Decentralization and the Quality of Government

How does political decentralization affect the quality of government? Greater decentralization might make governments more honest and efficient by bringing officials "closer to the people" and forcing them to compete for mobile capital. Or it might create coordination problems and obstacles to reform, while exacerbating incentives to predate and shirk on public good provision. Empirical work has often conflated different types of decentralization, and reached inconclusive results. I outline seven arguments about specific types of decentralization, and seek evidence using new data on up to 166 countries. Results suggest that countries with more tiers of government tend to have higher perceived corruption and to provide public healthcare services and infrastructure less effectively. Those with strong, regionally-chosen legislative upper houses also do worse at healthcare and infrastructure provision. Smaller local jurisdictions do not increase discipline by intensifying competition for capital: they were associated with higher perceived corruption.

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1 Introduction

Governments differ dramatically in quality, however one defines it.[1] Some are extremely corrupt, wasteful, and ineffective at providing basic public services. Others are far more honest, efficient, and responsive. Recent empirical research has started to pin down what factors account for such differences.[2] One important set of influences concerns how states are structured.[3] This paper focuses on one aspect of this—the degree of political decentralization.

Do more decentralized states have more or less corrupt governments? Do these governments provide public goods and services more or less effectively? Existing theories conflict. Some argue that decentralization improves the quality of government by bringing officials "closer to the people", encouraging competition between governments for mobile resources, and facilitating the satisfaction of diverse local tastes. Others contend that decentralization impedes coordination, exacerbates incentives for officials to predate, and generates obstacles to reform. Empirical research has also offered apparently contradictory conclusions. For instance, Treisman (2000) found that perceived corruption is higher in federal states.[4] Fisman and Gatti (2002) report that fiscal decentralization is associated with lower perceived corruption.

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[1] My working definition of government quality is the extent to which the government provides public goods and services that the public demands at minimum cost in taxation and regulatory burden.

[2] See La Porta et al. (1999), Treisman (2000), Lipset and Lenz (1999), Ades and Di Tella (1999), Sandholtz and Koetzle (2000), Goldsmith (1999), Kunicova (2001).

[3] Pioneering work on the relationship between state structure and corruption includes Rose-Ackerman (1978) and Shleifer and Vishny (1993). Other determinants found to be significant predictors of lower corruption include economic development, Protestant religion, former British colonial status, trade openness, current democratic government, or long exposure to democracy (see previous cites).

[4] See, also, Goldsmith (1999) and Kunicova (2001) for similar findings.

The divergence is not surprising once one realizes that different theories—and the empirical studies based on them—often adopt different definitions of decentralization and use different types of data. In this paper, I discuss seven common arguments about the effects of decentralization and specify the types of decentralization to which they apply. Using a newly created data set, including eight distinct decentralization indicators for up to 166 countries, I examine the evidence for and against these arguments. To approximate the quality of government, I use a variety of variables measuring perceived corruption, the effectiveness of public health services, infrastructure provision, and basic educational services.

The empirical results suggest a link between several types of decentralization and worse government (controlling for economic development, democracy, region, and various cultural and legal factors). States with a larger number of tiers tended to have higher perceived corruption and, especially in less developed countries, provided certain public health services and infrastructure less effectively. Systems that entrenched local actors' decisionmaking rights in central politics had a poorer record of inoculating babies and providing paved roads, water sources, and sanitation facilities. Some evidence challenged the notion that interjurisdictional competition disciplines subnational governments: in fact, countries where moving between jurisdictions was easier had higher perceived corruption. Other types of decentralization were associated with mixed outcomes. Fiscal decentralization correlated with government that was better in one regard (more paved road per inhabitant), but worse in two (providing sanitation facilities, reducing youth illiteracy). Election of local officials correlated with broader access to essential drugs, but youth illiteracy was lower where local appointments were more *centralized*.

The next section reviews seven arguments about how specific types of decentralization influence the quality of government. These originate in works of a number of political philosophers and economists and turn up repeatedly in discussions of decentralization. Of these, two suggest that decentralization should improve the quality of government; three concern effects that might go either way; and two suggest how decentralization might impair government integrity or performance. I do not try here to improve on the formulations of theorists

such as Hume, Rousseau, Hayek, and Tiebout (or even to present them in full, given space constraints.) The arguments will be familiar to most readers. Rather, I specify the particular type of decentralization to which each applies; identify direct, testable implications; and then seek cross-national evidence for or against them. The goal is to assess how well these common arguments, many of which inform current political debates, correspond to observed cross-national variation in indicators of government performance. Section 3 presents this analysis and discusses the results. Section 4 concludes.

2 Decentralization and government quality: theory

2.1 Advantages of decentralization[5]

2.1.1 Local knowledge

One familiar argument is that local officials will be better informed than central administrators about local conditions relevant to policy. Decentralizing decisionmaking and perhaps fiscal authority should therefore result in more appropriate policies. Only by decentralization, wrote Hayek, "can we insure that the knowledge of the particular circumstances of time and place will be promptly used" (1984, p.217).[6] Other things equal, this should improve the quality of government overall.

2.1.2 Greater accountability

[5] I lacked data to test one additional argument—that if tastes are heterogeneous decentralizing decision-making may improve the match between supply and demand of public goods (Oates 1972). I could find no cross-national indicators of the extent to which divergences of tastes between localities affect public good supplies.

[6] Conversely, as Thomas Jefferson put it, central officials will "from the circumstance of distance, be unable to administer & overlook all the details necessary for the good government of the citizens" (Appleby and Ball 1999, p.169).

Within a democracy, local officials may be either popularly elected or appointed by higher-level elected officials. Requiring the election of local officials is sometimes viewed as a type of decentralization. Some argue that this should make local officials more publicly accountable. Accountability via local elections comes at the cost of accountability via bureaucratic hierarchy. So the argument reduces to the claim that voters' direct control will be more effective than their indirect control via central representatives.[7] This might be because central politicians monitor their local agents poorly. As Rousseau put it, in a large state, "The rulers, overburdened with business, see nothing for themselves; clerks govern the state" (Rousseau 1762, pp.49-50). Or it might be because voters are too distant and ill-informed to monitor and direct their central representatives.[8]

2.2 Effects that might go either way

2.2.1 Interjurisdictional competition

If policies are chosen by local governments and capital or labor is mobile, governments may tailor their policies to attract the mobile factor (Hayek 1939, Tiebout 1956). Officials who steal or waste resources will lose residents and businesses to other regions, reducing their tax base. If they over-regulate in order to extract bribes, firms will flee to lower-regulation settings. Interjurisdictional competition may thus discipline local governments, reducing corruption and pressuring them to supply public goods efficiently (Brennan and Buchanan 1980; Montinola et al. 1995). Such competition should also motivate local governments to provide

[7] For a recent argument along these lines, see Seabright (1995).

[8] Jefferson criticized centralization for this reason. Distance, "by rendering detection impossible to their constituents, will invite the public agents to corruption, plunder & waste." (Appleby and Ball 1999, pp.169-70). One consequence of electoral decentralization is to eliminate accountability of local officials to voters from outside their electoral constituency, which might itself increase some kinds of corruption. A locally elected sheriff might increase the town's revenues by inaccurately citing out-of-town motorists for speeding.

growth-promoting infrastructure and not to offer socially inefficient services such as bailouts to bankrupt firms (Qian and Roland 1998).

However, some effects of competition may be less benign. If capital is too mobile, local governments may not be able to collect sufficient tax revenues to provide basic public goods that citizens demand. Local governments may also compete to attract capital not in growth-promoting ways as usually assumed, but in ways that decrease efficiency (e.g., by helping enterprises to evade central laws and regulations necessary for efficient market exchange) (Cai and Treisman 2000). Such induced struggles between levels of government may erode the center's ability to provide a framework of legal order. Either way, differences in the interregional mobility of capital should lead to differences in the quality of government.

2.2.2 Checks and balances

Many writers have seen a protection against arbitrary or corrupt government in the division of authority among levels of the state. Hume deliberately endowed his "perfect commonwealth" with a complex vertical structure for this reason. "In a large government, which is modelled with masterly skill … the parts are so distant and remote, that it is very difficult, either by intrigue, prejudice, or passion, to hurry them into any measures against the public interest" (Hume 1994). In Jefferson's view, governmental excess was to be avoided by creating a "gradation of authorities" running from the Union to the states, counties, and wards, "holding every one its delegated share of powers, and constituting truly a system of fundamental balances and checks for the government" (Appleby and Ball, pp.205-6).

Such institutional decentralization is a feature of some federal states and others where consociational or other power-sharing arrangements exist to protect ethnic minorities. In some, strong upper houses of parliament represent regional units. Regional governments may also be incorporated into other central state organs. For instance, in Germany a majority of the members of the central bank's governing council are

appointed by the Land governments. The court system sometimes constitutes an additional veto player in federal states, adjudicating between federal and state laws.

Checks and balances can restrain the government from excessive activity. But the same institutions may prevent the government from performing necessary tasks. Tsebelis (1995, 1999) has argued that institutional schemes—including certain types of decentralization—that multiply the number of veto players will tend to lock in the status quo, whether good or bad. Changes in central government policies will be rarer and less radical when more actors have a veto. This will preserve good government if it exists already; but it may also impede reforms to improve government performance. Furthermore, in "blocked" political systems, illicit bargains may be needed to get even ordinary public business done. According to James Q. Wilson, one cause of corruption in the US is "the need to exchange favors to overcome decentralized authority" (Wilson 1970, p.304). Thus, arguments based on decentralized checks and balances can cut both ways.

2.2.3 Vertical competition

If governments are—at least partly—corrupt, then the more tiers of government there are with independent rights to regulate the same firms, the greater is likely to be the burden of corruption. If the separate tiers of government do not collude, their aggregate extraction of bribes will be higher than that of an equally predatory unitary government (Shleifer and Vishny 1993). Similarly, if several independent levels of government share responsibility for providing particular public goods, provision will be lower than if a single government (or coordinated group of them) were responsible.

In both cases, decentralization creates an externality. If one government increases its bribe rate, this shrinks the bribe base for others by discouraging economic activity. Because this cost is not internalized, the aggregate bribe rate will be higher (and economic output lower) than if only one government could demand bribes from each firm. The same logic applies to competitive taxation (Keen and Kotsogiannis 1999, Berkowitz and Li 2000). In the case of public good provision, the externality occurs because voters are grateful to both

governments when public goods increase, even if only one government has contributed.[9] Each government will supply only as long as the marginal benefit to it from voters' gratitude equals the marginal cost to it of provision. However, a unified government would supply as long as the marginal benefit to *all* units of government equaled the cost of provision. These arguments suggest that the level of corruption will be higher and the quantity or quality of public services will be lower in countries with a larger number of tiers of government, especially when these tiers have autonomous regulatory authority.

Some scholars make an opposite prediction. If two levels of government produce the same public good or service, voters can use the performance of each as a benchmark to judge the efficiency of the other (Salmon 1987, Breton 1996, p.189). A tier of government that provides the good or service less efficiently will be punished by the voters. By this logic—so long as governments at all levels are subject to electoral accountability and the particular contributions of each government are clear to the voters—the effectiveness and honesty of government should be *greater* when several governments provide the same public good.

2.3 Drawbacks of decentralization

2.3.1 Duplication and waste

Some argue that multi-tier governments are likely to duplicate each other and waste resources. If there are fixed costs to setting up a government unit, it makes sense to economize on the number of tiers. Rousseau (1762, pp.48-9) puts the point forcefully:

[9] However clearly governments try to separate their responsibilities, distinctions will often be blurred in the minds of citizens—and governments will themselves exploit voters' misperceptions to avoid responsibility for their own underprovision and claim credit for the good deeds of other levels. For example, in Russia in the 1990s wage arrears to public sector workers accrued by *regional* goverments repeatedly prompted protests against the national government. In American presidential campaigns, candidates regularly devote much time to describing plans for primary and secondary education, although the federal role in these is tiny.

> [Administration] becomes more burdensome as the chain of command is lengthened. For to begin with, each town has its own administration, for which the people pays; each district has one, for which the people again pays; next each province, and then the larger governmental units, satrapies or vice-royalties, for which it is necessary to pay ever more dearly the higher up the scale we mount, and always at the expense of the unfortunate people; finally comes the supreme administration, which crushes everything. All these surcharges constantly exhaust the subjects; far from being better governed by all these various agencies, they are less well served than would be the case if they were subject to one only.

Like the previous one, this argument focuses on the number of tiers of government.

2.3.2 Local governments more corrupt or less competent.

Some economists suggest that local officials are more susceptible to corruption than their central counterparts (Tanzi 1995, Prud'homme 1995). At lower levels, the intimacy and frequency of interaction between private individuals and officials are greater, rendering corrupt collusion less risky.[10] The local press and citizen groups may be less professional and more easily bought than the national press or civic organizations. Interest groups may be more cohesive at the local level, leading to greater state capture and the replacement of public services by private transfers (Bardhan and Mookherjee 2000).

John Stuart Mill raised a related argument in *On Representative Government.* He worried that in a decentralized state "the local representative bodies and their officers are almost certain to be of a much lower grade of intelligence and knowledge, than Parliament and the national executive" (Mill 1991, p.422).[11] In contemporary jargon, local governments may lack the administrative capacity to govern well. By this logic, the greater the share of government personnel located at subnational levels, the worse will be government.

[10] One might counter that although corruption at the central level may be less frequent, it is likely to involve larger sums.

[11] Mill, nevertheless, believed in the educational function of local government: "it is only by practising popular government on a limited scale, that the people will ever learn how to exercise it on a larger." (Mill 1977, p.63).

3 Assessing the evidence

3.1 Measuring decentralization

The apparent conflict between these seven arguments may be, in part, a matter of definitions. They apply to quite different types of decentralization. The local knowledge argument concerns the consequences of decentralizing decisionmaking over policies and public good provision. The accountability argument focuses not on decisionmaking but on the procedures for appointing personnel. The interjurisdictional competition argument relates to aspects of decentralization that affect the degree of capital mobility between geographical units. The checks-and-balances view concerns the desirability of giving local actors institutionalized power over central decisions. The arguments about vertical competition and duplication focus mostly on the number of tiers of government. Finally, the claim that decentralization increases the number of incompetent or corrupt officials concerns the relative size of subnational and central apparatuses.

To test these arguments, therefore, one needs to specify precisely the types of decentralization to which they apply and to collect separate data on each. Since these will not correlate perfectly, it is possible that some apparently conflicting arguments are true simultaneously. Decentralization in the sense of a many-tiered structure of government might exacerbate corruption even though decentralization in the sense of a system of popular elections for local officials might reduce it. Or giving local officials broad decision-making powers might lead to better informed, locally-popular policies, even though giving such officials vetoes over central legislation might generate deadlock on national policy. I constructed a number of indicators corresponding as closely as possible to each of the relevant types of decentralization.

To capture decisionmaking decentralization, I constructed a dummy variable for whether the country's constitution assigned at least one policy area exclusively to subnational governments or gave subnational governments exclusive authority to legislate on matters not constitutionally assigned (I call the latter "residual powers"). I said that countries with such constitutions exhibited "subnational autonomy". This corresponds to

the key element in several well-known definitions of federalism.[12] I constructed this variable from the constitutions of about 130 countries as of the mid-1990s. Of these, 17 assigned residual powers to subnational legislatures; another 10 assigned them particular policy areas.[13]

This variable is bound to contain a certain amount of measurement error. First, it is based on a literal reading of countries' constitutions. In some—Azerbaijan and Uzbekistan, for instance—it seems unlikely that the constitutional provisions are scrupulously observed.[14] There is an unavoidable methodological dilemma here. To go by any formal criterion such as the constitution ignores the ways that informal behavior may diverge from the official rules. Yet determining the degree of *actual* decisionmaking decentralization in any country is inescapably subjective. Experts often disagree on this with regard to a single country; consensus on cross-national comparisons is highly improbable. I chose the first approach, and control for variables such as the duration of democracy and one-party dominance that are likely to correlate with non-observance of

[12] Riker (1964) defines states as "federal" if: (1) they have (at least) two levels of government, and (2) each level has "at least one area of action in which it is autonomous." The latter requirement must be formally guaranteed, for instance in a constitution (Riker 1964, p.11). This is close to Robert Dahl's definition of federalism as "a system in which some matters are exclusively *within* the competence of certain local units—cantons, states, provinces—and are constitutionally *beyond* the scope of the authority of the national government; and where certain other matters are constitutionally outside the scope of the authority of the smaller units" (Dahl 1986, quoted in Stepan 2001, p.318; italics in original).

[13] The 17 countries whose constitutions assigned residual powers to subnational governments were Argentina, Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Ethiopia, Germany, Malaysia, Mexico, Pakistan, Russia, Spain, Switzerland, USA, Venezuela, and Yugoslavia. The 10 whose constitutions defined specific policy areas as exclusively subnational were Azerbaijan, Canada, Cyprus, India, Italy, Luxembourg, South Africa, St Kitts and Nevis, Taiwan, and Uzbekistan.

[14] Both inherited Soviet-era internal "autonomous republics", whose rights are constitutionally protected.

constitutional rules.[15] Second, this criterion does not distinguish the number or relative significance of the policy areas constitutionally assigned to subnational governments. I did not see how one could define the "number" of decisionmaking areas in, say economic policy as compared to defense policy, or quantify their significance, and so chose to stick to distinctions that were objective if at times blunt. As a measure of decentralization in public good provision, I used the proportion of total government expenditures that were made at subnational levels of government, averaged for 1993-5.[16] Of course, some subnational spending may be mandated by central government, which is precisely the reason for trying to distinguish the locus of decisionmaking from the locus of spending.

For local electoral accountability, I constructed a dummy variable measuring the proportion of subnational tiers of government with executives that were elected (or chosen by elected legislatures). If a tier of government had both an elected and a centrally appointed executive—a prefect, commissioner, etc—I coded the tier as 50 percent elected. I also constructed an index of "appointment centralization", based on how the top executive official at each tier of subnational government was chosen. For each appointment, I assigned one point for each tier that the appointer was above the appointee. For instance, if the regional governor was appointed by the central president, I added one point to the index; if municipal mayors (in a country with three tiers of government) were also appointed by the president, I added two points. When both a locally chosen official and a centrally appointed prefect or commissioner existed at a given tier, I assigned half a point to each of these executives. Finally, I normalized by dividing by the total number of tiers.[17] (Not to normalize in this

[15] As a robustness check, I also tried the same analysis using three alternative indicators (see below). Results were not very different using any of these.

[16] Most data came from the IMF's *Government Finance Statistics Yearbooks*, as presented in a data set compiled by the World Bank.

[17] To illustrate with an example, Netherlands had two subnational tiers—provinces and municipalities. The municipalites had elected councils, which chose their own executive; the Crown also appointed a municipal mayor

way would tend to increase the centralization index for countries with more tiers of government just because they have more tiers.) The readings on this index for the 154 countries for which I had data ranged from 0 to 2.00, for Rwanda and Zaire (high values indicate greater appointment *centralization*).

To test arguments about the effects of interjurisdictional mobility, I exploit the fact that moving costs are likely to increase with distance: it is easier to move to a neighboring town than to a neighboring state (Brennan and Buchanan 1980, p.180). Mobility should be greater—and horizontal competition more intense—in countries with smaller subnational units. Competition for capital should be far greater among Slovenia's municipalities (occupying about 100 square kilometers on average) than among Canada's provinces and territories (770,000 square kilometers on average). I collected data on the number of first-tier subnational governments in 157 countries. I focused on the size of the *first*-tier units[18], since these will have the greatest ability to set up alternate regulatory or tax regimes to compete for capital. I calculated the "average" size of the first-tier jurisdictions by simply dividing the country's area by the number of first-tier units. Land area was preferred to population as a measure of size since the costs of mobility relate to distance not to population.[19]

To capture the checks and balances produced by constitutional decentralization, I constructed a dummy for whether the country had a regionally-chosen upper house of parliament that could block lower-house

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(0.5 x 2 for the two tiers between center and municipality = +1). The provinces also had elected councils, which chose their own executives; and the Crown also appointed a provincial commissioner (+0.5). This yields a total of 1.5, which divided by the total number of tiers (3) gives an appointment centralization index of 0.5.

[18] That is, the highest level of subnational government below the center.

[19] A better variable would be the average area of all actual units, but data were not available. It became clear in collecting data that the number of first-tier units often changed over time as units split or combined. As a result, the variable can be taken as only a rough indicator. Nevertheless, it should capture much of the important variation. The more than 7,000:1 ratio of average first-tier unit size between Canada and Slovenia is large enough to survive such marginal uncertainties.

financial legislation.[20] The variable was coded zero if the state was not bicameral with a regionally-chosen upper house or if the upper house did not have an absolute veto over the lower house (i.e., a veto that could not be overridden even by a supermajority).

To measure the vertical structure of government, I used the number of tiers of government in the country. Data on this for 154 countries were compiled from more than 200 sources.[21] A level of territorial subdivision of the state was said to constitute a "tier" if: 1) subdivisions at this level had an executive with government authority; 2) this executive had responsibility for general administration, not just provision of a particular public service; and 3) the superior "tier" of government (or, for first-tier units, the entire state) was subdivided territorially into units of this type (at least in some areas). The U.S., for example, was coded as having three tiers of subnational government—states, counties, and municipalities.[22] Locating detailed information on some of the countries proved difficult. Some gaps remain, and the data are bound to contain some error, which should be borne in mind. Since theories do not necessarily imply that a jump in the number of subnational tiers from one to two has the same impact as a jump from three to four, I also ran regressions including separate dummies for "more than one", "more than two", and "more than three".[23] To test the

[20] I also constructed a variable for regionally-elected upper houses that could block *non*-financial legislation. This was correlated with the other at .85, and regression results were generally similar using either variable. The data came from Tsebelis and Money (1997), and in a few cases from countries' constitutions.

[21] This dataset will soon be made available on the author's website.

[22] Note that the definition of a tier applies equally to governments with or without legislative councils, and with or without elected leaders, and so includes what are often termed levels of administration. Given the nature of the argument about vertical competition to predate, this seemed appropriate.

[23] Some state bureaucracies may be particularly vulnerable to overgrazing problems. Some countries have separate court systems at central and state levels, and many have separate national and municipal police forces. I also constructed dummy variables for the presence of subnationally appointed judges and police chiefs. However, the results were not significant in fully controlled regressions, so I do not report them.

argument that decentralization worsens government performance because local governments tend to be more corrupt or incompetent, I used a measure of the share of total employment in civilian government administration located at subnational levels, constructed from World Bank data published in Schiavo-Campo et al. (1997).

This yielded eight main variables, measuring different types or aspects of decentralization. Some were available for far more countries than others: the range was from 166 for the regional-upper-house-with-veto dummy to just 67 for the subnational expenditure share. Table 1 shows the correlations between these eight variables.[24]

[Table 1 Here]

3.2 Measuring the quality of government

Governments can be bad in two ways: their officials may do things they are not supposed to, or they may fail to do things they *are* supposed to do. I sought indicators of both. To capture the sins of commission, I used two indexes of perceived corruption. For the sins of omission, I employed various indicators of the quality and quantity of government services provided in healthcare, education, and infrastructure.[25] "Bad" governments, in

[24] Since some of the variables are dichotomous, correlations are not always revealing. They do show, however, that the different types of decentralization are not always closely related empirically.

[25] It might seem that one should focus on just the performance of *subnational* governments. The "local knowledge" hypothesis, for instance, posits that local governments perform certain tasks better. However, this would be mistaken. The arguments I am testing are about whether such local benefits of decentralization are enough to improve the quality of government *overall*. It would be absurd to advocate decentralization on the grounds that it improves local government performance if, for instance, it worsened central government in exactly offsetting ways. Thus, it makes sense to seek indicators that reflect the aggregate performance of all government levels.

this setting, are those whose officials are corrupt or which fail to provide basic health, education, and infrastructure goods and services effectively.[26]

As measures of "perceived corruption", I used two indicators employed in previous studies. The first was the 2000 version of Transparency International's corruption perceptions index. More details on TI's methodology in constructing this index is available on TI's website (www.transparency.org). Briefly, the TI indexes are compiled by averaging the standardized values of a number of separate surveys and country ratings published by consultancies and business risk analysts (16 ratings from 8 organizations in 2000). The selection of sources changes somewhat from year to year, and ratings are from a three-year period. Some sources capture mostly evaluations by expatriate businessmen of the country where they are posted; others reflect responses of domestic business people. All surveys ask reasonably comparable questions about the level of corruption.[27] In all, 90 countries appeared in the 2000 rating.

Second, I used an indicator of corruption compiled by experts at the World Bank (Kaufmann, Kraay and Zoido-Lobaton 1999a, 1999b). This is calculated from 12 surveys and country corruption ratings by business risk organizations, many of them the same as those used by Transparency International. The main

[26] Corruption and public service provision are, of course, related. As Tanzi and Davoodi (1997) show, corruption itself can reduce the quality of public investment and may reduce public spending on capital maintenance. Note also that governments might fail for either of two reasons—because they do not try to provide public services, or because they do try but are ineffective. I do not have data to distinguish these precisely, although the corruption variables focus on dishonesty rather than ineffectiveness.

[27] The subjects asked about in 2000 were: the "prevalence of bribing or corruption in the public sphere", "level of corruption", "extent of corruption in a way that detracts from the business environment for foreign companies", "corruption in government, "state capture", the frequency of "irregular, additional payments" to public officials, "pervasiveness of corruption among politicians and civil servants", whether bribes have been requested in the past year by government officials, and the frequency of "irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection or loan application".

difference is the method of aggregation. Whereas TI simply standardizes and averages the ratings, Kaufmann et al. weight each source according to how reliable it is, as proxied by how closely it correlates with the others. (They assume that each indicator is a noisy measure of the same underlying variable and model this variable in an unobserved components framework.) The World Bank and TI indexes are highly correlated (at around .97), but the World Bank index has the advantage of including a much larger number of countries (160 in 2001, compared to the 90 for TI). Since the increased country coverage is achieved by lowering the criterion for including a country (Kaufmann et al. require just one source per country, while TI requires at least three), it may contain greater measurement error. I used the World Bank rating for 2001 (an earlier one was published in 1998). As will be seen, findings using either of the two indicators are generally similar.

Both the TI and World Bank corruption indicators come with estimates of the variability of the ratings. TI provides standard errors for the rating of a given country across the sources used. For the World Bank index, the "standard error" reported is a measure based on the estimated reliability of the polls that went into constructing the given country's estimate—i.e., the correlation of that poll to the others on all observations, not the variability on just that country. I use these measures to place lower weight on the less reliable cases; specifically, I run WLS instead of OLS regressions and weight by the inverse of the reported "standard error" for each country.

In selecting measures of the quality of government services, I kept several criteria in mind. First, to avoid relying on subjective judgments about what government "should" do, I tried to focus on goals that are universally—or almost universally—considered to be both responsibilities of the state and important. I sought indicators of services in basic healthcare, education, transportation infrastructure, and sanitation. Second, whenever possible I sought indicators of the actual provision of government services, "outputs," rather than their ultimate effects, "outcomes," since the latter depend on many factors beyond the government's control. For instance, I preferred a measure of the immunization of infants against common childhood diseases to the more frequently used measure of infant mortality. Since it was not always possible to separate outputs from

outcomes, I control for factors other than decentralization that might influence the effectiveness of government policies.

All the indicators I chose measure effectiveness rather than *cost*-effectiveness. Another way to pose the question of government quality would be to ask which governments achieve the best results for the lowest cost. Largely because of data unavailability, I do not consider this here. It would require data, for instance, on the level of different countries' spending on childhood immunization programs. Even if such data were available, difficult issues would arise concerning how to value the inputs involved—the wage for an hour's labor in Burundi is far lower than that in Switzerland, rendering comparisons of cost-effectiveness difficult.

I used two measures of success in meeting basic public health goals. First, I used the percentage of infants under 12 months who had been inoculated for diphtheria, tetanus, and pertussis (data from the WHO). This indicator has been used in various previous studies assessing the quality of healthcare.[28] It seems reasonable to believe that, whatever other public health goals they may have, "good" governments will aim to ensure babies receive these relatively low cost and highly effective inoculations. My second measure is the share of the population "for which a minimum of 20 of the most essential drugs are continuously available and affordable at public or private health facilities or drug outlets within one hour's walk," as of 1997 (from World Bank 1999). This has the obvious defect that it will pick up differences in the effectiveness of private pharmaceutical distributors or pricing policy of the drug multinationals as well as government policy per se. This needs to be borne in mind, and I place less confidence in the results with this indicator.

To capture success in basic education, I used the rate of youth illiteracy (i.e., the estimated percentage of the population aged 15 to 24 who could not read and write a short, simple statement on their everyday life as of 1997, as reported by UNESCO.) This was a measured outcome rather than output, but all available measures of outputs—e.g., student-teacher ratios, spending on education per student—failed to reflect the quality of the service provided. Given that high staffing might reflect patronage rather than genuine service

[28] See, for instance, Thomason et al. (1991) and Gonzalez-Block et al. (1989).

provision, I sought a more qualitative indicator of results.[29] The youth illiteracy rate was preferred to the adult rate, since the latter reflects the effects of government policies and performance many decades past. (As an additional check, I tried running regressions using countries' average math and science scores on the Third International Math and Science Study (1994-5), a standardized test of grade 7 students administered cross-nationally. However, since scores were only available for 37 countries, I place less emphasis on these results.)

To capture provision of transportation infrastructure, I constructed a measure of the number of kilometers of paved road per resident of the country.[30] (Note that all regressions control for country surface area and population; in addition, the paved road regressions controlled for population density.) Finally, I included two indicators of sanitation services: the proportion of the population with access to an improved water source, and the percentage with access to improved sanitation facilities, both as of 2000.[31]

3.3 Controls

To assess the influence of decentralization on government quality, it is vital to include appropriate controls. Any variable correlated with decentralization that affects government quality will bias the results if omitted. Previous work suggested the need to control for various environmental factors. First, the quality of

[29] The importance of measures of education *quality*, rather than mere quantity, has been noted recently in the literature on economic growth; see Hanushek and Kimko (2000).

[30] To get this, I multiplied the total number of kms of road by the proportion of roads that were paved, and divided by the population; all data were from the World Bank's *World Development Indicators*. I preferred this to the proportion of roads that were paved, since this made no allowance for different total lengths of road, and to the total length of roads, since unpaved roads are often produced by private actors.

[31] From World Bank's *World Development Indicators*. Access to a water source was defined as "the availability of at least 20 liters a person a day from a source within one kilometer of the dwelling". Improved sanitation facilities "range from simple but protected pit latrines to flush toilets with sewerage connection".

government—on almost any measure—improves with economic development; and high decentralization is found mostly among more developed countries. I control, therefore, for the log of PPP GNP per capita as of 1995 (from the World Bank).[32] Second, stable democracy is associated with higher quality government (Treisman 2000); democracy also correlates with various types of decentralization. I therefore controlled for uninterrupted democracy since 1950, using definitions and classifications from Alvarez et al. (1996), as updated in Treisman (2000). Since the definition of democracy was procedural, I also included a control for cases in which formal electoral competition was combined with one-party rule in practice: I controlled for whether 80 percent of seats in the country's parliament in the mid-1990s were occupied by a single party.

Third, I controlled for country size—both the log of its surface area and of its population. Larger countries tend to be more decentralized. At the same time, a number of well-known arguments—from Aristotle to Rousseau—associate small state size with civic virtue and effective government. In the regressions for the extent of paved roads, I controlled in addition for population density, since this might increase the demand for paved roads. Fourth, several cultural factors are correlated with government quality as well as decentralization. Ethnic division is often a rationale for greater political decentralization. I controlled for the percentage of the population that did not speak the country's official language at home as of 1990 (from Gunnemark 1991). I updated this to include countries from the former Communist bloc (almost completely excluded from the Gunnemark data), using a number of sources.[33] I also controlled for religion—

[32] Although this may be endogenous to the quality of government, this is not so important here since I am only concerned to control for income effects in assessing the impact of decentralization (rather than to assess a causal relationship between development and government quality). To use income data from much earlier would require excluding all the former Soviet republics. The 1995 data is, however, lagged several years before the date of most of the government quality variables.

[33] In particular, Goskomstat Rossii, *Rossiisky Statistichesky Yezhegodnik 1996*, the 1996 CIA *World Factbook*, and the Ethnologue database at http://www.sil.org/ethnologue/.

specifically, the shares of the population that were Protestant and Muslim as of 1980; previous studies have found a positive correlation between government quality and Protestantism, and a negative one with Islam (e.g. La Porta et al. 1999). Fifth, previous work has suggested a relationship between the type of legal system and the quality of government. La Porta et al. (1999) found French civil law systems to be associated with inferior government when compared to common law ones. I control for the presence of a French civil law system, as well as for a socialist legal system, since the communist legacy is often thought to impair government.[34] Finally, to capture any remaining geographically-concentrated factors that might introduce bias, I included continent dummies.[35]

3.4 Method

To test the various arguments, I ran a series of regressions with indicators of government quality as the dependent variables (Tables 2-7). In each, I included the indicator of the particular type or aspect of decentralization that was relevant to the argument being tested. For instance, to test the local knowledge argument, I included my measure of decisionmaking decentralization; to test the checks-and-balances argument, I included the regional-upper-house-with-veto dummy. As dependent variables, I used all eight indicators of government quality.

All regressions included the full list of controls discussed above (except for population density, which

[34] Treisman (2000) also found that British colonial heritage correlates with lower perceived corruption, and more robustly so than English legal system. However, this did not correlate with any of the indicators of decentralization, so excluding it will not bias the results. The results are not much changed if included.

[35] For instance, Sub-Saharan African countries tend to have a lower subnational share of government employees but a larger number of tiers of government. They also have higher average levels of perceived corruption, and lower inoculation rates and access to improved water sources, even controlling for development and stable democracy.

was only relevant to the paved roads regressions). I report White heteroskedasticity-corrected standard errors. All regressions are OLS except for those for the perceived corruption ratings, which are run by weighted least squares, weighting by the inverse of the standard error in order to place greater emphasis on cases that were observed with greater certainty.[36] To examine whether certain effects were stronger at higher or lower levels of economic development, I ran the same regressions splitting the countries into those with 1995 per capita PPP GNP above and below $5,000. I also tried modeling with an interaction term for the relevant decentralization variable multiplied by log 1995 per capita income. (These results are available from the author.) Finally, I conducted diagnostic tests to assess the effect of outliers and influential points and several alternative specifications to test the robustness of results.

[Tables 2-7 About Here]

3.5 Results

What evidence do the regressions provide for or against the various arguments discussed in Section 2? Consider first those with unambiguously positive predictions. The "local knowledge" argument implies that greater subnational decisionmaking or expenditure authority should improve government performance. I found virtually no support for this in the regressions. My measure of subnational autonomy was never significant (Table 2). Expenditure decentralization was significant in three regressions—but two of the three suggested a harmful effect. While a larger subnational expenditure share was associated with better provision of paved

[36] As expected, this leads to slightly more significant results, but even without weighting all significant results would still be significant at least at $p < .11$.

road, it was also associated with higher youth illiteracy and poorer sanitation (Table 2, columns 13, 15, 16).[37] The evidence for the local knowledge effect is, thus, rather tenuous.

It might be that the constitutional indicator of subnational autonomy is not picking up the relevant variation. I tried using three alternatives. First, I tried a more stringent constitutional standard—whether or not the constitution assigned "residual powers" to subnational governments. Second, I sought to distinguish federal from unitary states. This was not straightforward since scholars do not agree either on how to define "federalism" or on which states are "federal".[38] I constructed two dummies: (1) for whether the state was described as "federal" or a "federation" in its constitution,[39] and (2) for whether it was classified as a federation by one leading federalism scholar (Elazar 1995).[40] In general, the results using these variables were similar to those using "autonomy", and sometimes less supportive of the positive argument. Countries labeled "federal" in their constitutions inoculated fewer babies and had lower access to essential drugs. (This variable was not significant in other models.) Those states Elazar (1995) classified as "federations" tended to have

[37] I explored for income effects using an interaction term. Both the positive relationship with road paving and the negative relationship with sanitation were strongest among poorer countries. Fiscal decentralization also correlated with access to improved water sources at low income levels.

[38] Wheare's classic study (1963) restricted the term to four cases—the USA, Canada, Australia, and Switzerland. Riker (1964, p.1) described 18 existing states as "in one way or another federalisms". Going strictly by Riker's (1964) definition today would yield 27.

[39] Elazar (1987, p.42) defends the use of such a legalistic criterion, classifying as federal "all polities that possess formally federal constitutions… on the grounds that the first test of the existence of federalism is the desire or will to be federal on the part of the polity involved. Adopting and maintaining a federal constitution is perhaps the first and foremost means of expressing that will." Wheare would disagree: "if we are looking for examples of federal government, it is not sufficient to look at constitutions only. What matters just as much is the practice of the government" (1963, p.20).

[40] There were 20 states that were "federal" by both criteria, and 4 on which the criteria did not coincide.

more paved road per capita, but poorer access to sanitation facilities. The "residual powers" variable was not significant in any regression. Thus, none of these indicators would support a conclusion that greater subnational decisionmaking authority improves government quality. There is a clearer link between subnational autonomy and *worse* government among rich countries. Autonomy was significantly related to fewer inoculations, higher youth illiteracy, and poorer access to improved water sources in countries with per capita income above $5,000, but it was not significant (with a far smaller or oppositely signed coefficient) for those below $5,000.[41] Thus, greater constitutionally prescribed subnational autonomy was never associated with better government,[42] and among higher income countries was significantly linked to worse government on a number of dimensions.

Does electoral or appointment decentralization increase accountability and government quality? On the positive side, electoral decentralization did correlate with broader public access to essential drugs (Table 3, column 4).[43] This might imply that elected local officials do more than appointed ones to ensure provision of medical supplies.[44] Electoral decentralization was also significantly associated with more paved roads among countries with per capita GNP above $5,000 a year (although the number of cases in this regression was only 38). On the negative side, appointment decentralization was associated with a *higher* youth illiteracy rate (Table 3, column 13),[45] and this effect was even stronger among the 59

[41] The countries with constitutional "subnational autonomy" and 1995 per capita GNP below $5,000 were Azerbaijan, Ethiopia, India, Pakistan, Russia, and Uzbekistan. Subnational autonomy was also significantly associated with a poorer record inoculating babies among richer countries if one used an interaction term; subnational autonomy had a negative impact at income above about $3,160 per year.

[42] Except possibly with better provision of paved roads.

[43] And this was also true for appointment decentralization in countries with GNP per capita above about $470 a year (based on a model with an interaction effect, not shown).

[44] It might also differ from other results because of the large private sector role in drug provision.

[45] I.e., appointment *centralization* was associated with lower youth illiteracy.

countries with per capita GNP below $5,000.[46] Modeling with an interaction term suggested that appointment decentralization also tended to increase corruption (using the World Bank index) among countries with income below about $3,700, while decreasing it at higher income levels. Thus, electoral or appointment decentralization may improve access to essential drugs (and possibly provision of paved roads among richer countries); but it appears to worsen basic education. At low income levels, appointment decentralization seems to increase corruption, but at higher levels it may decrease it. Again, results are mixed and rather discouraging.

Believers in the benefits of decentralization might counter that what matters is not any of these types *in isolation*: to be effective, decentralization must combine several. Giving local officials decisionmaking authority may have perverse effects or none at all if they are not also made accountable to local electorates; it may be useless if they do not also get more fiscal resources and personnel. To test this, I constructed two interaction terms. First, I multiplied the dummy for subnational autonomy with electoral decentralization and the subnational expenditure share. Second, I multiplied subnational autonomy with electoral decentralization and the subnational share of administrative personnel. These were not significant in most regressions. Both were negatively related to infant inoculations. The first was significantly positive in a regression for road paving—as in the regression using fiscal decentralization—but was negatively related to access to sanitation. Thus, these types of decentralization combined did not have more salutary effects than each did individually.

While the arguments that favor decentralization found little support, there was quite strong evidence of

[46] Appointment decentralization was also significantly associated with worse average scores on the international 7th grade math test (TIMMS). Each point on the appointment centralization score was associated with a difference of 29 points (average score = 483) in the average test score (significant at $p < .05$ in the controlled regression). No other decentralization measures were significant predictors of math or science scores, which may just reflect the low number of cases.

certain negative effects. If interjurisdictional competition disciplines governments, then states with smaller first tier units should be less corrupt. The regressions in Tables 2 and 3 suggest the opposite. The average area of first tier units was *negatively* related to the extent of perceived corruption, using either the TI or World Bank index. (This effect was strongest among less developed countries.) It might be that interjurisdictional competition only disciplines subnational governments when they have genuine autonomy. I tried interacting the size of the first tier units with subnational autonomy. The results suggested that smaller units, even if autonomous, were still associated with higher corruption (significant at $p < .06$).[47]

When regional representatives were given vetoes over central legislation, government performance suffered in several ways—fewer babies inoculated, poorer access to water and sanitation, and less paved road per capita (although these effects were not significant in all models). The estimated effects were sometimes large. For instance, a regionally-chosen upper house with a veto over financial legislation was associated with infant inoculation rates from 10 to 23 percentage points lower; access to improved water sources some 3-7 points lower; and access to improved sanitation facilities some 6-13 points lower. Most of these effects were strongest among poorer countries. Access to sanitation was significantly worse in poor countries with strong regional upper houses (an interaction term was significant.) Modeling with an interaction term also suggested that strong upper houses are linked to higher youth illiteracy at low income levels.

Some strong evidence suggests that a larger number of tiers of government increases corruption, redundancy, or waste (Table 6). More tiers were associated with higher perceived corruption using either index, and controlling—as usual—for a range of environmental factors. The effect was quite large. Using the World Bank indicator, each additional tier of government was associated with an increase in corruption of about .16 points, compared to a range of 3.65 points. For comparison, the estimated impact on corruption of an

[47] Smaller first-tier units of local government were also associated with worse access to essential drugs, but a better record of inocculating babies, among poorer countries.

additional tier is as large as that of a 27 percent drop in per capita GNP.[48] To explore whether the vertical decentralization effect occurs at some threshold, the even-numbered models break down the subnational tiers variable into three dummies. All three have the expected negative signs, but the most significant drop in perceived government integrity came (using either indicator) when the number of subnational tiers rose above one.

More tiers were also associated with poorer inoculation performance. Here a threshold was significant.[49] Countries with more than two subnational tiers of government inoculated significantly fewer babies—probably some 6 or 7 percentage points fewer.[50] More tiers of government may also be associated with less paved road per inhabitant, although this was only significant at $p < .11$ (Table 6, column 13). The impact of vertical decentralization on public services appeared to be greater among poorer countries. Modeling with interaction terms or splitting the sample, more subnational tiers were significantly linked to poorer provision of drugs and water, as well as higher illiteracy, at lower income levels. Vertical decentralization may have improved sanitation among richer countries.

Are local government personnel more corrupt or incompetent than their central counterparts, and does this impair government in countries where administration is more decentralized? The subnational personnel share was not significant in any regression. Among less developed countries, the subnational personnel share was significantly linked to both fewer infant inoculations and higher (World Bank) corruption.

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[48] The coefficient on log per capita GNP is 1.16. So, $-1.16(\log Y_1 - \log Y_0) = .16(1) \Leftrightarrow$

$\log Y_1 - \log Y_0 = -\frac{.16}{1.16} \Leftrightarrow \frac{Y_1}{Y_0} = 10^{-.1379} = .73.$

[49] The number of tiers, not broken down into thresholds, was significant at only $p < .13$.

[50] In a regression with just the controls and the "more than 2 subtiers" dummy, the coefficient is –7.8, significant at $p < .03$.

In short, I found little evidence that the greater local knowledge and electoral accountability associated with certain types of decentralization improve the quality of government—and also some evidence that decentralizing accountability and decisionmaking authority has negative effects. There was quite strong evidence that other types of decentralization reduce government effectiveness or integrity. The more tiers of government a state contained, the more corrupt it was perceived to be and the fewer infants it inoculated for common childhood diseases. Countries where a regionally-chosen upper house had veto power tended to inoculate fewer babies, and to provide relatively fewer improved water sources, sanitation facilities, and paved roads (particularly among poorer countries). The smaller were first tier government units, the greater was perceived corruption.

3.6 Discussion

One important issue is whether the endogeneity of decentralization might affect the regression results. Two points merit consideration. First, might some underlying variable cause changes in both the degree of decentralization and the quality of government (by some other path)? Second, does the quality of government itself affect decentralization?

My strategy for dealing with the first concern was to include in the regressions controls for a range of factors that might affect both decentralization and government quality. These include per capita GNP, democracy, legal tradition, ethnic division, religion, country size, and continent. The continent dummies are also important for picking up relevant geographical or climatic factors that might affect some of the government service variables such as paved roads, water and sanitation facilities. My reading of the literature on causes of decentralization did not suggest any other obvious underlying determinants.

Most of my government quality variables could not plausibly affect the degree of decentralization. It is hard to see how the rate of infant inoculations, the availability of improved water sources, sanitation facilities, or essential drugs, or the youth illiteracy rate could themselves affect decentralization (except perhaps via their

effect on national income, for which I control.) It is slightly more plausible that the extent of paved roads could influence the degree of decentralization, although I could think of no clear argument about what form such influence might take. The two variables for which there is a genuine endogeneity issue are the measures of perceived corruption. Corrupt central officials might attempt to centralize fiscal responsibilities and resources, to split subnational governments in order to weaken them, or to create new tiers of government as sinecures for colleagues.

I am not able to resolve this issue fully. This would require either a plausible instrument for decentralization or some time series research design in which one observed change in corruption over time and related it to change in decentralization.[51] Data to do either of these were not available. What I could do was to lag the decentralization variables several years behind the corruption variables: most decentralization variables focus on the early 1990s, the corruption indicators on the late 1990s. I believe that the interpretation of a causal influence from decentralization to corruption is more plausible than the reverse, but the reader should bear this in mind.

A second issue is whether the decentralization variables I use capture the degree of decentralization in the relevant policy spheres. I performed one set of checks to try to assess this. For 36 countries for which data were available, I calculated the subnational proportions of total government healthcare spending and of education spending (figures from the IMF's *Government Finance Statistics Yearbooks,* data for the early 1990s). I then ran regressions for youth illiteracy including the education decentralization variable and those for inoculations and access to drugs including the healthcare decentralization measure. None of these was significant in simple regressions, which was not so surprising given the low number of available cases. However, the education decentralization variable was significant in the youth illiteracy regression if an

[51] Fisman and Gatti (2000) and De Mello and Barenstein (2001) both use the origin of countries' legal systems as an instrument for fiscal decentralization. However, since legal systems clearly themselves influence the quality of government (La Porta et al. 1999), this would not seem to be a good instrument.

interaction term between education decentralization and income was included. Education decentralization appears to be associated with higher youth illiteracy, but the effect falls as national income rises.

My results differ somewhat from those in three previous studies of fiscal decentralization. Fisman and Gatti (2002), Huther and Shah (1998), and De Mello and Barenstein (2001), using ICRG, TI, and World Bank corruption indexes from various years, all report a positive relationship between fiscal decentralization (the subnational expenditure share) and the absence of corruption. Although I also found a positive coefficient on fiscal decentralization, it was never significant in my regressions. The difference appears to reflect our choices about what controls to include. Fisman and Gatti's basic model includes controls for log GDP per capita, civil liberties, log population, and the government share of expenditure in GDP. They then add additional controls for ethnic fractionalization, openness, government size, regional dummies, and colonial dummies one at a time (or as a group of dummies.) When I regressed the TI or World Bank corruption index on their fiscal decentralization variable (apparently an average for 1980-95) including just their four basic controls, the decentralization variable was—as they found—highly significant. However, if I added a control for the share of Protestants in the population, this was significant and fiscal decentralization dropped to insignificance. Huther and Shah's correlations do not control for anything, so their greater significance is not surprising. Religious tradition, for instance, correlates with both corruption and fiscal decentralization. De Mello and Barenstein's basic regression controls only for log GDP per capita and log population. They then add a variety of controls one by one, but not together. Again, I suspect the results are more significant than in my fiscal decentralization regressions because of the sparser selection of controls.[52] To see whether my findings were caused by a few influential cases, I conducted regression diagnostics. Excluding influential cases

[52] To be clear, my regressions do not indicate that fiscal decentralization increases corruption; but the data do not seem to me to permit confident conclusions that fiscal decentralization helps.

sometimes led to a slight decrease, but sometimes to an increase in significance of the decentralization variables, without changing the general pattern of results.[53]

4 Conclusions

As countries around the world embark on projects to decentralize government, understanding how this may affect government performance is crucial. Theory suggests that decentralization may influence the quality of government in multiple ways—some good, others bad. Which of these effects dominate on average is a question for empirical research. In this paper, I examined seven arguments about particular types of decentralization and then sought evidence for or against them using a newly created data set.

One should be cautious in drawing conclusions from imperfect data. Given that some measurement error probably remains, I do not place much emphasis on negative results. Certain coefficients may be insignificant because of data imperfections. Endogeneity may be a problem in some cases, and there were no good instruments to test and correct for this. Wherever possible, I lagged the independent variables several years behind the dependent variables, but this is at best a partial solution.

Bearing in mind these caveats, some quite strong evidence emerged that several types of decentralization tend to reduce the quality of government, as measured by perceived corruption or the effectiveness of basic health, education, or infrastructure services. States with a larger number of tiers tended to have higher perceived corruption and lower rates of infant inoculations for common diseases. Among less developed countries, more tiers were also associated with poorer access to essential drugs, poorer access to improved water sources, and higher youth illiteracy. The corruption result fits a story in which the failure of predatory governments in a decentralized state to coordinate leads to an extremely high aggregate rate of

[53] The two results that *were* caused largely by influential cases were the relationships between fiscal decentralization and youth illiteracy and sanitation.

bribes. The public service results fit the argument that greater vertical divisions lead to greater waste, free-riding, and poorer central monitoring.

The checks and balances created by entrenching subnational rights in central politics were, on average, associated with lower government quality. In countries where a regionally-chosen upper house of parliament could veto financial legislation, governments tended to inoculate fewer infants, provide fewer water sources and sanitation facilities, and pave fewer roads. Among poorer countries, such checks and balances at the center were also associated with higher youth illiteracy. One interpretation of these patterns is that such upper houses block the financing and implementation of national programs in public health and infrastructure development, or divert the money into less effective projects.

Contrary to the Tieboutian idea that competition between small government units for residents and capital disciplines governments, it was the countries with *larger* first-tier subnational units—and therefore lower mobility—whose governments were perceived to be least corrupt. This finding might have two explanations. First, greater mobility and competition might increase corruption if local governments compete to attract capital by offering businesses corrupt collusive deals (Cai and Treisman 2000). Second, small subnational governments may be unable to coordinate to police abuses by central officials.[54] Decentralization of administrative personnel correlated among poorer countries with more corruption and fewer infant inoculations. The data did not permit strong conclusions about certain other types of decentralization—subnational autonomy, electoral decentralization, and fiscal decentralization. While arguments about the benefits of local knowledge and accountability were not supported, this might reflect weaknesses of the data.

The general findings echo those of some recent studies that have questioned the view that decentralization always improves public service provision. In a study of healthcare in Papua New Guinea, Thomason et al. (1991) note various coordination problems caused by decentralization. They report that after

[54] For a model that emphasizes this role of subnational governments in securing liberal central government policy, see Weingast 1995.

decentralization immunization programs deteriorated in some provinces. Wyss and Lorenz (2000, p.106) found that even in ultra-modern Switzerland, reform of healthcare has been blocked by the decentralization of authority to the cantons. "The fact that in more than 100 years only one partial (1964) and one complete and major (1994) reform regulating sickness funds were possible, highlights how difficult reforms are in a health system with very weak decision-making powers at federal level." One recent survey of education decentralization in Chile found that: "neither devolution nor privatization resulted in improvements in education quality," and that increased competition to please parents and students led to "inflating grades and spending scarce resources on noneducational activities." At the same time, decentralization worsened inequality in educational provision (Parry 1997, p.218).

These findings suggest certain implications. First, it is crucial—for both academic and policy purposes—to distinguish the effects of different types of decentralization. While the impacts of fiscal and electoral decentralization remain somewhat murky, clearer costs seem to be associated with increasing the number of tiers, breaking up states or regions into smaller units, and creating strong, regionally-chosen upper houses of parliament.[55] Second, it is clear that specific types of decentralization have different effects in countries at different levels of development. The negative consequences for public service provision of both vertical decentralization and strong regional upper houses appear to be more pronounced among poorer countries. The same is true of the decentralization of administrative personnel.

Many questions remain for future research. How exactly does political decentralization impede the administration of programs to provide healthcare and basic education services? I suggested that when more than one level of government is held responsible by citizens for providing a certain public good, then each may try to free-ride on the contributions of the others. More vertical divisions within the state might make administering policies more complicated, costly, and inefficient. The entrenchment of regional veto rights over

[55] Of course, improving government quality is never the only goal. Each of these types of decentralization is sometimes advocated as part of a system to reduce conflict in ethnically divided societies.

central legislation may make it difficult to get the agreement necessary to improve national programs for providing public services.[56] Competition between small localities may induce perverse responses rather than efficiency. Further work would help to clarify these mechanisms. While a study of this kind demonstrates the stylized facts worldwide, complementary projects could explore relationships between decentralization and government quality in particular countries. At the same time, more detailed cross-national data about systems of public good provision would permit more specific tests of various hypotheses.

Disappointing findings about decentralization and government quality do not imply that the best remedy will always be *re*-centralization. Often, decentralization performs important other functions such as facilitating inter-ethnic cooperation. Research might explore other less drastic measures that might improve accountability and offset coordination problems within decentralized structures. However, if the basic findings are confirmed by future research, they would suggest the dangers of pushing the current vogue for decentralization too far, especially in developing countries. Friends of good government should probably not celebrate when countries create additional tiers of government (as Poland and Russia did recently), entrench a strong, regionally-chosen upper house (as does the 1987 Haitian constitution), or split subnational units into smaller pieces (as Nigerian central governments have done repeatedly since independence).

[56] My indicator of basic healthcare provision—the infant inocculation rate—measures an aspect of healthcare almost always administered *nationally*; decentralizing other aspects might be more fruitful.

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Table 1: Indicators of Decentralization, Mid-1990s, Correlation Coefficients

	Structural decentraliz-ation	**Decision-making decentral-ization**	**Checks and balances**	**Size of units**	**Appoint-ment centraliz-ation**	**Electoral decentraliz-ation**	**Fiscal decentraliz-ation**	**Personnel decentraliz-ation**
	Number of tiers	Subnational autonomy	Regionally represent-ative upper house can block financial bills	Average area of first subnational tier units	Index of appoint-ment centraliz-ation	Proportion of subnational tiers with elected executive	Subnational expenditure share (1993-5)	Subnational public employment share (early 1990s)
Number of tiers	**1.000** . *154*							
Subnational autonomy	**.062** .495 *125*	**1.000** . *133*						
Regionally represent-ative upper house can block financial bills	**.026** .747 *154*	**.223**** .010 *132*	**1.000** . *166*					
Average area of first subnational tier units	**.105** .201 *151*	**.342***** .000 *127*	**-.038** .639 *157*	**1.000** . *157*				
Appointment centralization	**.180**** .025 *154*	**-.091** .315 *125*	**-.114** .158 *154*	**.065** .430 *151*	**1.000** . *154*			
Proportion of subnational tiers with elected executive	**-.159*** .087 *117*	**.214**** .033 *99*	**.152** .102 *117*	**.034** .719 *116*	**-.787***** .000 *117*	**1.000** . *117*		
Subnational expenditure share (1993-5)	**.132** .289 *66*	**.506***** .000 *61*	**.205*** .099 *66*	**.509***** .000 *66*	**-.103** .411 *66*	**.305**** .021 *57*	**1.000** . *67*	
Subnational public employment share (early 1990s)	**.129** .232 *87*	**.349***** .002 *77*	**.217**** .039 *91*	**.238**** .027 *87*	**-.176** .104 *87*	**.419***** .000 *74*	**.718***** .000 *48*	**1.000** . *91*

Note: Pearson correlation in bold; two-tailed significance underneath; N in italics. * correlation is significant at 0.10 level, two-tailed ** correlation is significant at 0.05 level, two-tailed; *** correlation is significant at 0.01 level, two-tailed.

Notes to tables 2-7

Dependent Variables:

Corruption (TI 2000): Transparency International corruption perception index, 2000. Higher values signify *cleaner* government. Index ranges from 1.2 (Nigeria) to 10 (Finland).

Corruption (WB 2001): World Bank "graft" index. Higher values signify *cleaner* government. Range of index is from -1.4 (Burundi) to 2.25 (Finland).

Infant inoculations: percent of children inoculated for diphtheria, tetanus, and pertussis by end of first year, average 1996-8, from WHO, May 2000.

Access to drugs: percent of population population "for which a minimum of 20 of the most essential drugs are continuously available and affordable at public or private health facilities or drug outlets within one hour's walk," as of 1997, from World Bank's *World Development Indicators* (Jan 2002).

Youth illiteracy: percentage of those aged 15-24 illiterate, from UNESCO (Jan 2002). If adult illiteracy rate 1% or less but youth data missing, youth rate coded at 1%.

Access to water source: Access to improved water source. Data for 2000, from World Bank, *World Development Indicators 2001* (Feb 2002).

Paved roads: Log number of kms of paved road per thousand inhabitants, data as of 1995-9, from World Bank, *World Development Indicators 2001* (Feb 2002).

Access to sanitation: percentage of population with access to improved sanitation facilities, data for 2000, from World Bank, *World Development Indicators 2001* (Feb 2002).

Regressions for corruption ratings WLS, weighting by inverse of standard error of ratings across the sources used to construct the index. All other regressions OLS. White heteroskedasticity-corrected standard errors in parentheses. * $p < .10$; ** $p < .05$; *** $p < .01$.

Table 2: Decisionmaking and fiscal decentralization, and government quality (testing the local knowledge argument)

	Corrup-tion (TI 2000)	**Corrup-tion (WB 2001)**	**Infant Inoc-ulations**	**Access to drugs**	**Youth illit-eracy**	**Access to water source**	**Paved roads**	**Access to sanit-ation**	**Corrup-tion (TI 2000)**	**Corrup-tion (WB 2001)**	**Infant Inoc-ulations**	**Access to drugs**	**Youth illit-eracy**	**Access to water source**	**Paved roads**	**Access to sanit-ation**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
Subnational Autonomy	-.25 (.39)	-.10 (.16)	-4.72 (4.04)	-8.23 (6.30)	1.92 (2.32)	-2.05 (4.15)	.13 (.08)	-3.31 (6.40)								
Subnational expenditure share									.012 (.019)	.004 (.009)	-.05 (.17)	-.29 (.27)	**.17** (.08)**	.25 (.25)	**.007* (.004)**	**-.39* (.22)**
Log 1995 GNP per capita	1.95*** (.55)	1.25*** (.22)	9.82 (6.13)	51.00*** (9.35)	-25.18*** (4.85)	31.29*** (5.53)	.94*** (.12)	42.12*** (8.22)	2.36*** (.52)	1.33*** (.30)	7.44 (7.22)	51.42*** (13.36)	-20.05** (6.48)	18.49** (6.69)	.70*** (.15)	35.73*** (11.14)
Uninterrupted dem-ocracy since 1950	1.22** (.53)	.48** (.22)	-1.85 (4.33)	-2.38 (8.17)	8.18** (3.17)	11.88** (5.06)	.20 (.19)	1.51 (10.44)	.58 (.63)	.25 (29)	-5.85 (5.38)	9.51 (9.71)	3.35 (3.05)	11.71*** (4.16)	.24 (.25)	-4.69 (8.68)
One-party State	.38 (.43)	-.05 (.22)	-3.55 (5.14)	6.67 (8.07)	-5.05 (3.70)	-6.20 (5.50)	.08 (.09)	-1.60 (6.97)	.001 (.42)	-.07 (.31)	-1.00 (3.82)	3.87 (12.68)	-5.33* (2.73)	6.84 (7.18)	.09 (.09)	-9.91 (6.07)
Ethnolinguistic Division	-.02** (.01)	-.006** (.002)	-.05 (.05)	.02 (.10)	-.06 (.04)	-.01 (.07)	-.001 (.001)	.13 (.09)	-.01 (.008)	-.008*** (.002)	-.01 (.06)	.05 (.18)	-.09* (.05)	.01 (.07)	-.002* (.001)	.01 (.13)
French legal Tradition	-.30 (.42)	-.05 (.15)	-5.60 (4.14)	3.71 (8.52)	2.04 (3.11)	-4.27 (5.04)	-.10 (.06)	-10.36 (7.21)	-.67 (.59)	-.02 (.20)	-1.84 (5.53)	16.37 (12.90)	1.94 (2.08)	6.23 (3.71)	-.05 (.11)	1.11 (4.35)
Socialist legal Tradition	-.86 (.70)	.01 (.27)	16.33** (6.91)	10.02 (14.69)	-15.26** (7.54)	4.54 (8.45)	.00 (.20)	1.59 (19.84)	-.39 (.99)	-.15 (.47)	10.18 (9.89)	28.01 (25.32)	-10.64* (5.63)	-16.78 (9.93)	-.80*** (.27)	-20.17 (14.51)
Share of Prot-estants in pop.	.02*** (.01)	.007** (.002)	.03 (.07)	.16 (.13)	.01 (.04)	-.00 (.08)	-.000 (.002)	.05 (.16)	.02*** (.006)	.008** (.003)	.05 (.07)	.03 (.09)	-.00 (.02)	-.01 (.05)	-.003** (.001)	.05 (.08)
Share of Muslims In Population	-.00 (.01)	-.001 (.002)	.05 (.06)	.26** (.09)	.17** (.07)	.12 (.08)	.001 (.001)	.17 (.12)	-.013*** (004)	-.006** (.003)	.09 (.06)	.09 (.18)	.09 (.07)	-.15 (.32)	-.001 (.002)	-.14 (.32)
Log population, 1994	-.46 (.30)	-.14 (.11)	1.23 (3.58)	-.59 (4.16)	2.86 (2.12)	5.98 (4.03)	-.09 (.09)	.52 (6.12)	-.63* (.32)	-.19 (.13)	-3.07 (4.08)	-.71 (5.50)	.66 (1.28)	.04 (3.23)	-.22** (.10)	-5.62 (4.94)
Log surface Area	-.09 (.26)	-.08 (.10)	-1.53 (2.89)	.78 (4.13)	-2.67 (1.62)	-3.50 (2.71)	-.02 (.07)	-2.07 (4.43)	-.27 (.28)	-.12 (.12)	1.46 (2.96)	.93 (4.29)	-3.14** (1.26)	-3.44 (2.16)	-.00 (.09)	3.84 (3.15)
Population density							-.36*** (.08)								-.38*** (.10)	
Sub-Saharan Africa	.49 (.96)	.07 (.24)	-10.45 (8.39)	11.30 (13.27)	7.75 (6.43)	11.58 (9.61)	-.21 .23	-1.84 (14.85)	-.40 (.83)	.33 (.25)	-12.52 (8.38)	14.89 (14.71)	7.21* (3.66)	7.93 (6.60)	-.15 (.27)	1.04 (10.46)
Asia	-.15 (.67)	.34 (.35)	1.15 (5.71)	1.06 (8.98)	3.90 (4.10)	12.42** (5.81)	-.23 (.16)	-8.19 (10.48)	.04 (.63)	.19 (.34)	.77 (6.68)	3.63 (9.50)	3.32 (2.63)	8.65 (5.09)	-.04 (.16)	-2.62 (6.91)
Eastern Europe And former USSR	-.61 (.89)	-.28 (.36)	-7.78 (8.24)	4.10 (14.19)	8.34 (7.82)	18.77 (11.67)	.46** (.21)	17.18 (23.20)	-1.25 (.93)	-.13 (.45)	-5.65 (10.23)	5.80 (23.88)	3.65 (4.57)	35.89** (13.46)	1.11*** (.19)	17.11 (20.48)
Middle East	-.05 (.52)	-.22 (.31)	7.92 (5.05)	-26.11 (15.18)	-5.37 (6.98)	15.03** (7.20)	-.26 (.17)	9.44 (11.76)	-.49 (.54)	-.32 (.37)	6.21 (7.14)	…	-.01 (2.18)	…	-.62*** (.10)	…
Latin America	-.55 (.74)	-.05 (.28)	3.81 (5.81)	3.12 (11.11)	-1.81 (4.47)	16.23** (6.52)	-.33 (.22)	13.14 (12.26)	-.64 (.90)	-.04 (.21)	-1.66 (7.39)	-6.19 (9.94)	-.44 (3.45)	7.74 (6.44)	-.51 (.31)	-7.48 (11.28)
Constant	-1.46 (2.52)	-3.99*** (.99)	52.07* (27.00)	-120.0** (41.0)	102.1*** (22.75)	-43.99 (28.01)	-2.89*** (.53)	-78.05* (41.27)	-2.26 (2.49)	-4.19*** (1.39)	61.23* (32.78)	-126.2** (57.45)	85.37*** (28.19)	7.65 (31.59)	-1.86** (.71)	-40.39 (51.03)
R^2	.85	0.80	0.51	.57	.72	.72	.90	.60	0.89	0.86	.23	.68	.59	.65	.93	.79
N	72	95	97	62	91	72	85	68	52	61	56	40	59	42	53	38

Table 3: Subnational accountability and government quality

	Corrup-tion (TI 2000)	Corrup-tion (WB 2001)	Infant Inoc-ulations	Access to drugs	Youth illit-eracy	Access to water source	Paved roads	Access to sanit-ation	Corrup-tion (TI 2000)	Corrup-tion (WB 2001)	Infant Inoc-ulations	Access to drugs	Youth illit-eracy	Access to water source	Paved roads	Access to sanit-ation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Percentage of tiers elected	.002 (.004)	-.000 (.002)	-.05 (.05)	**.19** (.09)**	.003 (.029)	.009 (.055)	.000 (.001)	-.00 (.09)								
Appointment centralization									-.22 (.29)	.04 (.13)	-1.19 (3.96)	-7.76 (6.86)	**-5.75** (2.71)**	1.48 (2.84)	.007 (.055)	.41 (4.76)
Number of sub-National tiers	**-.45*** (.10)**	**-.22** (.09)**	**-4.06** (2.02)**	-2.48 (4.17)	-1.97 (2.20)	-1.13 (2.47)	**-.11** (.04)**	5.71 (4.34)								
Log 1995 GNP per capita	1.94*** (.45)	1.21*** (.27)	.51 (4.97)	24.88** (11.55)	-17.23*** (5.07)	19.17** (7.80)	.89*** (.18)	16.78 (13.14)	1.71*** (.49)	1.28*** (.20)	9.00 (5.71)	41.93*** (10.44)	-26.65*** (4.31)	30.74*** (5.31)	1.02*** (.11)	39.36*** (7.71)
Uninterrupted dem-ocracy since 1950	1.12** (.54)	.48* (.27)	-5.10 (5.53)	-14.25* (7.04)	15.60*** (4.50)	15.43** (6.86)	.25 (.23)	-12.93 (16.41)	1.00** (.46)	.49** (.21)	-5.03 (4.65)	-1.83 (8.49)	10.68** (4.35)	10.12** (4.18)	.28 (.22)	-4.82 (10.84)
One-party State	.17 (.20)	.01 (.20)	6.93 (4.26)	12.60 (10.95)	-3.99 (4.37)	-3.99 (4.70)	.30** (.14)	-.35 (7.93)	.39 (.35)	.01 (.18)	-.13 (5.27)	10.33 (8.10)	-5.14 (3.66)	-5.07 (4.74)	.11 (.08)	-5.08 (6.17)
Ethnolinguistic Division	-.010*** (.003)	-.006** (.002)	-.06 (.05)	-.08 (.07)	-.11* (.06)	-.13 (.08)	-.001 (.001)	.04 (.10)	-.02*** (.005)	-.005*** (.002)	-.05 (.05)	-.02 (.08)	-.08** (.04)	-.00 (.06)	-.000 (.001)	.11 (.07)
French legal Tradition	-.74*** (.25)	-.04 (.13)	-7.88** (3.93)	.34 (7.34)	5.83 (3.91)	.59 (3.66)	-.14** (.07)	-9.24 (7.99)	-.31 (.34)	-.06 (.12)	-7.34* (4.20)	5.92 (7.57)	5.35 (3.37)	-3.51 (4.08)	-.16** (.07)	-11.19 (6.97)
Socialist legal Tradition	.82* (.47)	.29 (.33)	2.96 (8.68)	-19.69 (19.43)	.49 (6.22)	-5.33 (9.10)	-.43 (.32)	-42.38*** (14.04)	-1.01 (.77)	-.02 (.31)	11.40 (7.12)	.85 (18.99)	-17.15** (7.78)	4.05 (7.78)	.09 (.18)	1.28 (20.28)
Share of Prot-estants in pop.	.02** (.006)	.004 (.003)	-.07 (.08)	.08 (.09)	-.001 (.04)	-.02 (.06)	-.003 (.002)	.04 (.15)	.02*** (.006)	.006** (.003)	-.06 (.08)	.11 (.10)	-.01 (.04)	-.01 (.07)	-.001 (.002)	.01 (.14)
Share of Muslims in Population	.011 (.007)	.001 (.003)	-.01 (.09)	.09 (.13)	.29*** (.07)	.17*** (.06)	.001 (.002)	-.15 (.11)	-.002 (.006)	-.001 (.002)	.00 (.07)	.20 (.13)	.24*** (.06)	.08 (.06)	.001 (.001)	.07 (.10)
Log population, 1994	-.75** (.30)	-.18* (.11)	-.14 (3.35)	-1.82 (4.00)	3.99** (1.87)	3.15 (3.62)	-.08 (.14)	-4.48 (6.11)	-.73** (.30)	-.21** (.09)	-2.27 (3.48)	-5.71 (5.67)	1.13 (2.10)	4.83 (3.35)	-.08 (.08)	.31 (5.00)
Log surface Area	-.07 (.24)	-.00 (.11)	-.07 (2.54)	-2.22 (4.53)	-3.53** (1.70)	-1.12 (2.11)	.02 (.10)	.72 (4.98)	-.17 (.23)	-.08 (.08)	-1.58 (2.48)	-.004 (4.48)	-2.69* (1.41)	-3.92* (2.31)	.01 (.06)	-2.81 (3.38)
Population Density							-.52 (.34)								-.24*** (.04)	
Sub-Saharan Africa	-.39 (.83)	-.09 (.29)	-25.48** (10.01)	-8.26 (12.98)	29.08*** (8.69)	9.50 (11.48)	-.27 (.31)	-33.08 (19.66)	-.31 (.70)	.10 (.24)	-18.48** (8.68)	4.40 (13.60)	9.28 (7.33)	7.27 (8.39)	-.13 (.26)	-8.90 (14.13)
Asia	-.67 (.63)	.33 (.45)	-8.64 (5.22)	-1.36 (8.86)	9.40 (6.48)	11.08 (6.81)	-.25 (.19)	-24.72 (17.74)	-.22 (.56)	.34 (.35)	-1.76 (5.73)	6.41 (8.92)	6.67 (4.97)	10.91** (5.19)	-.22 (.20)	-11.20 (10.85)
Eastern Europe and former USSR	-2.75*** (.71)	-.62 (.43)	-6.12 (7.90)	14.64 (17.01)	5.04 (8.38)	25.76*** (9.19)	.82*** (.24)	30.67 (22.16)	-.70 (.96)	-.18 (.39)	-7.27 (8.29)	15.43 (17.63)	12.98 (8.15)	16.77 (10.57)	.45* (.26)	8.81 (22.68)
Middle East	-.95* (.54)	-.55 (.45)	-.29 (5.71)	-17.36 (17.38)	-7.55 (8.42)	2.88 (7.09)	-.39* (.20)	5.50 (14.33)	-.24 (.54)	-.31 (.32)	7.85 (5.96)	-17.56 (16.48)	-10.04 (7.05)	14.99** (6.79)	-.21 (.22)	10.79 (11.52)
Latin America	-1.01 (.88)	-.30 (.31)	6.02 (8.16)	-19.79* (10.98)	6.38 (6.11)	12.07 (9.14)	-.44 (.30)	-12.97 (16.44)	-1.09 (.67)	-.05 (.28)	-.03 (5.96)	-7.18 (11.26)	-2.80 (5.82)	16.34*** (5.63)	-.22 (.26)	9.03 (12.71)
Constant	.28 (2.08)	-3.31** (1.31)	110.2*** (24.27)	1.17 (53.56)	66.80** (25.31)	3.44 (31.47)	-2.45*** (.84)	29.92 (56.13)	.29 (2.27)	-4.10*** (.95)	65.24** (25.62)	-76.08 (45.94)	109.7*** (21.21)	-38.31 (24.94)	-3.33*** (.50)	-57.03 (38.10)
R^2	0.89	0.83	0.51	.62	.77	.74	.90	.58	0.85	0.81	0.55	.57	.73	.72	.89	.62
N	67	86	84	54	83	65	78	62	78	112	113	72	107	88	102	85

Table 4: Interjurisdictional competition and government quality

	Corruption (TI 2000)	Corruption (WB 2001)	Infant inoculations	Access to drugs	Youth illiteracy	Access to water source	Paved roads	Access to sanitation
Decentralization	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Average area of first tier units	**.004*** (.001)**	**.001*** (.000)**	.006 (.011)	.01 (.01)	.011 (.007)	.002 (.010)	.0002 (.0003)	.010 (.016)
Controls								
Log 1995 GNP per capita	1.70*** (.45)	1.14*** (.18)	8.88 (5.94)	54.05*** (9.95)	-24.76*** (4.57)	30.55*** (5.22)	1.02*** (.11)	36.88*** (8.15)
Uninterrupted democracy since 1950	.76* (.44)	.40** (.20)	-4.53 (4.50)	-6.45 (8.56)	10.07** (3.93)	9.39** (4.47)	.18 (.21)	-6.57 (11.44)
One-party State	.29 (.33)	-.14 (.17)	-1.75 (5.62)	11.41 (8.41)	-5.04 (3.99)	-4.69 (5.17)	.13 (.08)	-7.64 (6.66)
Ethnolinguistic division	-.02*** (.005)	-.005*** (.002)	-.05 (.04)	-.01 (.09)	-.06 (.04)	-.00 (.06)	-.000 (.001)	.12 (.07)
French legal tradition	-.26 (.31)	-.04 (.12)	-7.80* (4.41)	7.15 (7.78)	5.58 (3.45)	-3.07 (3.77)	-.18*** (.06)	-11.46* (6.86)
Socialist legal tradition	-.86 (.57)	.12 (.24)	-14.55** (6.99)	6.72 (19.15)	-13.93 (7.79)	2.89 (8.21)	.03 (.19)	4.37 (20.65)
Share of Protestants in population	.03*** (.006)	.007*** (.002)	-.05 (.08)	.16 (.11)	.01 (.04)	-.01 (.08)	-.001 (.002)	.04 (.15)
Share of Muslims in population	-.004 (.005)	-.001 (.002)	.01 (.06)	.21** (.10)	.22*** (.06)	.09 (.06)	.001 (.001)	.06 (.11)
Log population, 1994	-.40 (.28)	-.15 (.09)	-.69 (3.52)	-4.73 (5.49)	1.88 (2.03)	5.05 (3.71)	-.09 (.08)	1.71 (5.22)
Log surface Area	-.55** (.28)	-.17* (.09)	-3.14 (2.97)	-3.76 (6.06)	-3.42** (1.69)	-4.60 (3.19)	-.01 (.07)	-5.19 (4.48)
Population density							-.23*** (.04)	
Sub-Saharan Africa	-.34 (.66)	-.08 (.24)	-15.65** (7.59)	13.70 (13.38)	10.16 (6.85)	6.64 (8.95)	-.24 (.22)	-9.67 (14.29)
Asia	-.53 (.57)	.20 (.32)	-2.30 (5.71)	12.68 (9.54)	5.04 (5.02)	11.14* (6.33)	-.30 (.18)	-13.40 (11.94)
Eastern Europe and former USSR	-1.01 (.74)	-.48 (.33)	-10.12 (8.33)	9.49 (18.17)	10.01 (8.31)	17.67 (11.51)	.40 (.25)	3.34 (23.04)
Middle East	-.01 (.50)	-.42 (.26)	8.88 (5.55)	-20.61 (17.43)	-9.28 (7.27)	14.28** (6.48)	-.29 (.19)	10.64 (11.84)
Latin America	-1.05* (.54)	-.04 (.26)	1.90 (5.41)	-1.21 (9.83)	-.95 (4.94)	15.07*** (5.30)	-.33 (.21)	7.69 (12.69)
Constant	.58 (2.12)	-3.37*** (.84)	65.70** (26.54)	-120.9*** (42.31)	100.0*** (21.49)	-35.18 (24.75)	-3.16*** (.45)	-42.47 (39.24)
R^2	0.86	0.81	.52	.57	.72	.72	.89	.60
N	81	114	115	73	108	87	104	84

Table 5: Vertical checks and balances and government quality

	Corruption (TI 2000)	**Corruption (WB 2001)**	**Infant inoculations**	**Access to drugs**	**Youth illiteracy**	**Access to water source**	**Paved roads**	**Access to sanitation**
Decentralization								
Regionally elected upper house can block financial bills	-.69 (.68)	-.15 (.16)	**-20.49**** **(10.21)**	-4.66 (8.29)	2.62 (3.56)	**-7.45**** **(3.06)**	**-.15*** **(.08)**	**-10.21*** **(5.52)**
Controls								
Log 1995 GNP per capita	2.02*** (.45)	1.25*** (.17)	7.08 (4.85)	47.54*** (9.66)	23.35*** (4.22)	29.36*** (4.51)	.99*** (.10)	37.05*** (7.18)
Uninterrupted democracy since 1950	1.12*** (.41)	.49*** (.18)	-1.43 (3.63)	-3.29 (8.46)	9.54** (3.78)	10.86*** (3.91)	.24 (.19)	-3.90 (11.07)
One-party State	.40 (.37)	-.01 (.18)	-.56 (4.82)	9.42 (7.80)	-3.99 (3.63)	-4.57 (4.59)	.11 (.08)	-6.06 (5.91)
Ethnolinguistic division	-.02*** (.005)	-.005*** (.002)	-.06 (.04)	-.02 (.08)	-.07 (.04)	-.00 (.06)	-.000 (.001)	.10 (.07)
French legal tradition	-.26 (.33)	-.05 (.13)	-6.51 (4.54)	6.61 (7.69)	4.34 (3.39)	-2.66 (3.85)	-.15** (.06)	-11.25 (6.96)
Socialist legal tradition	-.78 (.68)	-.00 (.27)	13.96** (6.32)	7.20 (18.65)	-16.17** (7.59)	3.72 (7.27)	.09 (.19)	3.19 (20.10)
Share of Protestants in pop.	.03*** (.007)	.007** (.003)	-.00 (.07)	.16 (.11)	-.00 (.04)	-.01 (.08)	-.001 (.002)	.06 (.15)
Share of Muslims in Population	-.005 (.005)	-.001 (.002)	.00 (.05)	.20* (.10)	.20*** (.06)	.08 (.06)	.001 (.001)	.07 (.10)
Log population, 1994	-.48 (.30)	-.17* (.10)	1.81 (3.16)	-4.80 (5.75)	.79 (2.12)	5.68 (3.49)	-.06 (.09)	2.08 (5.32)
Log surface area	-.22 (.54)	-.10 (.08)	-3.72 (2.34)	-.97 (5.09)	-1.51 (1.54)	-4.63* (2.38)	-.01 (.06)	-4.49 (3.70)
Population density							-.25*** (.04)	
Sub-Saharan Africa	.09 (.65)	.07 (.22)	-18.86*** (6.70)	8.15 (12.65)	11.14* (6.47)	4.53 (7.78)	-.24 (.22)	-10.77 (13.23)
Asia	-.22 (.54)	.33 (.30)	-4.61 (4.83)	6.51 (8.64)	6.54 (4.60)	8.71* (5.20)	-.32* (.18)	-14.23 (11.04)
Eastern Europe and former USSR	-.86 (.81)	-.29 (.34)	-11.25 (7.00)	5.52 (17.96)	12.19 (7.84)	15.49 (10.00)	.35 (.24)	3.85 (22.59)
Middle East	.08 (.51)	-.36 (.25)	6.19 (5.19)	-22.03 (16.37)	-7.80 (6.98)	12.94** (6.31)	-.29 (.19)	9.17 (11.21)
Latin America	-.91 (.57)	-.04 (.26)	.68 (4.82)	-4.13 (9.80)	-.04 (4.69)	14.12*** (5.07)	-.32 (.20)	7.66 (12.11)
Constant	-1.31 (2.05)	-3.94*** (.79)	72.59*** (21.55)	-99.74** (41.52)	92.43*** (19.96)	-30.16 (21.38)	-3.11*** (.44)	-44.12 (35.55)
$\mathbf{R^2}$	0.85	0.80	.57	.55	.71	.73	.89	.61
N	82	117	121	75	112	89	106	86

Table 6: Vertical competition, duplication, and government quality

	Corruption (TI 2000)		Corruption (WB 2001)		Infant inoculations		Access to drugs		Youth illiteracy		Access to water source		Paved roads		Access to sanitation	
Decentralization	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**
Subnational Tiers	**-.32*** (.11)**		**-.16** (.08)**		-3.48 (2.23)		1.95 (3.60)		-.66 (1.65)		-1.44 (1.83)		-.063 (.039)		3.39 (3.05)	
More than 1 sub-tier		**-1.84** (.76)**		-.37 (.26)		4.22 (6.46)		4.88 (20.11)		-.73 (3.88)		5.47 (8.30)		-.31 (.19)		4.28 (10.81)
More than 2 sub-tiers		-.41 (.26)		-.08 (.12)		**-8.35** (3.46)**		-3.43 (6.93)		.40 (2.59)		-2.08 (3.79)		-.03 (.06)		.10 (5.17)
More than 3 sub-tiers		-.17 (.34)		-.21 (.16)		2.79 (4.77)		9.26 (9.07)		-3.17 (4.48)		-1.64 (4.48)		-.09 (.10)		8.08 (6.80)
Controls																
Log 1995 GNP per capita	1.74*** (.46)	1.64*** (.51)	1.16*** (.20)	1.18*** (.20)	7.72 (5.32)	7.65 (5.46)	48.35*** (10.34)	46.87*** (10.39)	-24.25*** (4.82)	-23.95*** (4.77)	29.01*** (4.92)	30.05*** (4.91)	.97*** (.11)	.97*** (.11)	41.05*** (7.78)	39.77*** (7.55)
Uninterrupted dem-ocracy since 1950	.98** (.45)	1.03** (.49)	.49** (.21)	.50** (.21)	-5.36 (4.70)	-5.38 (5.42)	-3.19 (7.88)	-1.72 (8.64)	10.61** (4.26)	10.24* (4.23)	9.98** (4.12)	9.16* (4.74)	.27 (.21)	.28 (.21)	-4.49 (9.74)	-2.59 (9.86)
One-party State	.56* (.33)	.43 (.32)	.01 (.16)	-.01 (.17)	-.11 (5.17)	-.93 (5.26)	9.05 (8.07)	8.67 (8.46)	-5.06 (3.89)	-4.69 (4.01)	-4.88 (4.75)	-4.29 (5.10)	.11 (.08)	.09 (.07)	-5.48 (6.15)	-6.33 (6.46)
Ethnolinguistic Division	-.02*** (.005)	-.02*** (.005)	-.004** (.002)	-.004** (.002)	-.03 (.05)	-.04 (.05)	-.03 (.08)	-.01 (.08)	-.08 (.05)	-.07 (.05)	.00 (.06)	-.00 (.06)	-.000 (.001)	.000 (.001)	.10 (.07)	.10 (.07)
French legal Tradition	-.36 (.30)	-.35 (.30)	-.04 (.12)	-.02 (.12)	-6.80 (4.13)	-7.33* (4.21)	5.68 (7.76)	6.40 (8.20)	4.95 (3.47)	4.75 (3.67)	-2.96 (4.03)	-3.62 (4.21)	-.15** (.06)	-.13** (.06)	-11.84* (6.58)	-12.20 (7.02)
Socialist legal Tradition	-1.01 (.83)	-.90 (.80)	.01 (.30)	.03 (.32)	12.91* (7.23)	14.12* (6.78)	5.18 (19.01)	5.80 (18.02)	14.36* (8.04)	-14.82* (8.69)	3.56 (7.20)	2.69 (7.51)	.09 (.18)	.10 (.19)	.63 (20.07)	2.10 (21.22)
Share of Prot-estants in pop.	.02*** (.006)	.02*** (.006)	.005* (.002)	.006** (.003)	-.08 (.08)	-.11 (.08)	.15 (.12)	.10 (.13)	-.00 (.04)	.01 (.05)	-.02 (.07)	-.02 (.08)	-.001 (.002)	-.001 (.002)	.05 (.15)	.02 (.16)
Share of Muslims in Population	-.002 (.007)	-.002 (.007)	-.000 (.002)	-.000 (.002)	.00 (.07)	.00 (.07)	.16 (.11)	.15 (.12)	.22*** (.06)	.22*** (.06)	.09 (.06)	-.10 (.06)	.001 (.001)	.001 (.001)	.07 (.10)	.06 (.11)
Log population, 1994	-.62** (.30)	-.64** (.30)	-.17* (.10)	-.18* (.10)	-1.17 (3.42)	-1.34 (3.29)	-6.23 (5.57)	-7.60 (5.93)	1.56 (1.98)	1.76 (2.07)	5.44 (3.43)	5.35 (3.46)	-.06 (.08)	-.06 (.08)	-.91 (4.91)	-1.57 (5.13)
Log surface Area	-.14 (.24)	-.09 (.25)	-.06 (.08)	-.06 (.08)	-1.08 (2.44)	-1.49 (2.53)	-1.02 (4.71)	-.43 (4.90)	-2.41 (1.54)	-2.54 (1.59)	-3.71 (2.38)	-4.08 (2.51)	.02 (.06)	.03 (.06)	-3.47 (3.61)	-3.06 (3.67)
Population Density													-.24*** (.05)	-.24*** (.06)		

Table 6 cont.

Sub-Saharan Africa	-.37 (.68)	-.53 (.70)	-.02 (.24)	.03 (.24)	-20.73** (8.17)	-21.66** (8.47)	11.96 (14.67)	7.60 (15.59)	12.14 (7.70)	12.38 (7.91)	5.51 (8.24)	6.35 (8.51)	-.19 (.26)	-.18 (.26)	-6.70 (13.47)	-7.37 (13.20)
Asia	-.47 (.56)	-.55 (.58)	.18 (.35)	.23 (.36)	-4.11 (5.80)	-5.03 (5.86)	10.51 (10.12)	6.94 (10.90)	6.33 (5.25)	6.71 (5.28)	9.59* (5.37)	10.55* (5.62)	-.28 (.20)	-.26 (.20)	-8.42 (11.13)	-9.24 (10.54)
Eastern Europe and former USSR	-.88 (1.05)	-1.03 (1.00)	-.34 (.39)	-.30 (.41)	-10.93 (8.87)	-12.93 (8.24)	12.44 (18.39)	9.77 (18.09)	10.41 (8.80)	10.86 (9.27)	16.28 (10.10)	17.17 (10.36)	.40 (.25)	.41 (.26)	11.53 (22.08)	10.48 (22.54)
Middle East	-.48 (.53)	-.47 (.56)	-.48 (.33)	-.48 (.34)	5.54 (6.09)	5.70 (6.94)	-15.91 (17.41)	-14.94 (18.21)	-9.05 (7.50)	-9.49 (7.44)	13.06* (6.61)	13.15* (7.25)	-.26 (.22)	-.25 (.22)	13.75 (11.62)	15.66 (11.85)
Latin America	-1.24* (.67)	-1.28* (.69)	-.19 (.28)	-.16 (.28)	-2.80 (6.63)	-2.45 (7.27)	-1.71 (11.59)	-3.46 (12.14)	-.48 (6.18)	-.32 (6.40)	14.00** (5.58)	15.38*** (5.73)	-.28 (.25)	-.32 (.25)	12.36 (11.93)	13.02 (12.18)
Constant	.89 (2.17)	2.47 (2.47)	-3.20*** (1.03)	-3.33*** (1.06)	77.94*** (24.43)	72.01*** (24.56)	-108.0** (48.9)	-98.74* (52.87)	98.49*** (24.83)	96.24** (23.66)	-27.49 (24.27)	-38.12 (24.92)	-3.00*** (.54)	-2.88*** (.55)	-71.35* (40.23)	-62.70 (39.49)
R^2	0.86	0.86	0.82	0.82	0.56	.58	.55	.56	.72	.72	.73	.73	.89	.90	.62	.63
N	78	78	112	112	113	113	72	72	107	107	88	88	102	102	85	85

Table 7: Employment decentralization and government quality (testing the argument that local government corruption renders decentralization harmful)

	Corruption (TI 2000)	**Corruption (WB 2001)**	**Infant Inoculations**	**Access to drugs**	**Youth illiteracy**	**Access to water source**	**Paved roads**	**Access to sanitation**
Decentralization								
Subnational employment share	-.01 (.01)	.002 (.004)	-.13 (.10)	.10 (.26)	.10 (.08)	.002 (.090)	.002 (.002)	-.12 (.15)
Controls								
Log 1995 GNP per capita	2.55*** (.51)	1.28*** (.28)	7.11 (9.23)	38.21** (17.99)	-15.42*** (5.25)	26.54*** (6.93)	.80*** (.13)	32.13*** (9.58)
Uninterrupted democracy since 1950	1.30** (.64)	.46 (.28)	-2.67 (5.39)	-16.50* (8.82)	9.72*** (3.53)	10.98* (5.89)	.27 (.17)	-18.45 (13.10)
One-party state	.16 (.32)	.11 (.20)	4.55 (4.17)	10.43 (11.33)	-1.71 (4.43)	-.63 (5.45)	.10 (.07)	-4.94 (6.72)
Ethnolinguistic division	-.01 (.009)	-.005 (.003)	.01 (.09)	.09 (.24)	-.02 (.06)	.03 (.09)	-.000 (.001)	-.08 (.17)
French legal tradition	-.89** (.34)	-.08 (.17)	-11.61*** (4.12)	-3.29 (10.56)	3.46 (3.84)	-2.56 (4.03)	-.07 (.07)	-10.42 (7.81)
Socialist legal tradition	.97 (.66)	.22 (.36)	18.46* (10.41)	7.35 (24.48)	-5.24 (6.03)	.47 (9.52)	.29 (.18)	-33.34** (15.79)
Share of Protestants in pop.	.02*** (.007)	.006* (.003)	-.05 (.10)	.07 (.13)	.00 (.04)	.06 (.06)	-.004*** (.001)	-.10 (.15)
Share of Muslims in Population	.009 (.007)	-.000 (.003)	.06 (.06)	-.05 (.22)	.21*** (.08)	.12 (.07)	-.000 (.001)	-.06 (.12)
Log population, 1994	-.89** (.38)	-.35** (.17)	-5.11 (3.97)	-8.58 (7.75)	.41 (2.76)	2.73 (3.38)	-.30*** (.10)	-.72 (7.08)
Log surface area	-.00 (.26)	-.08 (.12)	2.36 (2.89)	1.64 (4.91)	-2.10 (1.51)	-3.01 (2.25)	.11 (.08)	3.08 (4.87)
Population density							-.30*** (.08)	
Sub-Saharan Africa	-.22 (1.01)	.12 (.25)	-26.33*** (7.57)	-14.33 (19.84)	15.09** (5.72)	2.12 (9.49)	-.43* (.23)	-7.98 (18.80)
Asia	-.26 (.65)	.12 (.40)	-4.94 (5.09)	-2.63 (8.12)	5.55 (3.86)	10.44* (5.18)	-.21 (.15)	-18.56 (11.61)
Eastern Europe and former USSR	-2.32** (.87)	-.49 (.42)	-16.78** (8.15)	-19.51 (23.49)	6.05 (6.83)	27.35*** (9.51)	…	34.56* (17.65)
Middle East	-.16 (.67)	-.39 (.42)	4.09 (8.29)	-6.19 (25.19)	-2.64 (9.75)	13.20* (6.87)	-.34** (.15)	-1.07 (9.67)
Latin America	-.62 (.87)	-.10 (.40)	-4.00 (7.78)	-20.66 (13.67)	4.76 (4.82)	18.82** (9.12)	-.62*** (.21)	-16.53 (14.92)
Constant	-3.31 (2.29)	-3.90*** (1.16)	72.24* (38.28)	-52.65 (75.93)	55.35** (23.11)	-24.30 (29.10)	-2.38*** (.53)	-14.70 (42.48)
$\mathbf{R^2}$	0.88	0.83	.56	.56	.70	.81	.92	.66
N	62	75	73	46	73	55	67	51