



Fiscal decentralization and the quality of government: evidence from panel data*

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Abstract

In this paper we focus on the relationship between fiscal decentralization and government quality. In a sample of 29 developing and developed countries over the period 1984-1997, fiscal decentralization has a positive effect on institutional quality but this effect diminishes as countries become wealthier. Moreover, the positive effect of fiscal decentralization on government quality is reduced by electoral and decision-making decentralization in poor and medium income countries whereas these forms of decentralization seem to improve the impact of fiscal decentralization on government quality in rich countries.

Keywords: Quality of government, fiscal decentralization, political decentralization, panel data.

JEL classification: H11, H77, K42.

1. Introduction

In this paper, we empirically investigate the relationship between fiscal decentralization and government quality for a sample of twenty-nine poor and rich countries over the period 1984-1997. The quality of government is a multi-dimensional concept (La Porta *et al.*, 1999).

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In general, government quality improves if the public sector does not distort the proper functioning of the private sector (respects property rights, does not over-regulate), is an efficient administrator (low corruption, less bureaucracy, high tax compliance), provides public goods (education, health, infrastructures, etc.) and, finally, allows for and protects political freedom.

A good number of empirical studies have pointed to the importance of good government for economic growth (Knack and Keefer, 1995; Mauro, 1995; Hall and Jones, 1999; Acemoglu *et al.*, 2001; Salinas and Salinas, 2007). But the quality of government has itself been the object of analysis in an effort to understand why some countries have better governments than others. In this context, La Porta *et al.* (1999) point to the importance of economic, political and cultural factors in explaining international differences in government quality. More recently, Adserà *et al.* (2003) and Persson *et al.* (2003) have shown the importance for government quality of periodic elections, a well informed electorate and well designed electoral rules¹.

Another factor which may determine variation in government quality is the degree of fiscal decentralization. As is explained in section 2 below, the theoretical literature provides arguments both for and against decentralizing fiscally in an effort to contribute towards better government. Similarly, the empirical studies that have examined the effect of fiscal decentralization on government quality have not clearly established the sign and significance of this relationship as is explained in section 3. This study will add to this empirical literature by estimating the impact of fiscal decentralization on government quality based on a panel of countries. It improves on previous studies which are mostly cross-section based not least because it increases the sample size and thus improves the precision of the estimates. Moreover, and as discussed in section 4, the use of fixed effects estimation corrects one serious problem affecting previous cross-section estimates namely, omitted variable bias.

The results obtained, discussed in sections 5 and 6, point to a positive relationship between fiscal decentralization and government quality in the case of poor to medium income countries. Another notable finding which emerges from the analysis is the impact of political decentralization on this relationship. Political decentralization erodes the positive effect of fiscal decentralization on government quality in poor countries while it seems to improve its impact on the quality of government in rich countries.

2. Theoretical priors

There are several theoretical arguments why decentralization may improve government quality. First, decentralized government will be better informed about local conditions and so can better satisfy citizen preferences (Oates, 1972). Second, citizens themselves may be better informed about local government activity and, assuming that local politicians are locally elected rather than centrally appointed, good (or bad) performance in such a setting can be directly rewarded (or punished) (Seabright, 1996; Tabellini, 2000).

Third, in a fiscally decentralized setting with interjurisdictional mobility and thus competition, we would expect locally elected governments to offer public goods more efficiently (responsive to local demands and at lower cost) and also to be less corrupt since economic agents would flee more corrupt regions (Hirschman, 1970; Brennan and Buchanan, 1980; Weingast, 1995; Montinola *et al.*, 1995). The capacity of economic agents to choose among regulatory regimes in a competitive setting will tend to drive down the degree of corruption whereas corruption is likely to increase in a setting characterized by numerous public monopolies all of which must be satisfied to undertake any particular economic activity (Shleifer and Vishny, 1993). In a competitive setting, voters can use the performance of each jurisdiction as a benchmark and this should increase efficiency in public good supply (Salmon, 1987; Breton, 1996).

The inter-jurisdictional competition literature emphasizes the importance of tying local revenues to expenditures for the proper functioning of competition since vertical transfers may create incentives for local officials to ignore competitive pressures for better management (Oates, 1999; Fisman and Gatti, 2002a). Similarly, in the context of revenue sharing schemes, assigning local government a greater share of revenue from locally-originating taxes may lead them to limit costly regulations and corruption as well as provide public goods more efficiently since these reduce economic activity and thus eventually reduce its tax base (Zhuravksaya, 2000; Jin *et al.*, 2005). More generally, sub-central governments will tend to be more inefficient if they face soft rather than hard budget constraints, or, in other words, if they can count on the central government for future bail-outs (Qian and Rolands, 1998).

On the other hand, several arguments have been made explaining why fiscal decentralization may deteriorate government quality. For example, if capital is too mobile, local governments may not be able to collect sufficient taxes to provide basic public goods (Keen and Marchand, 1997; Oates, 1999). Further, locally elected governments may indulge in rent-seeking behaviour if more immobile factors such as farmers, workers or consumers are more numerous than mobile ones such as investors (Rodden and Rose-Ackerman, 1997).

Moreover, the benign effects of competition depend on the assumption that sub-central jurisdictions are homogeneous with regard to their factor productivity. If they are heterogeneous, competition may mean the outflow of capital from less endowed regions leading governments in these regions to give up on business-friendly policies and to dedicate themselves to predation instead (Cai and Treisman, 2005). In addition, local governments may also compete for capital by helping agents cheat the central government in ways that reduce the latter's capacity to enforce regulations and collect taxes (Cai and Treisman, 2004). Also, although assigning local governments a greater share of revenue may improve their incentives, it may at the same time weaken the incentives of central government by reducing its stake in economic development since its share of locally generated revenues is reduced (Treisman, 2006).

Additionally, more decentralized polities may involve duplication and thus a waste of resources (Rousseau, 1762). Moreover, local officials are more susceptible to corruption than cen-

tral government ones because of intimacy and frequency of interaction and greater discretion on the part of local governments (Tanzi, 1995; Prud'homme, 1995), because national office being more prestigious and powerful it will be more intensely monitored (Prud'homme, 1995; Tabellini, 2000) or because local officials are more susceptible to capture by local economic interests partly because voters are more uninformed due to lower media attention and because interest groups find it easier to overcome free-rider problems (Bardhan and Mookherjee, 2000).

In this vein, Blanchard and Shleifer (2001) suggest the need for a degree of political centralization –such as for example the right of central government to appoint or fire regional governors or the creation of national parties exercising influence on regionally elected governors– so as to deal with the possibility of capture. Alternatively, the combination of strong national parties and elected rather than appointed sub-central government politicians makes them sensitive to national and local preferences respectively and is thereby likely to improve the effectiveness of fiscal decentralization (Riker, 1964; Enikolopov and Zhuravskaya, 2007).

3. Empirical priors

Most empirical studies on the impact of decentralization have focused on one aspect of government quality namely, corruption. Thus, De Mello and Barenstein (2001) control for GDP per capita and population and find that more fiscally decentralized countries tend to be less corrupt. Fisman and Gatti (2002b) find a similar relationship but controlling for more factors (GDP per capita, civil liberties, population and government share of expenditure or share of GDP). They moreover find that when fiscal decentralization is considered then whether a country is federal or not has no effect on corruption. Treisman (2002a) finds that if one includes a control for the percentage of Protestants in the population in Fisman and Gatti's estimations, the negative relationship between fiscal decentralization and corruption disappears - he finds no statistically significant relationship between fiscal decentralization and corruption. All these empirical studies calibrate the impact of fiscal decentralization on corruption based on cross-section analyses².

Several empirical studies have gone beyond corruption to consider other aspects of government quality in order to investigate the importance of fiscal decentralization. Estache and Sinha (1995) calibrate the effect of expenditure decentralization on infrastructure provision in a panel of both developing and developed countries. They find that decentralization is related to more infrastructure spending in sub-central levels in developing countries and, to a lesser extent, in developed ones. Robalino et al. (2001) also use panel data and find that more fiscally decentralized countries (again expenditure decentralization) have lower mortality rates. In another study, Khaleghian (2003) shows that fiscal decentralization (measured in terms of both a binary variable and as expenditure and revenues in the hands of sub-central governments) is related to higher immunization coverage in a panel of low and middle-income countries. In a cross-section study, Treisman (2002a) finds expenditure decentralization ambiguously related to public good provision (positively with infrastructure and negatively with health and educa-

tion). Enikolopov and Zhuravskaya (2007) use a cross-section sample of developing and transition countries and find that fiscal decentralization combined with strong national parties significantly improves government measured in terms of a series of governance indicators (government efficiency, regulatory quality, control of corruption and rule of law), and in terms of public good provision (health and education outcomes). In the case of public good provision, they support their cross-section results with panel regression.

Defining government quality more widely, Huther and Shah (1998) find that fiscal decentralization is associated with enhanced quality of government as measured by citizen participation, political and democratic accountability, social justice, improved economic management and reduced corruption. However, their study suffers from omitted variable bias since they only provide simple correlations among these variables.

Finally, based on both cross-section and panel data of low and high income countries, Dreher (2006) estimates the relationship between expenditure and revenue decentralization and quality of government measured as respect of law and order, the cost of opening up a new business and judicial independence while controlling for GDP, population and civil liberties. He finds that law and order is more likely with a higher share of sub-national revenues for the full sample and low income countries but not for high income countries. The same happens with the cost of starting a business. Judicial independence increases with sub-national revenue or expenditure share for both high income countries and the full sample.

In this paper we estimate the impact of fiscal decentralization on government quality more widely defined based on panel data. As will be more fully explained in the following section, our definition of government quality is wider than that used by Dreher (2006) since it goes beyond law and order to include corruption and bureaucratic quality. Our definition of government quality, together with our sample of both poor and rich countries moreover extends Enikolopov and Zhuravskaya (2007) who limited their panel regression to explain public good provision in a sample of developing and transition countries. We reduce the risk of possible omitted variable bias present in previous studies by including more time-variant control variables as suggested by the literature as well as several interaction terms. In addition, we correct our estimates both for serial autocorrelation and cross-section heteroscedasticity to avoid overestimating the significance of our explanatory variables.

4. Data and empirical methodology

In this section we review how both fiscal decentralization and quality of government have been measured in empirical work with a view to identifying the strengths and weakness of the available data. We moreover introduce the empirical methodology which is employed in the following section and review the set of control variables which have been used in related empirical literature examining the relationship between fiscal decentralization and government quality.

The indicator of government quality employed in this paper comes from the International Country Risk Guide (ICRG) as developed by the Political Risk Services Group since the

early 1980s in an effort to assess the political, economic and financial risks in more than 120 countries. The index is based on the analysis of a worldwide network of experts, and is subject to a peer review process to ensure the coherence and comparability across countries. Different variables from the ICRG data have been used to measure the determinants of government quality since La Porta's *et al.* (1999) seminal piece on the subject. We focus on three dimensions from this source namely corruption, rule of law and bureaucratic quality. Corruption refers to the demand for bribes by political and administrative bodies as well as patronage, nepotism, job reservation, 'favors-for-favors', etc. The variable law and order assesses the strength and impartiality of the legal system as well as popular observance of the law. Bureaucratic quality refers to the strength, expertise, autonomy and recruitment and training mechanism of the civil service. The quality of government indicator used here is the average of these three dimensions and is scaled from 0 to 1 where a higher number implies higher government quality. Averaging the dimensions has the advantage of reducing the influence of idiosyncratic ratings stemming from any one dimension. On the negative side however, it does not allow us to separate the effect of each dimension.

Fiscal decentralization refers to the distribution of tax revenues and expenditures among the different tiers of government. A system is more fiscally decentralized the greater the proportion of tax-revenues and expenditures "owned" by lower tiers of government. The most widely used measure of fiscal decentralization in the literature is provided by the IMF's Government Finance Statistics (GFS) and refers to expenditure or revenue share of sub-central governments in total public expenditures or revenues (*Expshare* and *Revshare*) or as a proportion of GDP (*ExpGDP* and *RevGDP*). But these general definitions are problematic in that they do not reflect whether sub-central governments own these resources (Ebel and Yilmaz, 2002; Rodden, 2004; Martinez-Vazquez and McNab, 2006). Thus, expenditures that are mandated by the central government appear as sub-national expenditures in the GFS while revenues received from grants by the central government appear as sub-central revenues regardless of whether they are conditional or unconditional. As a result, expenditure and revenue accruing to sub-central levels of government will tend to overestimate the degree of fiscal decentralization (World Bank, 2004)³. Despite their shortcoming, these indicators are available for the widest coverage of countries and time periods and it is for this reason that we too employ them in this paper. They give rise to a balanced panel of 29 countries for the period 1984 to 1997 (see appendix 1 for the list of countries).

The GFS also contain data on other fiscal decentralization variables but with an even more limited cross-section and temporal availability. One line of data refers to vertical imbalance (*VIM*) or the degree to which sub-national governments rely on central government transfers to support their expenditures (measured as intergovernmental transfers as a share of sub-national expenditures). Another calculates transfers share as transfers to sub-central governments as a share of total sub-national revenues and grants (*Trashare*). However, these measures do not distinguish what proportion of transfers is conditional versus general purpose. The GFS also contain information about sub-national tax and non-tax revenues. For example, tax share measures sub-national tax revenue as a percentage of total sub-national revenues (*Taxshare*). But it does not distinguish whether they are collected through shared taxes, piggybacked taxes, and locally

determined “own-source” taxes. Similarly, no consideration is given to whether the central government has the power to set the rate and the base, leaving sub-national governments just to collect revenues labeled as own-source (Rodden, 2004). The OECD (1999) tackles these data problems for OECD countries generating an analytical classification of sub-central taxes according to the degree of discretion of sub-central government. Based on this classification, Stegarescu (2006) generates several indicators of decentralization across 23 OECD countries for the period 1965-2001 including a measure of tax decentralization which refers to sub-central government tax revenue –on which the sub-central government determines the tax rate and/or base– as a proportion of total government tax revenue taxes (*Taxdec*)⁴.

The just mentioned variables are available for the 15 high income countries from our total sample of 29 countries. As can be appreciated in the correlation matrix in table 1 below there are four variables which are closely correlated namely, ExpGDP, Expshare, RevGDP and Revshare. Stegarescu’s *Taxdec* measure is also closely correlated to the IMF statistics on the revenue side but less so on the expenditure side as we would expect.

Another highly correlated pair of fiscal decentralization indicators are VIM and Trashare which is not surprising since they both capture sub-central government dependence on central transfers on the expenditure and revenue sides respectively. Both these variables are moreover highly negatively correlated with *Taxshare* which again is what we would expect since it is the negative image of these two variables – it captures tax-autonomy whereas they capture the tax-dependence of the sub-central governments. These three variables are less correlated with *Taxdec* as well as *Revshare* and *RevGDP* and much less correlated with the general expenditure variables offered by the IMF.

Table 1
CORRELATION MATRIX FOR THE HIGH INCOME COUNTRIES.
DECENTRALIZATION VARIABLES

	ExpGDP	ExpShare	RevGDP	Revshare	Taxdec	Taxshare	Trashare	VIM
ExpGDP	1.0000	0.8812	0.8762	0.7640	0.6518	0.2548	-0.2571	-0.2568
Expshare	0.8812	1.0000	0.8523	0.9143	0.7113	0.3074	-0.3843	-0.3796
RevGDP	0.8762	0.8523	1.0000	0.9182	0.8181	0.6315	-0.6571	-0.6501
Revshare	0.7640	0.9143	0.9182	1.0000	0.8251	0.5963	-0.6754	-0.6668
Taxdec.	0.6518	0.7113	0.8181	0.8251	1.0000	0.6447	-0.6197	-0.6200
Taxshare	0.2548	0.3074	0.6315	0.5963	0.6447	1.0000	-0.9183	-0.9471
Trashare	-0.2571	-0.3843	-0.6571	-0.6754	-0.6197	-0.9183	1.0000	0.9869
VIM	-0.2568	-0.3796	-0.6501	-0.6668	-0.6200	-0.9471	0.9869	1.0000

All correlations are statistically significant at the 1% level.

Our empirical strategy is based on fixed effects estimation for panel data. Bringing fixed effects estimation to bear on the relationship between fiscal decentralization and government quality has one important advantage over previous cross-section estimations exploring this relationship namely, the ability to control for cross-country heterogeneity due to time constant (or slowly changing) observable or unobserved factors (cross-section fixed

effects) as well as the ability to control for period-specific factors common to all cross-section units (period fixed effects). Time constant factors include many variables which have been typically employed in cross-section analyses of the determinants of quality of government such as ethno-linguistic fractionalization, legal origin, religion, latitude, country area and continental or regional dummies. Given the possibility that these variables, and other non-observable ones, may be related to both fiscal decentralization and government quality, their exclusion would induce omitted variable bias, affecting both the estimated impact of decentralization and its statistical significance.

Bardhan and Mookherjee (2006) identify this form of bias as one of the important methodological problems with existing cross-section studies estimating the effect of decentralization on governance. The use of random effects estimation would not allow us to deal with omitted variable bias in a similarly satisfactory manner. Moreover, since our cross-section units are not exchangeable, it is not appropriate to treat our sample as if it were a random sample from a large population as would be implied by the use of random effects estimation (Hsiao, 2003). Notwithstanding these theoretical reasons for favoring fixed effects estimation, we perform a Hausman test comparing the random effects and fixed effects estimators. This test is based on the difference between the coefficient estimates from both the random and fixed effects estimators (Wooldridge, 2002). A statistically significant difference is interpreted as evidence against the random effects assumption of no correlation between the unobserved explanatory variables and the unobserved factors, and just such a significant difference is what we obtain⁵.

Our fixed effect estimation then reduces the likelihood of omitted variable bias since it eliminates the possible influence coming from both observable and unobservable time constant variables. What fixed effects estimation does not control for are time variant omitted variables affecting government quality and fiscal decentralization. As a result, and in tune with the research in this area using both cross-section and panel data, we include the following time variant control variables (available in our sample of countries) in our regressions: real GDP per capita, democracy, size of government, population, and checks and balances (see appendix 2 for descriptions and sources of all the variables and appendix 3 for standard summary statistics). We therefore estimate the following equation:

$$\text{Government Quality}_{it} = \alpha_i + \gamma_t + \beta_1 \text{Fiscal Decentralization}_{it} + \beta_2 X_{it} + \varepsilon_{it} \quad (1)$$

where i refers to countries and t to years, α_i and γ_t are country and period fixed effects respectively, X_{it} is the vector of control variables and ε_{it} is the error term.

The related literature alerts us to the problem of endogeneity in the sense that government quality may be affected by decentralization but decentralization may also be influenced by the quality of government (see, for example, Fisman and Gatti, 2002b and Treisman, 2002a). Similar arguments have been made for other economic variables used to explain government quality (La Porta *et al.*, 1999; Acemoglu *et al.*, 2001) or fiscal decentralization (Panizza, 1999). The presence of endogeneity has generally been dealt with, in both cross-section and panel analyses, through the use of instrumental variables. We follow Enikolo-

pov and Zhuravskaya (2007) in instrumenting our endogenous variables with their values lagged one period and estimating via two-stage least squares, to mitigate problems stemming from possible reverse causality in the panel regressions. The equation to be estimated therefore becomes:

$$\text{Government Quality}_{it} = \alpha_i + \gamma_t + \beta_1 \text{Fiscal Decentralization}_{i(t-1)} + \beta_2 Z_{i(t-1)} + \beta_3 X_{it} + \varepsilon_{it} \quad (2)$$

where i refers to countries and t to years, α_i and γ_t are country and period fixed effects respectively, Z_{it} is the vector of endogenous variables, X_{it} is the vector of exogenous variables and ε_{it} is the error term.

Richer countries tend to be more decentralized (Panizza, 1999; World Bank, 2004) and have better government quality since economic development makes better quality institutions more affordable (Islam and Montenegro, 2002) and will tend to create a demand for better government (La Porta, *et al.*, 1999) perhaps because of income's positive effect on education, literacy and depersonalized relationships (Treisman, 2000). Democracy is positively correlated with decentralization (Panizza, 1999; Treisman, 2002b) and is likely to be negatively related to corruption since it makes politicians more accountable (Adserà *et al.*, 2003).

Treisman (2002a) takes population to be an indicator for country size and expects larger (more populous) countries to be more decentralized but also to have lower government quality – small states are easier to govern. Mello and Barenstein (2001) suggest that more populous countries may be more heterogeneous. This being the case, we would expect population (as a proxy of heterogeneity) to be positively related to decentralization (Panizza, 1999) and negatively related to quality of government (La Porta *et al.*, 1999).

More decentralized countries are likely to have more checks and balances. Checks and balances in the political decision-making process could stabilize good institutions but by locking in the status quo they may just as much impede reforms, including those which may improve the quality of government (Treisman, 2002a).

All other things equal, one would expect a larger public sector to be relatively more decentralized. Moreover, Tanzi (1998) expects a bigger state sector to imply greater corruption due to the greater possibility for rents. On the other hand, Fisman and Gatti (2002a) expect a larger government to enjoy economies of scale in the fight against corruption. Similarly, the effect of a larger state sector on the rule of law and bureaucratic quality is arguably positive insofar as more resources improve the capacity of government to provide such services. In relation to this, higher civil service pay has also been found to reduce bureaucratic corruption (Van Rijckeghem and Weder, 2001).

Consistent with previous literature then, we would expect a positive effect on government quality coming from income and democracy, a negative effect coming from population while that of government size and checks and balances is more ambiguous.

5. Empirical Results

The variables included in the regressions reported in this section are those which are mostly statistically significant or whose exclusion seriously changes the results. This means that several variables previously discussed namely, democracy, checks and balances and population are not included because they are not significant and their absence has no bearing on the results. This is despite using several indicators of democracy available (see appendix 2). Especially in the case of democracy and checks and balances, their irrelevance may be due to the limited variation through time for the sample of countries that we examine here. In the tables that follow, the size of government is positively related with the quality of government and this relationship tends to be statistically significant for the sample of high income countries.

Testing for the presence of endogeneity in equation 1, we fail to reject the null hypothesis of exogeneity of fiscal decentralization, GDP per capita and government size (see Hausman, 1978 and Wooldridge, 2002). Therefore, in the tables that follow, these variables are instrumented through their one-period-lagged values.

Moreover, we test the joint significance of period and country fixed effects and the results unambiguously indicate the convenience of including these effects or, in other words, of using a two-way fixed effects model. Our base regression therefore becomes,

$$\text{Gov. Quality}_{it} = \alpha_i + \gamma_t + \beta_1 \text{Fiscal Decentralization}_{i(t-1)} + \beta_2 \text{GDP}_{i(t-1)} + \beta_3 \text{Size Gov.}_{i(t-1)} + \varepsilon_{it} \quad (3)$$

where i refers to countries and t to years, α_i and γ_t are country and period fixed effects respectively and ε_{it} is the error term.

We perform an analog of the Breusch-Pagan test adapted for two-stage least squares to examine the presence of heteroscedasticity and reject the null hypothesis of homoscedasticity (Wooldridge, 2006). We further test for serial correlation after two-stage least squares and reject the null hypothesis of no autocorrelation. We correct standard errors, allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via Feasible Generalized Least Squares.

Moreover, in order to fathom whether the first order autocorrelation we detect seriously alters the statistical significance of our findings, we also undertake regressions where we eliminate this autocorrelation by way of taking four year averages. Doing so, also allows us to deal with the possibility that yearly changes in fiscal decentralization may not affect year to year changes in government quality (see, Davoodi and Zoo, 1998 for a similar approach). In addition, by eliminating autocorrelation, we can go some way towards addressing likely drawbacks in our instruments; using lagged independent variables as instruments in the presence of serial correlation violates the requirement of exogeneity for valid instruments (Arellano, 2002). We allow for cross-section heteroskedasticity in these autocorrelation-free regressions by reporting White cross-section corrected standard errors.

Tables 2 and 3 report the results for the whole sample of countries measuring fiscal decentralization in terms of expenditure and revenue shares of sub-central governments in total government expenditure and revenues respectively. On the expenditure side fiscal decentralization has a positive and statistically significant effect on government quality (regression 1). The direction and statistical significance of this relationship is reinforced in the regression taking four year averages of the variables as a way of dealing with the first-order autocorrelation process detected (regression 2).

The impact of fiscal decentralization on government quality is strongly affected by the inclusion of two time constant dummy variables capturing political institutions as suggested by Enikolopov and Zhuravskaya (2007). The “elections” dummy takes the value of 0 if neither the regional executive nor the regional legislature are locally elected and 1 if either are elected. The “autonomy” dummy takes the value of 1 when subnational governments are granted residual powers in the constitution and/or they have autonomy in certain specified areas not explicitly subject to central laws. When we interact this variable with fiscal decentralization it turns out that if regional governments or legislatures are elected rather than appointed (regression 3) or if the constitution grants sub-national regions residual powers or autonomy in certain areas (regression 4), then the positive impact of fiscal decentralization on government quality would be neutralized for the complete sample⁶.

Table 2
GOVERNMENT QUALITY REGRESSED ON EXPENDITURE DECENTRALIZATION
(EXPENDITURE SHARE, WHOLE SAMPLE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Means					Means		
Decentralization	0.295 (0.16)*	0.523 (0.19)***	0.728 (0.20)**	0.618 (0.16)***	3.331 (1.30)**	3.633 (0.50)***	3.367 (1.19)***	3.197 (1.20)***
GDP per capita	0.109 (0.32)	0.171 (0.23)	0.022 (0.30)	0.010 (0.29)	1.017 (0.49)**	1.111 (0.36)***	0.841 (0.46)*	0.820 (0.47)*
Size Government	0.162 (0.24)	0.105 (0.09)	0.162 (0.22)	0.117 (0.22)	0.248 (0.23)	0.144 (0.08)*	0.238 (0.21)	0.201 (0.21)
GPD per capita*					-0.352 (0.15)**	-0.374 (0.05)***	-0.313 (0.14)**	-0.306 (0.14)*
Decentralization								
Elections*			-0.776 (0.28)***				-0.670 (0.26)**	
Decentralization								
Autonomy*				-0.701 (0.29)**				-0.560 (0.28)**
Decentralization								
Adjusted R ²	0.85	0.84	0.87	0.86	0.87	0.85	0.88	0.87
Observations	377	87	377	377	377	87	377	377

Standard errors in parentheses; *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. All continuous variables are in logarithms. All independent variables are instrumented through their values lagged one period. “Means” implies using 4 year averages for all variables. “Elections” and “Autonomy” are time constant dummy variables. All regressions include cross-section and period fixed effects. Regressions 2 and 6 report White cross-section standard errors. All remaining regressions report standard errors allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via feasible Generalized Least Squares.

Following Robalino *et al.* (2001) and Khalegian (2003), we introduce an interaction term between fiscal decentralization and income so as to capture possible differences in performance between rich and poor countries. As a result, we find that the positive effect of fiscal decentralization on government quality is true for poor to medium income countries but not for high income countries as can be seen in regressions 5 to 8. The interaction term is negative and statistically significant and yields a turning point for the base regression (5) of \$12,875. The negative impact of political decentralization on the relationship between fiscal decentralization and government quality also appears.

Table 3
GOVERNMENT QUALITY REGRESSED ON REVENUE DECENTRALIZATION
(REVENUE SHARE, WHOLE SAMPLE)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Means				Means		
Decentralization	0.121 (0.12)	0.571 (0.25)**	0.457 (0.18)**	0.210 (0.15)	3.298 (1.02)***	4.139 (0.80)***	3.204 (1.00)***	3.273 (1.01)***
GDP per capita	0.075 (0.33)	0.075 (0.23)	0.053 (0.31)	0.042 (0.33)	0.747 (0.36)**	0.809 (0.34)**	0.673 (0.35)*	0.718 (0.36)**
Size Government	0.174 (0.25)	0.050 (0.13)	0.169 (0.24)	0.169 (0.24)	0.273 (0.21)	0.146 (0.09)	0.261 (0.21)	0.269 (0.21)
GPD per capita* Decentralization					-0.361 (0.12)***	-0.410 (0.07)***	-0.328 (0.12)***	-0.353 (0.12)***
Elections* Decentralization			-0.568 (0.24)**				-0.329 (0.21)	
Autonomy* Decentralization				-0.308 (0.27)				-0.143 (0.22)
Adjusted R ²	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87
Observations	377	87	377	377	377	87	377	377

Standard errors in parentheses; *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. All continuous variables are in logarithms. All independent variables are instrumented through their values lagged one period. "Means" implies using 4 year averages for all variables. "Elections" and "Autonomy" are time constant dummy variables. All regressions include cross-section and period fixed effects. Regressions 2 and 6 report White cross-section standard errors. All remaining regressions report standard errors allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via feasible Generalized Least Squares.

These results are confirmed when using revenue share as our measure of fiscal decentralization (table 3) although their statistical significance is reduced with this measure in those regressions which exclude the interaction between fiscal decentralization and GDP per capita. The turning point of the effect of GDP on the relationship between fiscal decentralization and government quality is now \$9,281 for the base regression (5). Again, political decentralization seems to have a negative effect on the relationship between government quality and fiscal decentralization.

Since we detect that the impact of fiscal decentralization on government quality differs between richer and poorer countries, we split the sample between low to medium income and

high income countries and repeat our estimations (see also Aixelà and Fabro 2008). Table 4 reports the results for a group of 14 low and medium income countries. We confirm the positive relationship between fiscal decentralization and the quality of government, especially on the expenditure side. However, the negative effect of electoral decentralization or decision-making decentralization (regional autonomy) on this relationship is also observed. Indeed, in the presence of political decentralization the positive relationship between fiscal decentralization and government quality becomes a negative one. Thus, the result whereby fiscal decentralization positively affects government quality in poorer countries can only be affirmed in the absence of political decentralization.

Table 4
GOVERNMENT QUALITY REGRESSED ON EXPENDITURE AND REVENUE
DECENTRALIZATION (LOW AND MEDIUM INCOME COUNTRIES)

	Expenditure Share			Revenue Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Decentralization	0.196 (0.23)	0.723 (0.26)***	0.585 (0.22)***	1.121 (0.15)	0.550 (0.24)**	0.286 (0.19)
GDP per capita	0.042 (0.42)	-0.090 (0.42)	-0.095 (0.43)	-0.010 (0.49)	-0.032 (0.43)	-0.079 (0.47)
Size Government	0.233 (0.36)	0.225 (0.31)	0.167 (0.31)	0.245 (0.35)	0.220 (0.32)	0.235 (0.34)
Elections*		-0.976			-0.824	
Decentralization		(0.36)**			(0.30)***	
Autonomy*			-0.850			-0.478
Decentralization			(0.41)**			(0.35)
Adjusted R ²	0.76	0.79	0.78	0.75	0.78	0.77
Observations	182	182	182	182	182	182

Standard errors in parentheses; *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. All continuous variables are in logarithms. All independent variables are instrumented through their values lagged one period. "Elections" and "Autonomy" are time constant dummy variables. All regressions include cross-section and period fixed effects and report standard errors allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via feasible Generalized Least Squares.

Turning now to the group of 15 high income countries (table 5), the positive relationship between government quality and fiscal decentralization disappears. In fact, the direction of this relationship is reversed: more fiscal decentralization reduces government quality in this sample. Interestingly, this negative impact is again altered in the presence of electoral or decision-making decentralization. In rich countries, electoral decentralization mitigates the negative impact of fiscal decentralization while decision-making decentralization may even make this impact a positive one. But all these statements must be immediately qualified since our decentralization variables are neither statistically significant nor are they economically significant compared to their previous values (their impact is reduced by a factor of 10). It seems therefore that the best we can do with the available data is to state that fiscal decentralization does not seem to have a significant effect on government quality in high income countries.

Table 5
GOVERNMENT QUALITY REGRESSED ON EXPENDITURE AND REVENUE
DECENTRALIZATION (HIGH INCOME COUNTRIES)

	Expenditure Share			Revenue Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Decentralization	0.023 (0.09)	-0.033 (0.13)	-0.058 (0.11)	-0.030 (0.04)	-0.058 (0.09)	-0.051 (0.04)
GDP per capita	0.400 (0.14)***	0.388 (0.14)***	0.369 (0.13)***	0.421 (0.12)***	0.419 (0.12)***	0.384 (0.12)***
Size Government	0.177 (0.12)	0.158 (0.13)	0.137 (0.12)	0.213 (0.11)*	0.208 (0.11)*	0.184 (0.11)*
Elections*		0.100 (0.17)			0.036 (0.10)	
Decentralization			0.204 (0.16)			0.143 (0.11)
Autonomy*						
Decentralization						
Adjusted R ²	0.87	0.87	0.87	0.87	0.87	0.87
Observations	195	195	195	195	195	195

Standard errors in parentheses; *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. All continuous variables are in logarithms. All independent variables are instrumented through their values lagged one period. "Elections" and "Autonomy" are time constant dummy variables. All regressions include cross-section and period fixed effects and report standard errors allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via feasible Generalized Least Squares.

In the case of the rich countries it is possible to check the robustness of the obtained results using the different measures of decentralization available. In table 6, we regress the government quality measure on GDP per capita and the size of government while varying the fiscal decentralization indicator. We start with the wider IMF measure (but now spending or expenditure as a percentage of GDP to complement previous results), going through the IMF's measure of tax autonomy followed by its measures of transfer dependence and ending with the OECD measure of tax decentralization taken from Stegarescu (2006) which arguably goes some way towards correcting the over-estimation of decentralization attributed to the IMF measures.

The results tend to follow those obtained using expenditure and revenue share. There is a negative relationship between fiscal decentralization and government quality (as before the relationship is positive if the expenditure side is the measure used). But this negative impact is both statistically and perhaps more importantly, economically close to zero, less so when tax share is the measure used but much more so when the OECD measure is employed. Again, it seems, fiscal decentralization has little if any impact on government quality in rich countries.

Before closing here it is worth pointing out that several other variables were included but not found to be statistically significant, nor did they appreciably change the results. Thus, we interacted fiscal decentralization with two measures of party strength as suggested by Enikolopov and Zhuravskaya (2007) namely, party age and legislative fractionalization.

zation but these terms were not statistically different from zero nor did they alter the regression results. The squared value of decentralization was also included to check for a quadratic relationship between it and government quality but again nothing changed. Finally, in order to fathom whether the results are being driven by one particular country in our sample, we repeated our regressions after removing each of the 29 countries one at a time for the whole sample as well as each of the 15 and 14 high and low to medium income countries for their respective samples. The results are stable indicating that no single country is driving our results.

Table 6
GOVERNMENT QUALITY REGRESSED ON DIFFERENT FISCAL
DECENTRALIZATION MEASURES (HIGH INCOME COUNTRIES)

	GFS Decentralization measures					OECD
	(1)	(2)	(3)	(4)	(5)	Decentralization
	ExpGDP	RevGDP	Taxshare	Trashare	VIM	Taxdec
Decentralization	0.031 (0.06)	-0.033 (0.04)	-0.040 (0.02)*	0.027 (0.04)	0.028 (0.03)	-0.007 (0.02)
GDP per capita	0.399 (0.12)***	0.419 (0.12)***	0.375 (0.11)**	0.405 (0.12)***	0.405 (0.12)***	0.420 (0.12)***
Size Government	0.147 (0.15)	0.229 (0.12)**	0.215 (0.11)**	0.175 (0.11)	0.179 (0.11)	0.197 (0.11)*
Adjusted R ²	0.87	0.87	0.87	0.87	0.87	0.87
Observations	195	195	195	195	195	195

Standard errors in parentheses; *, **, *** measures statistical significance at the 10, 5 and 1% levels respectively. All continuous variables are in logarithms. All independent variables are instrumented through their values lagged one period. All regressions include cross-section and period fixed effects and report standard errors allowing for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section and estimating via feasible Generalized Least Squares.

6. Discussion

One significant finding in our study is the importance of electoral and decision-making decentralization on the relationship between fiscal decentralization and government quality. In a cross section study and using measures of electoral and decision-making decentralization, Treisman (2002a) finds no statistically significant effect between these variables and corruption⁷. Interacting these variables with fiscal decentralization (subnational expenditure share) did not change his results. Alternatively, Enikolopov and Zhuravskaya (2007) do find a positive effect on the relationship between fiscal decentralization and public good provision (health and education) coming from electoral decentralization.

Measuring government quality based on corruption, law and order and bureaucratic quality, we find that both electoral and decision-making decentralization autonomy have

a strong negative effect on the relationship between fiscal decentralization and government quality in poor countries. It may be that sub-national political institutions in poorer countries are under-developed compared to those in wealthy countries, and as a result, they are unable to harness the positive effects expected from electoral and decision-making decentralization. Indeed, less developed political institutions may convert the virtues expected from these forms of decentralization into vices. This echoes Shah's (2006) concern that sub-national governments in developing countries may be more susceptible to capture by local economic interests as well as Bardhan's (2002) warning that electoral decentralization in democratically immature countries may not work as expected.

The differential effect of political institutions in rich and poor countries is interesting because it is related to another notable finding from our research namely, that the marginal benefits of fiscal decentralization vis-à-vis government quality diminish as GDP per capita increases. This finding parallels those of Robalino et al. (2001) and Khalegian (2003) in relation to health and education outcomes and is very similar to Dreher's (2006) result – based on both a cross-section and panel analysis – such that revenue decentralization positively and significantly affects law and order in a sample of poor countries but that this relationship becomes negative and insignificant in a sample of rich countries. Our results for rich countries are robust to the use of several different measures of fiscal decentralization including the OECD's measure of tax decentralization which goes some way towards correcting for the over-estimation of fiscal decentralization in the IMF's Government Finance Statistics.

It could be that the results obtained for poor countries may be driven by our use of the GFS measures of fiscal decentralization but since the more precise OECD-type data is not available for these countries we cannot pursue this possibility⁸. Or it could be, as Robalino et al. (2001) suggest, that the problems associated with centralized systems diminish as economic development takes place. If, for some reason, central institutions in rich countries are better able to provide government quality as we define it here, then this would explain the insignificant impact (both economic and statistical) of fiscal decentralization in our rich country sample. This said, our analysis points to an alternative explanation namely the importance of political institutions in the guise of electoral and decision-making decentralization. When these institutions are considered, the positive effect of fiscal decentralization on government quality in poor countries is neutralized while the effect in rich countries is positively reinforced. Again, the political institutions at the sub-national level may be less developed in poorer countries.

7. Conclusions

In this paper we have focused on the relationship between fiscal decentralization and government quality. In a sample of 29 poor, medium income and rich countries over the period 1984-1997, fiscal decentralization has a positive effect on institutional quality but this effect diminishes as countries become wealthier. Moreover, the positive effect of fis-

cal decentralization on government quality is reduced by electoral and decision-making decentralization in poor and medium income countries whereas these forms of decentralization seem to improve the impact of fiscal decentralization on government quality in rich countries.

Before closing here it's worth noting that governments may decentralize for different reasons (Ebel and Yilmaz, 2002). Western countries mainly decentralize in order to provide public services in a more cost-effective way, whereas low income countries pursue decentralization as a way to overcome macroeconomic instability and ineffective governance. Throughout post-communist Central and Eastern Europe, decentralization is intimately linked to the transition from a socialist system to a market economy and democracy. In Latin America, the origin of decentralization is the political pressure from the people for democratization. All over the world, decentralization may be an important instrument for diffusing secessionist tendencies (World Development Report, 1999/2000). Our study points out that, *on average*, developing countries which are fiscally decentralized but politically centralized may have better quality governments. But any policy prescriptions flowing from these results must take into consideration the particular circumstances of the country in question and the wider motives for undertaking decentralization in the first place.

Notas

1. See Aixelà and Fabro (2008) for a cross-section analysis of the determinants of government quality as well as Aixelà and Fabro (2007) for a review of the literature of the impact of government quality on economic growth.
2. For a survey of the causes and consequences of corruption see Lambsdorff (2006). For a review of some of the theoretical and empirical literature on the relation between decentralization and corruption see Bardhan and Mookherjee (2006).
3. Rodden (2004) points out that in the GFS data Denmark comes out the 3rd most decentralized country in the world (even more decentralized than the US) though the central government regulates almost every aspect of local government finance. The same goes with Nigeria (7th position) although the states were really administrative outposts of the central government.
4. Even with such an indicator, Rodden (2004) alerts us that ideally one should take into account the possibility that central governments may restrict fiscal autonomy through formal limitations on borrowing (not only through conditional grants and regulation of tax rate and base).
5. All the test statistics mentioned in this paper but not reported directly are available upon request.
6. Following Treisman (2002a) this refers to electoral decentralization and decision-making decentralization respectively.
7. This follows his earlier finding (2000) that federal countries are more likely to be corrupt (see also, Goldsmith, 1999 and Gerring and Thacker, 2004).
8. We second here Rodden's (2004) call to extend the OECD type methodology to a much wider set of countries, especially developing ones, so as to better capture the importance of revenue mobilization when measuring the impact of fiscal decentralization on different variables including government quality.

References

- Acemoglu, D.; Johnson, S. and Robinson, J. (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*, 91 (5): 1369-1401.
- Adserà, A.; Boix, C. and Payne, M. (2003), "Are You Being Served? Political Accountability and Quality of Government", *The Journal of Law, Economics, & Organization*, 19 (2): 445-490.
- Aixalà, J. and Fabro, G. (2008), "Determinantes de la Calidad Institucional de los Países", *Revista de Economía Aplicada*, 46: 119-144.
- Aixalà, J. and Fabro, G. (2007), "Indicadores Institucionales y Crecimiento Económico: Un Panorama", *Hacienda Pública Española*, 183 (3): 115-162.
- Arellano, M. (2002), "Sargan's Instrumental Variables Estimation and the Generalized Method of Moments", *Journal of Business & Economic Statistics*, 20: 450-459.
- Bardhan, P. (2002). "Decentralization of Governance and Development", *Journal of Economic Perspectives*, 16 (4): 185-205.
- Bardhan, P. and Mookherjee, D. (2000), "Capture and Governance a Local and National Levels", *American Economic Review*, 90 (2): 135-139.
- Bardhan, P. and Mookherjee, D. (2006), "Decentralization, Corruption and Government Accountability: An Overview", in Rose-Akerma, S. (ed.), *Handbook of Economic Corruption*: Edward Elgar.
- Beck, T.; Clarke, G.; Groff, A.; Keefer, P. and Walsh, P. (2001), "New Tools in Comparative Political Economy: The Database of Political Institutions", *World Bank Economic Review*, 15 (1): 165-176.
- Blanchard, O. and Shleifer, A. (2001), "Federalism With and Without Political Decentralization: China versus Russia", *IMF Staff Papers*, 48 (4): 171-179.
- Brennan, G. and Buchanan, J. (1980), *The Power to Tax. Analytical Foundations of a Fiscal Constitution*, Cambridge: Cambridge University Press.
- Breton, A. (1996), *Competitive Governments. A Economic Theory of Politics and Public Finance*, New York: Cambridge University Press.
- Cai, H. and Treisman, D. (2005), "Does Competition for Capital Discipline Government? Decentralization, Globalization and Public Policy", *American Economic Review*, 95 (3): 817-830.
- Cai, H. and Treisman, D. (2004), "State Corroding Federalism", *Journal of Public Economics*, 88: 819-843.
- Dreher, A. (2006), "Power to the People? The Impact of Decentralization on Governance", *Mimeo: Swiss Federal Institute of Technology: Department of Management, Technology and Economics*.
- Davoodi, H. and Zou, H. (1998), "Fiscal Decentralization and Economic Growth: A Cross-Country Study", *Journal of Urban Economics*, 43: 244-257.

- Ebel, R. and Yilmaz, S. (2002), "Concept of Fiscal Decentralization and Worldwide Overview", *mimeo: World Bank Institute*.
- Elazar, D. (1996), "From Statism to Federalism: A Paradigm Shift", *International Political Science Review*, 17 (4): 417-429.
- Enikolopov, R. and Zhuravskaya, E. (2007), "Decentralization and Political Institutions", *Journal of Public Economics*, 91 (11-12): 2.261-2.290.
- Estache, A. and Sarbajit, S. (1995), "Does Decentralization Increase Spending on Public Infrastructure", *World Bank Policy Research Working Paper*, 1.457.
- Fisman, R. and Gatti, R. (2002a), "Decentralization and Corruption: Evidence from U.S. Federal Transfer Programs", *Public Choice*, 113 (1-2): 25-35.
- Fisman, R. and Gatti, R. (2002b), "Decentralization and Corruption: Evidence Across Countries", *Journal of Public Economics*, 83: 325-345.
- Gerring, J. and Strom T. (2004), "Political Institutions and Corruption: The Role of Unitarism and Parliamentarism", *British Journal of Political Science*, 34 (2): 295-330.
- Goldsmith, A. (1999). "Slapping the Grasping Hand: Correlates of Political Corruption in Emerging Markets", *American Journal of Economics and Sociology* 58 (4): 865-883.
- Hall, R. and Jones, C. (1999), "Why Do Some Countries Produce So Much More Output Per Worker than Others?", *Quarterly Journal of Economics*, 114 (1): 83-116.
- Huasman, J. (1978), "Specification Tests in Econometrics", *Econometrica*, 46 (6): 1.251-1.271.
- Hirschman, A. (1970), *Exit, Voice and Loyalty. Responses to Decline in Firms, Organizations and States*, Cambridge, Massachusetts: Harvard University Press.
- Hsiao, C. (2003), *Analysis of Panel Data*, 2nd edition, Cambridge University Press.
- Huther, J. and Shah, A. (1998), "Applying a Simple Measure of Good Governance and its Application to the Debate on the Appropriate Level of Fiscal Decentralization", *World Bank Working Paper Series*, 1.894, Washington D.C.
- Islam, R. and Montenegro, C. (2002), "What Determines the Quality of Institutions", *Background paper for the World Development Report*, 2.002: Building Institutions for Markets.
- Jin, H.; Yingyi, Q. and Weingast, B. (2005), "Regional Decentralization and Fiscal Incentives: Federalism Chinese Style", *Journal of Public Economics*, 89 (9-10): 1.719-1.742.
- Keen, M, and Marchand, M. (1997), "Fiscal Competition and the Pattern of Public Spending", *Journal of Public Economics*, 66, 33-53.
- Khaleghian, P. (2003), "Decentralization and Public Services: The Case of Immunization", *World Bank Policy Research Working Paper*, 2.989.
- Knack, S. and Keefer, P. (1995), "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures", *Economics and Politics*, 7 (3), 207-227.
- La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A. and Vishny, R. (1999), "The Quality of Government", *Journal of Law, Economics and Organization*, 15 (1): 222-279.

- Lambsdorff, J. (2006), "Consequences and Causes of Corruption - What do We Know From a Cross-section of Countries?", forthcoming in Susan Rose-Ackerman and Elgar, E. (eds): *Handbook of Economic Corruption*.
- Martinez-Vazquez, J. and McNab, R. (2006), "Fiscal Decentralization, Macrostability, and Growth", *Hacienda Publica Espanola*, 179: 25-49.
- Mauro, P. (1995), "Corruption and Growth", *The Quarterly Journal of Economics*, 110 (3): 691-712.
- de Mello, L. and Barenstein, M. (2001), "Fiscal Decentralization and Governance: A Cross-Country Analysis", *IMF Working Paper*, 01/71.
- Montinola, G.; Yingyi, Q. and Weingast, B. (1995), "Federalism Chinese Style: The Political Basis for Economic Success", *World Politics*, 48 (1): 50-81.
- Oates, W. (1972), *Fiscal Federalism*, New York: Harcourt Brace Jovanovich.
- Oates, W. (1999), "An Essay on Fiscal Federalism", *Journal Economic Literature*, 37: 1.120-1.149.
- OECD (1999), "Taxing Powers of State and Local Government", *OECD Tax Policy Studies*, 1.
- Qian, Y. and Roland, G. (1998), "Federalism and the Soft Budget Constraint", *American Economic Review*, 88 (5): 1.143-1.162.
- Panizza, U. (1999), "On the Determinants of Fiscal Centralization: Theory and Evidence", *Journal of Public Economics*, 74: 97-139.
- Persson, T.; Tabellini, G. and Trebbi, F. (2003), "Electoral Rules and Corruption", *Journal of European Economic Association*, 1 (4): 958-989.
- Prud'homme, R. (1995), "On the Dangers of Decentralization", *World Bank Research Observer*, 10 (2): 201-220.
- Riker, W. (1964), *Federalism: Origins, Operation, Significance*, Little, Brown and Co. Boston, MA.
- Robalino, D.; Picazo, O. and Voetberg, A. (2001), "Does Fiscal Decentralization Improve Health Outcomes? Evidence from a Cross Country Analysis", *World Bank Policy Research Working Paper*, 2.565.
- Rodden, J. and Rose-Ackerman, S. (1997), "Does Federalism Preserve Markets?", *University of Virginia Law Review*, 83: 1.521-1.572.
- Rodden, J. (2004), "Comparative Federalism and Decentralization. On Meaning and Measurement", *Comparative Politics*, 36 (4): 481-500.
- Rousseau, J. (1762), "The Social Contract in Political Writings", translated and edited by Watkins Madison, F., *University of Wisconsin Press*, 1986.
- Salinas Jiménez, J. and Salinas Jiménez, M. (2007), "Corruption, Efficiency and Productivity in OECD Countries", *Journal of Policy Modeling*, 29 (6): 903-915.
- Salmon, P. (1987), "Decentralization as an Incentive Scheme", *Oxford Review of Economic Policy*, 3 (2): 24-43.

- Seabright, P. (1996), "Accountability and Decentralization in Government: An Incomplete Contracts Model", *European Economic Review*, 40 (1): 61-89.
- Shah, A. (2006), "Corruption and Decentralized Public Governance", *World Bank Policy Research Paper*, 3.824.
- Shleifer, A. and Vishny, R. (1993), "Corruption", *Quarterly Journal of Economics*, 108: 599-616.
- Stegarescu, D. (2006), "Decentralized Government in an Integrating World: Quantitative Studies for OECD Countries", *ZEW Economic Studies*, Heidelberg: Physica-Verlag.
- Tabellini, G. (2000), "Constitutional Determinants of Government Spending", *Mimeo: Bocconi University*.
- Tanzi, V. (1995), "Fiscal Federalism and Decentralization: A Review of Some Efficiency and Macroeconomic Aspects", *Annual World Bank Conference on Development Economics*: 295-316.
- Tanzi, V. (1998), "Corruption Around the World - Causes, Consequences, Scope, and Cures", *IMF Staff Papers*, 45: 559-594.
- Treisman, D. (2000), "The Causes of Corruption: A Cross-national Study". *Journal of Public Economics*, 76: 399-457.
- Treisman, D. (2002a), "Decentralization and the Quality of Government", *Mimeo: University of California*.
- Treisman, D. (2002b), "Defining and Measuring Decentralization: A Global Perspective", *Mimeo: University of California*.
- Treisman, D. (2006), "Fiscal Decentralization, Governance, and Economic Performance: A Reconsideration", *Economics and Politics*, 18 (2): 219-235.
- Van Rijckeghem, C. and Weder, B. (2001), "Bureaucratic corruption and the rate of temptation: do wages in the civil service affect corruption, and by how much?", *Journal of Development Economics*, 65 (2), 307-331.
- Weingast, B. (1995), "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development", *Journal of Law, Economics, and Organization*, 11: 1-31.
- World Bank (2004), "Measuring Fiscal Decentralization", Data Note.
- World Development Report (1999/2000), *Entering the 21st Century*, Washington DC: World Bank.
- Wooldridge, J. (2002), *Econometric Analysis of Cross Section and Panel Data*, Cambridge MA: MIT Press.
- Wooldridge, J. (2006), *Introductory Econometrics. A Modern Approach*, 3rd edition, Thompson South-Western.
- Zhuravskaya, E. (2000), "Incentives to Provide Local Public Goods: Fiscal Federalism, Russian Style", *Journal of Public Economics*, 76 (3): 337-368.

Resumen

En este artículo se analiza la relación entre descentralización fiscal y calidad de gobierno. Los resultados obtenidos a partir de una muestra de 29 países para el período 1984-1997, muestran que la descentralización fiscal tiene efectos positivos sobre la calidad de las instituciones, aunque dicho efecto disminuye a medida que aumenta el nivel de renta del país. Además, el efecto positivo de la descentralización fiscal sobre la calidad de gobierno, en los países de renta media y baja se ve reducido si ésta va acompañada de descentralización política; en cambio en los países ricos la descentralización política mejora el impacto de la descentralización fiscal sobre la calidad de gobierno.

Palabras clave: calidad de gobierno, descentralización fiscal, descentralización política, datos de panel.

Clasificación JEL: H11, H77, K42.

APPENDIX 1**List of countries**

LIST OF COUNTRIES	
Low and medium income	High income
Argentina	Australia
Bahrain	Austria
Bolivia	Belgium
Brazil	Canada
Costa Rica	Denmark
Dominican Republic	Finland
Hungary	France
India	Iceland
Indonesia	Ireland
Malaysia	Netherlands
Mexico	Norway
Romania	Spain
South Africa	Sweden
Thailandia	UK
	US

APPENDIX 2

Description of the Variables

- **Government Quality:** Is the mean value of the ICRG variables “Corruption”, “Law and Order” and “Bureaucracy”. Source: Quality of Government Institute at <http://www.qog.pol.gu.se/>.
- **Fiscal Decentralization:** All fiscal decentralization variables come from the Government Finance Statistics of the IMF except the variable Tax Decentralization which comes from Stegarescu (2006).
- **Income:** Real Gross Domestic Product (RGDP) per capita. Source: *World Penn Tables* at <http://pwt.econ.upenn.edu/>
- **Government size:** Government Share of Real GDP. Source: *World Penn Tables*.
- **Population:** Total Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship — except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. Source: *World Penn Tables*.
- **Democracy:** One variable is an institutionalized democracy indicator on a scale from 0 to 10. It is derived from codings of the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. Source: Variable DEMOC from *Polity IV* at <http://www.cidcm.umd.edu/polity/>. Another variable measuring democracy is the GASTIL INDEX which we employ as the average values of the political rights and civil liberties indicators. Source: *Freedom House* at <http://www.freedomhouse.org/>.
- **Checks and balances:** Captures the number of veto players and whether or not these players are competitively elected. Source: Variable CHECKS from Beck *et al.* (2001).
- **Elections:** Dummy variable. 0 if neither the regional executive nor the regional legislature are locally elected, and 1 if either are elected. Source: Adapted from the variable STATE from Beck *et al.* (2001).
- **Autonomy:** Dummy variable where 1 represents residual and/or autonomy where residual means that in the constitution subnational governments are given residual powers and autonomy means that subnational legislatures have autonomy in certain specified areas not explicitly subject to central laws. Source: Treisman (2002a).
- **Legislative fractionalization:** The probability that two deputies picked at random from the legislature will be of different parties. Source: Variable FRAC from Beck *et al.* (2001).
- **Party age:** This is the average of the age of the 1st and 2nd government parties and the 1st opposition party, or the subset of these for which age of the party is known. Source: Variable PARTY AGE from Beck *et al.* (2001).

APPENDIX 3**Summary statistics**

SUMMARY STATISTICS					
	Mean	SD	Min	Max	# of obs.
Government Quality	0.7626	0.2328	0.1111	1.0000	406
GDP per capita	11.640	6.854	1.013	29.956	406
Government Size (% GDP)	20.64	6.30	7.51	47.51	406
Subnational Expenditure (% GDP)	12.19	8.61	0.19	36.03	406
Subnational Expenditure (% total)	25.56	14.20	1.60	58.73	406
Subnational Revenue (% GDP)	7.25	5.89	0.07	23.99	406
Subnational Revenue (% total)	18.92	13.06	0.47	53.93	406

