

**REVISITING THE EFFECTS OF CONFLICT ON STATE CAPACITY:
A PANEL DATA APPROACH**

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ABSTRACT

This paper offers additional evidence on the relationship between conflict and state capacity, understood as the ability of the government to raise tax revenues and deliver public goods, such as the rule of law. The major innovation of the paper is the use of two panel datasets (with national and sub-national information, respectively) in a setting that accounts for initial conditions and fixed effects (which are a source of bias in previous results). At the national level, our results show that internal conflicts reduce state capacity both across and within countries. Moreover, the evidence suggests that these effects increase with the intensity of the conflict. The main difference with the existing literature is related to the role of external conflicts, which do not have a positive effect on state capacity, contrary to previous findings. The sub-national evidence is based on a panel of Colombian municipalities. The main result is that after correcting for potential endogeneity the incidence of conflict reduces the state's capacity to collect taxes and invest in infrastructure. In sum, the new evidence strongly supports the claim that internal conflict undermines state capacity, while it rejects the claim that external conflict leads to stronger state capacity.

INTRODUCTION

State capacity is a broad concept that captures various dimensions necessary for development, such as the state's ability to collect taxes—which is a prerequisite for the provision of public goods—and to enforce contracts and protect property rights, which is fundamental for the functioning of a market economy. While the former is typically referred to as fiscal capacity, the latter is known as legal state capacity. Fiscal and legal state capacity constrains what the government can do, such as the levels of taxation and protection of property rights that are enforceable.

In a series of papers, Besley and Persson (2008, 2009) model state capacity as the result of equilibrium investment decisions by the government. Resources have to be set aside in order to develop a professional system of courts to enforce contracts and a capable administration to collect taxes. Given the premier importance of institutions in the development process, it is crucial to understand why some countries spend more resources on strengthening their fiscal and legal abilities than others.

One stream of the literature has emphasized the role that external and internal conflict play as determinants of the government's choice to invest in building state capacity. Following Tilly (1990), Besley and Persson develop the idea that the governments that face an external threat need to build up military capabilities, which then demand tax revenues. Therefore, countries more involved in external confrontations invest more in expanding the capacity to collect taxes. History is rich in examples of the association between wars and the introduction and development of the modern income tax systems, and the cross-country regressions seem to confirm this view.

Internal conflict is considered to produce exactly the opposite effect on state capacity. While external wars are unique moments of unity and consensus, which facilitate the decision to invest in state capacity, internal wars are often aimed at destroying state capacity. As the recent experience in Africa and other developing regions shows, civil wars have impaired the ability of the state to conduct its business. From an empirical viewpoint, internal conflict has been shown to be negatively correlated with the level of state capacity across countries.

However, existing empirical studies have relied on cross-sectional data and analyses which have major limitations. One of the main features of state capacity is that it persists over time, much like other institutional measures. In Besley and Persson's estimates, which predict the effects on state capacity of earlier conflicts, this implies that such conflicts could have been affected by the initial levels of state capacity, while current state capacity is also affected by its past levels. It is also possible that country-specific characteristics are potential predictors of both conflict and state capacity. As is well known, cross-sectional estimates fail to account for these factors and thus can be biased.

To overcome some of these limitations, and to make the existing results more general, this paper uses two different panels of annual data and analyzes them with conventional OLS cross-country estimates and dynamic panel GMM estimation. The data also allows for richer definitions of conflict both in terms of intensity (in the national panel) and manifestations (in the sub-national panel).

Our results show that internal conflicts destroy state capacity both at the cross-country and within country levels and that those of higher intensity have a stronger negative impact on state capacity. External conflicts, however, do not have a clear effect on state capacity during the period of analysis. We also find that most conflict manifestations are negatively correlated with state capacity across Colombian municipalities, but that the effects lose much of the significance once initial conditions and endogeneity is taken into account. However, it remains clear that conflict manifestations that target mostly the civil population affect the state's capacity to collect taxes, while those that reduce the control of the authorities affect the capacity to provide public goods.

The paper is structured as follows. The next section presents the evidence related to the panel of countries for the period 1975-2004. It starts by replicating previous results using standard cross-country OLS regressions and then moves on to the dynamic estimations based on a GMM procedure. The following section focuses on the issue of internal conflict by using the panel of municipalities from Colombia, where both estimations are also implemented.

CROSS-COUNTRY EVIDENCE

Data

Our state capacity measures relate to two dimensions: fiscal and legal. We measure fiscal capacity with total tax revenues as a percentage of GDP and income tax revenues as a percentage of GDP (following Besley and Persson, 2009). Data on these variables comes from Baunsgaard and Keen (2010), who take total tax revenue data from the IMF's *Government Financial Statistics* (GFS) between 1975 and 2006 and improve it for countries outside the OECD. They do this with revenue information provided in the context of the IMF's periodic consultations with member countries, thus making the data more reliable.¹ We measure legal capacity through a summary indicator of the quality of government reported by the Quality of Government Institute (QOG), and based on the International Country Risk Guide (ICRG).² This measure averages the individual scores for three dimensions: law and order, corruption, and quality of bureaucracy. It takes values between zero and one, and increases with the assessed quality of government.³ This variable is available for the period 1984-2008.

Turning to the explanatory variables, we use various measures of conflict which come from the *UCDP/PRIO Armed Conflict Dataset (version 3-2005)* also available in the QOG panel database. The data provides information on armed conflicts for the period 1946-2004. It records all armed conflicts following the definitions of the Uppsala Conflict Data Program (UCDP) at the Department of Peace and Conflict Research, Uppsala University, and the Centre for the Study of Civil War at the International Peace Research Institute in Oslo, Norway (PRIO). Conflicts are defined as such when there are at least 1,000 battle-related

¹ Data for income tax as a percentage of GDP is only available until 2000.

² *The Quality of Government Dataset (QOG) from the QOG Institute at the University of Gothenburg* compiles annual information for the period 1946–2008. The datasets can be freely downloaded at <http://www.qog.pol.gu.se/>. For details see Teorell et al. (2009). Matching the country classifications between the different data sources we use requires additional assumptions which are explained in the appendix. We use current countries only but to get historical data in cases of unification (division) we use the absorbing (original) country.

³ The QOG measure is similar to the one constructed by Knack and Keefer (1995) and later used by Hall and Jones (1999). Knack and Keefer (1995) average 5 of the original 24 categories created by the ICRG to rank countries. These five categories are "law and order," "bureaucracy quality," "corruption," "risk of expropriation" and "government repudiation of contracts." QOG only uses the first three in its indicator of the quality of government because the latter two were discontinued in 1997.

deaths over the full span of the episode. Internal conflicts are those that occur between the government of a state and internal opposition groups, without intervention from other states. External conflicts, meanwhile, are defined as those that occur between two or more states.⁴

Our basic control variables are real GDP per capita and a measure of democracy as it has been shown that inclusive political institutions are central for building state capacity (see Cárdenas and Tuzemen, 2010). We use real GDP per capita data available in the QOG database, which takes the information from Gleditch (2002).⁵ As for democracy, we use a revised version of the Combined Polity Score from the Polity IV Project, named Polity2 (Marshall et al., 2009), which ranges from -10 (complete autocracy) to +10 (complete democracy). The index of democracy we use in our regressions is a dummy variable that takes the value of 1 if the Polity2 score, averaged over the five preceding years, is above 3.⁶

Table 1 reports descriptive statistics for our panel of countries. It is worth noting that internal conflicts are much more frequent than external conflicts. In our sample of countries and years 11 percent of the observations correspond to internal conflicts, while external conflicts are only 2 percent of the observations. Regarding our state capacity measures, in the case of total tax revenues the sample average is 21 percent of GDP and 8.9 percent of GDP for income taxes. The average quality of government is 0.55. Countries and years with a Polity2 score above 3 represent only 40 percent of the sample.

Cross-Country Evidence: The Panel Dimension

Baseline Estimations

We begin by revisiting the evidence presented by Besley and Persson (2008) for a pure cross section of countries, but now based on our panel information. Besley and Persson's regressions look at the relation between average state capacity between 1975 and 1997 and the occurrence of conflicts in the 1945-1997 period. Here, though we look at the effects of

⁴ We use the UCDP/PRIO conflict dataset as opposed to the more conventional Correlates of War Dataset (COW) because it provides data up to 2004 while the latter only does so until 1997.

⁵ Gleditsch (2002) fills gaps in the original data of the Penn World Tables using additional sources and extrapolation techniques.

⁶ Results are robust to using a cutoff of zero rather than three.

conflicts over a much shorter horizon, we take advantage of the time series variability offered by the panel data. While the nature of our data does not allow us to look at effects that may take several decades to consolidate, they allow us to control for initial conditions and other country fixed effects that the pure cross section regressions ignore, and that may potentially bias the estimated coefficients. In particular, if state capacity exhibits persistence over time, the empirical relationship between early conflicts and current state capacity could be significant without there being a true causal relationship from the former to the latter. This would be the case, for instance, if countries with initially higher state capacity were more likely to engage in wars, in those early times, with other states. In as much as wars make states it is also true that it is states that make wars, so certain aspects of state capacity can also lead to conflict. With persistent state capacity, this would show up in the data as a significant correlation between early conflicts and current capacity, unless initial conditions are controlled for.

To make our results more easily comparable to those by Besley and Persson, we initially explore a baseline specification that does not control for fixed effects, and does not take persistence into account. In particular, we estimate the following specification (without fixed effects):

$$SC_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 EC_{it} + \gamma' X_{it} + \delta' D_t + u_{it} \quad (1)$$

where SC_{it} is a measure of state capacity in country i in year t ; IC_{it} is 1 if country i had an internal conflict in year t , and 0 otherwise; EC_{it} is 1 if the country is part of an external conflict in that year, and 0 otherwise; X_{it} is a vector of controls: GDP per capita (in logs) and our index of democracy; and D_t is a vector of year dummies to control for global effects. We first estimate equation (1) including internal and external conflicts sequentially, and then include the two jointly.

The results from estimating equation (1) using a panel of countries are presented in Table 2. Columns 1, 4 and 7 show a strong negative effect of internal conflict on both fiscal and legal state capacity when external conflict is not controlled for. Tax revenues as a percentage of GDP are more than 5 percentage points lower in countries and years with internal conflicts. The equivalent negative effect on income taxes as a percentage of GDP is

just above 2.5 percentage points. The negative effect of internal conflicts on the quality of government is also large: it falls by 0.09 (nearly half a standard deviation) during conflict events. Columns 3, 6 and 9 show that these effects hold when internal and external conflict variables are jointly included in the regression.

The results for the effects of external conflicts are less robust. Contrary to what has been found in studies with cross-sectional data, countries with external conflicts show a weaker capacity to collect taxes than countries without external conflicts. In particular, we find between a 1.5 and 3 percentage point (tax revenue as a percent of GDP and income tax as a percent of GDP, respectively) drop in tax collection in countries with external conflict, whereas Besley and Persson (2008) find an increase (in total revenue as a percentage of GDP). In the case of legal state capacity, column 8 shows no statistically significant effects of conflicts, except when both types of conflicts are considered simultaneously (column 9).

To sum, we find no evidence of a positive and significant effect of external conflict on fiscal state capacity. One possible explanation is that these effects take several decades to materialize, so our regressions do not capture them. However, both the results we present above and those from previous work should be taken with caution, as they may be driven by the omission of initial state capacity conditions. These could be potential determinants of both contemporaneous state capacity and the probability that a country enters a conflict.

To address these limitations of the OLS regressions, we estimate the effect of conflicts on state capacity in a specification that takes into account country fixed effects and the potential persistence of state capacity over time. In particular, we use a dynamic panel data model estimated with the Blundell and Bond (1998) system GMM methodology, which allows us to capture the effect of past state capacity and country fixed effects on current state capacity, while addressing endogeneity problems. This approach also implies we focus on relatively short run effects of conflicts on a state's capacity.

Dynamic Panel GMM Estimations

Our basic dynamic panel model is of the following form:

$$SC_{it} = \beta_0 + \alpha SC_{it-1} + \beta_1 IC_{it} + \beta_2 EC_{it} + \delta' D_t + \gamma' X_{it} + \varepsilon_{it} \quad (2)$$

where

$$\varepsilon_{it} = \mu_i + v_{it} \quad (3)$$

and

$$E[\mu_i] = E[v_{it}] = E[\mu_i v_{it}] = 0 \quad (4)$$

SC_{it-l} denotes the lagged state capacity variable to capture initial conditions and X_{it} is the same vector of controls as in (1). In a second version of (2), we replace αSC_{it-1} with $\sum_{k=1}^3 \alpha_k SC_{it-k}$ to denote that three lags of the state capacity variables are included as regressors, instead of one. This is done to ensure that the autocorrelation and exogeneity tests pass in all specifications associated with legal capacity.⁷ In equation (3), μ_i are country fixed effects and v_{it} are idiosyncratic shocks, which we assume are orthogonal to each other, as shown in (4). As before, we introduce the two types of conflict sequentially first, and then simultaneously.

By introducing country fixed effects and the lag of the dependent variable in the model, equation (2) takes into account the possible effects of initial conditions, other sources of unobserved time-invariant heterogeneity, and persistence in state capacity. At the same time, the specification is subject to the problems of endogeneity for the lagged dependent variable that are standard in dynamic panel data models (e.g. Arellano and Bond, 1991; Blundell and Bond, 1998). Also, both state capacity and the probability of facing conflicts may be affected by third shocks that are unobserved by us (e.g. political reform). This would introduce additional endogeneity problems, directly related to our variables of interest. We address these problems by implementing a one-step ‘‘System’’ GMM estimator for equation (2), which uses the equation in levels to provide additional instruments for the endogenous and predetermined variables in the differenced equation (Arellano and Bover, 1995; Blundell and Bond, 1998). We use this version instead of the Arellano and Bond (1991) ‘‘Difference’’ GMM estimator because gains in efficiency are achieved by taking advantage of the additional information contained in the relationships in levels. It is important to highlight that in a panel with fixed effects, including the equation in levels requires a new assumption—the first-differenced instruments used for the variables in

⁷ We also change the choice of lagged instruments for the lagged dependent variables, as indicated below in footnote number 12.

levels should not be correlated with the unobserved country effects. We make this assumption in all our estimations. That is, we assume that the first differences of both our lagged values of state capacity and contemporaneous values of conflict are uncorrelated with any country-specific characteristics. This allows us to instrument these regressors in both the differenced and levels equations.

We consider state capacity as a predetermined regressor in our model, and both of our conflict measures as endogenous variables, given the possibility of both reverse causality and simultaneity bias. In the differenced equation, we instrument the lagged state capacity regressors with their own first lags and, in the levels equation, with their own first differences. Similarly, we instrument our conflict variables with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation.

In addition to instrumenting our endogenous variables with their own lags, a physical integrity rights index is used to instrument internal conflict, while a measure of political globalization is used to instrument external conflict.⁸ Our physical integrity rights index is taken from the updated Cingranelli and Richards' (1999) Human Rights Dataset, and covers 189 countries and the period 1981-2004. It is an additive index summarizing the *torture*, *extrajudicial killing*, *political imprisonment*, and *disappearance* components of the dataset. It ranges from 0 (no government respect for these four rights) to 8 (full government respect for these four rights).⁹

The choice of the physical integrity rights index as a relevant instrument for internal conflict is based on the argument that governments tend to be less respectful of human rights when engaged in internal conflicts. Most civil wars show human rights violations that would translate in a deterioration of our index score. The point is that human rights violations have been recurrent manifestations of conflict, and these practices have not been attributed only to illegal groups. Regarding exogeneity, we assume state capacity and the respect for physical integrity rights are only correlated through their respective

⁸ Our results are similar if we instrument the conflict variables only with their lags, but the Hansen J tests for this alternative specification reject the exogeneity of the matrix of instruments for some of our dependent variables.

⁹ Further details can be found in Cingranelli and Richards (1999). The data is available in the QOG database.

relationships with the occurrence of internal conflicts, and that there is no additional channel connecting human rights violations and state capacity. While weaker governments may be less respectful of human rights even in absence of conflict, we believe this is true in particular in terms of long run relationships. Since we exploit only the within-country variation for our GMM estimations, our expectation is that this is a valid instrument. This assessment is indeed supported by the exogeneity tests we carry, except for some of the results on the relationship between conflict and legal capacity.

As for the second instrument, political globalization is measured by the number of embassies and high commissions in a country, the number of international organizations of which the country is a member, the number of U.N. peace missions the country participated in, and the number of international treaties the country has signed since 1945. The information comes from Dreher (2006) and Dreher, Gaston and Martens (2008), and covers 155 countries throughout the period 1970-2006. The index ranges between 0 and 100, where higher values indicate a higher degree of globalization.¹⁰

We expect that the more politically globalized a country is, the less likely it is to engage in an external conflict.¹¹ Deeper political globalization would reflect a preference toward the use of diplomatic means to solve disputes. We also expect political globalization to not affect state capacity other than through its effect on external conflict. The possible effects of political globalization on other determinants of state capacity, such as economic and political inequality (Cárdenas and Tuzemen, 2010; Cárdenas, 2010) are more likely to materialize in the long run than to be captured by the annual within country variation we focus on. Recent events of this decade, such as the external wars of the United States in Iraq and Afghanistan, are evidence that political equality (or more democracy) is not easily installed overnight and it is usually preceded by some form of conflict.

Our choice of specification is also determined by the test of no second-order autocorrelation in the estimation errors. In particular, when our measure of legal capacity is

¹⁰ The Political Globalization index is available in the QOG database.

¹¹ In fact, the occurrence, the duration and/or the intensity of internal conflict could also be affected by political globalization. International organizations and external countries tend to be involved in conflicts experiencing internal conflicts. In this sense, political globalization is also a relevant instrument for internal conflict.

the dependent variable, the specification only rejects second-order autocorrelation when three lags of the dependent variable are included as regressors and the choice of their lagged instruments is changed.¹² We report this specification in the tables as a robustness exercise for the case of legal capacity (this specification corresponds with the second version of equation 2, explained above). For completeness, we also report specifications with additional lags of the dependent variable for the case of our fiscal capacity measures, but for this case the additional lags in general turn out insignificant, and tests reject these as the correct specifications for fiscal dependent variables.

Table 3 shows our estimates of equation (2) using the “system” GMM methodology. In panel 1, columns 1-9 show a strong negative effect of internal conflict on state capacity, both fiscal and legal, which is in general statistically significant. The exception is column 6, which shows that an effect of internal conflict on income tax revenues as a percent of GDP cannot be identified when external conflicts are controlled for. We are also unable to uncover any effect of external conflicts on state capacity, both when internal conflict is controlled for and when it is not. Our point estimates show that the existence of an internal conflict in a country in a given year will reduce its total tax revenue and income tax revenue (as percentages of GDP) by 1.4 and 0.98 percentage points, respectively. This relationship holds when we also include external conflict in the equation (columns 3 and 6), although the magnitudes are reduced by close to 0.05 percentage points in each of the two above cases. Meanwhile, columns 7 and 9 show that, on average, if a country is involved in an internal conflict in a particular year, its quality of government score will drop about 0.03 points on a 0-1 scale, or 15 percent of the standard deviation of our legal capacity index. However, the tests for second-order autocorrelation of the estimation error suggest this last set of results should be taken with caution. Moreover, the set of instruments used are not exogenous as a group in columns 7 and 9, according to the Hansen J test. We address these problems in panel 2, by estimating the second version of (2). Our results regarding the effect of internal conflict on state capacity are robust to this change in terms of both sign and significance, and now the specification in columns 7-9 passes the tests on serial

¹² Here the lagged regressors of all three state capacity measures are instrumented with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation. The choice of lagged instruments for the conflict variables is unchanged.

autocorrelation for the errors and on joint exogeneity of the instruments. The magnitude of the effect of internal conflict in columns 7-9, panel 2, is similar to that found in panel 1 and discussed above. As for columns 1-6, additional lags of the dependent variable are generally not significant, suggesting panel 1 has the correct specification, while the message regarding the effects of internal and external conflicts on state capacity remains robust.

Three general points are important when comparing these system GMM results to our original OLS results. First, in terms of the effect of internal conflicts, the magnitude of the coefficients is reduced considerably, while still keeping their expected negative sign and statistical significance. This suggests that the previous dynamic bias and endogeneity have been corrected with the new methodology. Second, system GMM results show that in addition to long-run effects identified in previous work (Besley and Persson, 2008 and 2009), there are also shorter-run effects of internal conflict on state capacity, both on the fiscal and legal dimensions. And third, once dynamic bias and endogeneity problems have been corrected, there seems to be no negative impact of external conflict on fiscal capacity, which was an initial finding with the OLS estimation. However, we do not identify the positive effect suggested by Besley and Persson. As mentioned above, it is possible that the mechanism they have in mind takes place only over large horizons that we cannot account for. But attention should be called also to the possibility that the positive effect of wars on building state capacity identified by that seminal work reflects reverse causality (not solved by the long lag introduced in their specification due to the persistence of state capacity).

Conflict Intensity

One concern with our previous OLS and GMM estimations (as with previous work) is that they neglect the possibility that the level of intensity of a conflict may determine the magnitude and even the sign of its impact on state capacity. For example, it is possible that a low intensity internal conflict may allow the government the level of control required to invest in state capacity in order to build-up the ability to defeat the opposing group. As a result, low intensity conflict may make it more likely that state capacity is strengthened, compared to higher intensity conflicts. Conversely, it can also be argued that if a conflict has been going on for long enough or if it has been intense enough to make society

intolerant to further conflict, then again a consensus to invest in state capacity in order to win the war is likely. High intensity conflict may then make it more likely that the effect of conflict on state capacity is positive, compared to lower intensity conflicts. These hypotheses suggest that the effect of intensity on state capacity can go in either direction and naturally raises the question of whether our results for internal conflicts in Tables 2 and 3 would change by focusing on either minor or very large conflict events.

In what remains of this section, we test the differential effects of conflict intensity on our measures of state capacity. These estimations complement the regressions reported in Tables 2 and 3, allowing nonlinearities in the effects of conflicts, in relation to their intensity. Though our hypotheses about the effect of conflict intensity refer more naturally to the effects of internal conflicts, for completeness we also test the effects of the different intensity measures of external conflicts.

We classify conflicts by minor, intermediate, and war-scale according to the number of battle deaths involved. The dummy variables for internal and external conflict specific to each of these three categories are also available in the UCDP/PRIO database.¹³ Table 4 shows descriptive statistics of these additional conflict measures. Interestingly, throughout the period 1975-2004, while 4 percent of country and year observations indicate the presence of minor conflict, the corresponding shares for intermediate conflicts and wars are 6 percent and 5 percent, respectively. Table 5 shows our OLS results for the different measures of conflict intensity. Panel 1 looks at the effects of internal conflicts, focusing alternatively on minor, intermediate and war-scale events. Panel 2 proceeds similarly for external conflict. Panel 3, in turn, looks at the effects of different scales of internal conflicts, controlling for external conflicts. For comparability purposes, the definition of external conflict is kept constant across the different estimations reported in panel 3 (defined as the sum of intermediate conflicts and wars) as was the case in Tables 1-3.

It is clear from panel 1 that the different levels of internal conflict intensity do not switch the negative correlation with state capacity we had found previously across countries and

¹³ “Minor” conflicts correspond to those with at least 25 battle-related deaths per year for every year in the period of conflict. “Intermediate” conflicts are those with more than 25 battle-related deaths per year and a total conflict history of more than 1000 battle-related deaths, but fewer than 1000 per year. “Wars” are those conflicts with 1,000 or more battle-related deaths per year.

years. On the contrary, conflicts of a higher intensity have a stronger negative effect on state capacity than internal conflicts of a lower intensity. The impact of minor conflicts, although negative, is statistically insignificant and of much lower magnitude than that of the other two types of conflict. This evidence runs counter to the idea that very intense internal conflicts can resemble external conflicts and trigger investment in state capacity. In fact, the opposite actually holds: only when the magnitude of conflict is low can governments invest in state capacity to fight the armed opposition. In fact, the negative effect of internal conflicts on state capacity disappears in the case of conflicts of a sufficiently low level. On the other hand, panel 2 of Table 5 shows no clear pattern regarding the intensity of external conflict. The significance and sign of the coefficients is erratic, suggesting that the relationship of external conflict with state capacity is ambiguous in our shorter period of analysis.

Table 6 shows our corresponding GMM estimations. Panel 1 confirms that after controlling for initial conditions and correcting endogeneity problems, internal conflicts of a higher intensity had a larger negative effect on state capacity in an average country. The effect of minor conflicts is again negligible, whereas intermediate conflicts have more significant effects and wars represent the pinnacle on conflict intensity relevance for state capacity destruction. Panel 2 once again shows no clear pattern in terms of a relationship between external conflict and state capacity.

The results reported in panel 3 are less clear cut. In some cases, the autocorrelation and exogeneity tests either reject the validity of our instruments or show evidence of instrument proliferation. Moreover, we are unable to pinpoint a robust statistically significant effect of internal conflicts when we control for the presence of external conflicts. Nonetheless, point estimates still show a consistent pattern of negative effects that increase in size as we move from minor to more intense conflicts. On the whole, we interpret our results in this section as strongly suggesting that internal conflict has indeed a negative effect on state capacity that increases with the intensity of conflicts, but we point out we have been so far unable to find a combination of instruments that supports our specifications controlling for the effects of external conflicts.

STATE CAPACITY IN A PANEL OF COLOMBIAN MUNICIPALITIES

We now focus on the relationship between state capacity and conflict using Colombian data. We exploit the fact that the country has been immersed in a long internal conflict, with conflict-related events that vary in intensity both over time and across regions. In the case of Colombia conflict *intensity* varies more across regions than the presence of conflict itself. We can thus investigate a dimension that has been so far unexplored in the literature on conflict and state capacity. Studies that focus on regions within a single country have the advantage of eliminating much of the heterogeneity that cannot be controlled for in cross-country analyses. Colombia is a legally centralized country, so governments of 1,104 municipalities share the same basic institutional framework. But despite the common elements, provision of government services is highly decentralized and municipal governments have the possibility of individually raising taxes and other revenues. There is thus scope for the study of fiscal state capacity by sub-national governments. Specifically, we use data on tax revenues and the total expenditure in roads as a measure of fiscal capacity (the latter being a proxy for the ability of the government to deliver public goods).

Tax revenue is a plausible measure of state capacity at the municipal level to the extent that local governments have legal authority to raise their own taxes, which is the case for municipalities in Colombia. However, there are constraints on the type of taxes they can adopt. Taxes on production and sales, and on property, are the two major sources of municipal tax revenue. The second measure of state capacity is public spending on roads, which captures the ability to provide services and promote development. First, the construction and maintenance of roads corresponds closely to the textbook concept of a public good. Second, regional governments decide how much to spend on roads with a high degree of autonomy. This comes in contrast to spending on other types of public services, such as education and health, where regional governments receive earmarked resources from the central government that cover much, if not most, of their spending.¹⁴ This is not the case in the transport sector.

¹⁴ Drazen and Eslava (2010) have found that despite the inflexibilities introduced by earmarked revenues, local governments have some leeway to decide over spending in health and education. However, municipal governments are much less legally constrained in determining what to do with transport infrastructure.

Since we are interested in the effect of conflict on state capacity, and the destruction of productive capital is characteristic of internal conflicts (see Blattman and Miguel, 2009), focusing on one type of such capital (public roads) seems natural. In particular, we examine whether active governments counteract this effect, or on the contrary the capacity of the state to provide these services is also negatively affected by conflict. Finally, from a measurement standpoint, spending on roads is clearly separated in the municipality fiscal accounts. We must note, however, that even though local expenditures on road construction are decided with a relatively high degree of autonomy, the fraction of total public road funding that comes from local sources is relatively small, compared to national sources.

Data

Data on the two measures of fiscal capacity (tax revenues and expenditure in roads) comes from Drazen and Eslava (2010) and is available annually from 1984 until 2002.¹⁵ Income revenues and expenditures in roads are measured in constant 1998 pesos deflated with the national CPI. We create two variables: tax revenue as a percentage of total fiscal revenue (which includes capital income) and expenditure in roads as a percentage of total expenditure. Expenditure in roads is constructed as the sum of expenses on roads using resources from different possible sources: royalties and co-finance funds, current revenue, and other resources.

Data on internal conflict measures comes from various sources. Mainly because of the intensity and pervasiveness of this problem, conflict-related events have been well measured and registered in Colombia. A key aspect of this is the availability of data at the municipal level for various manifestations of the conflict since the 1990s. We use a database constructed by the Human Rights Observatory of the Office of the Vice President of Colombia. It contains data on internal conflict measures per year for 1,104 municipalities throughout the period 1993-2008. We construct our own five conflict intensity measures based on the information available. First, total offensive actions undertaken by the ELN and FARC (guerrilla) and AUC (paramilitary) illegal groups. Second, total massacres

¹⁵Drazen and Eslava (2010), in turn, use data from the office of the Comptroller General (*Contraloría General de la República*). The data corresponds to the figures in the financial report each municipality files annually. Unfortunately, data for years after 2002 is not fully comparable with earlier data restricting the use of recent years in our sample.

perpetrated by these groups (a massacre is considered as such if it involves four or more deaths). Third, total confrontations between the three previously mentioned armed groups and Colombia's Armed Forces. Fourth, total number of kidnappings (civil kidnappings, political kidnappings and kidnappings of members of the army) perpetrated by FARC, ELN or AUC. Finally, total number of deaths in each municipality caused by FARC, ELN and AUC in a given municipality in a specific year. The sources of deaths are civil homicide, political homicide and a homicide of a member of the army. Also, from *Acción Social* (Executive Office of the President of Colombia) we have counts of numbers of people forced into exile from the municipality (expulsion) for the period 1997-2009.

GDP per capita at the department level (available for the period 1984-2005), municipal population (both from DANE), royalties and cash transfers (both from the National planning Department-DNP), are added as control variables in the regression analyses. Finally, we use as instrument in some of our estimations a dummy variable indicating the presence of one or more military bases in a municipality for a given year. This dummy variable takes the value of 1 if there is presence of one or more military bases, and 0 otherwise. We take this variable directly from previous work by Dube and Naidu (2010).¹⁶

Municipal Panel Evidence

Baseline Estimations

We now report results for our panel of municipalities. One word of caution is in place before describing these results. The variability of our conflict measures is more limited across Colombian municipalities than across countries. More specifically, at the municipality level, conflict-related events are quite rare, even for a country that is typically regarded as violent. As Table 7 shows, the number of events that affect municipalities is typically zero. Out of our six measures of conflict, four of them show that there are no conflict events per municipality per year for over 75 percent of the observations (massacres,

¹⁶ Dube and Naidu (2010) eliminate from their sample three military bases that, according to their source (www.globalsecurity.org), were created during their period of estimation (as a precaution against the possibility of an endogenous response from conflict to military bases). After consultation with the Colombian National Army, Navy and Air Force we correct the date of creation of the Tres Esquinas base and include it and the other two in our database, acknowledging potential endogeneity both in Dube and Naidu's (2010) and in this paper. We address this concern by looking at standard tests on the exogeneity of our vectors of instruments.

military confrontations, kidnappings per 100,000 inhabitants and deaths per 100,000 inhabitants). The two exceptions are not much different: even in the 25 percent observations with top values for total attacks and displacement (forced expulsion), the numbers do not go above one attack per municipality per year and five displaced individuals per 1,000 inhabitants per municipality per year, respectively. The large number of zeroes in our conflict measures makes identification more difficult when using municipal data. We are identifying our effects off the variability across a small fraction of observations, while the rest of municipalities share zero events. In other words, the nature of the data subjects us to attenuation bias. Our narrative thus focuses on the results that are estimated precisely, and avoids inferring that conflict has no effect when we estimate coefficients that are statistically not significant.

Table 7 also shows descriptive statistics of our state-capacity measures. Both tax revenue and expenditure in roads average around one tenth of total revenue and total expenditure, respectively, and show standard deviations of similar magnitude. They also seem to show relatively large variation both over the cross sectional and the time dimensions.

Finally, it is important to mention that our data on royalties is available only for 511 municipalities and that over 40 percent of them show values of zero, considerably reducing the number of observations in the regression analysis and again subjecting us to attenuation bias.¹⁷

As in the case of countries, we start by analyzing the relationship between conflict and state capacity in a model that takes advantage of the cross-sectional variability by not including fixed effects. Our baseline model specification is of the following form:

$$SC_{jt} = \zeta + k'D_t + \lambda conflict_{jt} + \sigma'X_{jt} + \varepsilon_{jt} \quad (5)$$

where D_t denotes a vector of time dummies, $conflict_{jt}$ can be any of the conflict intensity measures described above for municipality j and year t , and X_{jt} is a vector of controls, which in this case includes the log of GDP per capita and the log of population. To facilitate interpretation, our state capacity measures, as well as real GDP per capita and

¹⁷ However, our results are robust to excluding royalties from the sample and to using a dummy variable that takes the value of 1 when royalties are above zero and 0 when they are equal to zero.

population, are all expressed in logs, while the conflict measures, royalties and cash transfers are expressed in their original units. Panel 1 of Table 8 presents results from estimating equation (5) for the panel of municipalities using OLS techniques. In general, these estimates would suggest that all our conflict measures have a strong negative correlation with the capacity to collect taxes across Colombian municipalities. In terms of public spending on roads, our findings are much less consistent. The signs of the estimated correlations are negative for all conflict variables except total attacks, but the estimates are significant only for half of our conflict variables: massacres, kidnappings and forced displacement.

Although this initial evidence of a negative association between internal conflicts and state capacity is consistent with the existing literature (Besley and Persson, 2008 and 2009, Cárdenas 2010), these regressions are prey to the endogeneity problems discussed above for our cross-country evidence. In particular, one wonders whether the negative correlation picked up by our regressions truly reflects the effect of the conflict on state capacity, since both reverse causality and simultaneity are potential problems in this context. Regarding the former, weak states probably have a potentiating effect on internal conflict. As for the latter, third forces, such as isolation and other initial conditions, may increase both the intensity of conflict and difficulties in the conduction of local government. We address these issues by estimating a dynamic panel version of our model. This estimation controls for fixed effects and path dependence, and is carried using the same GMM techniques of the section on cross-country evidence.

Dynamic Panel GMM Estimations

The GMM specification for our panel of Colombian municipalities is similar to the one we used in our panel of countries. We estimate equations of the following form:

$$SC_{jt} = \zeta + \tau'D_t + \eta SC_{jt-1} + \theta conflict_{jt} + \sigma'X_{jt} + \varepsilon_{jt} \quad (6)$$

where

$$\varepsilon_{jt} = \mu_j + v_{jt} \quad (7)$$

and

$$E[\mu_j] = E[v_{jt}] = E[\mu_j v_{jt}] = 0 \quad (8)$$

We make the same assumptions as before regarding the disturbance, ε : the fixed effect remains orthogonal to the idiosyncratic component of the error term, as specified by (8). The vector of controls, X_{jt} , is the same as in (5), and by introducing fixed municipality effects, we focus on the within municipality effects of conflict variability. The specification also includes time dummies to control for shocks that are common to all municipalities. Finally, we instrument the lagged state capacity regressors with their first lags in the differenced equation and with their first differences in the levels equation. Our conflict variables are always instrumented with their second lags in the differenced equation and with the first lags of their first differences in the levels equation.

Panel 2 of Table 8 shows our Blundell and Bond (1998) one-step system GMM baseline estimations of equation (6). One striking feature of the results that becomes immediately evident is that most of the significant correlations initially captured through OLS regressions disappear when we focus on within-municipality variation. Moreover, all lagged dependent variables have large and statistically significant effects. One possible explanation for these results is that much of what was being picked up by our OLS regressions reflected reverse causation and the simultaneous effects of initial conditions on state capacity and conflict (as suggested by the evidence of high persistence in state capacity). This raises a word of caution about purely cross-sectional approaches that cannot address these endogeneity issues in the context of the conflict-state capacity relationship. It is important to mention, however, that these results may also reflect that good part of the consequences of conflict-related events on state capacity materialize only in the long run, and are thus not identified by our strategy (and with the available data).

However, looking into the more detailed results shown in Table 8, other interesting features appear. First, different conflict-related events seem to affect state capacity differently. Tax revenue is negatively affected by kidnappings and displacement. Interestingly, among our measures of conflict, these are two that capture more directly damage inflicted to the civil population (the other being massacres). Meanwhile, we find no significant effect of events that most likely affect members of the military and the illegal armed groups rather than civilians (or at least mix their impact on armed actors with their impact on civilians): attacks, military confrontations and conflict-related deaths. These findings seem consistent

with the view that internal conflicts erode the capacity of the state to collect taxes, either because the tax administration does not work well or because security conditions do not allow tax collectors to go about their business. Also, the confidence of the population on the state, and thus the willingness to pay taxes, can be undermined in societies where conflict makes civilians perceive the state as unable to protect them.

Our point estimates suggest that these effects on tax collections are large. A one standard deviation increase in kidnappings per 100,000 inhabitants (5.54) would lower this fraction by 14.4 percent, and a one standard deviation increase in the number of displaced individuals per 1,000 inhabitants (34.52) would reduce it by 27.6 percent.

Moving to our estimations of the effect of conflict on the provision of public goods (roads, in particular), we find a negative and significant impact of one specific type of event: attacks by illegal armed groups. This type of event is most likely in regions where the illegal organizations have gained enough strength to mobilize large groups of their members to attack towns, military posts, and mobile military groups, and to destroy infrastructure. It is telling that this is the only manifestation of conflict that affects the provision of public goods by local governments. One possible interpretation of this finding is that it is the reflection of the link between local politics and conflict. Armed illegal groups traditionally intervene in local politics in the regions where they exert most influence, frequently capturing the local elites. In many cases, these groups have been able to deviate local public resources to their own pockets, for instance by becoming part in consortia that then are designated to provide a given public service or construct infrastructure works.¹⁸ Column 4 of Table 8 shows that a one standard deviation increase in the number of attacks by illegal armed groups (3.60) would reduce this public spending on roads by 13 percent in a typical municipality.

¹⁸ One strategy used by illegal groups to control public resources is to promote the creation of associations that are apparently legal providers of services (in health, public works, etc), and that then underwrite contracts with local governments. The ability illegal armed groups have to pressure or capture governments makes them much more likely to win those contracts, at higher costs than normal. One of many interesting examples took place in Sucre, in the eastern coastal region. A well known paramilitary leader, Edgar Cobo, launched a cooperative that provided health services, and then promoted a partnership with several municipalities (Tolú, Coveñas, San Onofre, Palmito and Sincé). This partnership, gave the cooperative a large advantage in getting public contracts in those municipalities, which were in turn recipients of very large amounts of royalties from oil production activities.

Table 9 shows that the findings discussed above are robust to different specifications of the instruments matrix. Panel 1 shows estimates of equation (6) when we include military bases as an external instrument in our system GMM model, while panel 2 excludes military bases but includes additional lags of the endogenous and dependent variables as instruments for the differenced equation. More specifically, in panel 2 the lagged regressors of state capacity are instrumented with their own first and second lags in the differenced equation and with their first differences in the levels equation, whereas the conflict variables are instrumented with their second and third lags in the differenced equation and with the first lags of their first differences in the levels equation.

Our results for the effects of conflict are robust to the modifications introduced in Table 9, not only in terms of sign and significance, but also in terms of magnitudes. There is only one surprise. In panel 1 of table 9 not only kidnappings and displacement reduce tax revenue but also massacres and deaths. Taking this at face-value would reinforce our interpretation that the capacity to collect taxes is most affected by phenomena that touch the population directly, as civilian deaths and massacres could also be included in this category. Moreover, these results suggest that the presence of military bases is an adequate instrument which allows uncovering other conflict-state capacity relationships that are not evident in table 8 (when we use only lagged instruments for our predetermined and endogenous regressors).

CONCLUSIONS

The main message of this paper is that internal conflicts are a source of destruction of state capacity, even after controlling for initial state capacity conditions and addressing endogeneity issues. However, the effect is smaller than previously estimated in the cross-country literature, mainly because the persistence of state capacity over time and the probable reverse causality between state capacity and conflict had not been properly considered. Although there is evidence of high persistence in fiscal and legal capacity measures, our estimates also show that the effect of internal conflict on state capacity is strong both over the short run and long run (although larger in the latter case). On the contrary, once controlling for such persistence and endogeneity, our estimates confirm that the presence of an external conflict does not raise state capacity within countries. In other

words, wars are not a shortcut to development. However, external conflict can have a positive effect on state capacity across countries, but it would be over a much longer time horizon than the one considered in the present work.

Both our cross-country OLS and our within-country System GMM estimations are consistent with the hypothesis that internal conflict matters for state capacity. On average, countries and years involved in an internal conflict have less capacity to collect taxes and govern efficiently than countries and years not involved. The relationship remains strong when analyzed inside countries and across time: a country in the midst of an internal conflict will be less capable of collecting taxes and governing efficiently compared to a situation where there is no conflict. When searching for the manifestations of conflict that really matter, we find that in the particular case of Colombia, conflict that affects the civilian population (kidnappings and forced displacement) reduces the state's capacity to collect taxes. We have suggested some probable factors behind this relationship, which include the deterioration of the tax administration system, the impediment to tax collectors to go about their business, and a reduction in the willingness to pay taxes of a citizenry that does not feel protected. Intimidation seems to be a reasonable channel through which such conflicts erode fiscal capacity at the local level in Colombia. In turn, attacks perpetrated by illegal armed groups undermine the ability of the government to provide public goods (expenditure in roads). It is likely that in municipalities where such armed groups have captured the administration, governments are unable to spend in public goods.

Finally, we find that the more intense the internal conflict is, the higher in magnitude and significance of its negative impact on state capacity. This empirical fact goes in line with the hypothesis that internal conflicts divide societies and make it more difficult for it to reach a consensus to invest in state capacity.

REFERENCES

- Arellano, M., and Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58, 277-297.
- Arellano, M., and Bover, O. (1995). Another Look at the Instrumental variables Estimation of Error Components Models. *Journal of Econometrics*, 68, 29-51.
- Baunsgaard, T., and Keen, M. (2010). Tax Revenue and (or?) Trade Liberalization. *Journal of Public Economics*, 94 (9-10), 563-577.
- Beseley, T., and Persson, T. (2009). The Origins of State Capacity: Property Rights, Taxation, and Politics. *American Economic Review*, 99 (4), 1218-44.
- Beseley, T., and Persson, T. (2008). Wars and State Capacity. *Journal of the European Economic Association*, 6 (2-3), 522-30.
- Blattman, C., and Miguel, E. (2009). Civil War. *Journal of Economic Literature*, forthcoming.
- Blundell, R., and Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, 87, 11-143.
- Cárdenas, M. (2010). State Capacity in Latin America. *mimeo*, The Brookings Institution.
- Cárdenas, M., and Tuzemen, D. (2010). Why do Governments Under-Invest in State Capacity? *Working Paper, Brookings Institution*, Washington D.C.
- Cingranelli, D., and Richards, D. (1999). Measuring the Level, Pattern, and Sequence of Government Respect for Physical Integrity Rights. *International Studies Quarterly*, 43 (2), 407-418.
- Drazen, A., and Eslava, M. (2010). Electoral Manipulation via Voter-Friendly Spending: Theory and Evidence. *Journal of Development Economics*, 92, 39-52.
- Dreher, A. (2006). Does Globalization Affect Growth? Evidence from a New Index of Globalization. *Applied Economics*, 38 (10), 1091-1110.
- Dreher, A., Gaston, N., and Martens, P. (2008). *Measuring Globalisation-Gauging its Consequences*. New York: Springer.
- Dube, O., and Naidu, S. (2010). Bases, Bullets and Ballots: The Effect of U.S. Military Aid on Political Conflict in Colombia. *Working Paper 197*, Center for Global Development.

Gleditsch, K. (2002). Expanded Trade and GDP Data. *Journal of Conflict Resolution*, 46, 712-724.

Hall, R. E., and Jones, C. I. (1999). Why Do Some Countries Produce so Much More Output per Worker than Others? *Quarterly Journal of Economics*, 114 (1), 83-116.

Knack, S., and Keefer, P. (1995). Institutions and Economic Performance: Cross-Country Tests using Alternative Institutional Measures. *Economics and Politics*, VII, 207-227.

Marshall, M. G., Gurr, T. R., and Jagers, K. (2009). Polity IV Project, Political Regime Characteristics and Transitions: Data Users' Manual. *Center for Systemic Peace* .

Teorrell, J., Charron, N., Samanni, M., Soren, H., and Rothstein, B. (2009). The Quality of Government Dataset, version 17June09. University of Gothenburg: The Quality of Government Institute, <http://www.qog.pol.gu.se>.

Tilly, C. (1990). *Coercion, Capital and European States, AD 990-1990*. Cambridge, MA: Blackwell.

Tables

Table 1. Country Panel Descriptive Statistics

	Obs.	Number of Countries	Mean	Standard deviation	Minimum	Maximum	Percentile			Years Covered
							25	50	75	
State Capacity										
Total Tax Revenue (% of GDP)	3,552	125	20.62	10.64	0.09	53.38	12.35	18.43	26.89	1975-2006
Income Tax Revenue (% of GDP)	2,997	125	8.85	8.82	0.00	40.07	2.50	5.18	12.25	1975-2000
ICRG Indicator of Quality of Government (0-1)	3,425	147	0.55	0.23	0.04	1.00	0.39	0.39	0.67	1984-2008
Conflict										
Internal Conflict	5,068	171	0.11	0.31	0.00	1.00	0.00	0.00	0.00	1975-2004
External Conflict	5,068	171	0.02	0.15	0.00	1.00	0.00	0.00	0.00	1975-2004
Controls and Instruments										
Dummy of average polity ₂ >3 in previous five years	5,083	161	0.40	0.49	0.00	1.00	0.00	0.00	1.00	1975-2007
Real GDP per capita	5,521	188	7,819	8,085	170.55	67,188	1,768	4,766	10,593	1975-2004
Physical Integrity Index	3,782	188	4.79	2.36	0.00	8.00	3.00	5.00	7.00	1975-2006
Political Globalization	5,823	187	50.20	24.28	1.56	98.78	31.90	48.18	68.81	1981-2004

Table 2. State Capacity and Conflict: Baseline OLS Estimations

Dependent Variable	Total Tax Revenue as a % of GDP (t)			Income Tax Revenue as a % of GDP (t)			ICRG Indicator of Quality of Government (t)		
	(1975-2004)	(1975-2004)	(1975-2004)	(1975-2000)	(1975-2000)	(1975-2000)	(1984-2004)	(1984-2004)	(1984-2004)
	1	2	3	4	5	6	7	8	9
Internal Conflict (t)	-5.060*** (0.376)		-4.952*** (0.375)	-2.599*** (0.317)		-2.536*** (0.319)	-0.093*** (0.009)		-0.093*** (0.009)
External Conflict (t)		-3.059*** (0.844)	-2.028*** (0.746)		-1.753*** (0.649)	-1.240** (0.612)		0.020 (0.016)	0.036** (0.016)
Dummy of average polity ₂ >3 in previous five years	5.094*** (0.424)	5.043*** (0.430)	5.109*** (0.424)	4.564*** (0.323)	4.539*** (0.326)	4.574*** (0.323)	0.096*** (0.007)	0.090*** (0.007)	0.095*** (0.007)
log of GDP per capita (t)	4.286*** (0.188)	4.501*** (0.188)	4.286*** (0.188)	4.096*** (0.142)	4.204*** (0.143)	4.095*** (0.142)	0.115*** (0.003)	0.121*** (0.003)	0.115*** (0.003)
Observations	2884	2884	2884	2517	2517	2517	2706	2706	2706
R-squared	0.426	0.407	0.427	0.515	0.507	0.515	0.570	0.552	0.570

Note: The regressions in these tables include year dummies. All equations are estimated by OLS. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3. State Capacity and Conflict: GMM Estimations

Dependent Variable	Panel 1: Baseline estimations								
	Total Tax Revenue as a % of GDP			Income Tax Revenue as a % of GDP			ICRG Indicator of Quality of Government		
	(1981-2004)	(1976-2004)	(1981-2004)	(1981-2000)	(1976-2000)	(1981-2000)	(1985-2004)	(1985-2004)	(1985-2004)
	1	2	3	4	5	6	7	8	9
Dependent variable (t-1)	0.912*** (0.032)	0.940*** (0.024)	0.958*** (0.019)	0.913*** (0.035)	0.973*** (0.019)	0.966*** (0.021)	0.918*** (0.027)	0.925*** (0.024)	0.926*** (0.022)
Internal Conflict (t)	-1.454** (0.614)		-0.924** (0.455)	-0.985** (0.436)		-0.527 (0.345)	-0.032*** (0.009)		-0.027*** (0.009)
External Conflict (t)		-0.144 (0.292)	0.042 (0.305)		0.129 (0.128)	0.276 (0.188)		0.007 (0.005)	0.010 (0.008)
Dummy of average polity2>3 in previous five years	0.550*** (0.206)	0.460*** (0.132)	0.358*** (0.116)	0.355** (0.164)	0.193** (0.097)	0.167 (0.108)	-0.000 (0.004)	-0.001 (0.003)	-0.001 (0.003)
log of GDP per capita (t)	0.336** (0.157)	0.243** (0.123)	0.137 (0.091)	0.357** (0.158)	0.117 (0.086)	0.141 (0.088)	0.010*** (0.003)	0.010*** (0.003)	0.009*** (0.003)
AR(2) test	[0.202]	[0.177]	[0.206]	[0.282]	[0.174]	[0.285]	[0.000]	[0.000]	[0.000]
Hansen J test	[0.657]	[0.832]	[1.000]	[0.911]	[0.682]	[0.988]	[0.002]	[0.003]	[0.241]
Number of instruments	118	128	155	98	109	129	96	90	126
Observations	2329	2778	2329	1964	2413	1964	2486	2481	2409
Number of countries	105	105	105	101	105	101	139	139	138
Dependent Variable	Panel 2: Robustness exercises								
	Total Tax Revenue as a % of GDP			Income Tax Revenue as a % of GDP			ICRG Indicator of Quality of Government		
	(1981-2004)	(1977-2004)	(1981-2004)	(1981-2000)	(1977-2004)	(1981-2000)	(1987-2004)	(1987-2004)	(1987-2004)
	1	2	3	4	5	6	7	8	9
Dependent variable (t-1)	0.894*** (0.056)	0.944*** (0.062)	0.907*** (0.048)	0.965*** (0.072)	1.006*** (0.061)	0.981*** (0.066)	1.199*** (0.068)	1.221*** (0.069)	1.192*** (0.065)
Dependent variable (t-2)	0.005 (0.060)	-0.029 (0.068)	-0.000 (0.056)	-0.012 (0.070)	-0.042 (0.068)	-0.017 (0.069)	-0.331*** (0.078)	-0.333*** (0.080)	-0.318*** (0.074)
Dependent variable (t-3)	0.060* (0.032)	0.057** (0.029)	0.065** (0.032)	-0.011 (0.044)	0.003 (0.044)	0.003 (0.046)	0.047** (0.024)	0.049** (0.023)	0.050** (0.023)
Internal Conflict (t)	-0.883*** (0.319)		-0.739** (0.292)	-0.562** (0.271)		-0.354 (0.235)	-0.031*** (0.009)		-0.026*** (0.008)
External Conflict (t)		-0.032 (0.269)	0.152 (0.304)		0.006 (0.176)	0.103 (0.150)		0.007 (0.006)	0.011 (0.010)
Dummy of average polity2>3 in previous five years	0.370*** (0.124)	0.277*** (0.099)	0.311*** (0.104)	0.265** (0.121)	0.183 (0.131)	0.173 (0.114)	0.001 (0.003)	-0.001 (0.002)	0.000 (0.003)
log of GDP per capita (t)	0.130 (0.102)	0.123 (0.080)	0.076 (0.081)	0.240*** (0.093)	0.157 (0.106)	0.137 (0.089)	0.010*** (0.002)	0.009*** (0.002)	0.009*** (0.002)
AR(2) test	[0.017]	[0.010]	[0.005]	[0.172]	[0.013]	[0.101]	[0.304]	[0.589]	[0.324]
Hansen J test	[1.000]	[1.000]	[1.000]	[0.999]	[1.000]	[1.000]	[0.231]	[0.210]	[0.740]
Number of instruments	197	194	234	164	161	195	139	126	165
Observations	2298	2568	2298	1936	2205	1936	2198	2203	2141
Number of countries	105	105	105	101	105	101	139	139	138

Note: All equations are estimated using the Arellano & Bover (1995)/Blundell & Bond (1998) one step system GMM estimator. In panel 1, the lagged state capacity variables are always instrumented with their own first lags in the differenced equation and with their first differences in the levels equation; in panel 2, they are always instrumented with their own second lags in the differenced equation and with lag 1 of their first differences in the levels equation. In panels 1 and 2, the conflict variables are always instrumented with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation; a physical integrity index and a measure of political globalization are always used as additional instruments; the polity2 and log of GDP per capita variables are always considered exogenous. Equations 1, 3, 4 and 6 are restricted to a period beginning in 1981 because the physical integrity index used as an additional instrument for internal conflict shows data from that year on. All regressions include year dummies. P-values are reported for the AR(2) test and the Hansen J test. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Conflict Intensity Descriptive Statistics

	<u>Obs.</u>	<u>Number of Countries</u>	<u>Mean</u>	<u>Standard deviation</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Percentile</u>			<u>Years Covered</u>
							<u>25</u>	<u>50</u>	<u>75</u>	
Internal Conflict										
Minor Armed Conflict	5,068	171	0.04	0.21	0.00	1.00	0.00	0.00	0.00	1975-2004
Intermediate Armed Conflict	5,068	171	0.06	0.23	0.00	1.00	0.00	0.00	0.00	1975-2004
War	5,068	171	0.05	0.22	0.00	1.00	0.00	0.00	0.00	1975-2004
External Conflict										
Minor Armed Conflict	5,068	171	0.01	0.09	0.00	1.00	0.00	0.00	0.00	1975-2004
Intermediate Armed Conflict	5,068	171	0.01	0.09	0.00	1.00	0.00	0.00	0.00	1975-2004
War	5,068	171	0.01	0.12	0.00	1.00	0.00	0.00	0.00	1975-2004

Table 5. State Capacity and Conflict Intensity: OLS Estimations

Panel 1: Internal conflict									
Dependent Variable	Total Tax Revenue as a % of GDP (t)			Income Tax Revenue as a % of GDP (t)			ICRG Indicator of Quality of Government (t)		
	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict
	(1975-2004)	(1975-2004)	(1975-2004)	(1975-2000)	(1975-2000)	(1975-2000)	(1984-2004)	(1984-2004)	(1984-2004)
	1	2	3	4	5	6	7	8	9
Internal Conflict (t)	-2.139*** (0.524)	-4.244*** (0.491)	-5.256*** (0.526)	-0.608 (0.388)	-1.905*** (0.395)	-3.026*** (0.479)	-0.009 (0.014)	-0.069*** (0.011)	-0.103*** (0.012)
Dummy of average polity _{2>3} in previous five years	5.039*** (0.430)	4.961*** (0.430)	5.167*** (0.427)	4.535*** (0.326)	4.498*** (0.326)	4.611*** (0.324)	0.090*** (0.007)	0.092*** (0.007)	0.094*** (0.006)
log of GDP per capita (t)	4.449*** (0.189)	4.443*** (0.188)	4.358*** (0.188)	4.192*** (0.144)	4.182*** (0.143)	4.121*** (0.143)	0.120*** (0.003)	0.119*** (0.003)	0.117*** (0.003)
Observations	2884	2884	2884	2517	2517	2517	2706	2706	2706
R-squared	0.406	0.413	0.416	0.506	0.509	0.512	0.552	0.558	0.562
Panel 2: External conflict									
Dependent Variable	Total Tax Revenue as a % of GDP (t)			Income Tax Revenue as a % of GDP (t)			ICRG Indicator of Quality of Government (t)		
	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict
	(1975-2004)	(1975-2004)	(1975-2004)	(1975-2000)	(1975-2000)	(1975-2000)	(1984-2004)	(1984-2004)	(1984-2004)
	1	2	3	4	5	6	7	8	9
External Conflict (t)	-3.042** (1.369)	-4.343*** (0.990)	-2.098* (1.252)	-0.618 (1.118)	-3.166*** (0.682)	-0.851 (0.946)	0.061 (0.048)	0.049*** (0.017)	-0.001 (0.025)
Dummy of average polity _{2>3} in previous five years	5.008*** (0.431)	5.080*** (0.431)	5.005*** (0.431)	4.521*** (0.326)	4.575*** (0.327)	4.517*** (0.326)	0.091*** (0.007)	0.090*** (0.007)	0.090*** (0.007)
log of GDP per capita (t)	4.502*** (0.189)	4.467*** (0.189)	4.523*** (0.189)	4.208*** (0.143)	4.178*** (0.144)	4.216*** (0.144)	0.121*** (0.003)	0.121*** (0.003)	0.121*** (0.003)
Observations	2884	2884	2884	2517	2517	2517	2706	2706	2706
R-squared	0.405	0.406	0.405	0.506	0.507	0.506	0.552	0.552	0.552
Panel 3: Internal and external conflict									
Dependent Variable	Total Tax Revenue as a % of GDP (t)			Income Tax Revenue as a % of GDP (t)			ICRG Indicator of Quality of Government (t)		
	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict
	(1975-2004)	(1975-2004)	(1975-2004)	(1975-2000)	(1975-2000)	(1975-2000)	(1984-2004)	(1984-2004)	(1984-2004)
	1	2	3	4	5	6	7	8	9
Internal Conflict (t)	-2.091*** (0.530)	-4.114*** (0.490)	-5.130*** (0.518)	-0.574 (0.391)	-1.816*** (0.396)	-2.975*** (0.477)	-0.010 (0.014)	-0.070*** (0.011)	-0.104*** (0.012)
External Conflict (Intermediate+War) (t)	-2.999*** (0.857)	-2.587*** (0.820)	-2.580*** (0.785)	-1.732*** (0.652)	-1.502** (0.640)	-1.562** (0.625)	0.021 (0.016)	0.029* (0.016)	0.026 (0.017)
Dummy of average polity _{2>3} in previous five years	5.063*** (0.429)	4.984*** (0.429)	5.184*** (0.426)	4.549*** (0.326)	4.513*** (0.326)	4.623*** (0.324)	0.090*** (0.007)	0.091*** (0.007)	0.094*** (0.007)
log of GDP per capita (t)	4.443*** (0.188)	4.439*** (0.188)	4.355*** (0.188)	4.188*** (0.143)	4.179*** (0.143)	4.118*** (0.143)	0.121*** (0.003)	0.119*** (0.003)	0.117*** (0.003)
Observations	2884	2884	2884	2517	2517	2517	2706	2706	2706
R-squared	0.408	0.415	0.417	0.507	0.510	0.513	0.552	0.559	0.563

Note: The regressions in these tables include year dummies. In panel 3, external conflict is always defined as Intermediate internal conflict + war. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. State Capacity and Conflict Intensity: GMM Estimations

Panel 1: Internal conflict									
Dependent Variable	Total Tax Revenue as a % of GDP			Income Tax Revenue as a % of GDP			ICRG Indicator of Quality of Government		
	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict
	(1981-2004)	(1976-2004)	(1981-2004)	(1981-2000)	(1976-2000)	(1981-2000)	(1985-2004)	(1985-2004)	(1985-2004)
	1	2	3	4	5	6	7	8	9
Dependent variable (t-1)	0.945*** (0.021)	0.951*** (0.022)	0.938*** (0.025)	0.941*** (0.023)	0.944*** (0.027)	0.929*** (0.031)	0.984*** (0.019)	0.949*** (0.024)	0.927*** (0.020)
Internal Conflict (t)	-0.592* (0.315)	-0.699** (0.320)	-1.189** (0.570)	-0.269 (0.197)	-0.490** (0.233)	-1.052** (0.521)	-0.005 (0.011)	-0.023** (0.010)	-0.040*** (0.014)
Dummy of average polity ₂ >3 in previous five years	0.399*** (0.141)	0.362*** (0.139)	0.463*** (0.163)	0.253** (0.115)	0.230* (0.123)	0.322** (0.147)	-0.007*** (0.003)	-0.004 (0.003)	-0.001 (0.003)
log of GDP per capita (t)	0.220** (0.107)	0.197* (0.112)	0.239* (0.123)	0.264** (0.107)	0.252** (0.122)	0.296** (0.139)	0.003 (0.003)	0.007** (0.003)	0.009*** (0.003)
AR(2) test	[0.219]	[0.209]	[0.202]	[0.284]	[0.283]	[0.276]	[0.000]	[0.000]	[0.000]
Hansen J test	[0.634]	[0.953]	[0.950]	[0.398]	[0.942]	[0.746]	[0.002]	[0.005]	[0.010]
Number of instruments	120	120	119	100	100	99	99	100	99
Observations	2329	2329	2329	1964	1964	1964	2486	2486	2486
Number of countries	105	105	105	101	101	101	139	139	139

Panel 2: External conflict									
Dependent Variable	Total Tax Revenue as a % of GDP			Income Tax Revenue as a % of GDP			ICRG Indicator of Quality of Government		
	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict	Minor-level external conflict	Intermediate-level external conflict	War-level external conflict
	(1981-2004)	(1977-2004)	(1981-2004)	(1981-2000)	(1977-2004)	(1981-2000)	(1987-2004)	(1987-2004)	(1987-2004)
	1	2	3	4	5	6	7	8	9
Dependent variable (t-1)	0.931*** (0.027)	0.942*** (0.024)	0.940*** (0.025)	0.973*** (0.019)	0.973*** (0.019)	0.973*** (0.020)	0.916*** (0.024)	0.925*** (0.024)	0.934*** (0.023)
External Conflict (t)	0.944 (0.633)	-0.601*** (0.165)	0.270 (0.590)	0.117 (0.369)	-0.146 (0.103)	0.270 (0.228)	0.030** (0.012)	0.004 (0.004)	0.004 (0.011)
Dummy of average polity ₂ >3 in previous five years	0.512*** (0.144)	0.458*** (0.131)	0.467*** (0.136)	0.201** (0.099)	0.196** (0.097)	0.197** (0.100)	0.000 (0.003)	-0.001 (0.003)	-0.002 (0.003)
log of GDP per capita (t)	0.286** (0.141)	0.230* (0.124)	0.244* (0.132)	0.118 (0.088)	0.114 (0.086)	0.112 (0.089)	0.011*** (0.003)	0.010*** (0.003)	0.009*** (0.003)
AR(2) test	[0.172]	[0.174]	[0.171]	[0.172]	[0.171]	[0.173]	[0.000]	[0.000]	[0.000]
Hansen J test	[0.178]	[0.753]	[0.535]	[0.383]	[0.706]	[0.401]	[0.000]	[0.003]	[0.000]
Number of instruments	108	117	115	96	100	99	78	85	79
Observations	2778	2778	2778	2413	2413	2413	2481	2481	2481
Number of countries	105	105	105	105	105	105	139	139	139

Panel 3: Internal and external conflict									
Dependent Variable	Total Tax Revenue as a % of GDP			Income Tax Revenue as a % of GDP			ICRG Indicator of Quality of Government		
	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict	Minor-level internal conflict	Intermediate-level internal conflict	War-level internal conflict
	(1981-2004)	(1977-2004)	(1981-2004)	(1981-2000)	(1977-2004)	(1981-2000)	(1987-2004)	(1987-2004)	(1987-2004)
	1	2	3	4	5	6	7	8	9
Dependent variable (t-1)	0.972*** (0.013)	0.975*** (0.014)	0.973*** (0.015)	0.973*** (0.015)	0.976*** (0.017)	0.975*** (0.018)	0.966*** (0.017)	0.945*** (0.020)	0.938*** (0.018)
Internal Conflict (t)	-0.269 (0.232)	-0.487** (0.238)	-0.590 (0.382)	-0.098 (0.143)	-0.251 (0.195)	-0.494 (0.353)	-0.011 (0.011)	-0.020** (0.009)	-0.030** (0.012)
External Conflict (Intermediate+War) (t)	-0.126 (0.216)	-0.100 (0.231)	-0.012 (0.220)	0.180 (0.134)	0.191 (0.146)	0.228 (0.140)	0.005 (0.005)	0.003 (0.005)	0.010 (0.007)
Dummy of average polity ₂ >3 in previous five years	0.291*** (0.092)	0.267*** (0.094)	0.302*** (0.100)	0.140 (0.086)	0.123 (0.089)	0.149 (0.099)	-0.006** (0.003)	-0.003 (0.003)	-0.002 (0.003)
log of GDP per capita (t)	0.098 (0.064)	0.085 (0.068)	0.085 (0.070)	0.128* (0.067)	0.114 (0.075)	0.111 (0.078)	0.005** (0.002)	0.007*** (0.003)	0.008*** (0.002)
AR(2) test	[0.217]	[0.213]	[0.208]	[0.285]	[0.285]	[0.282]	[0.000]	[0.000]	[0.000]
Hansen J test	[0.999]	[1.000]	[1.000]	[0.986]	[0.982]	[0.991]	[0.184]	[0.314]	[0.411]
Number of instruments	157	157	156	131	131	130	129	130	129
Observations	2329	2329	2329	1964	1964	1964	2409	2409	2409
Number of countries	105	105	105	101	101	101	138	138	138

Note: All equations are estimated using the Arellano & Bover (1995) Blandell & Bond (1998) one step system GMM estimator. The lagged state capacity variables are always instrumented with their own first lags in the differenced equation and with their first differences in the levels equation. The conflict variables are always instrumented with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation. A physical integrity index and a measure of political globalization are always used as additional instruments. The polity₂ and log of GDP per capita variables are always considered exogenous. Equations 1, 3, 4 and 6 are restricted to a period beginning in 1981 because the physical integrity index used as an additional instrument for internal conflict shows data from that year on. All regressions include year dummies. P-values are reported for the AR(2) test and the Hansen J test. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. Municipal Panel Descriptive Statistics

	Obs.	Number of municipalities	Mean	Standard deviation	Minimum	Maximum	Percentile			Years Covered
							25	50	75	
State Capacity										
Tax revenue over total revenue	15,937	1,074	0.12	0.12	0.00	1.00	0.04	0.08	0.16	1984-2002
Expenditure in roads over total expenditure	8,147	1,069	0.10	0.08	0.00	0.82	0.05	0.09	0.13	1990-2002
Conflict										
Attacks by Guerrilla and Paramilitaries	17,631	1,104	1.13	3.60	0.00	76.00	0.00	0.00	1.00	1993-2008
Massacres	17,631	1,104	0.03	0.24	0.00	8.00	0.00	0.00	0.00	1993-2008
Confrontations	17,631	1,104	0.07	0.55	0.00	20.00	0.00	0.00	0.00	1993-2008
Kidnappings per 100,000 inhabitants	9,986	1,071	1.39	5.54	0.00	139.86	0.00	0.00	0.00	1993-2002
Deaths per 100,000 inhabitants	9,986	1,071	1.25	4.53	0.00	62.46	0.00	0.00	0.00	1993-2002
Forced displacement (expulsion) per 1,000 inhabitants	5,552	1,030	8.61	34.52	0.00	896.20	0.00	0.69	4.04	1997-2009
Controls and Instruments										
GDP per capita in constant 1994 pesos (department)*	21,740	1,087	1,496,263	639,633	445,014	7,482,864	1,079,564	1,427,974	1,839,099	1984-2005
Population	19,350	1,071	35,362	201,287	576.00	6,712,247	7,201	12,695	23,753	1984-2002
Royalties in constant 1998 thousand pesos	6,639	511	611,910	2,465,434	0.00	39,454,256	0.00	332.23	82,880	1994-2006
Cash Transfers in constant 1998 thousand pesos	12,940	1,098	3,406,711	20,628,318	4,817	806,538,752	1,067,151	1,596,182	2,446,606	1994-2005
Presence of military bases	28,925	1,126	0.02	0.15	0.00	1.00	0.00	0.00	0.00	1984-2009

Table 8. State Capacity and Conflict: Municipality Panel Estimations, Annual Data 1994-2002

Dependent Variable	Panel 1: OLS		Panel 2: GMM	
	1	2	3	4
	log(Tax revenue as a % of total revenue)	log(Expenditure in roads as a % of total expenditure)	log(Tax revenue as a % of total revenue)	log(Expenditure in roads as a % of total expenditure)
Dependent variable (t-1)	-	-	0.329*** (0.088)	0.150*** (0.044)
Total attacks (guerrilla and paramilitary)	-0.020*** (0.006)	-0.003 (0.005)	0.006 (0.006)	-0.037*** (0.014)
AR(2) test	-	-	[0.612]	[0.620]
Hansen J test	-	-	[0.792]	[0.711]
Observations	3072	2709	2579	2013
R-squared	0.306	0.045	-	-
Number of municipalities	494	488	472	449
Dependent variable (t-1)	-	-	0.329*** (0.086)	0.154*** (0.044)
Massacres	-0.090** (0.042)	-0.075 (0.062)	-0.131 (0.116)	-0.249 (0.202)
AR(2) test	-	-	[0.675]	[0.622]
Hansen J test	-	-	[0.856]	[0.460]
Observations	3072	2709	2579	2013
R-squared	0.303	0.045	-	-
Number of municipalities	494	488	472	449
Dependent variable (t-1)	-	-	0.323*** (0.087)	0.154*** (0.044)
Military confrontations	-0.054** (0.022)	-0.042 (0.032)	-0.007 (0.019)	-0.171 (0.114)
AR(2) test	-	-	[0.642]	[0.684]
Hansen J test	-	-	[0.555]	[0.596]
Observations	3072	2709	2579	2013
R-squared	0.304	0.043	-	-
Number of municipalities	494	488	472	449
Dependent variable (t-1)	-	-	0.315*** (0.088)	0.148*** (0.044)
Kidnappings per 100,000 inhabitants	-0.012*** (0.004)	-0.010** (0.005)	-0.026** (0.013)	-0.018 (0.015)
AR(2) test	-	-	[0.571]	[0.561]
Hansen J test	-	-	[0.421]	[0.641]
Observations	3072	2709	2579	2013
R-squared	0.305	0.048	-	-
Number of municipalities	494	488	472	449
Dependent variable (t-1)	-	-	0.342*** (0.086)	0.146*** (0.045)
Deaths per 100,000 inhabitants	-0.024*** (0.004)	-0.001 (0.003)	-0.016 (0.011)	-0.037 (0.027)
AR(2) test	-	-	[0.570]	[0.566]
Hansen J test	-	-	[0.365]	[0.085]
Observations	3072	2709	2579	2013
R-squared	0.312	0.045	-	-
Number of municipalities	494	488	472	449
Dependent variable (t-1)	-	-	0.227 (0.147)	0.122** (0.056)
Expulsion per 1,000 inhabitants [∇]	-0.003*** (0.001)	-0.001** (0.000)	-0.008*** (0.003)	-0.003 (0.004)
AR(2) test	-	-	[0.142]	[0.951]
Hansen J test	-	-	[0.675]	[0.466]
Observations	1777	1644	1355	1190
R-squared	0.341	0.044	-	-
Number of municipalities	465	457	415	395

Note: This table reports regressions of state capacity on individual measures of conflict, the log of the department's real GDP per capita to which the corresponding municipality belongs, the log of population, the level of royalties, the level of transfers and time dummies. Equations in panel 2 are estimated using the Arellano & Bover (1995)/Blundell & Bond (1998) one step system GMM estimator. The lagged regressors are always instrumented with their own first lags in the differenced equation and with their first differences in the levels equation, whereas the conflict variables are always instrumented with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation. The log of GDP per capita, the log of population, the level of royalties and the level of transfers are always considered exogenous. P-values are reported for the AR(2) test and the Hansen J test. Robust standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1. [∇]1997-2002

Table 9. State Capacity and Conflict: Municipality Panel Robustness Exercises, Annual Data 1994-2002

Dependent Variable	Panel 1: GMM plus military bases as an additional instrument		Panel 2: GMM instrumenting with second and third lags	
	1	2	3	4
	log(Tax revenue as a % of total revenue)	log(Expenditure in roads as a % of total expenditure)	log(Tax revenue as a % of total revenue)	log(Expenditure in roads as a % of total expenditure)
Dependent variable (t-1)	0.382*** (0.087)	0.150*** (0.044)	0.355*** (0.083)	0.144*** (0.042)
Total attacks (guerrilla and paramilitary)	0.008 (0.006)	-0.037*** (0.014)	0.003 (0.006)	-0.036*** (0.014)
AR(2) test	[0.520]	[0.618]	[0.581]	[0.616]
Hansen J test	[0.625]	[0.746]	[0.368]	[0.530]
Observations	2579	2013	2579	2013
Number of Municipalities	472	449	472	449
Dependent variable (t-1)	0.378*** (0.085)	0.154*** (0.044)	0.351*** (0.083)	0.146*** (0.042)
Massacres	-0.213* (0.120)	-0.251 (0.199)	-0.124 (0.116)	-0.262 (0.203)
AR(2) test	[0.611]	[0.621]	[0.638]	[0.607]
Hansen J test	[0.742]	[0.500]	[0.483]	[0.640]
Observations	2579	2013	2579	2013
Number of Municipalities	472	449	472	449
Dependent variable (t-1)	0.376*** (0.086)	0.154*** (0.044)	0.344*** (0.083)	0.149*** (0.042)
Military confrontations	-0.008 (0.018)	-0.171 (0.114)	-0.011 (0.018)	-0.158 (0.109)
AR(2) test	[0.549]	[0.683]	[0.618]	[0.672]
Hansen J test	[0.363]	[0.652]	[0.394]	[0.689]
Observations	2579	2013	2579	2013
Number of Municipalities	472	449	472	449
Dependent variable (t-1)	0.365*** (0.088)	0.147*** (0.044)	0.345*** (0.082)	0.139*** (0.041)
Kidnappings per 100,000 inhabitants	-0.027** (0.013)	-0.018 (0.015)	-0.019* (0.011)	-0.015 (0.016)
AR(2) test	[0.483]	[0.560]	[0.552]	[0.554]
Hansen J test	[0.244]	[0.681]	[0.437]	[0.719]
Observations	2579	2013	2579	2013
Number of Municipalities	472	449	472	449
Dependent variable (t-1)	0.389*** (0.085)	0.146*** (0.045)	0.367*** (0.083)	0.136*** (0.042)
Deaths per 100,000 inhabitants	-0.020* (0.011)	-0.037 (0.027)	-0.016 (0.011)	-0.038 (0.026)
AR(2) test	[0.493]	[0.566]	[0.541]	[0.549]
Hansen J test	[0.284]	[0.105]	[0.448]	[0.135]
Observations	2579	2013	2579	2013
Number of Municipalities	472	449	472	449
Dependent variable (t-1)	0.267* (0.147)	0.122** (0.056)	0.226* (0.128)	0.148** (0.060)
Expulsion per 1,000 inhabitants [∇]	-0.008*** (0.003)	-0.003 (0.004)	-0.006** (0.003)	-0.005 (0.004)
AR(2) test	[0.150]	[0.951]	[0.115]	[0.830]
Hansen J test	[0.620]	[0.525]	[0.243]	[0.536]
Observations	1355	1190	1355	1190
Number of Municipalities	415	395	415	395

Note: This table reports regressions of state capacity on individual measures of conflict, the log of the department's real GDP per capita to which the corresponding municipality belongs, the log of population, the level of royalties, the level of transfers and time dummies. All equations are estimated using the Arellano & Bover (1995)/Blundell & Bond (1998) one step system GMM estimator. In panel 1, the lagged regressors of state capacity are instrumented with their own first lags in the differenced equation and with their first differences in the levels equation, whereas the conflict variables are instrumented with their own second lags in the differenced equation and with the first lags of their first differences in the levels equation; we also include a dummy variable indicating the presence of one or more military bases as an additional instrument. In panel 2, the lagged regressors of state capacity are instrumented with their own first and second lags in the differenced equation and with their first differences in the levels equation, whereas the conflict variables are instrumented with their own second and third lags in the differenced equation and with the first lags of their first differences in the levels equation. The log of GDP per capita, the log of population, the level of royalties and the level of transfers are always considered exogenous. P-values are reported for the AR(2) test and the Hansen J test. Robust standard errors in parentheses. ***p<0.01, **p<0.05, *p<0.1. [∇] 1997-2002.

Appendix

Countries

GDP per capita: Gleditsch (2002) fills in gaps in the Penn World Tables' mark 5.6 and 6.2, by imputing missing data through the use of an alternative source (the *CIA World Fact Book*), and through extrapolation beyond available time-series. Based on this imputation technique, he first estimates GDP per capita in U.S. dollars at current year international prices and then in constant U.S. dollars at base year 2000. This last version is our measure of real GDP per capita. The data is originally available for 205 countries throughout the period 1950-2004.

Democracy score: The Polity2 version (Marshall et al., 2009) applies a simple treatment to the original Polity measure, converting instances of "standardized authority scores" (i.e., -66, -77, and -88) to conventional polity scores (i.e., within the range, -10 to +10). The change is made to facilitate time series analyses. The values have been converted according to the following rule set: -66 (cases of foreign interruption) are treated as "system missing"; -77 (cases of interregnum or anarchy) are converted to a neutral Polity score of "0"; and -88 (cases of transition) are prorated across the span of the transition. For example, if country X has a Polity score of -7 in 1957, followed by three years of -88 and, finally, a score of +5 in 1961, the change (+12) would be prorated over the intervening three years at a rate of 3 per year, so that the converted scores would be as follows: 1957 -7; 1958 -4; 1959 -1; 1960 +2; and 1961 +5. The Polity2 score thus captures the nature of the political regime on a scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy) after modifying standardized authority scores¹⁹.

Country codes: As explained in the text, we re-codify countries in the QOG and Polity IV databases to take maximum advantage of existing historical information regarding the

¹⁹ The original Combined Polity score is computed by subtracting the autocracy score from the democracy score. The Democracy score uses a 0-10 scale and combines measures of (maximum scores in parentheses) competitiveness (2) and openness (2) of executive recruitment, constraints on the executive (4), and competitiveness of political participation (3). The Autocracy score also uses a 0-10 scale to measure the degree of restriction or suppression of competitive political participation. Its components are competitiveness (2 if the executive is selected) and openness of the executive recruitment (2 if the recruitment is closed), constraints on the executive (3 if the chief executive has unlimited authority), regulation of participation (2 if participation is restricted) and competitiveness of political participation (2 if it is repressed).

countries that currently exist. We explain here how we proceeded regarding these changes in country codes, and note that they refer solely to information obtained from the QOG and Polity IV databases. The fiscal information we use in fact exists only for the countries that exist today, and in general only for the years in which those countries existed.

For data from QOG and Polity IV, when the current country is the result of the unification of several countries, the data that is used prior to the unification corresponds to the absorbing country (e.g., West Germany in the case of today's Germany or North Vietnam in the case of today's Vietnam). If the current country is the result of a division, then the historical data from the original country is used (prior to the date of creation of a new country). For example, Czech Republic and Slovakia are both assigned the value of Czechoslovakia prior to 1993. To determine where to put the data for the year of the merger/split, we have relied on the "July 1st-principle". If the merger or split occurred *after* July 1st, the data for this year will belong to the historical country. This applies to Pakistan in 1971, Vietnam in 1975, Germany in 1990, and the USSR in 1991. For mergers/splits *before* July 1st, the data for this year is recorded as belonging to the new country. This applies to Yemen in 1990, Yugoslavia in 1992, Ethiopia in 1993, and Czechoslovakia in 1993.²⁰ The only exception to this rule occurs if there are missing values on the year of the merge/split for the countries being modified. For example, there is a missing value for the USSR in the year 1991 for real GDP per capita but non-missing for Russia in the same year. In this case we keep the 1991 observation that belongs to Russia and not the USSR, even when the split between the two took place after July 1st. The motive behind this exception is to retain as much information as possible in the process of rearranging countries. Below we show a detailed description of the changes made for each individual country that was either the result of unification or of a division.

Countries that resulted from unification:

Germany: Data corresponds to West Germany up to and including the year 1990. East Germany is not considered in our dataset.

²⁰ We follow Teorell et al. (2009) on this treatment of countries.

Yemen: We only have data for Yemen after unification (since 1990), and only for the case in which our legal capacity measure is the dependent variable.

Countries that resulted from a division:

Czech Republic and Slovakia: For both of these countries, data corresponds to Czechoslovakia prior to the year 1992. For the measure of globalization we have no data for Czechoslovakia, so no pre-92 information is included. There is no data on fiscal capacity for Czechoslovakia, the Czech Republic or Slovakia.

Ethiopia and Eritrea: For both of these countries, data corresponds to Ethiopia prior to the year 1993. No change was made with respect to the measure of globalization because there was no data for Ethiopia. There is no data on fiscal capacity for Eritrea.

Fifteen ex-soviet nations (Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Moldova, Lithuania, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan): For 14 of these 15 nations (except Russia), data on QOG variables (conflict measures, the ICRG indicator of quality of government, real GDP per capita and the physical integrity index) corresponds to the USSR prior to the year 1990. For Russia, the same was done but prior to the year 1991, in line with the “July 1st principle”. With respect to the measure of political globalization, there is individual information for nine of these countries for the pre-1990 period: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan and Uzbekistan. We use this information for these countries. For the remaining six countries we have missing values on political globalization pre-1990, because there is no data for the USSR. There is no data on fiscal capacity for any of the fifteen ex-Soviet nations.

Five ex-Yugoslavian nations (Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro, and Slovenia): For Bosnia and Herzegovina, Serbia and Montenegro, and Macedonia, the “July 1st principle” applies with no exception regarding variables from the QOG dataset (the ICRG indicator of quality of government, real GDP per capita, the conflict measures and the physical integrity index.) For the first two countries, independence occurred between June, 1991 and March, 1992 (*before* July 1st, 1992) and thus information corresponds to Yugoslavia until 1991. The same is true for Macedonia,

which acquired independence on 8 September, 1991 (*after* July 1st). However, the exception does apply to Croatia and Slovenia regarding the variables of the ICRG indicator of quality of government and the physical integrity index because there are missing values for both countries in 1991, whereas Yugoslavia has non-missing values on this year. Considering that both countries acquired independence on June 25, 1991 (*before* July 1st), the exception implies that their information corresponds to Yugoslavia until 1991.

Regarding the measure of political globalization, there is individual information pre-1990 for Bosnia and Herzegovina, Serbia and Montenegro, and Macedonia. We use this information for these countries. For the remaining two countries (Croatia and Slovenia) we have missing values on political globalization pre-1990, because there is no information for Yugoslavia. In the case of the Polity IV dataset, we treat Bosnia and Herzegovina, Serbia and Montenegro, and Macedonia in exactly the same way as described above in the case of the QOG dataset. Although the Polity IV dataset treats Serbia and Montenegro as two separate countries since 2006, it assigns the same values of the polity score to both countries, so we simply take this same value for Serbia and Montenegro, which we treat as a single country throughout.