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Decentralization and Political Institutions

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Abstract:

Does fiscal decentralization lead to more efficient governance, better public goods, and higher economic growth? This paper tests Riker's theory (1964) that the results of fiscal decentralization depend on the level of countries' political centralization. We analyze cross-section and panel data from up to 75 developing and transition countries for 25 years. Two of Riker's predictions about the role of political institutions in disciplining fiscally-autonomous local politicians are confirmed by the data. 1) Strength of national political parties significantly improves outcomes of fiscal decentralization such as economic growth, quality of government, and public goods provision. 2) In contrast, administrative subordination (i.e., appointing local politicians rather than electing them) does not improve the results of fiscal decentralization.

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1. Introduction

Political incentives of public officials determine whether fiscal decentralization is beneficial for public goods provision. We define fiscal decentralization as devolution of authority over public revenue and expenditure to lower-level government and use this term interchangeably with federalism. The three classic channels which make fiscal decentralization beneficial – inter-jurisdictional competition (Tiebout, 1956), informational advantages (Hayek, 1948), and higher preference homogeneity (Oates, 1972) – all rely on the premise that local politicians have political incentives to respond to the needs of local population. A classic cost of federalism – regionalist policies in the presence of inter-jurisdictional spillovers (Musgrave, 1969; Oates, 1972) – relies on the premise that political incentives of local politicians make them cater to their own constituency but ignore preferences of populations in other jurisdictions of the country. This logic gives rise to a trade-off between national and local preferences in political incentives of local officials in a federation. On the one hand, to realize the benefits of federalism, local politicians should have sufficiently high weight placed on the preferences of the population of their own jurisdiction. On the other hand, to minimize inter-jurisdictional externalities, local politicians should place some weight on voter preferences in other jurisdictions of the country. Henceforth, we refer to the latter side of this tradeoff, i.e., to having local political incentives aligned with national interests, as political centralization. Since political incentives are shaped by political institutions, a fiscally decentralized country needs political institutions that strike a balance between the interests of local and national populations.

Riker, in his seminal book *Federalism: Origins, Operation, Significance* (1964), named two political institutions that achieve political centralization: strong national political parties and administrative subordination (i.e., having central authorities appoint local governments rather

than having them being elected). According to Riker, only strong national political parties achieve the necessary balance between national and local interests. On the one hand, even with very strong national political parties, the presence of local elections ensures political accountability of local politicians to their constituencies. On the other hand, strong national parties align political incentives of local politicians with national objectives by affecting career concerns of local politicians. First, strong parties have higher leverage over promotions of local politicians to national-level politics compared to weak parties. Second, political support of a strong national party during local elections is more valuable to local politicians than that of a weak party. Local politicians internalize inter-jurisdictional externalities of their policies in the search for promotion and political support by their national governing party because the party cares about national-level performance.

In contrast to strong national political parties, administrative subordination weakens local accountability. It solves the problem of inter-jurisdictional externalities by having central-level politicians reappoint only those local officials who are "well-behaved" from central officials' point of view. This, however, undermines the benefits of federalism in the first place: in focusing on pleasing their bosses, appointed officials may stop caring for the preferences of local population even though they know them better than central politicians.

Recently, several papers pointed to an additional potential cost of federalism – "local capture," namely, the situation when the influence of special interests on public policy is higher at the local compared to the central level (Blanchard and Shleifer, 2001; Bardhan, 2002; and Sonin, 2003). Blanchard and Shleifer (2001) indicated that, if local governments are more vulnerable to capture than central governments, then appointing local officials in a federation is beneficial. This condition is very restrictive, however; and it could be the case that neither

central nor local authorities serve broad public interests (Bardhan and Mookherjee, 2000). Note that if this condition holds, strong national parties also help alleviate local capture by creating career concerns to resist regional special interests.

Modern literature has not reached consensus on the overall effect of decentralization in developing and transition countries. One strand of the theoretical literature argues that benefits of decentralization outweigh the costs (see, for instance, Montinola, Qian, and Weingast, 1995; Qian and Weingast, 1996; Qian and Roland, 1998; and Maskin, Qian, and Xu, 2000); whereas the other strand argues for the opposite (e.g., Prud'homme, 1995; Tanzi, 1996; Cai and Treisman, 2004; and Bardhan, 2002). Previous empirical studies of the effects of decentralization produced inconclusive results that vary across samples and time periods.[1] This can be partly explained by the fact that these studies overlooked the importance of political institutions.

Our paper sheds light on this debate by testing Riker's two predictions about political centralization and finding solid empirical support to both. Using cross-section and panel data on up to 75 developing and transition countries for 25 years, we evaluate the effect of national political party strength and appointments of local officials on outcomes of fiscal decentralization. Our findings are as follows. First, strong political parties (measured by the age of main parties and fractionalization of government parties) substantially improve the effect of decentralization on growth, public goods provision, and government quality. Second, administrative subordination of local authorities to higher-level governments (measured by dummies indicating

[1] Fisman and Gatti (2002) and de Mello and Barenstein (2001) found negative effect of decentralization on corruption across countries; Treisman (2000) reported no relationship. Zhang and Zou (1998) reported negative effect of decentralization on provincial growth in China; whereas Jin et al. (1999) and Lin and Liu (2000) showed that this relationship is positive once one filters out cyclical effects. Akai and Sakata (2002) reported positive effect of decentralization on growth of US states in early 1990s; while Xie et al. (1999) showed no relationship over 50 years. Woller and Phillips (1998) found no link between decentralization and growth in developing countries; in contrast, Davoodi and Zou (1998) reported negative marginally significant relationship in developing countries and no effect in developed countries. Robalino et al. (2001) found negative cross-country relationship between decentralization and infant mortality.

whether provincial and municipal politicians are appointed or elected) does not significantly affect the outcomes of fiscal decentralization. Both of our measures of party strength are imperfect proxies; more precise measures of the strength of party systems suitable for cross-country comparison, however, do not exist.[2] We verify that our proxies correlate well with more accurate measures available for a limited number of countries.

In addition, we provide case study evidence on the channel through which national party strength influences outcomes of fiscal decentralization. Comparisons of party systems and decentralizations in two pairs of countries – Argentina vs. Chile and Russia vs. China – yield the conclusion that career concerns provided by strong national political parties play an important role in disciplining local politicians.[3]

To the best of our knowledge, the only two papers that consider Riker's argument are Blanchard and Shleifer (2001) and Gennaioli and Rainer (2004). Blanchard and Shleifer build a very simple model to illustrate the logic behind the need for political centralization. They argue that the stark contrast between outcomes of fiscal decentralization in China and Russia during transition can be explained by differences in political centralization of these countries. Gennaioli and Rainer confirm that decentralization works better in absence of local capture by showing that pre-colonial centralization of tribes in Sub-Saharan Africa is associated with better modern public goods provision and significantly more so for countries and public goods with higher

[2] There are works that provide accurate measures for some of the countries. Inman and Fitts (1990) build a precise overtime measure of party strength for the U.S. Garman et al. (2001) construct an accurate cross-country measure for five countries in Latin America. Camp (1998) and Carrion (1998) report evidence on the over-time changes in party strength in Mexico and Peru.

[3] In this paper, we restrict our attention to developing and transition countries for two reasons. First, the local capture and inter-jurisdictional externalities are more relevant for developing than for developed countries since well-functioning democratic institutions and systems of checks and balances substantially limit the scope for opportunistic behavior of public officials in developed countries (Bardhan, 2002). And second, two conditions necessary for our analysis hold only in developing countries: our measures of national party strength adequately reflect career concerns of local politicians only in developing countries; and measures of administrative subordination exhibit sufficient variation also only in developing countries.

special interest influence. Gennaioli and Rainer, however, do not distinguish between political and fiscal decentralization. Our paper shows that fiscal decentralization produces better outcomes in countries with political centralization taking the form of strong national political parties.

The remainder of the paper is organized as follows. Section 2 presents theoretical arguments that allow us to formulate testable hypotheses. Section 3 provides case-study evidence about the career concerns channel through which the strength of national political parties affects outcomes of fiscal decentralization. Section 4 describes the data and the measures used for formal testing. Section 5 describes the methodology. In section 6, we present the results and discuss their robustness. In section 7, we summarize and conclude.

2. Testable hypotheses

2.1. The strength of national political parties

The theoretical argument made by Riker (1964) about the strength of national parties as an important determinant of political incentives of the local governments is behind our first hypothesis. Strong national political parties influence policies of local politicians by affecting their career prospects. The careers of politicians in local governments depend on their parties' political and financial support at the time of their reelection and on the possibility of their promotion to the national government. Since stronger parties can provide better careers to their members, local politicians place higher weight on the policy preferences of their party when their national party is strong.[4] In turn, national governing parties have an incentive to punish (i.e., to not support or promote) local politicians who pursue regionalist interests because national

[4] Riker (1964) noted that a necessary condition for strong national parties to have beneficial influence on career concerns of local politicians is a direct connection between national and regional political parties. One counter example to this is Canada where the link between national and regional parties is rather weak according to Uslaner (2000). The data availability does not allow us to take into account the relationship between national and regional parties.

governing parties are evaluated by voters according to overall national performance. Thus, we can formulate a testable prediction: Holding everything else constant, the strength of national government parties – according to Riker's theory – is associated with lower efficiency of decentralization. We discuss our proxy variables for the party strength and what should be held constant in section 4.

2.2. Administrative subordination

The literature provides alternative views on whether elections of local officials help or hinder efficiency of fiscal decentralization. Seabright (1996) builds a model to illustrate that (under certain fairly restrictive assumptions) elected local officials are more accountable compared to elected central officials. Thus, Seabright's conclusion is that if one ignores the problem of inter-jurisdictional spillovers, local elections should help efficiency of fiscal decentralization. In contrast, Riker's (1964) focus is on inter-jurisdictional spillovers. Nonetheless, he argues that appointing local governments is not an effective mechanism of aligning their incentives with national objectives precisely because appointed local officials lack local accountability which is essential to realizing the benefits of decentralization. Riker concludes that appointing local public officials does not improve decentralization outcomes despite the need for some degree of political centralization. The opposite view is that in immature democracies the election mechanism often fails and does not provide accountability (Bardhan, 2002); and strong parties are hard to build. Blanchard and Shleifer (2001) argue that appointing local politicians is a feasible and effective second-best solution to problems of "regionalist policies" and "local capture" in decentralized states. An important assumption necessary for their conclusion is that state capture is lower at the central level than at the local level. Thus, we formulate our second testable hypothesis to test the Riker's conjecture against the

predictions of Blanchard and Shleifer's model as follows: appointment of local public officials does not improve outcomes of fiscal decentralization compared to the case when they are elected.

3. Case-study evidence on the career concerns channel of influence

The formal empirical analysis in the paper tests for the link between outcomes of fiscal decentralization and the two aspects of political centralization – party strength and administrative subordination. The data, however, do not allow us to test formally for the channel through which party strength affects efficiency of decentralization. In this section, we consider two case studies to illustrate that career concerns of local politicians about promotion to national politics is an important channel just as was argued by Riker.

3.1. Argentina vs. Chile

Both Argentina and Chile experienced fiscal decentralizations in the 1980s and 1990s, but with a substantial difference in outcomes. About 10% of total government revenues and expenditures were shifted from central to subnational budgets in Chile and 15% in Argentina.[5] It is well documented that in Chile transfer of expenditure responsibilities and financial resources from central to municipal governments helped to improve provision of public health (Bossert et al., 2003) and education (Winkler and Rounds, 1996; Parry, 1997). In contrast, Argentine decentralization is viewed as one of the main reasons for macroeconomic destabilization and a large-scale economic crisis (Tommasi et al., 2001). This difference in the results of decentralization can be explained by the difference in levels of political centralization and national party strength of the two countries.

Argentine national political parties are weak and the center of the political stage in

[5] The *level* of decentralization, of course, has been substantially higher in federal Argentina that in unitary Chile; but, for the purposes of this case study, we are interested in the changes rather than levels.

Argentina lies at the provincial level (Corrales, 2002; De Luca, Jones, and Tula 2002; Spiller and Tommasi, 2003). Patronage, pork barrel politics and clientelism play a much more important role in local and province-level elections than the support of a national party (Jones and Samuels, 2005). Importantly, it is well documented that career paths of Argentine politicians generally have a provincial nature: national politicians tend to return home to political posts in their own provinces after holding a national office (Jones, Saiegh, Spiller and Tommasi, 2002). Thus, it is not only the case that *province-level* politicians have no political incentives to care about national-level performance (they care exclusively about performance of their own province); but also that most *national-level* politicians pursue the interests of their home province.

In stark contrast, Chile has a strong political party system with parties that are highly centralized and national in scope (Londregan, 2000). National party affiliation in Chile is important both for local elections and for career concerns of government officials at all levels (Scully, 1995 and Eaton, 2004). Municipal political offices offer lucrative career opportunities through advancement within the national political parties. Many local politicians, particularly from large municipalities, became prominent central-level politicians as a result of being promoted by their respective parties following successful terms in local offices.[6] At the same time, there are no known examples of Chilean politicians who returned to local political arena after serving in a central office.

Overall, in Chile, local politicians have strong career concerns about advancement to the central level within national political parties, whereas in Argentina, the most attractive careers for politicians are at the provincial level and national parties do not affect political incentives of

[6] For example, Joaquin Lavin and Jaime Ravinet, the two former mayors of Santiago, advanced to the very top. Lavin (a member of the Independent Democratic Union party) became one of the main opposition leaders. He lost 1999 presidential election to Ricardo Lagos in a runoff by 200,000 votes and was a close third in the 2005 presidential race. Ravinet (a member of the Coalition of Parties for Democracy) was the Minister of Defense in Lagos' cabinet in 2004-2006.

local public officials. Thus, in Chile national political parties serve as a mechanism for disciplining subnational authorities and aligning incentives of local politicians with national objectives, whereas in Argentina they do not. These differences may account for at least some of the differences in the outcomes of decentralization in these two countries.

3.2. Russia vs. China

Blanchard and Shleifer (2001) were the first to consider the case of China and Russia. It is well-documented that decentralization was a major growth-promoting factor in China and an obstacle to growth in Russia (Jin, Qian, and Weingast, 2005; Zhuravskaya, 2000). Blanchard and Shleifer argued that the reason for this is the difference in political centralization of the two countries. In China decentralization has taken place under the tight control of the communist party, whereas in Yeltsin's Russia, economic decentralization was accompanied by large-scale political decentralization. Career concerns for advancement within CPC play an important role in disciplining provincial governors in China. Communist party leadership evaluates performance of provincial leaders and makes promotion (and dismissal) decisions on the basis of whether each province followed growth-promoting policies (Huang, 2002; Blanchard and Shleifer, 2001; The Economist, 2005). In contrast, in Russia, the central government was politically too weak throughout the 1990s and national parties were at an embryonic stage of development. As a result, regional governments unconstrained by party discipline often adopted such policies as erecting inter-regional trade barriers and issuing money surrogates that imposed significant negative externalities on the rest of the country (Shleifer and Treisman, 2000; Yakovlev and Zhuravskaya, 2006). It is important to note, that the negative effects of fiscal decentralization in Russian became apparent prior to 1996, i.e., at the time when the vast majority of the regional executives in Russia were appointed by the president. This system of administrative

subordination was parallel to the Chinese system in which province leaders are appointed by the Central organs of CPC. Thus, the differences in outcomes of fiscal decentralization in the two countries, at least in part, should be attributed to the differences in the strength of national political parties rather than just to differences in administrative subordination (which occurred only after 1996).

Thus, the comparison between transitions in China and Russia also highlights the importance of career concerns within national political parties for local politicians to align their incentives with national objectives.

4. Data

In this section we describe the data and the measures we use for the econometric analysis. The dataset on political institutions, fiscal decentralization, government performance, economic growth, outcomes of public goods provision, and various control variables available to us covers up to 75 developing and transition countries for the years 1975-2000. The list of countries that constitute our sample is given in Table A1 in the appendix. Definitions and sources of all variables are given in Table A2 in the appendix. Summary statistics and correlations between the variables are also presented in the appendix in Tables A3 and A4.

We start with describing our proxy variables for the two aspects of political centralization – party strength and administrative subordination. All measures of political institutions (described in the next two subsections) are taken from the *Database on Political Institutions* (Beck et al., 2001) and updated using various additional sources (see Table A2).

4.1. Proxies for the strength of national political parties

The best available proxies for the strength of national parties are the age of main parties (the average age of the two main governmental parties and the main opposition party) and the

fractionalization of governing parties (the probability that two members of parliament picked at random from governing parties belong to different parties). The motivation behind the use of the first measure is as follows. In developing and transition countries, a higher age of main parties indicates a more stable party system and stronger political parties (Huntington, 1968). Stability of political system is an important determinant of career concerns because local politicians take the expected horizon of their party into account when making decisions about effort allocation to career advancement within the party. The second measure is motivated by the fact that it reflects the average relative political weight of each governing political party in national policy-making, which is also an important factor in decisions about career advancement for local politicians. Low fractionalization of government parties indicates that a government consists of a small number of strong parties each having substantial impact on policy decisions; while high fractionalization is an indicator of a larger number of weak governing parties each of which has little influence over policies. Since the ability to influence policy is what makes national political offices attractive, higher government fractionalization, ceteris paribus, results in lower career concerns.[7]

4.1.1. Important covariates

Both of our measures of political centralization are highly imperfect: they correlate with several other variables which may affect decentralization outcomes. To make sure that our measures adequately reflect career concerns provided by strong national parties, we use a number of covariates. First, government fractionalization depends on the electoral rule and government system, both of which can have an independent effect on the efficiency of

[7] We consider fractionalization of governing parties rather than fractionalization of parliament as a whole because fractionalization in small opposition parties and presence of independent MPs has little effect on local politicians' career concerns.

decentralization (Persson and Tabellini, 2003). In order to avoid spurious correlation, we control for countries' government system and electoral rule in regressions for government fractionalization as a measure of national party strength. Second, cross-country differences in fractionalization of parties and efficiency of decentralization may depend on the degree of diversity among voters and on the presence of special ethnically or religiously distinct autonomous regions within the federal states. To account for these effects, we control for ethno-linguistic fractionalization and the presence of contiguous autonomous regions in the country. Finally, the age of main parties may reflect the age of countries or age of democracy and, therefore, may be correlated with institution-building processes present in young democracies which, in turn, could affect decentralization; thus, it is also necessary to control directly for the age of countries and the age of democracy (further methodological details are relegated to sections 5 and 6.3 which discuss methodology and robustness).

4.1.2. A reality check on proxies for party strength

Validity of our empirical approach depends on the quality of our proxies for the strength of national party systems. In this subsection, we check whether our proxies do, indeed, reflect strength of political parties. To the best of our knowledge there is little quantitative comparative analysis of the strength of party systems. Data do not allow performing a systematic check of how well the cross-country and over-time variation in the average age of main parties and fractionalization of government parties reflect the relative weight of national interests in utility functions of local politicians. We can check the validity of our proxies only for a few special cases. Garman et al. (2001) provides cross-sectional ranking of countries according to centralization of political parties for five Latin American countries. Among those countries, Brazil and Colombia have the most decentralized parties; Argentina is an intermediate case; and

Mexico and Venezuela have the most centralized political parties. Both of our measures of party strength yield the same ranking with the exception of the age of the main parties in Colombia which is an obvious and well-known outlier because of the peculiarity of its party system (Roland and Zapata, 2005).[8] Camp (1998) and Carrion (1998) study the over-time changes in party strength in Mexico and Peru. They show that Mexico and Peru experienced a substantial decline in the strength of their national parties in the 1990s. A large number of independent candidates and candidates from recently-formed new parties were elected as mayors, governors, and legislators. Accordingly, we observe a sharp decrease in the average age of main parties and a sharp increase in the fractionalization of government parties in both countries at that time. Thus, in these cases our measures adequately capture the cross-sectional and over-time variation in the party strength. As usual for country-level comparisons, there are few (but notable) exceptions, e.g., Colombia for which the two measures perform very poorly (see footnote 8).

4.2. Proxies for the administrative subordination

To test Riker's conjecture about effectiveness of administrative subordination in disciplining local public officials against the predictions of Blanchard and Shleifer's model, we use dummy variables indicating whether municipal and provincial executives are elected or appointed.

4.3. Data on fiscal decentralization and the outcomes

Now, let us describe the rest of the data. We use the share of subnational revenues in total

[8] The fractionalizations of government parties in Mexico, Venezuela, and Argentina (0; 0.11; and 0, respectively) are noticeably lower that in Brazil and Colombia (0.31, in both countries). The average age of the main parties is 37 and 39 years old in Mexico and Venezuela, respectively; in Argentina, it is 19 and in Brazil – 10. Colombia is an obvious outlier with the average age of the main parties equal to 147 years. According to Roland and Zapata (2005), Colombia has a very peculiar system in which parties do not have control over their own party label which allows having different party lists with the same party label. In essence, each party in Colombia is a collection of different parties which use the same party label rather that single unified party. Thus, our measures of party strength significantly overstate party strength in Colombia. A similar system exists in Ecuador but not in any other country.

government revenues as the main measure of fiscal decentralization we. The results are robust to using the share of subnational expenditures in total government expenditures as an alternative measure of fiscal decentralization. The data come from the IMF's *Government Finance Statistics*. These measures are the most commonly used in the empirical literature on the effects of fiscal decentralization. Although they are highly imperfect and do not reflect information on the distribution of decision-making authority between the levels of government, they provide a useful proxy for the relative level of countries' fiscal decentralization.[9]

As measures of the quality of government we use an index of corruption by Transparency International and the World Bank indices of control over corruption, quality of governance, regulation quality, and rule of law (Kaufmann et al., 2002). To measure the quality of public goods provision we use data on the DPT immunization, infant mortality, illiteracy rate, and pupil-to-teacher ratio from *World Development Indicators* by the World Bank.[10] To measure economic growth, changes in GDP per capita PPP are used.

5. Methodology

We use standard methodology for growth regressions and regressions of the quality of government (Barro, 1997; La Porta et al., 1999; Treisman, 2000) and add explanatory variables that describe the level of fiscal decentralization, political institutions and our focus, their interaction term.

We analyze the effect of political institutions on the efficiency of decentralization taking

[9] An important shortcoming of these data is that they do not distinguish between state and municipal expenditures and revenues; this breakdown is available only for a very limited number of countries.

[10] Unlike the other measures of public goods, pupil-to-teacher ratio is not an outcome, but a characteristic of the process that might reflect inefficiencies of resource use rather than quality. For many developing countries, however, number of teachers reflects a binding constraint. We considered and rejected enrollment in schools as another possible measure of the quality of education. It is nonlinear in the level of education: for countries with high quality of education, it takes values around 100%, while for countries with poor quality of education it takes values either lower or higher than 100%. The values are above 100% when adults go to school.

two distinct approaches. First, we study the determinants of cross-sectional variation in the quality of government, public goods, and economic growth across countries. Second, we explore the determinants of short-run over-time variation in public goods provision within countries using panel country-fixed-effects regressions.[11]

For the purposes of cross-sectional analysis, we use the following regression model:

$$Y_i = \alpha_1 + \alpha_2 Polit_i + \alpha_3 Decentr_i + \alpha_4 Polit_i * Decentr_i + \alpha_5 X_i + \varepsilon_i, \qquad (1)$$

where i indexes countries. Y_i is one of the following outcomes: an index of corruption or government quality in year 2001 (the year for which data are available); or the logarithm of change in GDP per capita at purchasing power parity between 2000 and 1975; or the average measure of public goods for years 1975-2000. $Polit_i$ denotes a measure of political institutions described in detail in section 4 above. $Decentr_i$ denotes a measure of fiscal decentralization. For $Polit_i$ and $Decentr_i$ we take average values for the period 1975-2000 or the largest sub-period for which data are available in each country. X_i is the following set of control variables: Initial values of the logarithm of GDP per capita at PPP and of the logarithm of population; share of protestants; ethno-linguistic fractionalization; latitude; legal origin; initial democratic traditions (measures by the average value of the democracy index for 50 years up to the initial year); and the current level of democracy. In regressions that use fractionalization of governing parties as a measure of party strength, the set of control variables also includes dummy variables for electoral rule and government system. The initial values are taken from 1975 or the year closest to 1975 for which data are available; all other control variables are averages over 1975-2000. In the regression for economic growth, we add the following additional control variables measured

[11] The data on corruption and the quality of government are only a cross-section. In addition, we cannot use panel regressions for the analysis of economic growth due to the insufficient number of observations in five-year averaged regressions.

in 1975: the level of fixed investments, openness of economy (measured as the residual share of exports and imports in GDP after regressing on area of country and population size), and logarithm of fertility.[12] We estimate equation (1) by 2SLS with the geographical area of countries used as an instrument for fiscal decentralization (see discussion in the section 6.4).

We also use panel regressions with fixed effects to estimate short-run changes in public goods provision: [13]

$$Y_{it} = \alpha_i + \rho_t + \beta_1 Polit_{it} + \beta_2 Decentr_{it} + \beta_3 Polit_{it} Decentr_{it} + \beta_4 X_{it} + \varepsilon_{it} \qquad (2)$$

where i indices countries and t years. Y_{it} is a measure of an outcome of public goods provision. As above, $Polit_{it}$ and $Decentr_{it}$ denote variables that describe political institutions and fiscal decentralization. We control for country and year fixed effects (α_i and ρ_t). X_{it} is a set of control variables that includes logarithm of GDP per capita at PPP lagged one year and logarithm of fertility. To eliminate possible endogeneity in panel regressions we instrument political institutions, fiscal decentralization, and their interaction term with lagged values. Finally, we report standard errors, adjusted to heteroscedasticity, both allowing and not allowing clusters by country.

6. Results

Figure 1 illustrates our results. The figure presents plots of the residual values from regressions of dependent variables on control variables as a function of the interaction term of decentralization and measures of party strength. The first row presents the relationship between

[12] Number of observations per country is different for different countries, and therefore, the over-time averages for 25 years at a maximum are measured with varied precision. To account for this, in regressions for public goods and growth, we weight observations by the square root of the number of years with non-missing data for political institutions and decentralization. To account for differences in the measurement accuracy of corruption and governance quality indices, we weight observations by the inverse of the standard errors of the indices that are provided along with the measures.

[13] As a robustness check, we also run panel regressions with random effects. The results prove to be similar to the results of cross-sectional analysis.

countries, whereas the second row presents the relationship within countries.

6.1. Strength of the national parties

Table 1 presents cross-section results for the age of main parties. Having older parties significantly improves the effect of decentralization on all indices of government quality except for the Transparency International index of corruption. A 10% increase in decentralization at a level of party age lower than the mean by one half of its standard deviation is associated with a decrease in government quality indices of approximately one half of their standard deviations, whereas at a level of age of parties higher than the mean by the same amount, the effect of decentralization is close to zero. Party age also improves the effect of decentralization on immunization, infant mortality, and economic growth. The Pupil-to-teacher ratio also has the right sign and is almost statistically significant.[14] About 80% of the developing countries in our sample have parties younger than needed for decentralization to have a positive effect on indices of government quality; but 70% to 90% of them have parties sufficiently old for decentralization to be beneficial for public goods provision and economic growth.

Table 2 presents cross-sectional results for the fractionalization of government parties. Fractionalization significantly hampers the effect of decentralization on all outcomes without exception.[15] Almost a half of the developing countries in our sample have higher

[14] A 10% increase in decentralization at a level of party age lower than the mean by one half of its standard deviation is associated with decreases in immunization and growth of 11 percentage points and 30%, respectively, and an increase in infant mortality of 0.6 percentage points; at the age of main parties higher than the mean by the same amount, it is associated with smaller size decreases in immunization and growth of only 5 percentage points and 2%, respectively, and a decrease in infant mortality of 0.2 percentage points.

[15] A 10% increase in decentralization, at a level of fractionalization lower than the mean by one half of its standard deviation, is associated with an increase in index of corruption and government effectiveness of 35% and 20% of standard deviation, respectively, and almost no change in other indices of government quality. In contrast, at a level of fractionalization higher than the mean by the same amount, it leads to no change in index of corruption and government effectiveness and a decrease in other indices of approximately one third of their standard deviations. A 10% increase in decentralization at a level of fractionalization lower than the mean by one half of its standard deviation leads to an increase in the level of immunization of one percentage point, a decrease in infant mortality of 5 percentage points, no change in illiteracy level, a 9% decrease in pupil to teacher ratio, and a 44% increase in 25

fractionalization than needed for decentralization to have a positive effect on indices of control of corruption, regulation quality, the rule of law, immunization, and illiteracy, whereas for the indices of corruption, government effectiveness, pupil to teacher ratio, infant mortality, and economic growth, the share is only 10%.

The results of panel regressions with fixed effects for party and government fractionalization are presented in Table 3. In interpretation of these results it is important to note that immunization and pupil to teacher ratio are much more likely to be immediately affected by changes in the efficiency of education and healthcare spending compared to illiteracy and infant mortality (which probably respond to changes in fiscal policies only with a lag).[16] Thus, we expect the results in the short-run to come from the former two outcomes of public goods provision. Indeed, we find that party age positively significantly affects the immediate effect of fiscal decentralization on immunization and the ratio of teachers to pupils. Fractionalization of government parties also significantly (negatively) affects the ratio of teachers to pupils. The coefficient of the cross-term of the revenue decentralization and government fractionalization in regression for immunization also has an expected sign, but is insignificant (with t-statistics above unity). Note that there are a few influential observations in each of the panel regressions with immunization and pupil to teacher ratio as dependent variables (one or two observations from India, Colombia, and Guatemala). None of them increase significance of our results and most actually bias the results towards zero. If influential observations are excluded from the sample, all of the coefficients of the cross-terms of decentralization and our measures of party strength

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years' economic growth. In contrast, at a level of fractionalization higher than the mean by the same amount, it leads to a decrease in the level of immunization of three percentage points, no change in infant mortality, an increase in illiteracy of two percentage points, a 4% decrease in pupil to teacher ratio, and a 28% increase in economic growth. (The effect on economic growth becomes negative once the level of government fractionalization reaches 1.5 standard deviations above the mean.)

[16] In addition, such measures as infant mortality and illiteracy rates are functions of not just government action but also of characteristics of the citizens for which we do not have a proper measure.

are highly statistically significant and have the expected sign in regressions for immunization and pupil to teacher ratio (including the regression with government fractionalization effect on immunization which is insignificant in the whole sample.) As a baseline, we report results on the whole sample which are the most conservative estimates of the within relationship. In contrast, there is no short run relationship between illiteracy and infant mortality and our main variable of interest.[17]

Overall, the results are consistent for the two measures of party strength and for cross-section and panel regressions. Therefore, the data provide strong evidence in favor of Riker's hypothesis that strong national political parties improve the results of fiscal decentralization. Moreover, our findings are consistent with the notion that fiscal decentralization and political centralization are integral parts of the system of checks and balances (Bardhan, 2002). The magnitude of our results is such that fiscal decentralization is harmful at low levels of political centralization and political centralization is harmful at low levels of fiscal decentralization. Thus, to achieve beneficial outcomes, a country needs to strike a balance between fiscal decentralization and political centralization. Strong political parties lead to excessively centralized political system in the absence of fiscal decentralization and fiscal decentralization leads to excessive regionalism in the absence of strong national parties.

6.2. Administrative subordination

Tables 4 and 5 present the results for the effect of elections of state and municipal

[17] It is worth pointing to the potential mechanisms at work behind the positive link between the local public goods outcomes of fiscal decentralization and political centralization. First, both education and health may have large spillover effects. This is especially clear for the case of fighting contagious diseases through mass immunization. Second, different outcomes of fiscal decentralization in terms of local public goods provision for strong and weak national parties can be driven by presence of spillovers in other areas: e.g., local governments may compete to attract capital, which, in turn, may result in the race to the bottom in public goods provision (e.g., Cai and Tiesman, 2004). The third possible mechanism is studied in Gennaioli and Rainer (2004) who argue that political centralization reduces local state capture in decentralized states, which also may result in better public goods provision. The reason being that larger share of local public finances is diverted by elites when local capture is high.

executives in cross-section regressions. The results are practically absent. There are no significant results for the regressions with appointed municipal executives as explanatory variation; and in only three out of ten cases, we observe significantly better outcomes of fiscal decentralization in the case when state executives are appointed compared to when they are elected. These few significant results, however, are likely to be driven by the omitted variable bias because they are inconsistent with the panel data results. Table 6 presents the results of the fixed effects panel regressions for administrative subordination. In contrast to the cross-sectional correlations, the coefficient of the cross-term between subnational revenue share and the dummy for elected state executives is always positive and in the case of the teacher-to-pupil ratio and infant mortality – significant. The teacher-to-pupil ratio is also positively and significantly affected by the cross-term of decentralization and municipal elections dummy.

Panel regressions improve on cross-section regressions in two important ways. First and foremost, including fixed effects takes care of much of the criticism that the results are driven by the unobserved differences between countries. Second, in the panel regressions, we are able to instrument measures of political institutions with their lag values. This is not a perfect instrument because our outcome variables may also be persistent, but, arguably, this is better than not having instruments, because lags as instruments at least reduce the measurement error bias. Thus, we consider cross-section results to be valid only when they are confirmed by panel-regression results.

Overall, we find no robust evidence that administrative subordination helps the outcomes of fiscal decentralization. Again, our results are consistent with Riker's hypothesis that administrative subordination is an ineffective mechanism of aligning local political incentives with national interests (unlike strong national political parties).

The next two subsections (6.3 and 6.4) further discuss robustness of our results with regard to influential observations, measurement error, sample selection, endogeneity, and alternative explanations. Readers not interested in methodological technicalities can directly skip to section 7, which summarizes and discusses the results.

6.3. Sensitivity analysis

To check sensitivity of the results with respect to influential observations, we estimated the same model using robust regressions and excluding China - the most influential observation. First, the results of the robust regressions, in most cases, are the same as those of the baseline regressions. Several results become insignificant while preserving the sign of coefficients. Few results - insignificant in the baseline setting - become significant. All of these results are in line with the pattern of the baseline estimation. Second, all results are robust to exclusion of China with the exception of cross-sectional results for the effect of the appointment of municipal executives (which are sensitive to the presence of China in the sample). In the full sample, the effect of fiscal decentralization on government quality is significantly worse when municipal executives are appointed compared to when they are elected. Excluding the single observation of China, however, leads to the loss of significance for all of these results. Thus, in the regressions for the appointment of municipal executives, we report conservative estimates received on the subsample excluding China.

The results are robust to including the following additional control variables: federation dummy, share of transfers in subnational revenues, share of taxes in subnational revenues, vertical imbalance (measured as the difference between subnational expenditures and revenues as a share of subnational revenues), initial GDP per capita squared, regional dummies (Central and Eastern Europe, former Soviet Union, Asia, Africa, Middle East, Latin America), colonial

dummies (British, Spanish, French, and other colonies), average size of jurisdictions and the interaction term of population and measures of fiscal decentralization. In addition, results are robust to replacing the across-time average level of democracy by its initial level.

The results are robust to exclusion of dictatorships and countries with authoritarian regimes from the sample: a few results lose significance whereas most remain significant and consistent with the baseline results.

In the beginning of transition, many post-communist countries experienced initial output fall, deterioration in quality of public goods, and economic decentralization. Since we cannot account for the nature of these processes, we verified that the exclusion of observations for the transition countries before 1995 does not affect the results.

The age of parties may reflect the country age or the age of democracy. In this case institution-building processes that may affect decentralization outcomes could drive our results based on party age. In order to rule out this story, we included direct measures of the country age since independence and the age of democracy together with their interaction terms with fiscal decentralization for all regressions with the party age.[18] The results were not affected.

As discussed above, fractionalization of government parties may reflect the effects of other political institutions (i.e., government system and electoral rules) that affect both the fractionalization and the results of decentralization. In addition to the inclusion of the dummies for electoral rule and government system in the set of control variables, we have used two alternatives approaches. First, we used the residuals from the regression of government parties' fractionalization on these dummy variables as an alternative measure of party strength. Second,

[18] As a proxy for the age of democracy we take the number of years since the democratic regime has been established for the last time as reported in *Polity IV* data base. The age of democracy takes zero value if the current or any future value of *Polity IV* measure of democracy is zero. This measure of the age of democracy is only weakly correlated with the age of main parties.

we had a sufficient number of observations to re-estimate regressions on the subsample of countries with proportional representation. Each approach produced results very similar to the baseline.

Another potential drawback of fractionalization of government parties as a measure of party strength is that high fractionalization may reflect high diversity of population, which may influence the outcomes of decentralization. Apart from controlling for ethnolinguistic fractionalization, we include a dummy variable indicating whether a country has autonomous or self-governing regions (from Beck et al., 2001) and interaction terms of these variables with the measures of fiscal decentralization as additional covariates. The results are robust.

6.4. Endogeneity issues

Since fiscal decentralization may be endogenous (Arzaghi and Henderson, 2005; Strumpf and Oberholzer-Gee, 2002, Fisman and Gatti, 2002, Panizza, 1999), we use geographical area of countries and its interaction term with measures of political centralization as instruments for fiscal decentralization and the interaction of decentralization and political institutions in cross-section regressions.[19] The intuition behind this instrument is that, ceteris paribus, costs of centralized governance increase with geographical size of the country which leads to higher economic decentralization in countries with larger area. Panizza (1999) and Arzaghi and Henderson (2005) demonstrate that the size of the country is an important determinant of fiscal decentralization. Table A5 in the appendix reports the first stage regressions with corresponding F-statistics. The size of the F-statistics for the interaction term of fiscal decentralization and political centralization (which is the focus of our analysis) is high enough and, therefore, the

[19] Other studies (Fisman and Gatti, 2002; de Mello and Barenstein, 2001) used country legal origin as an instrument. It is not an appropriate choice of instrument in our case because legal origin can affect our dependent variables not through fiscal decentralization but through other channels (La Porta et al., 1999). Our results support this notion because legal origin is often significant.

instrument is sufficiently strong. In addition, for geographical area to be a valid instrument, exclusion restriction needs to be satisfied. Yet in the long run, geographical area can be endogenous (Alesina and Spolaore, 2003). We assume that 25 years is a sufficiently short horizon to treat the area of countries as exogenous.[20] Comparison of the results with and without instruments for decentralization shows that the signs of coefficients are the same and the magnitudes increase considerably. Therefore, we conclude that there may be a bias that attenuates coefficients towards zero, probably as a result of a measurement error.

There is an endogeneity problem in our cross-section regressions that we cannot address. The quality of government, economic growth and public goods provision may affect the popularity of existing parties and the strength of a country's party system. Unfortunately, we do not have a valid instrument for political institutions under consideration.[21] In an attempt to account for possible endogeneity, we used the initial levels of the age of main parties and government fractionalization instead of across-time averages. The results using initial values of political institutions are very similar to those in the baseline regressions. Still, the initial levels are not a very good instrument, and possible endogeneity of the strength of political parties is the main concern for interpreting our results as causal relationships.

Lags are used as instruments in panel regressions for fiscal decentralization, political centralization, and their interaction term. For the most part, instrumentation increases the

[20] This assumption is supported by the fact that geographical area is insignificant if added in regressions that include fiscal decentralization. We should note, however, that almost all the countries in our sample for which the area changed since 1975 emerged after the brake up of the former socialist states (Soviet Union, Yugoslavia, and Czechoslovakia). Although their resultant size was historically predetermined, there is a possibility that the brake up and performance of these countries during transition are related in a way that introduces correlation between the geographical area and our dependent variables.

[21] In general, the problem of finding valid instruments for specific political institutions is one of the biggest problems in political economy. In a recent paper, Acemoglu (2005) argues that so far no valid instrumental variables for specific political institutions were found. All of the instrumental variables used in the literature can be regarded at best as valid instruments for broad clusters of institutions that do not allow unbundling the effect of any particular institution.

magnitude of coefficients while preserving their signs consistent with the measurement error explanation of the bias. The only exception is regressions with government fractionalization as a measure of party strength. Use of instruments in these regressions leads to a negative shift in the point estimates of the coefficients. A possible explanation of this bias is as follows. An increase in economic performance can have different effect on fractionalization of governing parties in economically centralized and decentralized states. In countries with a low level of decentralization, better performance leads to relative strengthening of the national governing parties because the success is attributed to national policies. In highly decentralized countries, voters attribute economic success to regional policies that may lead to a relative increase in fractionalization of national government parties due to strengthening of local political organizations. As such, uninstrumented regressions should produce an upward bias in the coefficient of the interaction term between government fractionalization and fiscal decentralization. This is consistent with our findings.

7. Concluding remarks

Our key finding is that political institutions play an important role in determining the results of fiscal decentralization. In line with the predictions of Riker (1964), we find that a strong national party system is a very effective way of aligning political incentives of local politicians with national objectives, while preserving their accountability to local constituencies, which is necessary for efficient decentralization. In developing and transition countries, older and more stable party system as well as lower fractionalization of government parties are associated with the better effect of fiscal decentralization on economic growth, government quality, and public goods. Our findings also confirm Riker's skepticism about administrative subordination as a mechanism of ensuring efficient political incentives for the local governments

in decentralized states: we find that appointing state and municipal officials does not help the results of fiscal decentralization.

Therefore, a remedy to poor governance in large inherently decentralized countries is building strong national political parties whenever possible. Strong parties help to provide elected local officials with efficient political incentives, because their chances of reelection depend both on national party support and the satisfaction of the local constituency. This allows the striking of a balance between national objectives and local accountability.

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Table 1. Party age (cross-section regressions).

	Quality of Government					Public Goods and Growth				
	TI index	Government effectiveness	Regulation quality	Control over corruption	Rule of law	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	GDP growth
CROSSTERM: Subnational revenue share & age of the main parties	1.068	1.135	1.179	0.964	1.127	28.256	31.737	13.564	0.370	1.356
	(0.77)	(4.28)***	(2.56)**	(2.10)**	(2.60)**	(1.87)*	(2.78)***	(1.21)	(1.67)	(3.61)***
Subnational revenue share	0.053	-0.020	-0.039	-0.027	-0.033	-1.429	-0.919	-0.716	-0.010	-0.049
	(0.60)	(1.24)	(1.44)	(0.94)	(1.26)	(1.26)	(1.10)	(0.89)	(0.55)	(1.06)
Age of the main parties	-11.586	-15.233	-15.195	-11.786	-16.482	-339.950	-314.043	-90.900	-4.688	-16.735
	(0.52)	(3.30)***	(1.91)*	(1.78)*	(2.32)**	(1.34)	(1.73)*	(0.51)	(1.34)	(2.69)***
Logarithm (GDP per capita)	0.694	0.136	0.040	0.114	0.043	1.934	22.726	14.114	0.169	-0.530
	(2.14)**	(1.76)*	(0.47)	(1.10)	(0.45)	(0.55)	(7.63)***	(4.85)***	(3.77)***	(3.67)***
Democratic traditions	0.129	0.027	-0.076	0.053	0.014	1.504	3.737	0.958	0.014	0.050
	(1.26)	(0.66)	(1.73)*	(1.37)	(0.34)	(1.12)	(2.17)**	(0.70)	(0.57)	(0.99)
Current level of democracy	0.077	0.032	0.101	0.036	0.075	-0.138	-0.203	0.742	0.018	0.035
	(0.67)	(0.86)	(2.51)**	(1.16)	(2.43)**	(0.14)	(0.16)	(0.65)	(0.88)	(0.98)
Logarithm (Population)	-0.405	-0.082	-0.060	-0.086	-0.070	0.078	-0.050	2.680	-0.011	0.142
	(1.54)	(1.51)	(0.92)	(1.49)	(1.15)	(0.02)	(0.01)	(0.83)	(0.21)	(0.80)
Share of protestant	0.031	0.000	0.004	0.002	-0.004	-0.257	-0.254	0.080	-0.006	-0.006
	(1.99)*	(0.07)	(0.45)	(0.21)	(0.60)	(1.30)	(1.36)	(0.28)	(1.94)*	(0.88)
Ethnolinguistic fractionalization	-2.580	-0.123	-0.267	-0.400	0.183	2.842	-12.362	6.553	0.223	0.013
	(1.83)*	(0.32)	(0.52)	(0.91)	(0.40)	(0.16)	(0.81)	(0.48)	(0.70)	(0.02)
Latitude	-0.829	2.618	1.545	2.274	3.177	68.007	4.866	7.913	0.774	3.364
	(0.17)	(2.56)**	(1.01)	(1.57)	(2.44)**	(1.02)	(0.12)	(0.16)	(0.83)	(1.24)
English legal origin	0.710	-0.070	0.273	-0.175	-0.328	-4.626	-48.053	-29.177	0.174	-0.746
	(0.76)	(0.24)	(1.08)	(0.65)	(1.18)	(0.42)	(5.44)***	(3.02)***	(1.37)	(2.93)***
Socialist Legal origin	-1.237	-1.152	-0.755	-0.831	-1.127	8.694	-19.111	-9.207	0.375	-2.119
	(1.41)	(4.54)***	(2.66)**	(3.15)***	(4.60)***	(1.02)	(2.40)**	(1.13)	(3.18)***	(6.47)***
French legal origin	-0.311	-0.076	0.262	-0.162	-0.407	-0.003	-34.646	-22.062	0.134	-0.337
	(0.25)	(0.22)	(0.82)	(0.58)	(1.41)	(0.00)	(3.13)***	(1.51)	(0.72)	(0.66)
Logarithm (Fertility)										-0.653
										(1.63)
Fixed investments										-0.001
										(0.09)
Openness										0.005
										(1.19)
Observations	53	70	70	69	70	70	70	64	70	70
R-squared	0.43	0.48	0.43	0.51	0.51	0.46	0.73	0.57	0.67	0.68

*Note: Absolute values of robust t-statistics are in parentheses. *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

Table 2. Fractionalization of government parties (cross-section regressions).

	Quality of government					Public goods and growth				
	TI index	Government effectiveness	Regulation quality	Control over corruption	Rule of law	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	GDP growth
CROSSTERM: Subnational revenue share & fractionalization of government parties	-0.184	-0.062	-0.096	-0.074	-0.084	-1.533	-2.136	-0.943	-0.023	-0.067
	(2.34)**	(3.29)***	(4.68)***	(3.45)***	(4.75)***	(5.33)***	(3.34)***	(1.80)*	(2.57)**	(2.82)***
Subnational revenue share	0.070	0.023	0.020	0.014	0.015	0.256	0.608	0.027	0.011	0.051
	(1.58)	(1.74)*	(1.42)	(0.94)	(1.33)	(0.72)	(1.10)	(0.06)	(1.54)	(1.48)
Fractionalization of government parties	4.429	1.157	1.702	1.256	1.663	14.996	51.619	16.804	0.560	1.170
	(2.95)***	(2.54)**	(3.44)***	(2.41)**	(3.91)***	(1.85)*	(3.20)***	(1.35)	(3.10)***	(2.04)**
Logarithm (GDP per capita)	-0.826	-0.170	0.285	-0.156	-0.133	-4.817	0.502	-1.543	0.012	-0.152
	(1.36)	(0.88)	(1.23)	(0.84)	(0.77)	(1.32)	(0.08)	(0.24)	(0.12)	(0.79)
Proportional electoral rule	-0.299	0.285	0.008	0.004	0.167	3.014	-0.690	-1.875	0.059	0.339
	(0.48)	(1.33)	(0.04)	(0.02)	(0.96)	(0.76)	(0.08)	(0.30)	(0.56)	(1.29)
Prliamentary system	0.669	0.130	-0.021	0.105	0.011	3.338	18.768	13.218	0.144	-0.361
	(2.05)**	(1.45)	(0.20)	(0.93)	(0.13)	(1.64)	(4.82)***	(3.77)***	(3.16)***	(1.77)*
Democratic traditions	0.221	0.037	-0.049	0.077	0.031	0.778	4.821	1.588	0.016	0.017
	(2.25)**	(0.79)	(0.94)	(1.58)	(0.75)	(0.78)	(2.88)***	(1.06)	(0.77)	(0.40)
Current level of democracy	0.008	0.020	0.068	0.034	0.057	0.523	-0.893	0.407	0.013	-0.027
	(0.08)	(0.53)	(1.73)*	(0.96)	(1.92)*	(0.77)	(0.72)	(0.34)	(0.72)	(0.59)
Logarithm (Population)	-0.107	-0.061	-0.072	-0.047	-0.049	-1.938	-0.377	2.153	-0.026	-0.086
	(0.51)	(0.86)	(0.88)	(0.72)	(0.84)	(1.13)	(0.13)	(0.87)	(0.62)	(0.54)
Share of protestant	0.039	0.001	0.009	0.006	-0.001	-0.160	-0.081	0.127	-0.004	-0.002
	(3.82)***	(0.11)	(1.03)	(0.62)	(0.10)	(1.20)	(0.33)	(0.41)	(1.21)	(0.31)
Ethnolinguistic fractionalization	-2.163	-0.361	-0.629	-0.676	-0.125	-13.662	-35.393	-4.266	-0.082	-1.127
	(2.51)**	(1.01)	(1.69)*	(2.30)**	(0.45)	(2.07)**	(2.71)***	(0.38)	(0.37)	(1.68)*
Latitude	1.034	1.538	0.108	1.428	2.150	17.512	-37.180	-11.212	-0.026	-1.181
	(0.44)	(1.54)	(0.12)	(1.42)	(2.56)**	(0.93)	(1.00)	(0.52)	(0.05)	(0.58)
English legal origin	0.231	-0.464	0.229	-0.358	-0.681	-5.663	-49.403	-28.554	0.119	-0.778
	(0.26)	(1.54)	(0.74)	(1.09)	(2.55)**	(0.69)	(4.99)***	(2.98)***	(0.95)	(2.83)***
Socialist Legal origin	-1.114	-1.136	-0.407	-0.604	-1.036	9.688	-7.514	-3.110	0.442	-2.427
	(1.43)	(4.01)***	(1.28)	(2.11)**	(4.34)***	(1.77)*	(0.70)	(0.33)	(2.98)***	(7.16)***
French legal origin	0.22	-0.26	0.23	-0.14	-0.54	-5.603	-31.274	-18.843	0.064	-0.870
	(0.27)	(0.71)	(0.72)	(0.46)	(1.93)*	(1.01)	(2.99)***	(2.16)**	(0.46)	(1.82)*
Logarithm (Fertility)										0.011
										(1.03)
Fixed investments										-0.0031
										(0.54)
Openness										-1.36889
										(3.75)***
Observations	55	73	73	72	73	73	73	67	73	73
R-squared	0.50	0.36	0.36	0.44	0.55	0.72	0.76	0.63	0.69	0.61

*Note: Absolute values of robust t-statistics are in parentheses. *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

Table 3. Party age and fractionalization of government parties (panel regressions).

	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)
CROSSTERM: Subnational revenue share & age of the main parties	51.262	-4.757	-0.834	0.459				
	(3.09)***	(0.91)	(0.67)	(2.66)***				
	(1.72)*	(0.98)	(0.44)	(1.23)				
CROSSTERM: Subnational revenue share & fractionalization of government parties					-1.342	0.150	-0.109	-0.014
					(1.17)	(0.28)	(0.90)	(1.80)*
					(0.92)	(0.27)	(0.76)	(1.52)
Subnational revenue share	-1.247	0.031	-0.210	-0.012	0.364	-0.015	-0.157	-0.0001
	(2.05)**	(0.12)	(3.20)***	(1.75)*	(0.76)	(0.06)	(2.74)***	(0.01)
	(1.09)	(0.08)	(1.47)	(0.93)	(0.54)	(0.04)	(1.28)	(0.01)
Age of the main parties	-631.026	-130.170	15.926	-7.951				
	(1.84)*	(1.45)	(0.76)	(2.62)***				
	(0.78)	(0.98)	(0.37)	(1.09)				
Fractionalization of government parties					11.810	-5.229	2.654	0.425
					(0.53)	(0.60)	(1.26)	(2.63)***
					(0.43)	(0.49)	(0.95)	(2.13)**
Logarithm (GDP per capita)	33.550	9.846	4.173	0.278	24.452	9.275	3.717	0.160
	(4.38)***	(2.73)***	(5.11)***	(3.83)***	(3.54)***	(2.58)***	(4.85)***	(2.87)***
	(1.75)*	(0.82)	(1.53)	(1.64)	(1.23)	(0.88)	(1.22)	(1.20)
Logarithm (Fertility)	-81.650	-27.162	-3.860	-0.217	-93.286	-35.770	-5.972	-0.553
	(5.16)***	(3.53)***	(2.34)**	-1.420	(5.85)***	(4.34)***	(3.72)***	(4.39)***
	(2.11)**	(1.65)	(0.79)	(0.74)	(2.75)***	(2.48)**	(1.33)	(2.23)**
Observations	334	222	416	245	374	248	469	272
Number of countries	48	51	51	45	50	55	54	47
R-squared	0.36	0.65	0.62	0.5	0.38	0.65	0.60	0.53

Note: Absolute values of robust t-statistics are in parentheses. The second set of t-statistics produced by clustering errors by country.
**** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

Table 4. State executives appointed or elected (cross-section regressions).

	Quality of government					Public goods and growth				
	TI index	Government effectiveness	Regulation quality	Control over corruption	Rule of law	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	GDP growth
CROSSTERM: Subnational revenue share &	0.025	-0.078	-0.087	-0.023	-0.057	-1.578	-3.074	-1.798	-0.024	-0.134
elected state executives (Difference in effects)	(0.21)	(1.61)	(1.71)*	(0.36)	(1.02)	(1.36)	(2.00)**	(1.52)	(1.16)	(1.93)*
Subnational revenue share	0.022	0.033	0.028	0.000	0.014	0.418	1.858	0.875	0.016	0.058
(Effect for appointed state executives)	(0.27)	(1.01)	(0.79)	(0.00)	(0.41)	(0.54)	(1.46)	(1.03)	(1.14)	(0.94)
Elected state executives	-0.523	0.945	1.184	0.054	0.577	17.565	47.246	25.304	0.526	1.965
	(0.29)	(1.22)	(1.41)	(0.06)	(0.72)	(1.02)	(1.70)*	(1.20)	(1.54)	(1.62)
Logarithm (GDP per capita)	0.347	0.272	0.146	0.093	0.114	6.123	31.938	21.317	0.230	-0.231
	(0.62)	(1.49)	(0.78)	(0.54)	(0.63)	(1.49)	(3.56)***	(3.01)***	(2.52)**	(0.63)
Democratic traditions	0.293	0.002	-0.118	0.072	-0.010	0.553	2.215	0.335	-0.011	-0.064
	(1.99)*	(0.03)	(1.46)	(1.28)	(0.14)	(0.37)	(0.74)	(0.17)	(0.36)	(0.67)
Current level of democracy	-0.076	0.009	0.098	0.022	0.059	-0.488	-1.637	-0.756	0.009	-0.034
	(0.88)	(0.17)	(1.91)*	(0.59)	(1.48)	(0.66)	(0.89)	(0.58)	(0.48)	(0.52)
Logarithm (Population)	-0.251	-0.060	-0.098	-0.043	-0.056	-3.034	-5.818	-1.330	-0.062	-0.038
	(0.86)	(0.58)	(0.91)	(0.49)	(0.59)	(1.11)	(1.02)	(0.36)	(1.14)	(0.17)
Share of protestant	0.018	0.005	0.008	0.006	0.001	-0.119	-0.171	0.173	-0.005	-0.003
	(1.82)*	(0.61)	(0.87)	(0.83)	(0.25)	(0.99)	(0.64)	(0.58)	(1.58)	(0.42)
Ethnolinguistic fractionalization	-2.233	-0.669	-0.852	-0.641	-0.295	-21.879	-55.302	-19.204	-0.177	-1.199
	(1.82)*	(1.13)	(1.54)	(1.16)	(0.56)	(1.88)*	(2.29)**	(1.11)	(0.58)	(1.36)
Latitude	1.862	1.396	0.249	1.846	2.267	1.686	-87.267	-43.174	-0.179	-1.002
	(0.51)	(0.81)	(0.14)	(1.34)	(1.48)	(0.05)	(0.95)	(0.93)	(0.22)	(0.34)
English legal origin	0.567	0.200	0.590	-0.168	-0.112	1.653	-30.597	-17.307	0.382	0.343
	(0.58)	(0.46)	(1.53)	(0.45)	(0.29)	(0.19)	(1.80)*	(1.33)	(2.02)**	(0.44)
Socialist legal origin	-0.128	-1.205	-0.938	-0.696	-1.179	5.703	-27.358	-14.963	0.321	-2.904
	(0.13)	(3.31)***	(2.24)**	(1.99)*	(3.35)***	(0.66)	(1.76)*	(1.27)	(1.92)*	(3.88)***
French legal origin	0.673	0.062	0.369	-0.027	-0.284	-6.805	-35.564	-21.510	0.096	-0.335
	(0.73)	(0.14)	(0.95)	(0.09)	(0.84)	(0.97)	(1.66)	(2.06)**	(0.59)	(0.72)
Logarithm (Fertility)										0.035
										(2.12)**
Fixed investments										0.001
										(0.08)
Openness										-1.743
										(2.59)**
Observations	50	69	70	68	70	70	70	64	70	70
R-squared	0.34	0.11	0.15	0.42	0.28	0.55	0.52	0.43	0.52	0.47
Subnational revenue share in adjacent regressions	0.047	-0.044	-0.059	-0.024	-0.043	-1.159	-1.216	-0.922	-0.008	-0.076
(Effect for elected state executives)	(0.49)	(1.56)	(1.81)*	(0.51)	(1.11)	(1.38)	(1.19)	(1.31)	(0.52)	(2.09)**

*Note: Absolute values of robust t-statistics are in parentheses. *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

Table 5. Municipal executives appointed or elected (cross-section regressions).

	Quality of government					Public goods and growth				
	TI index	Government effectiveness	Regulation quality	Control over corruption	Rule of law	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	GDP growth
CROSSTERM: Subnational revenue share &	-0.127	-0.011	-0.035	-0.026	-0.023	-0.024	0.648	58.341	-0.012	-0.025
Elected municipal executives (Difference in effects)	(1.00)	(0.34)	(0.87)	(0.68)	(0.68)	(0.02)	(0.47)	(0.03)	(0.59)	(1.29)
Subnational revenue share	0.168	-0.018	-0.008	-0.012	-0.013	-1.619	-1.639	-62.720	0.009	-0.013
(Effect for appointed municipal executives)	(0.94)	(0.38)	(0.15)	(0.20)	(0.25)	(0.67)	(0.89)	(0.03)	(0.29)	(0.39)
Elected municipal executives	2.745	0.231	0.507	0.257	0.284	-17.028	-9.208	-902.440	0.267	0.322
	(1.10)	(0.36)	(0.66)	(0.34)	(0.41)	(0.49)	(0.32)	(0.03)	(0.61)	(0.76)
Logarithm (GDP per capita)	0.531	0.180	0.107	0.206	0.104	0.934	20.342	-145.924	0.191	-0.363
	(1.29)	(1.60)	(0.80)	(1.48)	(0.80)	(0.13)	(3.73)***	(0.03)	(2.74)***	(3.46)***
Current level of democracy	0.224	0.048	-0.051	0.072	0.020	0.573	4.511	-11.919	0.011	0.029
	(1.86)*	(1.29)	(1.29)	(2.02)**	(0.54)	(0.44)	(2.78)***	(0.03)	(0.56)	(0.90)
Democratic traditions	-0.013	0.016	0.081	0.037	0.072	1.568	-0.234	39.973	0.006	0.053
	(0.14)	(0.46)	(2.61)**	(1.21)	(2.31)**	(0.80)	(0.16)	(0.03)	(0.24)	(1.22)
Logarithm (Population)	-0.496	-0.013	-0.007	-0.003	-0.020	3.655	-0.988	11.358	-0.041	0.127
	(1.01)	(0.12)	(0.05)	(0.03)	(0.16)	(0.55)	(0.24)	(0.03)	(0.62)	(1.09)
Share of protestant	0.038	-0.001	0.007	0.003	-0.003	-0.218	-0.709	-12.173	-0.003	-0.007
	(1.47)	(0.15)	(0.65)	(0.29)	(0.33)	(0.66)	(2.13)**	(0.03)	(0.73)	(1.01)
Ethnolinguistic fractionalization	-3.439	0.246	-0.287	-0.268	0.307	21.532	17.076	950.178	0.041	0.075
	(1.10)	(0.33)	(0.40)	(0.33)	(0.38)	(0.52)	(0.51)	(0.03)	(0.07)	(0.14)
Latitude	-0.191	3.117	1.641	2.954	3.702	98.215	44.544	885.125	0.300	3.079
	(0.03)	(2.50)**	(0.95)	(1.64)	(2.26)**	(0.96)	(0.74)	(0.03)	(0.30)	(1.70)*
English legal origin	1.293	-0.193	0.399	0.007	-0.235	-6.258	-63.554	-647.905	0.200	-0.627
	(0.94)	(0.49)	(1.06)	(0.02)	(0.60)	(0.32)	(3.48)***	(0.03)	(0.83)	(1.90)*
Socialist legal origin	-1.313	-1.262	-0.764	-0.904	-1.255	10.452	-31.929	-176.364	0.304	-2.310
	(1.13)	(4.36)***	(2.38)**	(3.30)***	(4.40)***	(0.78)	(2.95)***	(0.04)	(2.60)**	(9.56)***
French legal origin	0.492	-0.132	0.412	0.048	-0.319	7.173	-43.333	-464.032	0.118	-0.472
	(0.27)	(0.37)	(1.02)	(0.13)	(0.91)	(0.34)	(3.03)***	(0.03)	(0.80)	(1.51)
Logarithm (Fertility)										0.010
										(1.01)
Fixed investments										0.002
										(0.97)
Openness										-0.460
										(1.10)
Observations	52	68	69	67	69	69	69	62	69	69
R-squared	0.15	0.39	0.32	0.5	0.44	0.36	0.7	0.02	0.66	0.76
Subnational revenue share in adjacent regressions	0.045	-0.008	-0.025	-0.019	-0.017	-1.643	-0.991	-4.379	-0.003	-0.038
(Effect for elected municipal executives)	(0.63)	(0.42)	(1.16)	(0.94)	(0.83)	(1.26)	(1.18)	(0.04)	(0.18)	(1.70)*

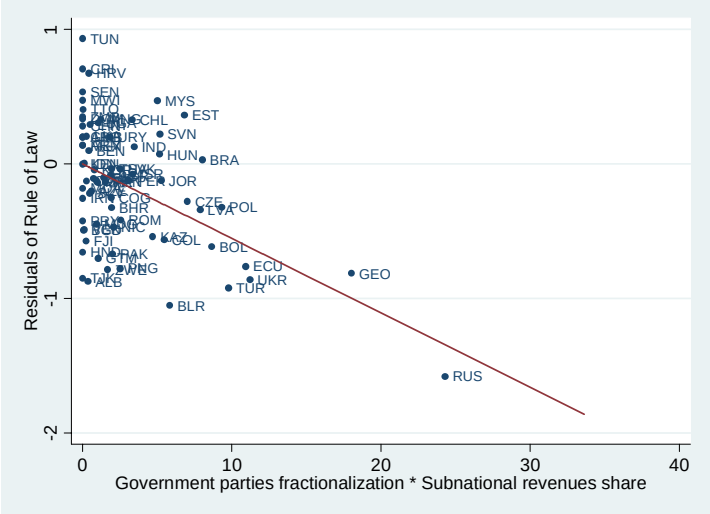
*Note: Absolute values of robust t-statistics in parenthesis. *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level. Observations for China are excluded.*

Table 6. State and municipal executives appointed or elected (panel regressions).

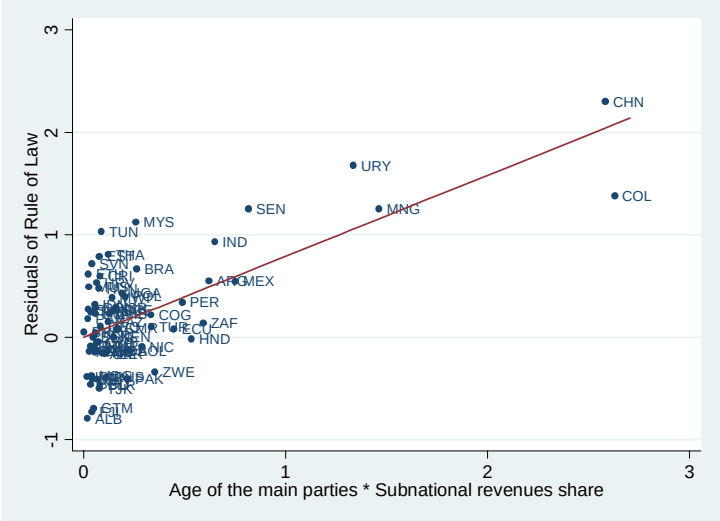
	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)	Immunization	Negative of Infant Mortality	Negative of Illiteracy	Negative of Log(Pupil to Teacher Ratio)
CROSSTERM: Subnational revenue share &	0.105	0.382	0.083	0.048				
elected state executives (Difference in effects)	(0.12)	(1.83)*	(1.35)	(3.65)***				
	(0.06)	(2.07)**	(0.65)	(2.95)***				
CROSSTERM: Subnational revenue share &					-13.866	-0.355	-0.526	0.145
Elected municipal executives (Difference in effects)					(0.45)	(0.74)	(0.14)	(4.68)***
					(0.26)	(0.83)	(0.14)	(3.37)***
Subnational revenue share	-21.320	-8.876	-0.833	-1.091	13.754	0.277	0.396	-0.135
(Effect for appointed executives)	(1.43)	(1.73)*	(0.62)	(3.64)***	(0.45)	(0.64)	(0.11)	(4.57)***
	(0.18)	(1.13)	(1.55)	(2.10)**	(0.26)	(1.00)	(0.10)	(3.48)***
Elected state executives	3.423	17.478	7.207	0.099				
	(0.430)	(4.03)***	(7.61)***	(0.930)				
	(0.73)	(1.82)*	(0.36)	(3.35)***				
Elected municipal executives					360.18	16.133	13.337	.
					(0.45)	(1.03)	(0.14)	(.)
					(0.26)	(1.42)	(0.14)	(.)
Logarithm (GDP per capita)	-48.491	-43.047	-5.673	0.320	25.145	15.298	2.036	0.057
	(3.38)***	(6.24)***	(4.12)***	(1.37)	(2.53)**	(5.04)***	(2.17)**	(0.87)
	(0.19)	(1.68)	(3.40)***	(0.45)	(1.20)	(1.48)	(0.61)	(0.40)
Logarithm (Fertility)	-0.353	-0.337	-0.241	-0.041	-33.864	-19.812	-5.082	-0.724
	(0.390)	(1.490)	(3.36)***	(2.89)***	(1.65)*	(3.17)***	(2.54)**	(5.06)***
	(1.48)	(2.46)**	(1.25)	(0.55)	(0.85)	(1.19)	(1.03)	(3.18)***
Observations	237	181	276	148	330	271	407	217
Number of countries	35	36	33	25	49	49	46	41
R-squared	0.56	0.73	0.66	0.36	0.15	0.72	0.61	0.06
Subnational revenue share in adjacent regressions	-0.247	0.045	-0.158	0.007	-0.113	-0.078	-0.129	0.010
(Effect for elected state executives)	(0.64)	(0.23)	(3.57)***	(0.99)	(0.18)	(0.38)	(1.80)*	(1.55)
	(0.35)	(0.25)	(3.06)***	(0.86)	(0.12)	(0.25)	(1.12)	(1.10)

Note: Absolute values of robust t-statistics are in parentheses. The second set of t-statistics produced by clustering errors by country.
Regression with the variable for municipal executives do not include China.
**** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

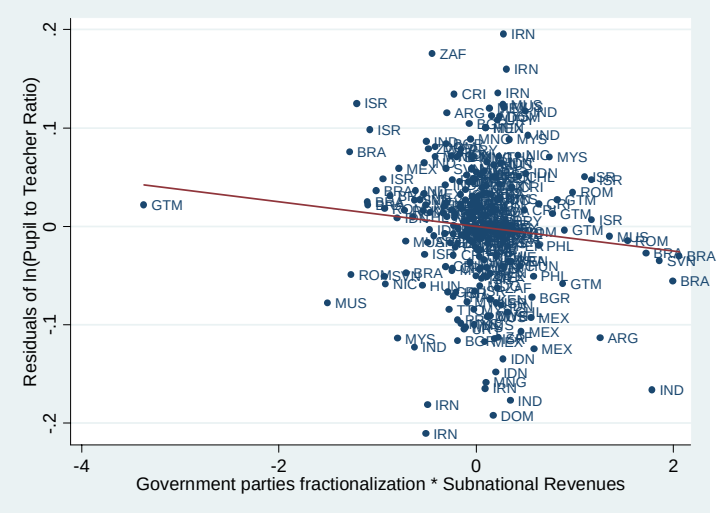
.Figure 1. Illustration of the estimated relationships: partial residual scatter plots



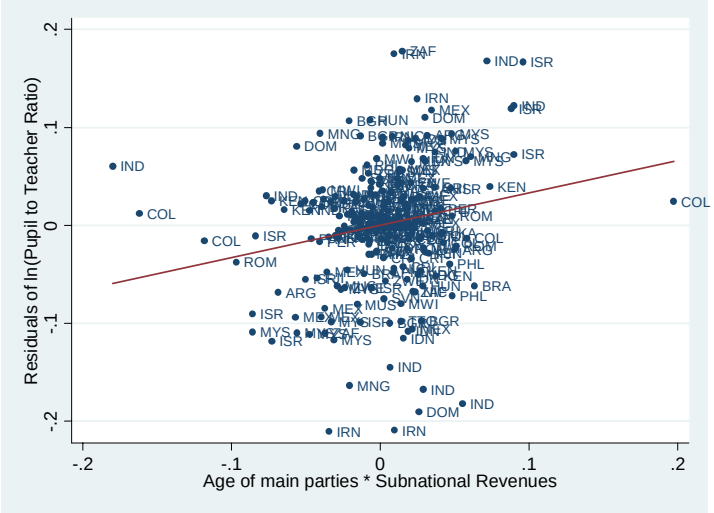
Fractionalization of government parties and effect of decentralization on the rule of law index in cross-section



Party age and effect of decentralization on the rule of law index in cross-section



Fractionalization of government parties and effect of decentralization on pupil to teacher ratio, within relationship



Party age and effect of decentralization on pupil to teacher ratio, within relationship

APPENDIX

Table A1. Countries included in the sample

Albania*	Gambia*	Paraguay*
Argentina	Georgia*	Peru
Armenia*	Guatemala	Philippines
Azerbaijan	Honduras	Poland
Bahrain*	Hungary	Romania
Bangladesh	India	Russia
Belarus*	Indonesia	Senegal
Benin*†	Iran	Slovakia
Bolivia	Israel	Slovenia
Brazil	Jordan	South Africa
Bulgaria	Kazakhstan	Sri Lank*
Cameroon	Kenya	Swaziland*†
Chile	Kyrgyzstan*	Tajikistan*
China	South Korea	Thailand
Colombia	Latvia	Trinidad and Tobago
Republic of Congo*	Madagascar*	Tunisia
Costa Rica	Malawi	Turkey
Croatia	Malaysia	Uganda
Cyprus*	Mauritius	Ukraine
Czech Republic	Mexico	Uruguay
Dominican Republic	Moldova	Venezuela
Ecuador	Mongolia*	Zambia
El Salvador	Nicaragua	Zimbabwe
Estonia	Pakistan	
Ethiopia*	Panama	
Fiji*	Papua New Guinea*	

*Note: * denotes countries for which the Transparency International index of corruption (one of our outcome variables) is unavailable. † For Benin and Swaziland the index of control over corruption is unavailable. For Swaziland the index of government effectivenes is unavailable as well. In all regressions, we exclude observations for socialist countries before the beginning of transition because economic institutions in these countries (i.e., central planning systems) were different in nature.*

Table A2. Description of the variables

Variable	Description
Subnational revenue share	Share of revenues of all subnational governments in total revenues of consolidated central budget measured in percents. Scale from 0 to 100. *Source: Database on Fiscal Indicators, by the World Bank, based on IMF's Government Finance Statistics. Data from Government Finance Statistics 2001 was added. For Armenia, Korea, and Pakistan data were added using information from national statistical offices.*
Subnational expenditure share	Share of expenditures of all subnational governments (net of transfers to other levels of government) in total expenditures of consolidated central budget measured in percents. Scale from 0 to 100. *Source: Database on Fiscal Indicators[22], by the World Bank, based on IMF's Government Finance Statistics. Data from Government Finance Statistics 2001 was added. For Armenia, Korea, and Pakistan data were added using information from national statistical offices.*
Fractionalization of government parties	The probability that two members of parliament picked at random from among the government parties will be of different parties. Missing if there is no parliament, if there are any government parties where seats are unknown or if there are no parties in the legislature. Scale from 0 to 1. Observations for Thailand prior to 1989 are excluded, because they are inconsistent with the description of the Thai government provided by Hicken (2004). *Source: Database on Political Institutions, Version 3, (Beck et al., 2001).*
Fractionalization of parliament	The probability that two members of parliament picked at random from the legislature will be of different parties. Missing if there is no parliament, if there are no parties in the legislature and if any government or opposition party seats are missing. Scale from 0 to 1. *Source: Database on Political Institutions, Version 3 (Beck et al., 2001).*
Party age	This is the average of the ages of the first government party, second government party, and 1st opposition party, or the subset of these for which age of party is known. The variable is measured in thousands of years. *Source: Database on Political Institutions, Version 3 (Beck et al., 2001).*
Elected municipal executives	Equals one if local executive is locally elected. Equals zero otherwise. No information, or no evidence of municipal governments, is recorded as missing. If one source has information on a specific period, and the other has no information on a different period, we do not extrapolate from one source to another - no information is always recorded as missing. If there are multiple levels of sub-national government, we consider the lowest level as the "municipal" level. *Source: Database on Political Institutions, Version 3 (Beck et al., 2001), updated using Nickson (1995) and various other sources.*
Elected state/province executives	Equals one if state/province executive is locally elected. Equals zero otherwise. If there are multiple levels of sub-national government, we consider the highest level as the "state/province" level. Indirectly elected state/province governments, where directly elected municipal bodies elect the state/province level, are not considered locally elected. Indirectly elected state/province governments elected by directly elected state/province bodies are considered locally elected. *Source: Database on Political Institutions, Version 3 (Beck et al., 2001), updated using Nickson (1995) and various other sources.*
Share of protestants	Identifies the percentage of the population of each country that belonged to the Protestant religion in 1980. Scales from 0 to 100. *Source: La Porta et al. (1999).*
Latitude	The absolute latitude of the country, scaled to take values between 0 and 1. *Source: La Porta et al. (1999).*
Legal origin	Identifies the legal origin of the company law or commercial code of the country. There are five possible origins: (1) English Common Law; (2) French Commercial Code; (3) German Commercial Code; (4) Scandinavian Commercial Code; (5) Socialist/Communist laws. *Source: La Porta et al. (1999).*

Continued.

[22] Database can be found at http://www1.worldbank.org/publicsector/de centralization/dataondecen.htm.

Table A2. Continued.

Variable	Description
Parliamentary system	Systems with unelected executives (those scoring a 2 or 3 on the Executive Index of Political Competitiveness – to be defined below) get a 0. Systems with presidents who are elected directly or by an electoral college (whose *only* function is to elect the president), in cases where there is no prime minister, also receive a 0. In systems with both a prime minister and a president, we consider the following factors to categorize the system: a) Veto power: president can veto legislation and the parliament needs a supermajority to override the veto. b) Appoint prime minister: president can appoint *and* dismiss prime minister and/or other ministers. c) Dissolve parliament: president can dissolve parliament and call for new elections. d) Mentioning in sources: If the sources mention the president more often than the PM then this serves as an additional indicator to call the system presidential (Romania, Kyrgyzstan, Estonia, Yugoslavia). The system is presidential if (a) is true, or if (b) and (c) are true. If no information or ambiguous information on (a), (b), (c), then (d). Countries in which the legislature elects the chief executive are parliamentary (2). *Source: Database on Political Institutions, Version 3 (Beck et al., 2001).*
Proportional electoral rule	"1" if candidates are elected based on the % of votes received by their party and/or if our sources specifically call the system "proportional representation". "0" otherwise. *Source: Database on Political Institutions, Version 3 (Beck et al., 2001), updated using various other sources.*
Control over corruption	A governance indicator that reflects the statistical compilation of perceptions of corruption, conventionally defined as the exercise of public power for private gain, of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks during 2000 and 2001. Units range from about -2.5 to 2.5, with higher values corresponding to better governance outcomes. Source: Kaufmann, Kraay, and Zoido-Lobaton (2002).23
Government effectiveness	A governance indicator that reflects the statistical compilation of perceptions of the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures and the credibility of government's commitment to policies of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks during 2000 and 2001. Units range from about -2.5 to 2.5, with higher values corresponding to better governance outcomes. Source: Kaufmann, Kraay, and Zoido-Lobaton (2002).
Regulation quality	A governance indicator that reflects the statistical compilation of perceptions of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perception of the burdens imposed by excessive regulation in areas such as foreign trade and business development of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks during 2000 and 2001. Units range from about -2.5 to 2.5, with higher values corresponding to better governance outcomes. Source: Kaufmann, Kraay, and Zoido-Lobaton (2002).
Rule of law	A governance indicator that reflects the statistical compilation of perceptions of the incidence of both violent and non-violent crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks during 2000 and 2001. Units range from about -2.5 to 2.5, with higher values corresponding to better governance outcomes. Source: Kaufmann, Kraay, and Zoido-Lobaton (2002).
Corruption indices	The Transparency International Corruption Perceptions Indexes for years 2000 and 2001 respectively. Scale from 0 to 10, with higher values corresponding to better governance outcomes. Source: Transparency International24

Continued.

[23] Paper can be found at http://www.worldbank.org/wbi/governance/pdf/govmatters2.pdf.
[24] Indices can be found at http://www.gwdg.de/~uwvw/.

Table A2. Continued.

Variable	Description
Immunization	Immunization, DPT (% of children under 12 months). Child immunization measures the rate of vaccination coverage of children under one year of age. A child is considered adequately immunized against diphtheria, pertussis (or whooping cough), and tetanus (DPT) after receiving three doses of vaccine. Scale from 0 to 100. *Source: World Development Indicators 2001, by the World Bank*
Infant mortality	Infant mortality rate is the number of infants dying before reaching one year of age, per 1000 live births in a given year. *Source: World Development Indicators 2001, by the World Bank*
Illiteracy	Adult illiteracy rate is the percentage of people aged 15 and above who cannot, with understanding, read and write a short, simple statement on their everyday life. Scale from 0 to 100. *Source: World Development Indicators 2001, by the World Bank*
Pupil to teacher ratio	Primary school pupil-teacher ratio is the number of pupils enrolled in primary school divided by the number of primary school teachers (regardless of their teaching assignment). *Source: World Development Indicators 2001, by the World Bank*
Fixed investments	Gross fixed capital formation (% of GDP). Gross fixed capital formation (gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation. *Source: World Development Indicators 2001, by the World Bank*
GDP per capita, PPP	GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars. *Source: World Development Indicators 2001, by the World Bank*
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 Development Indicators 2001, by the World Bank*
Openness	Error term from the linear regression of the share of export and import in GDP (measured in percent) on the area and population of the country. *Source: Constructed based on data from World Development Indicators 2001, by the World Bank*
Fertility	Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with prevailing age-specific fertility rates *Source: World Development Indicators 2001, by the World Bank*
Current level of democracy	Index of democracy. Scale from 0 to 10 with higher values corresponding to more democratic outcomes. *Source: Polity IV Dataset.*
Democratic traditions	Average index of democracy for the last 50 years. Scale from 0 to 10 with higher values corresponding to more democratic outcomes. *Source: constructed based on data from Polity IV Dataset.*
Ethnolinguistic fractionalization	Index of ethnolinguistic fractionalization for the year 1985. Its value ranges from 0 to 1. *Source: Roeder, P. G. (2001).*[25]

[25] Philip Roeder, G. (2001). "Ethnolinguistic Fractionalization (ELF) Indices, 1961 and 1985," February 16. The index can be found at http://weber.ucsd.edu/~proeder/elf.htm.

Table A3. Summary statistics (for over-time country averages)

Variable	# of obs	Mean	SD	Min	Max
Share of subnational revenues	75	13.71	12.33	1.07	52.43
Share of subnational expenditures	73	16.46	13.56	1.74	55.16
Municipal executives elected	70	0.58	0.43	0	1
State executives elected	70	0.18	0.33	0	1
Fractionalization of governing parties	73	0.22	0.24	0	1
Average age of main parties	70	0.02	0.03	0	0.15
Proportional electoral rule	75	0.63	0.48	0	1
Parliamentary system	75	0.30	0.43	0	1
Level of DPT immunization	75	72.63	15.98	26.89	99.75
Negative of logarithm of infant mortality	75	-45.67	32.90	-141.59	-7.02
Negative of illiteracy level	68	-23.80	21.06	-76.37	-0.20
Negative of logarithm of pupil to teacher ratio	75	-28.96	11.47	-63.54	-11.23
Transparency International index of corruption	55	3.55	1.36	0.4	7.6
Index of government effectiveness	74	4.52	0.96	1.88	5.85
Index of regulation quality	75	2.91	0.64	1.57	3.79
Index of control over corruption	73	4.90	1.08	1.55	6.52
Index of rule of law	75	4.75	1.09	1.93	6.46

Table A4. Correlation coefficients (for over-time country averages)

	Municipal executives elected	State executives elected	Fractionalization of governing parties	Average age of main parties
Share of subnational revenues	0.06	0.13	0.02	0.27***
Municipal executives elected		0.49***	0.08	0.16*
State executives elected			-0.06	0.33***
Fractionalization of governing parties				-0.03

*Note: *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level.*

Table A5. First-stage regressions for the IV regressions.

	Subnational revenue share	Subnational revenue share * Fractionalization of government parties	Subnational revenue share	Subnational revenue share * Age of the main parties	Subnational revenue share	Subnational revenue share * Elected municipal executives	Subnational revenue share	Subnational revenue share * Elected state executives
Area	3.077	-0.723	0.454	-0.019	2.515	-0.757	1.661	-0.262
	[2.44]**	[2.35]**	[0.67]	[1.68]*	[1.21]	[0.49]	[1.27]	[0.94]
Area*(Fractionalization of government parties)	-3.720	2.427						
	[1.76]*	[4.72]***						
Area*(Age of the main parties)			58.781	5.223				
			[1.86]*	[10.22]***				
Area*(Elected municipal executives)					-1.743	1.719		
					[0.80]	[1.06]		
Area*(Elected state executives)							-0.942	2.434
							[0.34]	[4.08]***
Fractionalization of government parties	-4.755	9.306						
	[0.75]	[6.04]***						
Age of the main parties			-61.197	9.076				
			[0.92]	[8.43]***				
Elected municipal executives					-8.398	6.420		
					[2.03]**	[2.08]**		
Elected state executives							-10.953	6.746
							[2.32]**	[6.70]***
Logarithm (GDP per capita)	-1.478	-0.564	-2.232	-0.023	-2.431	-0.387	-3.034	0.388
	[0.74]	[1.15]	[1.14]	[0.72]	[1.19]	[0.26]	[1.30]	[0.78]
Current level of democracy	0.136	0.110	-0.169	0.004	0.855	0.625	0.155	-0.176
	[0.20]	[0.66]	[0.25]	[0.33]	[1.20]	[1.18]	[0.22]	[1.19]
Democratic traditions	0.144	0.104	0.480	-0.005	0.133	0.012	0.993	0.030
	[0.16]	[0.49]	[0.57]	[0.39]	[0.16]	[0.02]	[1.05]	[0.15]
Logarithm (Population)	1.482	1.020	1.677	0.000	3.438	3.465	2.173	0.247
	[1.29]	[3.66]***	[1.53]	[0.01]	[3.06]***	[4.15]***	[1.94]*	[1.03]
Share of protestant	-0.134	0.006	-0.138	-0.002	-0.078	0.074	-0.050	-0.006
	[1.19]	[0.21]	[1.22]	[1.18]	[0.66]	[0.84]	[0.44]	[0.25]
Ethnolinguistic fractionalization	17.421	2.014	16.693	0.266	15.742	2.120	14.984	0.128
	[2.52]**	[1.20]	[2.38]**	[2.34]**	[2.48]**	[0.45]	[2.29]**	[0.09]
Latitude	42.042	5.104	50.422	0.455	47.658	37.023	39.024	3.719
	[2.91]***	[1.45]	[3.33]***	[1.86]*	[3.52]***	[3.67]***	[2.69]***	[1.21]
English legal origin	-5.792	-0.102	-4.426	-0.128	-1.977	8.698	-11.138	-1.633
	[0.51]	[0.04]	[0.39]	[0.69]	[0.19]	[1.10]	[0.99]	[0.68]
Socialist legal origin	-2.457	3.212	-2.272	-0.117	3.061	4.003	-0.111	-3.026
	[0.22]	[1.19]	[0.20]	[0.64]	[0.29]	[0.51]	[0.01]	[1.28]
French legal origin	0.105	2.097	4.543	-0.067	6.595	13.742	-0.348	-1.385
	[0.01]	[0.78]	[0.40]	[0.37]	[0.63]	[1.76]*	[0.03]	[0.60]
Observations	73	73	70	70	70	70	70	70
R-squared	0.49	0.74	0.51	0.88	0.56	0.67	0.51	0.78
F-statistics	3.22	17.25	3.11	57.20	1.62	2.36	2.22	24.73

*Absolute values of robust t-statistics in parenthesis. *** - significant at 1% level;** - significant at 5% level;* - significant at 10% level. F-statistics provided for testing the hypothesis that the coefficient for Area and the coefficient for the cross-term of Area and the corresponding political variable both equal zero.*