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Jorge Martinez-Vazquez
Georgia State University

Andrey Timofeev
Georgia State University

Georgia State University | Andrew Young School of Policy Studies

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Jorge Martinez-Vazquez and Andrey Timofeev*

Georgia State University, P.O. Box 3992, Atlanta, GA 30302-3992, USA

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* Corresponding author: tel: (+1) 404-413-0230, fax: (+1) 404-413-0244, e-mail: atimofeev@gsu.edu. We are thankful to Harold Vásquez-Ruíz for able research assistance.

A Fiscal Perspective of State Rescaling

Abstract

Recent socio-spatial studies point out a number of ongoing trends in the "scale division of labor of the state," including among others, "destatization," "denationalization, and "internationalization." We draw on the literature in public economics to review several approaches to measuring state rescaling. We employ these measures to produce empirical evidence on the extent of state rescaling and its determinants. We find that over the last two decades there has been a world trend towards decentralization while the average government size has not changed.

Keywords: Fiscal Decentralization, Size of Government, Globalization

JEL Classification: F43, H11, H77

1. Introduction

Geographical scale has been playing a central role in the socio-spatial studies of the last several decades. Three key processes of socio-spatial restructuring have been identified in the literature on the "scale division of labor of the state," (MacLeod and Goodwin 1999): the agencification of government apparatus and increased involvement of non-government players in governance especially at the regional and local scales ("destatization'); growth of intervention at the subnational and supranational arenas ("denationalization"); and emergence of territorial and functional transnational linkages of cities and regions with foreign entities (internationalization). Parallel to these developments, public economics and public administration scholars have been documenting decentralization of government unfolding throughout the world since the 1980s (e.g., Arzaghi and Henderson 2005).

State rescaling has been hypothesized to be part of the overall socio-economic transformations in countries around the world, including democratization and integration in political and economic blocks, such as the European Union. Moreover, the underlying socio-economic transformations have been conjectured to have a two-directional relation to the scale division of the state.

In order to document the scope of the rescaling of the state and measure it in a way that allows for comparative study and testing of potential causal links, it is necessary to go beyond individual case studies and to employ national and international statistics. However, while being only one part of the socio-spatial restructuring, rescaling of the state is in turn comprised of many elements. A single indicator cannot capture the entirety of the distribution of powers among the different levels of government and also powers of the state vis-à-vis the private sector. This is because the different aspects of government activity (regulation, financing, administration, and service delivery) cannot be captured with the same single indicator. The most significant limitation arises from the fact that regulation, the most common form of government intervention, cannot be reasonably measured by any single indicator, in particular, by using existing fiscal data. Although conceptually it may be possible to go beyond fiscal data and, for example, measure the fraction of the national economy that is subject to the regulation by different levels of government, in reality, that kind of data are not readily available in a form consistent across countries and over time.

Therefore, in this paper we limit the analysis of the scope of state rescaling to assessing the relative roles of levels of government in financing, administration, and service delivery. These three roles of government can be

encapsulated in the vertical government distribution of powers for raising and spending public resources. That is, on the scope and extent of fiscal decentralization in any particular country.

The objective of this study is threefold. First, we revisit the issue of how to measure fiscal decentralization and government size. . Second, we employ these measures to produce empirical evidence on the world trends in decentralization and destatization in the last two decades. Finally, to the extent that the scale division of state is the product of past socio-spatial processes, we attempt to explain differences across countries and over time in the roles of government tiers by examining links to documented evolution of underlying processes: indexes of globalization, ethno-linguistic fractionalization, level of economic development, country size, urbanization, and others. We use panel data of developing and developed countries over the period 1990-2006.

The rest of this paper is organized as follows. In section 2 we review the different empirical measures of decentralization and government size and discuss the potential determinants suggested in the literature. In section 3, based on more recent data we update the existing empirical evidence with our own refined measures and examine empirically the extent of decentralization and "destatization" and what may be the main determinants in this process. In the final section we conclude.

2. Measuring Fiscal Decentralization and Government Size

Decentralization is commonly defined as the process of transferring decision-making powers to subnational tiers of government. Although different levels of government can be allocated exclusive decision-making powers for separate public services, frequently the assignment of functions is concurrent; this means that more than one government level is responsible for the service. For this reason, the economics literature identifies several distinct attributes of government authority in the assignment of each function, each of which can be separately assigned among the levels of government and therefore should be measured separately. Essentially, governments at any level operate through regulation, financing, administration, and delivery of public goods (Philip, 1954).

Regulatory powers can be defined as those authorizing governments to undertake "policies and decisions [that] assist, direct, guide, and govern the production, exchange, and distribution of goods in the private sector, as well as the administration of justice, civil rights, free speech, etc" (Breton and Scott 1978, p. 12).[1].

[1] Among other things, delineation of the power of regulation also includes what is referred to by some scholars as administrative decentralization (Litvack and Seddon, 1999).

The responsibility for *financing* entails the provision of financial means required to discharge a particular government function and usually involves authority to levy taxes and charge user fees in order to recover the costs of public services.

Administration (or provision) of public services is the aspect that most economic theories focus on. This aspect of government authority deals with the different stages of the budget process from programming government activities to reviewing implemented programs.

The final aspect of government authority —responsibility for *delivery* of public services—concerns the physical production of goods and services, that is purchasing and combining factor inputs (such as capital, labor, raw materials, land, technology, or management) to produce desired outputs.

In summary, the definition of decentralization suggests that it is a multifaceted process. Therefore, we can observe different extents of decentralization for each of the four components (or attributes) of government power (regulation, financing, administration, and delivery). Therefore, no single-dimensional measure can capture the full extent of decentralization.

2.1. Measures of decentralization and techniques used in the literature

The best approach to measuring the extent of fiscal decentralization has been long debated in the economics literature.[2] The two measures of decentralization most commonly used in the economic literature are decentralization ratios calculated for government revenues and expenditures respectively. Thus, on the expenditure side, decentralization is measured as a ratio of subnational government spending to general government spending (Oates 1972; Zhang and Zou 1996; Davoodi and Zou 1998). Essentially such a ratio measures the relative responsibility of local governments for the financing, administration and delivery of public services.

However, observed local expenditures result from an interaction of the scope of responsibilities devolved to subnational governments, on the one hand, and local demand for these services and efficiency of their provision, on the other hand. A ratio of local/general government expenditures can be misleading if local governments simply act as spending agents of the upper-level governments and are constrained by conditionalities attached to intergovernmental revenue. In addition, economic development is associated with increasing real costs of labor relative to the costs of non-labor inputs, which become cheaper with the adoption of new technology (see Baumol 1967). Therefore, if local government services (e.g., education) are more labor

[2] For a thorough discussion see Riker (1964, p. 51-84), Oates (1972, p. 196-99), and Bahl and Linn (1992, p. 390-91). For a comprehensive review of econometric applications see Feld et al. (2008).

intensive than the services provided by the central government (e.g., defense), then the share of subnational expenditures would appear to be increasing under a constant delineation of government authority.

As an alternative, decentralization can be measured as a ratio of locally-generated revenues to the general government revenue (Oates 1985; Woller and Phillips 1998; Akai and Sakata 2002). This second measure of fiscal decentralization complements the first one in a sense that it shows whether taxation powers allow local governments to discharge their functions independently. Essentially it measures relative power of local governments to self finance their services. However, this measure can overstate the role of the central government if a large portion of its revenue is transferred to fund administration and delivery of public services provided by subnational governments.

The difficulty lies in that, as we remarked above, a single decentralization ratio is very unlikely able to capture the entirety of powers assigned to the subnational level. This is because different aspects of government activities (regulation, financing, administration, and delivery) cannot be captured with the same indicator. As a matter of fact, regulation, while being the most common form of government intervention, cannot be

measured by any indicator constructed from fiscal data.[3] Attempts have been made to measure the power of regulation with non-fiscal indicators such as qualitative surveys of governments[4]. If mandates imposed on local governments are funded by the central government, then the power of regulation can be measured with the extent of conditional grants in local government revenue (Levin, 1990).

Setting aside the regulation aspect, we can make progress by using fiscal data to separately approximate other aspects of decentralization by properly modifying the decentralization ratio technique. Thus, responsibility for financing public services can be measured as total expenditures of a given government net of received grants.[5] If received grants are earmarked for a particular function then we can measure the responsibility for financing this particular function as the total outlays on that function less the received grants earmarked for that function. The power of administration can be measured as total expenditures of a given government net of grants provided to other governments.[6] Finally, the direct responsibility for service delivery can be

[3]However, a larger involvement of the government into regulation would require more civil servants to develop laws and regulations, which should be captured by the fiscal indicators as larger expenditures on public administration.
[4] See, for example, OECD (2002, section 2.3.7).
[5] This should be equivalent to measuring the own-source revenue provided that borrowed funds do not play a big role, which should be the case for recurrent expenditures.
[6] A further refinement can be made here by distinguishing between unconditional grants and revenue sharing, which provide subnational governments with financial security and spending authority, and conditional or tied grants.

measured as total expenditures of a government net of grants and contracts awarded to private contractors.[7]

2.2. Determinants of fiscal decentralization

There are only a limited number of studies in the economics literature on the positive theory of decentralization. That is, why is it that some countries are more decentralized than others and why some countries are more decentralized today than in the past? Several approaches have been suggested to explore this issue. One area of research attempts to explain the observed variation in the vertical structure of government with the magnitude of potential gains from fiscal decentralization as predicted by the normative theory (Oates, 1972; Wallis and Oates, 1991). This approach is formalized in stylized models capturing a trade-off between efficiency gains from decentralization and the fixed costs of setting up a separate level of government; some other models also add the disutility of the leviathan central government from having to share public resources with subnational government to the fixed costs of setting up a separate level of government (Panizza, 1999; Arzaghi and Henderson 2005). Another approach is to make inferences on the determinants of decentralization by looking at the historical experience of different countries (Wheare 1953,

[7] Note that by contracting with private providers, typically, subnational governments maintain their responsibility for the final service delivery outcomes as part of the retained power of service administration.

Bahl and Linn, 1992). For example, the level of development may affect the level of decentralization.[8]

2.2.1. Theoretical Predictions

The economics literature

The traditional theory of fiscal federalism prescribes what functions and revenue instruments should be assigned to different levels of government in order to maximize social welfare (Musgrave and Musgrave, 1980; Oates, 1972). For example, it has been argued that macroeconomic stabilization and income redistribution should be the responsibility of the higher-level government.[9] This argument is based on high mobility of economic units across local boundaries and the fact that local governments cannot control macroeconomic instruments such as monetary and exchange-rate policies. Thus, a greater need for stabilization and redistribution efforts (stemming from unemployment, poverty, etc.) would result in higher centralization in the public sector. In addition, as the propensity to engage in income redistribution has a relatively high income-elasticity (Oates and Wallis, 1991), based on normative grounds, we might expect higher income countries to have more centralized public sectors.

[8] But these arguments are prone to circularity; for example, decentralization may also affect the level of development (Martinez-Vazquez and McNab 2003).

[9] In the literature there are theoretical cases for both decentralized macroeconomic policies and income redistribution at the local level (Oates, 1999). Moreover, there is some empirical evidence on effective redistributive activity undertaken by regional and local governments (e.g., Kirchgassner and Pommerehne, 1996).

By contrast, government functions that have no inter-jurisdictional spillovers are prescribed for provision at the local level. Thus, Musgrave and Musgrave (1980) argued that, since the benefit incidence of various social goods is subject to spatial limitations, each service should be decided upon and paid for within the confines of the jurisdiction in which the benefits accrue. By moving decision-making closer to the people we can achieve welfare gains from tailoring public goods to heterogeneous preferences prevailing in different localities. This normative proposition is known as Oates' (1972) "Decentralization Theorem." It states that in the absence of economies of scale and inter-jurisdictional spillovers, decentralized provision of public goods is superior (welfare enhancing) to any uniform level of provision.

The magnitude of potential gains from decentralized provision of public goods depends on the extent of variation in preferences and costs across localities.[10] Thus, if the magnitude of welfare gains has any explanatory power, we would observe a greater role for subnational government in countries with greater population diversity as shown by socioeconomic indicators (provided that the variance in tastes is larger between jurisdictions than within them). This prediction is reinforced by, but by no means wholly dependent on, a population with a high degree of mobility.

[10] For the same extent of heterogeneity in preferences (differences in costs), potential gains from decentralized provision of pubic goods increase (decrease) with the price elasticity of demand for these public goods. See Oates (1998).

Panizza (1999) turns these normative predictions for decentralization into a positive theory by linking the size of the public sector to taxpayers' satisfaction with the type of public goods provided. Thus, a budget-maximizing central government faces a trade-off between its share in the public sector and the total size of the public sector. A gain in the total size of the public sector can result from moving decision-making on the type of public goods provided closer—in terms of physical and social distance— to the taxpayers, thus making them demand more of the public good whose type better matches their preferences. Moreover, with an increasing level of democracy, government can be hypothesized to be more dependent on the residents' satisfaction with public goods. This model suggests that the equilibrium level of decentralization should be positively correlated with the heterogeneity of tastes for public goods among residents, with the country size, and with the level of democracy. In addition, for chosen forms of the residents' utility function, the equilibrium level of decentralization may also be positively correlated with the income level.

Arzaghi and Henderson (2005) model the creation of subnational governments— under limited population mobility— as being determined by the balancing of the fixed costs of subnational administration with the "spatial decay" of goods provided from the center.[11] For a benevolent government,

[11] The modeling of the "spatial decay" is general enough to in include all kind of inefficiencies of centralized government relative to subnational government: costs of signaling preferences to

their model predicts that adoption of decentralized structures is promoted by (1) larger income, (2) larger population, (3) higher spatial decay of local public services provided to the hinterland by the central government, (4) higher relative income in the hinterland region, (5) larger population share of the hinterland, and (6) lower fixed costs of government for the hinterland region. For a partially leviathan government, their model has the same prediction plus the additional one that adoption of decentralized structures is promoted by there being a greater degree of local democratic culture, compared to the national level, i.e. subnational government being less of a leviathan than the central government.

On the revenue side, the normative theory prescribes the design of the vertical structure of taxes according to the relative extent of economic distortions induced by taxes when the latter are levied by different levels of government. The implication of the normative theory is that decentralized governments should tax mobile economic units with benefit levies and less mobile ones with taxes (Oates and Schwab, 1991; Oates, 1999). Thus, on efficiency grounds, we should expect higher centralization of revenues in those countries with more mobility of economic agents and resources (e.g., capital) vis-à-vis less mobile tax bases (e.g., land).

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the government, the transaction costs of bargaining in the legislature, or the costs of monitoring the executives (Breton and Scott 1978; Inman and Rubenfield 1997).

The political economy literature

The causes and significance of the rescaling processes are still being debated in the political economy literature. Among other things, rescaling has been conjectured to be linked to the changing balance of spatial fixity and mobility of economic agents across regions, nations, and continents, due to improved conditions of telecommunications, transport, and trade.

However, there does not seem to be an agreement on the direction of the impact of the increased mobility of factors of production. Some scholars suggest that increased competition pressures will limit the range of feasible policies pursued by local governments especially in the area of environmental and other regulations of businesses, social policies, and taxation (Peck and Tickell 2002, p. 46). At the same time, global economic forces have very different but often severe local impacts ranging from explosive inflow of labor and business establishments in some areas to dramatic decline of traditional industries in other areas. Such local impacts force local governments to come up with coping strategies. Some scholars even have suggested the emergence of local neo-Keynesian economic policies as a response to the local outcomes of the national neo-liberal policies (Eisenschitz and Gough 1996).[12]

[12] From an economics literature perspective, the conventional wisdom going back to Musgrave and Musgrave (1980) is that local fiscal stimulus policies are likely to be ineffective because of

There is no agreement either on the direction of causality between rescaling of the state and socio-economic transformations. While the existence of territorial branches of the state might not be necessary for the scale division of socio-economic processes, the spatial structure of the state can shape the latter. Indeed, having coercive and other powers over the content of geographical areas, state agencies are often sought to be influenced by local interest groups and thus determine the organizational structure (dubbed "space of engagement" in Cox, 1998). However, the local interest groups do not have to take the scale division of state authority as given but might also attempt to reshuffle the vertical distribution of state powers towards the scale where that interest group (or the network of associations it belongs to) is more effective in exercising influence.

Policy Wisdom

The economic policy debate contributes two more potential determinants of fiscal decentralization. It is argued that decentralization can affect planning and administrative costs due to the abundance of overlapping functions. These costs are expected to be higher in regions with larger land areas (Oates, 1972) and lower population densities. At the same time, the extent of concentration of the population in urban areas has ambiguous implications

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the "openness" of the local economies and therefore the small size of local public expenditure multipliers.

for the vertical structure of government. On the one hand, if population is concentrated in a few localities, it may be less costly to govern the whole region from the single center. On the other hand, the concentration of population in urban areas makes it economically desirable for the local sector to provide a wider range of services that involve significant indivisibilities (museums, zoos, theaters, etc).

Bahl and Linn (1992) claim that there is a relatively high threshold level of economic development below which fiscal decentralization may be ineffective. Similarly, in his seminal study of four federal governments (Australia, Canada, Switzerland and USA), Wheare (1953) argued that decentralization is a costly enterprise and thus a country should be affluent enough to succeed in such a reform. However, Oates (1993) points out that industrialized countries have seen trends towards more centralization. Thus, what we observe is a more complicated interplay of government decentralization and economic development trends.

There are also suggestions that the delineation of authority among the levels of government might be driven by political rather than economic factors. Thus, one comprehensive study of 11 federations, suggest that in virtually all cases the particular distribution of powers in a specific country is mostly the outcome of political bargaining rather than “based on a fundamental logic”

(Watts, 2006, p. 335). Similarly, country studies by Montero and Samuels (2004) find that political expediency rather than economic efficiency played a major role in prompting decentralization in Latin American countries. Among the political factors the literature include ideology, the ruler's private believes, and the configuration of political coalitions (Marks and Hooghe, 2000). In addition, sharper territorial diversity not only represents larger efficiency gains from decentralization, as mentioned above, but it also weakens the political support for a stronger central government (Watts, 2006).

The "crisis effect" hypothesis suggested by Bahl and Linn (1992) is based on the observation that during periods of distress (wars, natural catastrophes, etc.) countries tend to centralize all available resources. This is in agreement with the historical study by Wheare (1953, p. 259), who quotes "power politics, depression politics, welfare politics and the internal combustion engine," among the forces that caused the federal governments to increase its importance at the expense of the federating states. These crisis-induced periods of centralization can have a long-lasting legacy. Thus, countries with periods of military or authoritarian rule (e.g., Brazil, Mexico, and Nigeria) tend to be more centralized relative to countries with a similar starting point but without such periods (Watts 2006).

In the next section we shall make use of all the aforementioned variables to explore how well they can explain variation in the extent of decentralization observed in different countries. It should be noted however, that many of those factors, while varying significantly across countries, show little change over time for a given country. This might explain the fact that most of empirical studies up to date have focused on cross-country variations. However, the focus of this study is on the changes in the role of subnational governments in the last few decades. Therefore, we will be looking for explanatory power in the country characteristics that have exhibited some dynamics over time. The only variables from those mentioned above that are not time-invariant are the population size, urbanization, economic development, inter-regional inequality, economic cycle, and democracy. However, many of these variables are likely to be confounded with the fiscal decentralization process rather than being exogenous causes of it.

Concerning the role of the mobility of factors of production suggested in the political-economic literature, the only data available are on the mobility across national borders captured by globalization indexes (Dreher 2006). We believe this could be a good proxy for the mobility of factors of production in most countries except the largest economies, like for example the USA, where a

significant portion of mobility occurs between regions of the same country (e.g., from New England to the South East).

2.2.2. The empirical literature

The comparative explanatory power of the economic theory and policy wisdom factors has been empirically tested in several studies. In a cross-sectional analysis of 58 countries for 1965, Oates (1972, p. 207–8) found an inverse relationship between the fiscal share of the central government (either in revenues or expenditures) and the extent to which the population of geographic sub-areas identify "self-consciously and distinctively with that area." In addition, Oates found that population size, land area, and per capita income have a significant inverse relationship with the degree of fiscal centralization. He also attempted to employ dummies for population heterogeneity (assuming a value of one for countries with little linguistic, racial and religious differentiation), which turned out to have negative, although insignificant, coefficients in a cross-country analysis of the degree of fiscal centralization. Yet, Panizza (1999) obtained the opposite results by using a continuous measure of ethnic fractionalization in a cross-sectional analysis of a 55 countries at three separate points of time: 1975, 1980 and 1985. At the same time, similar to Oates (1972, p. 204–5), Panizza found that country size and income per capita are negatively correlated with the degree of fiscal

centralization measured for either revenues or expenditures. Arzaghi and Henderson (2005), on a panel of 47 countries for 1975, 1985 and 1995, also find that income per capita, population, land area, and the degree of population concentration in the largest (typically, the capital) city are negatively related to expenditure centralization. Both Panizza (1999) and Arzaghi and Henderson (2005) find that the level of democracy has a negative association with the degree of fiscal centralization.

In a panel analysis of data from 1902–1982 for 48 US states, Wallis and Oates (1991) found that the extent of state-local centralization of expenditures varies inversely and significantly with population size and percentage of urban population. In addition, they noted that the extent of rural homogeneity is negatively associated with centralization in the state-local sector.

2.3. Measures of destatization and techniques used in the literature

Empirical measures of destatiziation, meaning the diminishing role of the state vis-à-vis the private sector, have been suggested in the economics literature examining the impact of economic development and fiscal decentralization on government size. Typically the focus in these studies has been on the behavior of general government revenues relative to GDP. However, similar to the problems discussed above for the revenue decentralization ratio, government revenues relative to GDP could be

misleading for a variety of reasons, for example, if the collected revenues are transferred back to citizens in the form of cash transfers and vouchers and health insurance coverage to purchase education and healthcare services in the private sector. Therefore, as an alternative measure we also use in our analysis general government consumption relative to GDP.

2.4. Determinants of fiscal destatization

As suggested by Shelton (2007), the determinants of government size can be broadly classified into those affecting the supply of government services (e.g. tax competition) and those affecting the demand for government services (e.g. demographics or trade openness). For example, a greater share of school age population requires larger expenditures on education while a greater share of population over working age requires larger expenditures on healthcare and social work.

In the economics literature the classical hypothesis known as Wagner's Law states that the relative size of the government sector increases as society becomes more affluent and complex due to the increasing need for public regulation and protection and also because certain public goods, such as education and cultural enhancements, are believed to be luxury goods with income demand elasticities greater than one (Henrekson 1993). To the extent that government is part of the services sector, which is believed to be more

labor intensive than the rest of the economy, the relative costs of these services will tend to increase with economic development as predicted by Baumol's Law. This Law states that economic development is associated with increasing real costs of labor relative to the costs of non-labor inputs, which become cheaper with the adoption of new technology (Baumol 1967).

Rodrick (1998) hypothesizes that more open economies are subject to a greater risks, such as exchange rate and volatility in world commodity prices, and therefore these countries use the public sector as an insurance mechanism either in the form of explicit social protection (as in developed countries) or less targeted solutions such as public employment (as in less developed countries.) In a similar vein, Alesina and Wacziarg (1998) suggest that small countries tend to have larger governments due to diseconomies of scale.

According to the Leviathan hypothesis (Brennan and Buchanan, 1980), decentralization reduces the size of government due to the presence of efficiency gains and government competition.[13] The opposite hypothesis (attributed there to John Wallis in Oates, 1985) states that decentralization tends to enlarge government size because citizens will demand more services that better match their preferences and are willing to pay more taxes for those services.

[13] An exhaustive review of empirical tests of the Leviathan hypothesis can be found in Feld et al (2003).

Besides the shares of subnational levels in general government revenues and expenditures, some Leviathan studies also have focused on the fragmentation of subnational tiers as an explanatory variable.[14] For this type of measures, all other things being equal, a larger number of smaller local governments implies a higher level of fiscal fragmentation. And this has been given different interpretations: degrees of freedom for tailoring public goods to heterogeneous preferences; intensity of tax competition among jurisdictions; concentration of bargaining power of local authorities vis-à-vis the central government; and so on. But, the issue of the number of local government units is also connected to economies of scale, inter-jurisdictional disparities and volatility of local revenues. This aspect of an intergovernmental finance system has been measured as the absolute number of local jurisdictions, which can be normalized by population or land area. Thus, for example, while the share of state governments in India's general government revenue and expenditures is significant, the number of states relative to the national population is not large, suggesting a low degree of fiscal competition.

In a related indicator, Breton and Scott (1979) propose a way to measure fiscal fragmentation in the presence of more than one subnational tier. Their indicator is computed as the average of the fragmentation measures for separate

[14] See, for example, Oates (1985), Nelson (1986) and Eberts and Gronberg (1990).

tiers weighted by the respective shares of those tiers in general government expenditures.[15] In our empirical analysis we build on that idea to construct a measure of the relative absence of fiscal fragmentation, which is essentially a Breton and Scott's indicator but without the normalization by population or land area (see the Appendix for the mathematical formula); instead we allow population and land area to play a more flexible role and introduce them in our regressions as separate explanatory variables.

While there have been many empirical studies explaining government size, most often these studies tend to focus on one or just several determinants without properly controlling for the effects of other potential factors, as listed above. To the extent that many of these determinants are unlikely to be orthogonal, their omission can cause specification biases and therefore help explain the sometimes inconclusive and contradictory results. For example, one more comprehensively specified study uncovered that empirical support of Wagner's Law is likely to reflect aging population in developed countries leading to higher government spending on social services (Shelton 2007).

[15] The idea of the weighted average is also utilized in the theoretical model by Panizza (1999), where the citizen's utility from a public good is assumed to decrease with the weighted average of her distances from the center of the jurisdiction and the center of the country weighted by the respective shares of the public good provided by the two governments.

Similarly, the inconclusiveness of tests of the Leviathan hypothesis might be due to lumping together in one explanatory variable opposite effects, from tax competition resulting from revenue decentralization and over-fishing of the common revenue pool resulting from grant-financed expenditure decentralization (Rodden 2003).

3. Empirical analysis

Since 1990 the extent of fiscal decentralization in the world appears to have increased moderately on both the expenditure and revenue dimensions, as shown in Figure 1 for our sample of countries. However, there was a bigger increase in decentralization during the 1990s than in the last decade. Moreover, in OECD and middle income countries, for which earlier data are available, the current wave of decentralization follows a decade in the opposite direction of centralization due to geopolitical and economic pressures in the 1970-80s. Notwithstanding this cyclical development of decentralization, the comparison of average trends in different groups of countries reveals a certain pattern that has persisted throughout these years; for example, there appears to be a positive relationship between decentralization ratios and the level of development. As we explore below, it is much harder to trace rescaling to differences in

underlying factors. Rescaling can be interpreted as cyclical variations in decentralization over time as opposed to persistent differences across countries.

[FIGURE 1 ABOUT HERE]

Figure 2 provides some evidence on destatization, or the diminishing role of the state vis-à-vis the private sector; there we can see that the world average for government size has remained virtually unchanged since 1990. However, there appears to be a positive relationship between the income level group of a country and its government size. Furthermore, this relationship has persisted throughout these years.

[FIGURE 2 ABOUT HERE]

In this section of the paper we explore empirically the explanatory power of the different factors potentially affecting the process of rescaling. To conduct this analysis we have put together a panel dataset for 76 countries covering the period 1990-2006.[16] Given that we have longitudinal data, there are two ways to look at the relationships among variables in our dataset. First, we can examine how cross-country differences in government size and fiscal shares of subnational governments are linked to differences in country characteristics. This is achieved with the help of the "between estimator," which essentially

[16] However, due to missing observations the sample size varies between different specifications from 44 to 61 countries. We explicitly exclude China and India as outliers. More details on the construction of our variables are provided in the appendix.

takes the mean of each variable for each country across time and runs a regression on the collapsed dataset of means. This strategy allows one to examine the impact of the variables surveyed above, which, while changing slowly over time, vary more significantly across countries. However, the collapsing of data results in a loss of information, in particular on the evolution of variables over time, which is exactly what state rescaling is mostly about. Nevertheless, we perform the between estimation as a baseline to relate our results to the previous studies, which have mostly focused on cross-country variation. This baseline also allows us to point out that cross-country differences can be of limited value for studying changes over time.

A complementary approach would be to focus on changes of our variables over time while sweeping out the effects of time-invariant factors, in particular those that we cannot observe directly. However, two kinds of problems arise when this approach is pursued through the common techniques of first-differencing or demeaning achieved with the inclusion of country dummies as the so-called “fixed effects.” First, short-term fluctuations of our variables—for example larger social expenditures in the times of recession—would be irrelevant for our study of the role of government, which should be considered over the whole business cycle and, like other policies, changes only in the medium term. To control for these business cycle aspects, we perform

statistical analysis on a dataset consisting of three-year averages of our annual data.[17]

The second challenge in examining changes over time is that measurement errors— inevitable as our indicators are imperfect proxies for socio-economic processes—may dominate the changes in slowly-evolving institutional variables. Under both first-differencing and fixed-effect techniques this measurement error problem often leads to econometric results that are "unsatisfactory, with 'too low' and insignificant coefficients" (Griliches and Hausman 1986, p. 93). A related problem with slowly-evolving variables is that past shocks fade out slowly over a number of subsequent periods, which may violate the assumption of independently distributed disturbances and may lead to misleading inferences due to autocorrelation of the disturbances. The attempts to account for autocorrelation by including the lagged dependent variable as a regressor in the presence of fixed effects, rather than helping, can add a downward (so-called Hurwicz type) bias to the estimates when the number of time periods is small.

The only available solution to both the measurement errors and autocorrelation of disturbances is to use the instrumental variable estimation proposed within the general method of moments (GMM), which allows for a

[17] For a similar approach see, for example, Davoodi and Zou (1998) and Woller and Phillips (1998).

large number of—as is often the case—weak instruments. An additional advantage of the use of instrumental variables is that it allows parameters to be estimated consistently even when some of our explanatory variables are endogenous.

Under the difference GMM estimator proposed by Arellano and Bond (1991), lagged levels are used as instruments for subsequent first-differences. However, this estimator does not perform very well in small samples, especially when the persistence of past shocks is high and the variation in country effects is large relative to variation of the residual white-noise disturbances. Under these circumstances better results can be obtained using the system GMM estimator developed by Blundell and Bond (1998), who combined equations in differences instrumented with lagged levels and equations in levels instrumented with lagged first-differences. However the validity of lagged differences as instruments hinges on the assumption that the country effect is unrelated to the first observable first-difference of the dependent variable. When this assumption does not hold—manifested by rejection of the test of overidentyfying restrictions—one is left to try improving on the difference GMM estimator by finding additional instruments.

3.1. Determinants of decentralization

We perform separate estimations for alternative measures of decentralization as the dependent variable: the expenditure decentralization ratio and the revenue decentralization ratio. In the first two columns of Table 1 we report the results of the "between estimation," based on the time averages of the longitudinal observations for different countries in our sample. This estimation differs from prior cross-sectional analyses in that we use more recent data and examine time averages rather than a cross-section for a single year. In addition, we also add indexes of globalization to the explanatory variables used in the previous studies.

[TABLE 1 ABOUT HERE]

Table 2 provides the complete list of explanatory variables that we considered in our regressions along with their definitions, sources of data, and expected impact according to the cited studies. Many of those variables turned out to be of little statistical significance and thus were omitted from the final regressions without substantial impact on the overall fit of the model or the estimates of the impact of remaining variables. The included variables jointly explain more than sixty percent of cross-country variation for both measures of decentralization.

[TABLE 2 ABOUT HERE]

The four variables that have some explanatory power for cross-country variation in decentralization are land area (positive), ethno-linguistic fractionalization (positive), the historical factor of French law (negative), and social integration in the global world (positive). This latter variable is measured by the intensity of personal contacts, information flow, and cultural proximity.[18] For population size and income per capita, the estimates do not exceed their standard errors; however we include these variables for comparison with the estimation on changes over time reported immediately below.

The system GMM estimation reported in the last two columns of Table 1 suggests that revenue decentralization evolves according to a random walk as the autoregressive parameter cannot be statistically distinguished from unity, meaning that past shocks determine the future trajectory while the impact of other variables is insignificant. At the same time, for the expenditure decentralization, past shocks are less persistent and a number of explanatory variables have a statically significant effect. Thus, similarly to the between estimation results, decentralization of expenditures is related to ethno-linguistic fractionalization (positive) and the historical factor of French law (negative). However, there are some additional dynamic effects. Thus, while larger (land-wise) countries seem to be more decentralized, they have a tendency to

[18] Out of the three sub-indexes of globalization (economic, social, and political), we report results only for the one with highest statistical significance unless other sub-indexes have a qualitatively different impact.

centralize expenditures over time. Population size and income per capita, which had statistically insignificant impacts in the between estimation, are here positively and statistically significantly related to decentralization of expenditures in the dynamic panel.

3.2. Determinants of Destatization

In this section we explore how the variation in government size across countries and over time is related to differences in the countries' characteristics. In our regressions we include the indexes of globalization in addition to the explanatory variables employed in past studies testing the Leviathan hypothesis and Wagner's Law. Table 3 provides a complete list of the explanatory variables that we considered in our regressions along with their definitions, sources of data, and expected impact according to the cited studies. Many of those variables turned out to be of little statistical significance and thus were omitted from the final regressions without substantial impact on the fit of the model or the estimates of the impact of remaining variables.

[TABLE 3 ABOUT HERE]

As can be seen from Tables 4 and 5, the results from the between estimation are qualitatively similar for both measures of destatization as the dependent variable. Thus, more populous countries have smaller governments while countries with larger share of population under and over working age

seem to have a larger government sector. There appears to be a positive association between government size and social integration in the global processes. Alesina and Wacziarg (1998) attributed this empirical regularity to a spurious correlation, as small countries tend to be more globalized and at the same time have larger governments due to diseconomies of scale. However, we find a positive relationship between globalization and government size even after explicitly controlling for the country population.

[TABLE 4 ABOUT HERE]

[TABLE 5 ABOUT HERE]

More competitiveness in the public sector in terms of fragmentation of subnational jurisdictions is associated with a smaller government size. Decentralization of expenditures is associated with larger government while decentralization of revenues is associated with smaller government. However, the differences in significance levels suggest that the impact of revenue decentralization is more pronounced for general government revenue while the impact of expenditure decentralization is more pronounced for government consumption.

Explaining destatization—that is evolution of government size over time—turned out less successful. The system GMM model was rejected by the overidentifying restrictions test. At the same time the difference GMM

estimates of the autoregressive parameter were very close to those produced by the fixed-effect estimator, known to have a downward bias. With the small-sample bias of the difference GMM estimator being quite severe while the usual remedy (system GMM) not having the required additional conditions in place, it leaves us with a dilemma. As a last resort, we run a modified system GMM excluding some of the instruments and using land area as an additional instrument. While this modified model is not rejected by the overidentifying restrictions test, the quality of estimates is quite poor for governments size measured as general government revenue (Table 5).

For destatization measured in terms of government consumption, the only variable that has the same direction of impact as in the between estimation, is population size, which is associated with smaller government (Table 4). For the decentralization ratios, only revenue decentralization has a statistically significant impact on government consumption and that impact is positive. The dynamic panel model does seem to find supporting evidence of Wagner's Law even after controlling for demographic structure. In contrast to the between estimation results, in the dynamic panel model government consumption is negatively related to population under and over working age and social integration.

4. Conclusion

In this paper we link the discussion of state rescaling in the social sciences literature to the economics literature related to fiscal decentralization. We draw on the economic literature to propose quantitative measures of state rescaling and use these measures to find empirical evidence on the determinants of decentralization and destatization. According to these measures, over the last two decades there seems to have been a world trend towards decentralization while the size of the government on average has not changed. However, countries differ in the extent of their decentralization and government size. On the surface, these cross-country differences bear a direct relationship to the level of development. Furthermore, this relationship has persisted throughout the last two decades. We attempt to shed more light on this empirical trend by disaggregating this relationship into impacts of various explanatory variables on different aspects of rescaling.

While the economic literature can provide us with a list of factors potentially affecting government size and decentralization, the empirical framework of that literature is not directly applicable to study state rescaling. Studies of government size and decentralization make inferences through static comparisons across countries, while state rescaling is by definition about the evolution of the relative roles of different levels of governments over time. The dynamic panel analysis presents additional challenges including small changes

in institutional variables relative to measurement errors and persistence of past shocks. The challenge is that analytical tools that are available to deal with those issues, such as instrumental variables in the framework of general method of moments, do not perform very well in small samples.

Interpreting with caution the results of our dynamic panel analysis, we point out the differences in the impact of potential rescaling factors compared to results from a cross-country analysis. For example, while larger (land-wise) countries seem to be more decentralized, they also have a tendency to centralize expenditures over time, possibly due to new technologies lowering transaction costs (spatial decay) in the centralized provision of public services. The role of globalization, suggested in the political economy literature, is found to be of significance in the cross country analysis of both decentralization (positive) and government size (positive). However, the dynamic panel analysis finds a statistically significant impact of globalization only for general government consumption and this impact is negative. Apart from the poorer performance of dynamic panel methods with smaller samples, the differences from the between estimation results can be due to endogeneity and impact of omitted variables, which are better controlled for in the GMM framework.

The results of this paper have several implications for studying state rescaling and its outcomes. Besides reviewing potential determinants and

proposing a framework for comparative empirical analysis, the paper illustrates the importance of giving proper consideration when choosing out of several available measures of state rescaling. Indeed, we argue that fiscal decentralization unfolds along several dimensions at different paces and thus, progress should be measured separately for each of those dimensions. For example, our cross-country analysis finds that revenue decentralization is inversely related to general government revenue while expenditure decentralization is positively associated with general government consumption. These differences are consistent with the conjectures in the economics literature. Thus, reductions of government revenues are expected due to inter-jurisdictional tax competition (Brennan and Buchanan 1980) and the elimination of intra-regional redistribution as result of self-sorting into homogenous income communities (Musgrave and Musgrave 1980). At the same time government consumption has been hypothesized to increase with decentralization due to the loss of certain economics of scale (Oates 1972, 1985) and possibly weaker public management resulting from poorer quality of bureaucrats at the local level (Prud'homme, 1995). Given that separate aspects of state rescaling can have different direction of relationship to their respective causes and effects, unbundling this rather complex phenomenon can make empirical results more enlightening.

Data appendix

This appendix describes construction of our variables.

Fiscal decentralization indicators. The panel data analysis on fiscal variable are obtained from the IMF's 2007 Government Finance Statistics Yearbook (GFS), which reports revenue and expenditures in the GFSM 2001 framework for the period of 1990-2007. References to historical trends over 1970-1999 are based on the IMF's 2004 Government Finance Statistics Yearbook (GFS), which reports revenue and expenditures in the GFSM 1986 framework for the period of 1970-2002. The main difference between the two frameworks, is that GFSM 2001 total expenditures do not include *acquisition of fixed capital assets, and purchases of stocks, land and intangible assets*, which are instead accounted under the *net acquisition of nonfinancial assets* (acquisitions/purchases). Similarly, GFSM 2001 total revenues do not include *sales of fixed capital assets, stocks, and land and intangible assets*, which are instead accounted under the *net acquisition of nonfinancial assets* (disposals/sales). In addition, in the GFSM 2001, gross revenues and expenditures of public enterprises are fully accounted in the total government revenue and expenditures respectively rather than just recording the net subsidy allocated from or net profit remitted to the budget. Finally, employer

contributions to the social funds contributed on behalf of government employees are not netted out in the process of consolidation of the budget and extra-budgetary sectors.

We use the following formulae to calculate the three decentralization measures respectively:

1) **Expenditure Ratio (ER)** = Subnational expenditure ÷ General govt. expenditure

Subnational expenditure = State expenditures (SG_2) + Local expenditures (LG_2)- State grants given (SG_263)- Local grants given (LG_263)

General govt. expenditure= Central expenditures (CG_2) + Subnational expenditure - Central grants given (CG_263)

2) **Revenue Ratio (RR)** = Subnational revenue ÷ General govt. revenue

Subnational revenue= State revenue (SG_1)-Grants received by states (SG_13)+ Local revenue (LG_1)-Grants received by local govts (LG_13).

General govt revenue= Central revenue (CG_1) + Subnational revenue- Grants received by central govt (CG_13).

3) Weighted inverse of fragmentation = {[Central expenditures (CG_2) - Central grants given (CG_263)]+[State expenditures (SG_2) - State grants given (SG_263)]/# of states +[Local_ expenditures (LG_2)- Local grants given (LG_263)]/# of municipalities}/ General govt. expenditure.

Example: In a hypothetical country:

1 jurisdiction at the national scale	CG expenditure share = 40%
20 jurisdictions at the state scale	SG expenditure share = 30%
500 jurisdictions at the local scale	LG expenditure share = 30%

Weighted inverse of fragmentation = 0.4+ 0.30/20+ 0.30/500 =0.4156

The code in parentheses refers to the corresponding GFS time series. For example, CG_1 refers to the time series with the GFS classification Code "1" for the consolidated central government sector. Where data for the consolidated central government sector were missing we used instead the sum of corresponding time series for the Budget Accounts (BA) and Extra-budgetary Accounts (EA), for example BA_1+EA_1 in place of CG_1. We combine data reported on cash and accrual basis and

use whichever is available in a given year. National, state and local sizes stand for the average jurisdiction size—land- or area wise— at the national, state, and local levels respectively.

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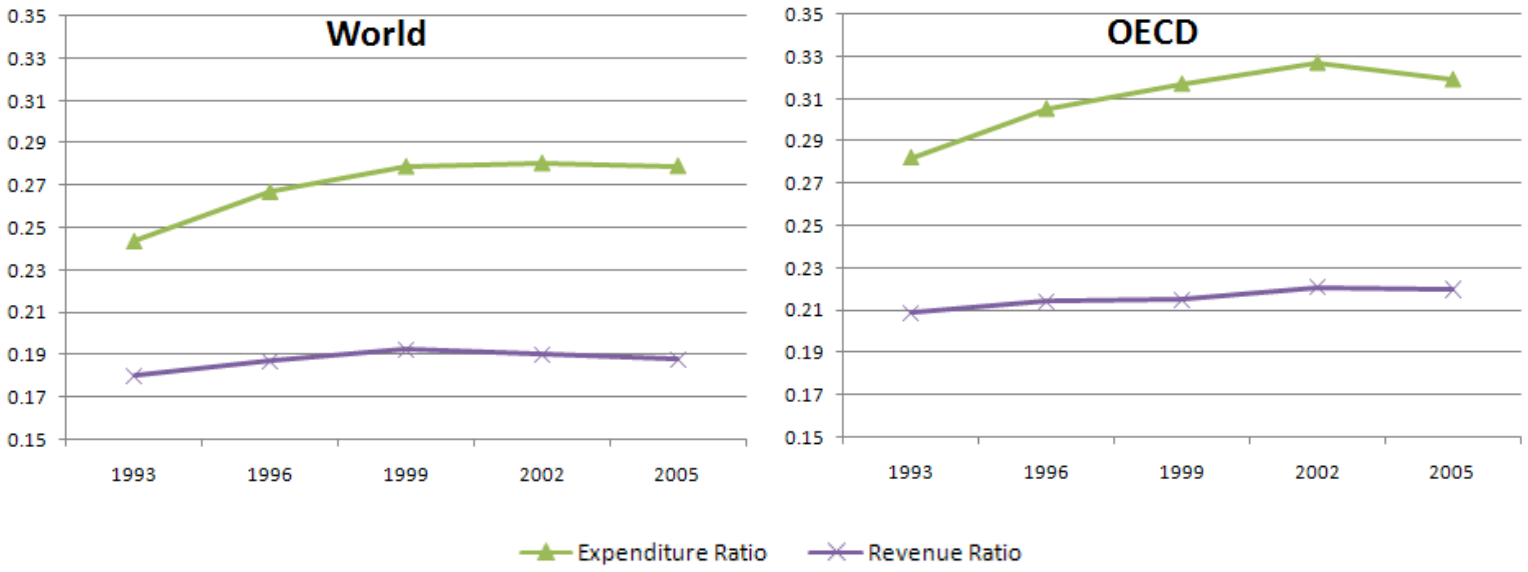
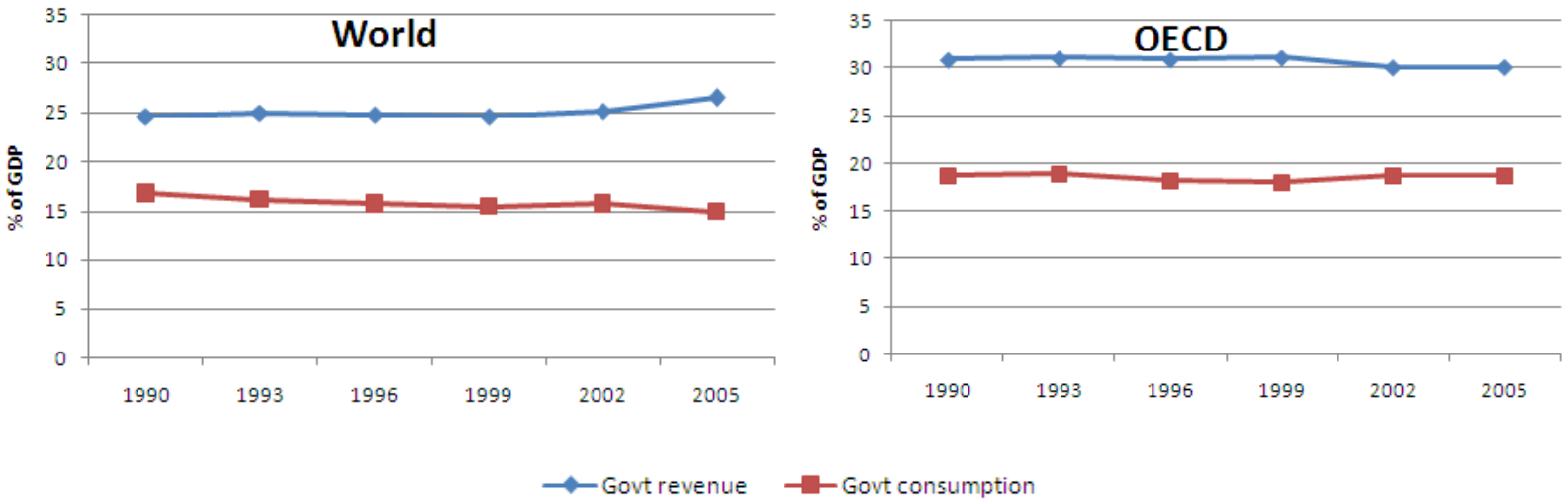
Figures

Figure 1. Fiscal decentralization trends since 1990



Notes: Prepared by authors using data reported in IMF GFS on 36 countries, out of which 1 LIC, 4 LMC, 11 UMC, 1 NOC, and 19 OECD countries.

Figure 2. Government size trends since 1990



Notes: Prepared by authors using data reported in WDI on 48 countries, out of which 8 LIC, 18 LMC, 9 UMC, 4 NOC, and 9 OECD countries.

Tables

Table 1. Determinants of fiscal decentralization

	Between Estimation		System GMM	
Dependent variable	ER	RR	ER	RR
Lagged decentralization measure			0.488***	0.952***
			(0.121)	(0.133)
Log (GDP per capita)	0.026	0.020	0.047**	0.006
	(0.025)	(0.019)	(0.019)	(0.015)
Log (national population)	0.004	-0.007	0.180*	0.012
	(0.015)	(0.012)	(0.045)	(0.020)
Log (national land area)	0.032***	0.037***	-0.146***	-0.007
	(0.011)	(0.010)	(0.036)	(0.012)
Social integration	0.003	0.003*	0.000	-0.001
	(0.002)	(0.001)	(0.001)	(0.001)
Ethno-linguistic fractionalization (ELF)	0.110	0.059	0.418***	-0.022
	(0.066)	(0.051)	(0.092)	(0.095)
French law	-0.062*	-0.035	-0.156**	-0.001
	(0.035)	(0.028)	(0.072)	(0.072)
N [countries]	223 [60]	233 [61]	161 [52]	169 [56]
R^2	0.60	0.61		
Sargan test (p-value)			0.69	0.95

Notes: Dependent variable is a fiscal decentralization measure. Time dummies included in all specifications. Robust standard errors are in parentheses.

Table 2. Definitions and sources of data for potential determinants of decentralization

Variable	Definition	Expected impact	Source of data
GDP per capita	Real GDP per capita in constant year 2000 USD	Negative (Oates and Wallis 1991) Positive (Wheare 1953; Bahl and Linn 1992; Panizza 1999; Arzaghi and Henderson 2005)	World Bank WDI
National population	National population in million persons.	Positive (Arzaghi and Henderson 2005)	World Bank WDI
National land area	Land area in sq. km.	Positive (Oates 1972; Panizza 1999)	World Bank WDI
Urbanization rate	Urban population as percent of total population.		World Bank WDI
Globalization	The overall index of globalization is a weighted average of three sub-indexes capturing economic, social and political integration respectively.	Positive (Eisenschitz and Gough 1996) Negative (Peck and Tickell 2002)	Dreher (2006), updated in Dreher et al (2008)
Ethno-linguistic fractionalization (ELF)	Ethno-linguistic fractionalization index calculated for 1985 using the Taylor and Hudson (1972) formula	Positive (Oates 1972; Panizza 1999; Arzaghi and Henderson 2005; Watts 2006)	Roeder (2001)
French law	A dummy variable for French legal origin		La Porta et al (1999)
Democracy	Overall democracy measured as the difference between democracy and autocracy indexes. Each of the two indexes takes on values between 0 and 10 and their difference ranges from -10 to 10	Positive (Panizza 1999)	Polity IV dataset , Center for Systemic Peace (2006)

Table 3. Definitions and sources of data for potential determinants of government size

Variable	Definition	Expected impact	Source of data
Weighted inverse of fragmentation	Weighted average of one over the number of jurisdictions at each tier weighted according to the respective shares of those tiers in general government expenditures. See the Appendix for formula	Positive (Brennan and Buchanan 1980)	Law (1999); IMF (2008)
GDP per capita	Real GDP per capita in constant 2000 USD is obtained from the from	Positive (Henrekson 1993)	World Bank WDI
National Population	National population in million persons	Positive (Alesina and Wacziarg 1998)	World Bank WDI
Globalization	The overall index of globalization is a weighted average of three sub-indexes capturing economic, social and political integration respectively.	Positive (Rodrick 1998)	Dreher (2006), updated in Dreher et al (2008)
Population<15yo	Population ages 0-14 (% of total)	Positive (Shelton 2007)	World Bank WDI.
Population>65yo	Population ages 65 and above (% of total)	Positive (Shelton 2007)	World Bank WDI.
Expenditure ratio (ER)	See Appendix for formula	Positive (Oates 1985)	IMF (2008)
Revenue ratio (RR)	See Appendix for formula	Negative (Brennan and Buchanan 1980; Rodden 2003)	IMF (2008)

Table 4. General government consumption as a share of GDP

	Between Estimation				System GMM			
	1	2	3	4	5	6	7	8
Lagged Government Consumption					0.456***	0.301	0.234	0.224
					(0.152)	(0.185)	(0.189)	(0.196)
Log (GDP per capita)	0.070	-0.149	0.039	-0.159	3.085**	4.175***	4.893***	4.984***
	(0.941)	(0.935)	(0.953)	(0.949)	(1.315)	(1.528)	(1.725)	(1.781)
National Population	-0.011	-0.012	-0.013	-0.013	-0.043***	-0.039**	-0.063***	-0.061***
	(0.013)	(0.013)	(0.014)	(0.014)	(0.016)	(0.017)	(0.020)	(0.022)
Social Integration	0.083	0.087	0.082	0.086	-0.105***	-0.106***	-0.067	-0.068
	(0.075)	(0.073)	(0.075)	(0.074)	(0.038)	(0.040)	(0.042)	(0.042)
Population<15yo	0.382*	0.377*	0.404**	0.396*	-0.628**	-0.781***	-0.889***	-0.900***
	(0.196)	(0.193)	(0.199)	(0.196)	(0.243)	(0.270)	(0.293)	(0.298)
Population>65yo	0.889**	0.937**	0.914**	0.956**	-0.915**	-1.164***	-1.616***	-1.624***
	(0.371)	(0.366)	(0.382)	(0.378)	(0.397)	(0.441)	(0.547)	(0.550)
Weighted inverse of fragmentation	2.739	33.618*	7.650	35.583*	-9.403	-48.305*	27.479	20.632
	(5.428)	(19.488)	(9.038)	(20.389)	(8.017)	(25.936)	(17.383)	(36.375)
Expenditure ratio		29.931		28.556		-40.533		-5.855
		(18.168)		(18.748)		(25.596)		(27.300)
Revenue ratio			6.966	4.785			37.551**	36.042**
			(10.278)	(10.237)			(15.961)	(17.486)
N [countries]	223 [60]	223 [60]	219 [59]	219 [59]	185 [59]	185 [59]	181 [58]	181 [58]
R^2	0.36	0.39	0.36	0.39				
Sargan test (p-value)					0.11	0.21	0.23	0.20

Notes: Dependent variable is government size measured as the ratio of general government consumption to GDP. Time dummies included in all specifications. Robust standard errors are provided in parentheses.

Table 5. General government revenue as a share of GDP

	Between Estimation				System GMM			
	1	2	3	4	5	6	7	8
Lagged Government Revenue					0.520 ***	0.297	0.506***	0.419**
					(0.134)	(0.210)	(0.145)	(0.197)
National Population	-0.031	-0.031	-0.022	-0.021	-0.075***	0.024	-0.104***	-0.044
	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)	(0.073)	(0.028)	(0.081)
Social Integration	0.205***	0.195***	0.204***	0.195***	0.013	0.144	0.075	0.157
	(0.068)	(0.068)	(0.065)	(0.064)	(0.054)	(0.107)	(0.074)	(0.133)
Population<15yo	0.590**	0.601**	0.598**	0.611**	0.017	0.379	0.015	0.247
	(0.282)	(0.279)	(0.270)	(0.265)	(0.285)	(0.392)	(0.366)	(0.505)
Population>65yo	1.552***	1.644***	1.681**	1.786**	0.339	0.672	0.072	0.145
	(0.520)	(0.519)	(0.496)	(0.490)	(0.481)	(0.554)	(0.713)	(0.813)
Weighted inverse of fragmentation	28.241***	55.905**	6.328	37.156*	2.749	236.983	37.351	201.322
	(7.477)	(21.515)	(11.869)	(21.806)	(6.664)	(163.900)	(27.823)	(207.015)
Expenditure ratio		26.619		30.906*		197.408		132.993
		(19.437)		(18.490)		(138.007)		(165.950)
Revenue ratio			-29.091**	-31.012**			(36.856)	47.439
			(13.039)	(12.833)			27.650	(33.983)
N [countries]	142 [55]	142 [55]	139 [55]	139 [55]	90 [44]	90 [44]	87 [44]	87 [44]
R^2	0.62	0.62	0.68	0.68				
Sargan test (p-value)					0.14	0.26	0.13	0.31

Notes: Dependent variable is government size measured as the ratio of general government revenue to GDP. Time dummies included in all specifications. Robust standard errors are provided in parentheses.