdens and benefits from services.

The decentralization of expenditure responsibilities may allow local governments to better address the needs and preferences of their constituents, but the independent decision-making processes also create positive and negative exter-

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7. Although borrowing constitutes a type of revenue for all government units, intergovernmental transfers can be seen as expenditures at the central level or revenues for the local governments. Here, we implicitly follow a local perspective.

nalities. It is well known that uncoordinated tax policy decisions of subnational governments do not take into account interjurisdictional externalities or the mobility of population and production factors. The result is less than optimal provision of public goods and relative unfair distributions of tax burdens.[8] The factors connecting revenue decentralization with income inequality, however, are not yet very well known. One recent attempt to deal with this particular issue is made by Hodler and Schmidheiny (2006), who develop a two-community model where, under heterogeneity of both income and tastes for housing, and the presence of different local tax rates, the progression of the tax schedule leads to a self-sorting process that results in a pattern of household segregation. This process, in turn, is associated with a reduction of the tax schedule's progressiveness. Although the model focuses exclusively on the revenue side of decentralization, it provides a testable hypothesis and a mechanism by which revenue decentralization might reduce the equalizing potential of the tax policy.

In actual practice, subnational taxes can play a redistributive role if they are not markedly regressive and at the same time yield enough funds to help finance redistributive expenditure programs. That may be the reason the theoretical literature addressing the relation between revenue decentralization and distribution of income is rather scarce. In reality, fiscal decentralization would seem to have a greater potential to improve the distribution of income through the expenditure side of subnational budgets. Some expenditure programs may explicitly target individuals or regions with low per capita levels of income or production, whereas others can be oriented to increase the gross regional product (GRP). For example, Arze, Martinez-Vazquez, and McNab (2005) find that the relative share of education and health in overall government expenditures increases with fiscal decentralization. Generally, these services represent an important share of government expenditures, and the services provided represent larger benefits for low-income families; thus, fiscal decentralization might be expected to have a positive effect on the welfare of the poor.[9]

Intergovernmental transfers are a distinctive element of decentralized systems of government. The types of transfers, their magnitude, and the economic justification for them can be significantly different from those found in a centralized system. Many transfers can be considered as a part of redistributive programs at the regional level, but even though regional transfers can plausibly

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8. See Oates (1972) and Gordon (1983).

9. See, for instance, Martinez-Vazquez (2001). The measurement of these effects is complicated; education and health expenditures do not directly affect personal income because no cash transfers are provided to individuals. Although the effect of transfers in cash on income distribution can be measured via Gini coefficients computed on a disposable income basis, in the case of public expenditures the pro-poor effect must be measured through benefit incidence analysis. Any potentially measurable income effects only show up in future readings of the Gini measures.

be used to address income inequalities among individuals, they are not necessarily meant to have this explicit objective. In particular, equalization transfers (usually constructed to support those subnational governments with lower fiscal capacity or larger expenditure needs) might have, from a benefit incidence point of view, a positive redistributive effect. This effect, however, cannot be taken for granted; it requires that subnational governments receiving larger per capita equalization transfers are also those with poorer populations.

An often forgotten dimension of fiscal decentralization, and one with potential effects on income distribution, is public employment. Alesina, Danninger, and Rostagno (2001) show how public employment is used as a redistributive device in Italy. Given that the cost of living is lower and the private sector is comparatively less attractive in the South, the government implicitly makes the North subsidize the South by offering very similar nominal wages in both places and by allowing for more public employment in the South. The choice of this redistributive mechanism might be related, as proposed by the authors, to the lower visibility and political costs associated with public employment vis-à-vis direct transfers. A similar explanation is suggested by Alesina, Baqir, and Easterly (2000), who, after controlling for economic and demographic factors explaining public employment, observe a positive correlation between income inequalities and public employment in U.S. cities. In this context, fiscal decentralization could not only facilitate the use of public employment for redistributive purposes, but it could also determine the actual focus of the policies. For example, Marqués and Rosselló (2004) find evidence suggesting that the central government in Spain offers more jobs in those regions where ruling authorities come from the same party than in regions where authorities belong to different parties.

The economic literature has also explored the effects of fiscal decentralization on a variety of macroeconomic outcomes, such as economic growth, macroeconomic stability, the size of government, and public expenditure composition. It is clear that these macroeconomic variables can help determine the distribution of income, and we may need to consider them as alternative channels through which fiscal decentralization might alter income distribution.[10]

Oates (1993, 240) has suggested that his decentralization theorem (Oates 1972), which identifies the static benefits arising from tailoring local public services to local preferences, "should also have some validity in a dynamic setting of economic growth." Oates argues that if policies regarding infrastructure and human capital are formulated to take into account regional or local conditions, they "are likely to be more effective in encouraging economic development than centrally determined policies that ignore these geographical differences." If de-

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10. Martinez-Vazquez and Sepulveda (2007) distinguish between direct and indirect effects of fiscal decentralization on income distribution and classify these alternative channels as indirect.

centralization leads to dynamic gains in *producer* efficiency, there will be an expansion in the production frontier of the economy. In line with this hypothesis, several empirical studies have analyzed the effect of fiscal decentralization on growth,[11] but the results are rather mixed and seem to depend on the stage of development of the countries.[12] In addition, Martinez-Vazquez and McNab (2003) suggest that the causal relationship between fiscal decentralization and growth might not be linear and that there could plausibly be an optimal level of decentralization after which more devolution of fiscal authority has a negative effect on economic development. Overall, the existence of a causal relationship between decentralization and economic growth—and therefore the effect of decentralization on inequality via this channel—has not yet been clearly established. In any case, the potential effect remains significant because it is well known that economic growth can improve income distribution, especially if it is accompanied by a greater demand for unskilled workers and higher relative wages.

The evidence on the effect of fiscal decentralization on macroeconomic stability is even more limited.[13] In a recent study, Martinez-Vazquez and McNab (2006), using a panel data set for developed and developing countries, find that fiscal decentralization is associated with lower rates of inflation for developed countries. On the other hand, Treisman (2000) and Rodden and Wibbels (2002) find no clear relationship between decentralization and the level of inflation.

The size of the government may also affect income distribution. Clearly, public sectors that are relatively small may have less capacity to implement progressive taxation or sizable welfare programs. Public finance theory offers two opposing hypotheses regarding the relationship between fiscal (revenue) decentralization and size of government. On one hand, the Leviathan hypothesis (Brennan and Buchanan 1980) assumes that government officials are self-interested and seek to maximize their own power, represented by the size of the budget under their control. Although their actions would therefore pursue a nonoptimal increase of expenditures, interjurisdictional tax competition arising in the context of fiscal federalism would provide a binding constraint to the

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11. Two recent surveys are found in Martinez-Vazquez and McNab (2003) and Breuss and Eller (2004).

12. For example, Davoodi and Zou (1998) find a negative relationship in developing countries, whereas a more recent study by Akai and Sakata (2002) finds a significant positive relationship across states in the United States.

13. The classical view (Musgrave 1959) is that macroeconomic policy should be exclusively the responsibility of the central government. Several recent papers, however, have argued that devolving at least some measure of macroeconomic policy to subnational governments can promote, not hinder, macroeconomic stability (Gramlich 1993; Rodden and Wibbels 2002; Shah 1999). Others have argued that fiscal decentralization may aggravate macroeconomic instability (Rodden 2002; Rodden, Eskeland, and Litvack 2003).

inefficient increase in government size. On the other hand, even when policy makers are assumed to be benevolent welfare maximizers, tax competition might impose downward pressure over the revenue collections and the size of government, leading to underprovision of public services. Feld, Kirchgässner, and Schaltegger (2003) reviewed the empirical literature on the effect of decentralization on the size of government and report generally mixed results.[14]

The composition of public expenditures, especially the presence of welfare programs in the government budget and social spending on public education and health, can play a crucial role in determining the distribution of income, whereas other nonredistributive government functions might still induce a change in the available funds for welfare programs. Further, government budgets more oriented to roads and other forms of public infrastructure may have a more equalizing effect on income distribution than budgets more oriented to defense and public-order expenditures.

Another source of potential effects is given by the dynamics in regional inequalities, although we know very little about the effects of decentralization on regional economic disparities. One possible conjecture is that the state of regional development within the country may be less homogeneous under decentralized systems than under centralized systems; beyond some anecdotal evidence, however, it remains a scantly researched question. On the other hand, there has been considerable research on the topic of regional convergence. The relevance of the literature for this analysis is that the distribution of personal income might be expected to improve at the national level if regions tend to converge in terms of per capita GRP. Barro and Sala-i-Martin (1991) have found strong statistical evidence of regional convergence both in the United States and in a group of seven European countries, but they have also found that the rate of convergence is very low, around 2 percent per year. Further, they found that migration explains only a marginal fraction of the convergence rate.[15] Their results are fairly typical of the empirical literature on regional convergence; empirical studies commonly find that some sort of convergence tends to take place, but the rate of convergence is very slow.

The theoretical work in this area identifies several sources of convergence (de la Fuente 2002). First, a necessary condition for convergence is the presence of diminishing returns to scale in the different forms of capital. Second, the rates of technological progress and the reallocation of factors from sectors with low

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14. In a recent paper, Fiva (2006), using new OECD data based on Stegarescu (2005) classifying subnational taxes according to their degree of autonomy, finds that revenue decentralization reduces the size of the public sector. In addition, Fiva finds that the traditional measures of expenditure decentralization are positively related to government size. We expand the discussion of the OECD data later.

15. The results are referred to as convergence, which accounts for the tendency of poor regions to grow more quickly (or more slowly, if they diverge) than rich regions.

productivity to others with higher productivity determine the existence of convergence and its velocity. To our knowledge, there is no study to date on how these sources of convergence may interact, if at all, with fiscal decentralization.

Finally, marked inequalities in the distribution of land are typically associated with inequality in the distribution of income, especially in the case of developing countries with large rural populations. Land reforms benefiting the poor by the redistribution of property or land use rights have been proposed as a solution to this problem, but a great deal of controversy regarding how to implement them still clouds the debate. Although some international agencies, including the World Bank, advocate for less government intervention in land markets,[16] some notable experiences in state-led land reforms show that some government interventions may be beneficial (Borras and McKinley 2006). Unfortunately, again there is not much research on how land reform may operate differently, if at all, in decentralized systems of governance. The expected gain in accountability associated with decentralization may not happen; instead, local/elite capture and empowerment of landlords, who would be little interested in redistributing land or income, may take place. In part due to these reasons, Sauer (2006, 179) argues in the context of the Brazilian land reform that "rather than a solution (through greater efficiency and agility), therefore, decentralization can actually make land reform actions unfeasible." A similar conclusion is reached by Borras (2003), who examines market-led land reforms in Brazil, Colombia, and South Africa and finds no empirical support for the assumption that decentralization could make a contribution to the process via an increase in accountability and transparency.

As a partial conclusion, it seems extremely difficult, and likely incorrect, to allege a priori that fiscal decentralization per se has any predictable effect on income distribution. There are too many dimensions and channels by which fiscal decentralization may improve or worsen the distribution of income; the net effect is largely an empirical question.

Challenges in Determining the Empirical Effects

We next discuss some of the difficulties associated with estimating the actual effect of fiscal decentralization on income distribution. The definition of the relevant variables and the availability and consistency of the data are the most significant sources of concern, so they will be addressed briefly below. We then review the empirical literature on the determinants of income distribution. If we are interested in detecting what possible role fiscal decentralization may have on income distribution, we need to be aware of and control for all other

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16. See Deininger and Binswanger (1999) for a review of the World Bank's doctrine on land policy reform.

determinants of income distribution that have been identified in the previous literature. Finally, we explore the relationship between fiscal decentralization and income inequality. In reality, being able to establish a relationship between decentralization and income distribution poses several complex econometric problems that go beyond the scope and the space available here. The econometric estimation of the effect of fiscal decentralization on income distribution is carried out in a separate paper (Martinez-Vazquez and Sepulveda 2007).

VARIABLE DEFINITION AND MEASUREMENT PROBLEMS
The distribution of income can be conceptualized in several ways. A common problem with the available data is the lack of consistency and quality of the indexes. Relevant decisions are whether to use individual or household data and, within those categories, whether to use data on income or on expenditures. If income is chosen, a further choice needs to be made about whether to use gross (or market) income or disposable income.[17] In those cases in which tax policy affects the distribution of income, the disposable measure of inequality should be lower when the overall tax incidence is progressive.

The most popular measure of income inequality is the Gini coefficient.[18] Deininger and Squire (1996) had assembled a large number of Gini coefficients available in the literature. To ensure the quality of the sample, they imposed three main requirements or selection criteria to include a coefficient into their data set: (1) they must be based on surveys of households or individuals (as opposed to national accounts-based estimations); (2) the coverage of the population must be comprehensive; and (3) the measure of income or expenditure must also be comprehensive. The resultant data set included 682 observations for 108 countries and a varied number of periods for each country. This data set was upgraded and corrected by the United Nations University, World Institute for Development Economics Research, leading to the World Income Inequality Database (WIID, version 2.0a), published in 2005, which includes 4,664 observations for 152 countries.

Table 11.1 provides five-year averages of Gini coefficients based on gross income and disposable income for world regions, derived after selecting among

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17. For a discussion, see, for instance, Chu, Davoodi, and Gupta (2000) and Deininger and Squire (1996). The United Nations University, World Institute for Development Economics Research (2005) defines disposable income in accordance with the concept recommended by the Camberra Group as total income minus employees' social contributions and taxes on income. Note that cash benefits from the government, including social insurance benefits, universal social assistance, and mean-tested social assistance, are included as a part of total income.

18. The Gini coefficient computes the relative size of the area between the Lorenz curve (plotting the share of population against the income share) and the egalitarian distribution (represented by a 45-degree line providing identical shares for income and population).

Table 11.1
Average Gini Coefficient per Region and Period: Gross and Disposable Income Measures

	1971–1975	n	1976–1980	n	1981–1985	n	1986–1990	n	1991–1995	n	1996–2000	n	Avg.	N
Gini (before-tax income)														
Sub-Saharan Africa	n.a.		n.a.		n.a.		63.0	1	53.7	2	53.6	1	56.0	4
South Asia	32.9	2	39.9	2	40.8	2	46.0	1	43.3	1	51.5	1	40.9	9
Europe and Central Asia	n.a.		22.6	2	21.3	2	22.9	6	38.8	14	36.4	13	33.6	37
East Asia and Pacific	45.1	1	51.0	1	45.4	3	47.1	3	46.3	4	46.5	4	46.5	16
Latin America and Caribbean	n.a.		51.0	2	57.2	1	54.2	3	52.7	4	58.0	2	54.1	12
High income: non-OECD	n.a.		n.a.		n.a.		n.a.		45.3	1	n.a.		45.3	1
High income: OECD	36.1	10	33.6	9	36.1	13	37.4	12	38.5	12	37.5	6	36.6	62
Total	36.3	13	36.3	16	37.5	21	38.4	26	42.0	38	40.9	27	39.3	141
Gini (after-tax income)														
Sub-Saharan Africa	n.a.		n.a.		n.a.		52.3	1	48.5	1	n.a.		50.4	2
South Asia	n.a.		n.a.		n.a.		n.a.		n.a.		n.a.		–	
Europe and Central Asia	n.a.		23.6	2	23.1	2	23.0	5	29.9	12	32.0	13	28.9	34
East Asia and Pacific	n.a.		n.a.		n.a.		26.1	1	27.2	1	33.0	1	28.8	3
Latin America and Caribbean	55.7	1	45.4	3	46.2	3	50.4	5	50.2	9	51.6	9	50.0	30
High income: non-OECD	n.a.		36.3	1	n.a.		34.8	1	33.8	1	36.9	1	35.5	4
High income: OECD	33.0	11	30.1	14	28.2	14	29.4	17	31.4	22	31.3	22	30.5	102
Total	34.9	12	32.1	20	30.3	21	32.7	30	35.0	46	35.6	46	33.9	175
Difference														
Sub-Saharan Africa	–		–		–		10.7		5.2		–		5.6	
South Asia	–		–		–		–		–		–		–	
Europe and Central Asia	–		-1.0		-1.7		-0.1		8.9		4.4		4.6	
East Asia and Pacific	–		–		–		21.0		19.1		13.5		17.8	
Latin America and Caribbean	–		5.6		11.1		3.8		2.5		6.3		4.1	
High income: non-OECD	–		–		–		–		11.5		–		9.8	
High income: OECD	3.1		3.5		7.9		7.9		7.1		6.2		6.0	
Total	1.4		4.2		7.2		5.7		7.0		5.3		5.4	

Notes: *n*: number of observations; *N*: total; n.a.: not available.
Source: Based on UNU/WIDER, WIID-2.0a.

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the available high-quality Gini coefficients.[19] The sample contains 226 observations for 60 countries between 1971 and 2000, from which 48 countries have gross income measures of the Gini coefficients and a different set of 48 countries have disposable income measures of the Gini coefficients. The number of observations (countries) used in the computation of regional averages, displayed under the column labeled *n* in the table, provides an indication of how representative the regional averages are. The difference between the two measures (also in table 11.1) provides an indication of how effective, on average, tax and expenditure policies from the central government are in reducing income inequalities. Unfortunately, there is a small number of observations for which the two measures of the Gini coefficient are available. We would also expect the effect of decentralization policy on income distribution to be more fully captured in Gini coefficients based on disposable income. Some indirect effects of fiscal decentralization through economic growth, macroeconomic stability, and so on, however, should also be present in Gini measures based on gross income.

The regional distribution of Gini coefficients in table 11.1 suggests at least three general observations. First, clear regional patterns can be seen. These regularities are widely recognized in the past empirical literature on cross-country comparisons of income distribution. In particular, econometric analyses usually control for two world regions: (1) sub-Saharan Africa; and (2) Latin America and the Caribbean. Second, significant differences exist between the gross and disposable measures of the Gini coefficient for most of the regions. Third, in terms of both countries and income definitions, the patterns for data availability are quite uneven.

The concept and measurement of fiscal decentralization impose similar challenges to the empirical analysis. The literature about the determinants and effects of decentralization has traditionally used the share of subnational expenditures (or revenues) over consolidated public expenditures as a proxy for the degree of fiscal decentralization. This share is usually computed using Government Finance Statistics (GFS) data from the International Monetary Fund. These data have the serious limitation that they provide no reliable information on the actual level of autonomy truly enjoyed by subnational governments either on the expenditure side or the revenue side of the budget. Unfortunately, case studies

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19. All the coefficients based on an ambiguous definition of income, and those given a quality rating of 3 and 4 (unreliable) in the data set, were eliminated. Gini coefficients based on expenditures are more common among developing countries and are expected to be lower than those based on income (see Deininger and Squire 1996). Because the final data set includes few expenditure-based observations, we prefer to avoid any possible noise by simply eliminating them. After averaging observations for the same country and year, the remaining data consist of 846 Gini coefficients based on gross income and 1,231 on disposable income. Due to averaging, the time period chosen, eliminating countries with only one Gini coefficient, and eliminating those countries for which no measures of fiscal decentralization are available, the sample was reduced to 141 observations based on gross income and 175 based on disposable income.

clearly indicate that the relationship between subnational expenditure (or revenue) shares in the consolidated budget is not necessarily monotonic with the level of autonomy actually enjoyed by subnational governments. Even though widespread agreement exists about the limitations associated with this proxy, most of the empirical findings currently accepted as valid in the empirical literature are based on these imperfect measures of fiscal decentralization.

Several efforts have been made to overcome these problems. For example, the Organisation for Economic Co-operation and Development (OECD 1999) offered a new classification of subnational tax revenues according to the level of autonomy and computed the values corresponding to each category for 19 countries in 1995.[20] This database has been expanded by Stegarescu (2005). Based on the OECD's classification of subnational tax revenues and using annual data reported by the OECD's Revenue Statistics, Stegarescu extends the database to include 23 OECD countries for the years 1965 to 2000. He also proposes alternative measures of tax autonomy, tax decentralization, and revenue decentralization.[21] This approach to measuring fiscal decentralization can lead to significantly different results. For example, Stegarescu shows that Austria and Germany have very low levels of effective tax autonomy and decentralization, a result that differs considerably from the one obtained by using GFS data on subnational revenue shares.

Unfortunately, the data required to compute the alternative measures of fiscal decentralization for a large number of countries are still not available. The study of the effect of fiscal decentralization on income distribution will have to be based on the imperfect but conventional measure of (expenditure) decentralization (the share of subnational expenditures over total public expenditures); thus, the results may still be subject to important biases. Some recent research shows that these biases can be quite significant. For example, Ebel and Yilmaz

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20. The tax sources are ranked, decreasingly, from the highest degree of subnational control over revenues to the point where no discretion is allowed. Level (a) considers revenues for which the subnational government can set both the tax rates and the tax bases. In level (b), only the tax rate can be set, whereas in level (c), only the tax base can be set. Level (d) consists of tax-shared revenues. For this last category, four sublevels are considered. In the first two, sublevels (d1) and (d2), the subnational governments can play a part in the definition of the procedures, whereas in the second two, sublevels (d3) and (d4), they have no discretion at all. Finally, level (e) encompasses other taxes where the central government determines both tax rate and tax base. The obvious advantage of this classification is that it allows us to estimate the degree of tax autonomy of subnational governments easily by computing the share of "own" tax revenues on total revenues. Further, the approach is flexible because the degree of autonomy can be manipulated by including or excluding subsequent categories.

21. In each case, the preferred measures consider those tax revenues where the subnational governments have discretion setting both the rate and the base of the tax source (category a) or at least one of them (categories b and c). Although tax autonomy is defined as the share of "own" tax revenues over total subnational tax revenues, tax (or revenue) decentralization is defined as the share of the same "own" tax revenues over consolidated government tax revenues.

(2003) have used the new OECD data on "autonomous" revenues as a proxy for fiscal decentralization to revisit and amend several important findings in the previous empirical literature on fiscal decentralization.[22]

DETERMINANTS OF INCOME DISTRIBUTION

The conventional wisdom regarding the sources of income inequalities identifies the increase in demand for unskilled workers as one of the most important factors explaining improvements in income distribution (Atkinson 2000). In recent years, however, several authors have highlighted the importance of institutional and social factors, formerly ignored in empirical studies, as determinants of income distribution. For example, Atkinson (1997) emphasizes the role of institutional determinants of wages and employment and of macroeconomic variables such as the interest rate and the income share of the factors of production in explaining recent trends of income inequalities among developed countries.[23] Similarly, Tanzi (2000) also stresses the role of social norms and institutions in determining the distribution of income, including labor contract legislation, traditional rental contracts, norms about marriages, rules about inheritance, and the existence of positional rents or "social capital." This new perspective stresses the importance of policies generating and redistributing human capital as having a large significant effect on income distribution.

Democracy can be seen as a part of the institutional framework that enables the needs and demands of the population to be heard and taken into account by the government. The effects of democracy on income inequalities are still unclear. On one hand, a stronger political representation or a better organization of the poor (e.g., through unions) could allow for more active and systematic redistributive policies and so result in a reduction of income inequalities; on the other hand, a democratic society does not necessarily represent the interests of all constituents equally. Thus, plausibly, a democratic society may be less able to address income inequalities than an authoritative system.[24] The empirical evidence so far appears to be divided. It is therefore too early to claim that democracy re-

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22. For example, Ebel and Yilmaz challenge de Mello's (2000) result that decentralization increases the ratio of fiscal deficit to GDP, Davoodi and Zou's (1998) result regarding the negative effect of fiscal decentralization on growth, and Oates's (1985) result about the positive effect of decentralization on government size.

23. These determinants are presented as alternative explanations for the observed increase of income inequality between the late 1970s and early 1990s in a group of developed countries, including the United Kingdom, France, Germany, Italy, Japan, and the United States. That the real rate of return has increased explains, in part, why the share of capital income has also gone up during the period. Therefore, it explains how the owners of capital, the nonpoor, have benefited in relative terms.

24. For a review of alternative hypotheses about the effect of democracy on income distribution, see Sirowy and Inkeles (1990).

duces income inequality.[25] In any case, some authors have pointed out that, given the clear correlation between development and democracy, it may be difficult, if not impossible, to separate the effects of both variables on income inequality.[26]

Among other institutional determinants, two studies have partially addressed the effect of fiscal decentralization on income inequalities. Durham (1999) argues that econometric studies about income distribution typically suffer from specification bias because they do not control for a complete array of relevant institutional factors such as political regime, left government partisanship, unionization of labor markets, and fiscal decentralization. Beramendi (2003) follows a similar strategy to Durham's but stresses the potentially endogenous relationship between income inequalities and fiscal decentralization. Several other empirical studies analyze the effects of other institutional variables on income distribution. For example, Chu, Davoodi, and Gupta (2000) find a significant but small negative effect of the ratio of direct to indirect taxes on income inequality, and Gupta, Davoodi, and Alonso-Terme (1998) find that corruption increases income inequalities.

The empirical literature has put special attention on the mutual dependence of economic growth and income distribution. In earlier years, it was thought that causality ran exclusively from economic growth to income distribution. This relationship has been described—with considerable success—by the Kuznets (1955) hypothesis, which states that growth initially results in more unequal distributions of income but that once the benefits of development are available to a larger share of the population, the inequalities tend to diminish, and growth leads to a more equal distribution of income. The intuition is simple and is based on income distribution changes being due to the mobility of workers seeking higher compensations. In early stages of development, wealth is concentrated in a small group of people, and those who manage to increase their personal income become part of the still small high-income group,[27] augmenting the relative concentration of income and thus the overall level of inequality. Once development has spread (because, for example, a higher labor demand leads to increases in wage rates) and the poor represent a smaller share of the population, additional shifts of individuals toward the higher income groups tend to reduce overall inequality. A distinctive implication of the Kuznets hypothesis is that there is a level of development after which income distribution tends to become

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25. Sirowy and Inkeles (1990) survey a dozen papers, from which seven offer support to a negative effect of democracy on inequality and five provide findings for a null or positive effect. More recently, Barro (2000) reports a negative but insignificant coefficient, and Reuveni and Li (2003) find a negative and significant effect of democracy on income inequality.

26. See Sirowy and Inkeles (1990), Perotti (1996), and Durham (1999).

27. Kuznets explains this trend by describing the shift from the agricultural sector to the non-agricultural sector, stressing the importance of industrialization and urbanization in economic development.

Figure 11.1
Log of per Capita GDP and Gini Coefficient: The Kuznets Curve Under the Gross and
Disposable Income Measures of Inequality
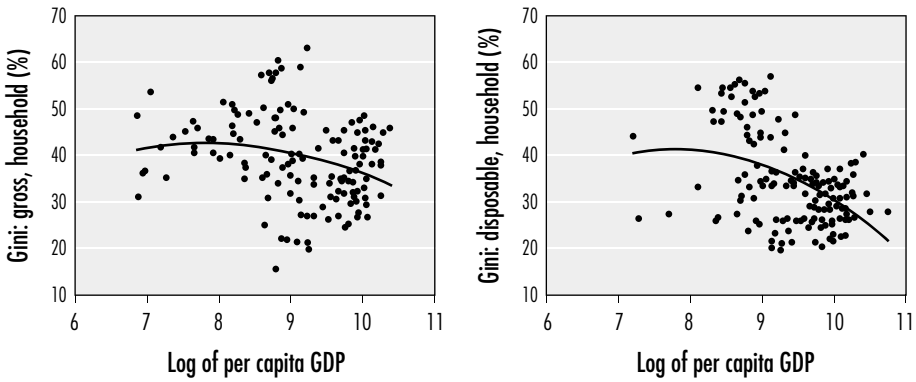
more equal. Empirical evidence has provided some support for this hypothesis,
and the Kuznets curve has even been referred to as an empirical regularity (Barro
2000), but still there is no consensus about its validity.[28] In figure 11.1, two
scatter plots show the relationship between the (logarithm of) per capita gross
domestic product (GDP) and the Gini coefficient, one considering only gross in-
come measures and the other only disposable income measures.[29] In both cases,
the Kuznets hypothesis seems to be partially supported by the available data.

Population growth might also affect income inequalities by reducing the
relative average income of those demographic groups growing faster, usually
the poor.[30] In the context of intercountry inequalities, Firebaugh (1999) explains

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28. In addition to Barro (2000), recent evidence can also be found, for instance, in Thornton
(2001). Deininger and Squire (1998), however, find no support. Vanhoudt (2000) supports the
Kuznets hypothesis after controlling for growth fundamentals such as the investment share in
human, physical, and knowledge capital. Vanhoudt suggests that these variables help improve
the measure of the level of development provided by the per capita GDP. A review of the his-
torical importance of the Kuznets hypothesis in social sciences is provided by Moran (2005).

29. The per capita GDP figures were obtained from the Penn World Table, PWT6.2, Heston,
Summers, and Aten (2006).

30. This point is also significant for international comparisons because developing countries
usually have much faster rates of population growth than developed countries. According to
our data (using the 60 countries in the data set), population in developed countries grew at
an average rate of 0.70 percent per year, whereas in developing countries the average rate was
1.30 percent. Moreover, excluding from the developing group the countries from Europe and
Central Asia, the average growth rate for developing countries reached 1.96 percent.

the positive relationship between population growth and the age dependency ratio, which measures the relationship between dependents over working-age population. If population growth is concentrated in low-income groups, a higher age-dependency ratio can be associated with increased inequalities. Similarly, rates of population growth might be negatively related with the proportion of population over 65 years old;[31] this population has, on average, lower but less unequal income than the working population. Thus, a higher proportion of retirees will likely be associated with lower income inequalities.

The urban versus rural distribution of the population will also tend to affect income distribution because per capita income within urban areas is generally higher and usually its distribution is more unequal than in rural areas. Urban inequalities could plausibly be either lower or higher than urban/rural inequalities, however, so the sign of the effect of urbanization on income distribution is uncertain. According to Kuznets (1955), though, economic development is associated with higher urbanization,[32] so inequalities would likely increase when urbanization (and development) rates are low and rising, and they would be reduced in more advanced stages of urbanization due to the overall rise in average income.[33]

Several studies have shown a negative, and usually significant, relationship between education, measured as enrollment rates or years of schooling, and income inequalities.[34] Given that educational attainment is related to income and that low education is highly correlated with poverty, we should expect to find less inequality in societies with high levels of education (Tanzi 2000). In addition, a higher level of human capital also means that the share of labor income in the total tends to be higher and that labor income tends to be more equally distributed than capital income. The link between the increasing share of the labor share in national income and the reduction of inequalities has been stressed by Atkinson (1997, 2000) and Tanzi (2000).

Other relevant variables discussed in the literature are openness to trade and inflation. One approach to predict the effects of trade openness on income distribution is given by the Stolper–Samuelson theorem, according to which the

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31. Population over 65 years is also correlated with the fertility rate. Perotti (1996) explains the link between these two variables in the context of income distribution.

32. Indeed, in our sample, the correlation coefficient between the log of per capita GDP and urban population is 0.756.

33. See also Perotti (1996).

34. Chu, Davoodi, and Gupta (2000) control for secondary enrollment rates and find negative effects on income inequality, but with varying degrees of significance. Barro (2000) finds that primary schooling significantly reduces inequalities, secondary schooling is not significant, and higher education significantly increases inequalities.

abundant factor in the economy, or the one defining the comparative advantages of a country, is the main beneficiary of trade liberalization. Because unskilled labor is relatively scarcer in developed countries and more abundant in developing countries, income inequalities will be expected to increase in the first group of countries and to decrease in the second group. A second view of the effect of openness on income distribution is that trade liberalization mostly benefits the rich because they are better able to take advantage of the new opportunities offered by globalization. The empirical evidence is mixed, and both predictions have recently received support.[35]

Inflation leads to a transfer from those with higher propensity to consume, or less ability to save, to those who are able and willing to substitute future for present consumption. In such a context, devaluations of the exchange rate as well as high market premiums that are reflected in higher price levels would be associated with increasing income inequalities (Bahmani-Oskooee, Goswami, and Mebratu 2006). A parallel argument applies to the real interest rate, which can be interpreted as a cost for net borrowers and a benefit for net lenders. Note that the effect of openness to trade and inflation, however, would mostly be reflected in Gini coefficients measured in terms of consumption and would have less visible effects on Gini measures based on gross or disposable income.

EXPLORING THE RELATION BETWEEN FISCAL DECENTRALIZATION AND INCOME DISTRIBUTION

Although the literature addressing the determinants of income distribution is abundant, it is still unclear which is the proper set of factors determining income inequalities. The interest here is in what additional role fiscal decentralization may play in income distribution. Therefore, to identify the role of fiscal decentralization properly, it is important to control for the effect other variables (as discussed above) may have on income inequalities. At the same time, however, the effect of fiscal decentralization is likely to be influenced by two other variables: the level of per capita GDP and the size of the government. First, the level of development is a key factor explaining market outcomes in the labor markets, and it is also related to the strength and quality of institutions, the preferences for decentralization, and the capability of the government to pursue redistributive policies. Second, the size of the public sector, measured as the share of government on real GDP per capita, provides a reference of the relative importance of expenditure decentralization in the context of the national economy and thus

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35. Barro (2000) finds a positive and significant effect of trade openness on income inequality, which seems more pronounced in poor countries. Reuveni and Li (2003) find a negative and significant effect.

its actual potential to reduce income inequalities.[36] A high level of expenditure decentralization would not mean much if the government has a minor presence in the economy, whereas relatively low expenditure decentralization would still have a great potential to influence income distribution if the government is an important actor in the economy.

Figure 11.2 plots the trends observed in the relationships between decentralization and the disposable income measure of the Gini coefficient for four observation subsamples. The data used in this case correspond to the same observations of disposable income measures of Gini coefficients used in table 11.1 and figure 11.1, which includes 175 observations for 48 countries. For the purposes of figure 11.2, the data are ordered separately by the level of GDP and the size of government;[37] then, in each case, the data are separated into two subsamples such that we distinguish (1) the observations with low per capita GDP from those with high per capita GDP (plots 1a and 1b); and (2) the observations with a small government size from those with a big government (plots 2a and 2b).[38]

The relationship between expenditure decentralization and income distribution appears to vary quite significantly when the data observations are divided according to "low" and "high" per capita GDP, where low is defined as those values under the median and high as the values above the median. For the subsample of observations under the median per capita GDP, increasing expenditure decentralization appears to be associated with lower inequalities. In contrast, expenditure decentralization seems to be uncorrelated to the Gini coefficient for those observations with a per capita GDP over the sample median.

When the data are separated according to the size of government, a higher degree of expenditure decentralization also seems associated with lower income inequalities. Plots 2a and 2b of figure 11.2, however, show that for a given level of expenditure decentralization the average income inequalities are lower for

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36. The government share of real GDP per capita can be measured as the value of final goods and services purchased by the government, excluding the funds allocated among social security and welfare recipients, which might be excluded from an econometric analysis of the effects of fiscal decentralization on income distribution for two reasons. First, social spending will likely depend on the distribution of income; thus, the size of government would become endogenous, and the estimation procedures would be unnecessarily complicated. Second, the effect of fiscal decentralization on income distribution may plausibly be channeled through social spending; thus, an explicit consideration of these funds might underestimate the true effects that fiscal decentralization has on income inequality.

37. The expenditure decentralization data were obtained from Government Finance Statistics (IMF), and the data on the government share in GDP were obtained from the Penn World Table, PWT6.2. See Heston, Summers, and Aten (2006).

38. The median values correspond to a per capita GDP of US$15,465 and a government share of 18.5 percent.

Figure 11.2
Expenditure Decentralization and Gini Coefficient Measured by Disposable Income:
Trends Under Subsamples of Observations
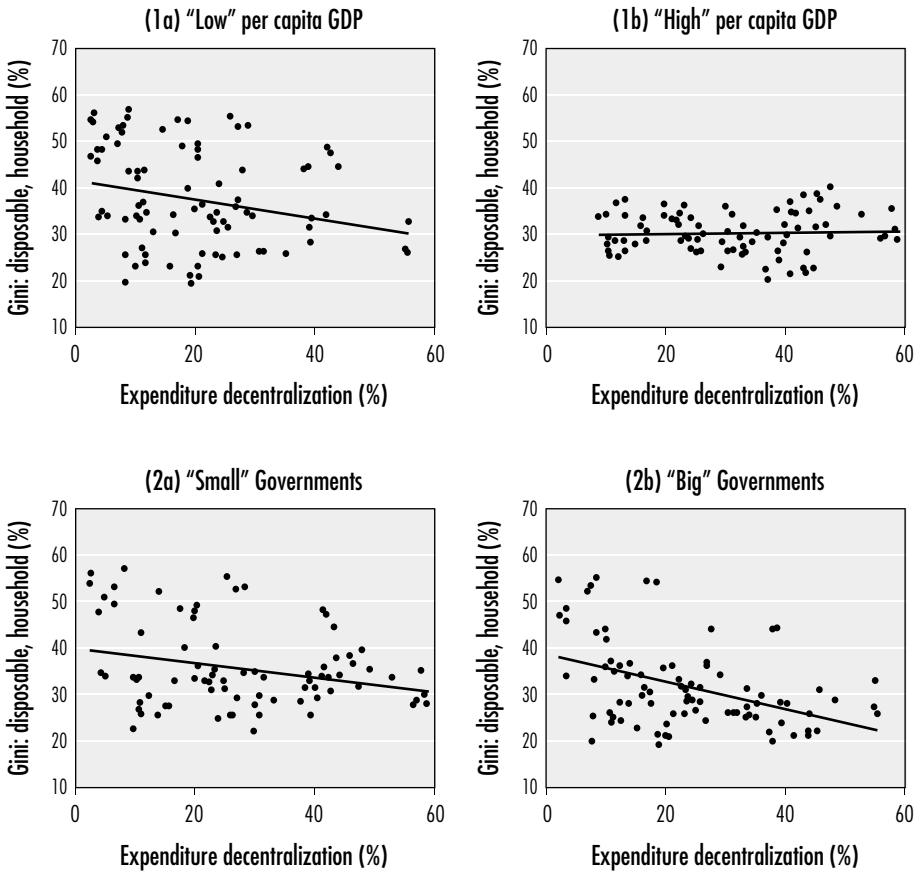
the group of observations with relatively bigger governments (those above the median).

These observations suggest that fiscal decentralization has a positive effect on income distribution and that this effect might vary with certain characteristics of a country, such as the level of development and the total size of the government sector. To test the existence of these relationships, however, we must use the appropriate econometric tools. This task goes beyond the scope and the space available here. In Martinez-Vazquez and Sepulveda (2007), we conduct the econometric analysis of this question. There we find, after controlling for the endogeneity of fiscal decentralization and specific country effects, that de-

centralization increases income inequalities when government represents a small share of the GDP but that, as the size of government increases, decentralization turns out to have a positive and significant effect on income distribution. Therefore, there seems to be a critical size of the government at which the distributive effects of decentralization turn to positive and thus fiscal decentralization might be expected to improve income distribution. We do not have an immediate clear intuition for why the effect of decentralization is so dependent on the size of government, but it is possible that certain government policies only become effective after they reach some minimum size in terms of GDP. Supporting this interpretation is that the only significant effects of decentralization on income distribution are apparent when a disposable income measure of the Gini coefficient is used in the analysis.

Conclusions

Although fiscal decentralization and income distribution have been the subject of extensive separate attention in the literature, the effects of decentralization on income distribution and how distributional issues may affect the decentralization process have been the subject of little theoretical or empirical research thus far. The goals here are to draw up a conceptual framework for the different ways decentralization relates to income distribution and to set up the bases of an empirical framework by exploring the empirical literature on income distribution.

Even though economic theory has traditionally advised against the involvement of subnational governments in redistribution policies, in practice they do intervene to varying extents. Decentralization, however, is more likely to affect income distribution through the behavioral changes it induces in the location of inputs of production and the indirect effects that decentralization may have in macroeconomic variables and institutions (e.g., growth, the size of government, and the composition of public expenditures), which, in turn, are known to affect income distribution. Moreover, the central government can also use a decentralized structure to channel redistributive policies; remarkable examples are public employment and equalization transfers. Theory, for the most part, offers conflicting implications, however, and so the sign and magnitude of the influence of many factors on income distribution are difficult to predict.

The empirical literature provides some suggestive results about the determinants of income distribution: the level of development, education, population growth, age-dependency ratio, urbanization, democracy and left partisanship, corruption, trade openness, and so on. The empirical findings, however, are not very consistent, and there is still no agreement about the proper set of variables explaining the differences in income distribution across countries. In particular, few studies have explored the potential role fiscal decentralization may play in income distribution. The theoretical links between decentralization and income distribution appear to be quite numerous and complex, and they are often likely to work in opposite directions. Therefore, it is not possible a priori to anticipate

what the effect of fiscal decentralization on income distribution may be; the *net* effect is largely an empirical question.

A large panel with data on Gini coefficients and measures of fiscal decentralization from a variety of countries was used in this analysis, and we find, in the aggregate, suggestive evidence of a statistical relationship between those variables. In addition, findings from Martinez-Vazquez and Sepulveda (2007) reveal that, after controlling for the endogeneity of fiscal decentralization and specific country effects, decentralization leads to greater income inequality when government represents a small share of the GDP. As the size of government increases, though, decentralization turns out to have a positive and significant effect on income distribution. Clearly, much more research is needed to arrive at a better understanding of the relationship between decentralization and income distribution.

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