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N° 2014/08

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ABSTRACT

This paper constructs a comprehensive set of State Capacity indicators for Colombian municipalities, focusing in four basic governmental capabilities: fiscal, financial, physical and operational. First, a group of relevant variables was selected from a vast array of sources and classified into these four categories. Second, synthetic indicators were constructed using Principal Component Analysis (six in total as operational capabilities were further divided into three subcategories). These indicators allow us to study differential effects of a wide scope of potential determinants and controls upon each component. Such determinants included geographical features, natural resources, internal conflict, local political competition and early indigenous presence and immigration Controls included present income per capita and population density. This interdisciplinary variable selection provides a holistic explanation of State Capabilities related to public service delivery in Colombian municipalities.

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CAPACIDAD ESTATAL A MUNICIPAL EN COLOMBIA: INDICADORES Y DETERMINANTES

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RESUMEN

En este trabajo se construye un conjunto amplio de indicadores de la capacidad del Estado para los municipios colombianos, centrándose en cuatro capacidades gubernamentales básicas: fiscales, financieras, físicas y operacionales. En primer lugar, un grupo de variables relevantes fueron seleccionadas de una amplia gama de fuentes y se divide en estas cuatro categorías. En segundo lugar, los indicadores sintéticos se construyeron utilizando Análisis de Componentes Principales (seis en total y las capacidades operativas se dividen a su vez en tres subcategorías). Estos indicadores nos permiten estudiar los efectos diferenciales de una amplia gama de posibles factores determinantes y los controles sobre cada componente. Estos determinantes incluyen: características geográficas, recursos naturales, conflictos internos, la competencia política local, presencia indígena temprana, controles de inmigración, incluidos el ingreso presente per cápita y la densidad de población. Esta interdisciplinaria selección de variables proporciona una explicación integral de las capacidades del Estado relacionadas con la prestación de servicios públicos en los municipios colombianos.

Universidad de los Andes
Facultad de Economía

CEDE
Centro de Estudios sobre Desarrollo Económico

State Capabilities in Colombian Municipalities[1]

Measurement and Determinants

Guillermo Perry, Eduardo García, Pedro Jiménez [2]

Abstract

This paper constructs a comprehensive set of State Capacity indicators for Colombian municipalities, focusing in four basic governmental capabilities: fiscal, financial, physical and operational. First, a group of relevant variables was selected from a vast array of sources and classified into these four categories. Second, synthetic indicators were constructed using Principal Component Analysis (six in total as operational capabilities were further divided into three subcategories). These indicators allow us to study differential effects of a wide scope of potential determinants and controls upon each component. Such determinants included geographical features, natural resources, internal conflict, local political competition and early indigenous presence and immigration Controls included present income per capita and population density. This interdisciplinary variable selection provides a holistic explanation of State Capabilities related to public service delivery in Colombian municipalities.

Keywords: State Capacity, Principal Components Analysis, Institutional Development.

JEL Codes: C38, F63, D02

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[2] Guillermo Perry is Professor at the Department of Economics, Universidad de Los Andes, Colombia, and a Non-resident Fellow at the Center for Global Development. Eduardo García and Pedro Jimenez are research assistants at the Department of Economics, Universidad de Los Andes. Contact gperry@uniandes.edu.co, e.garcia916@uniandes.edu.co and pjimenez@gmail.com.

STATE CAPABILITIES IN COLOMBIAN MUNICIPALITIES[5]

Measurement and Determinants[6]

1. INTRODUCTION AND SUMMARY

1.1 The dimensions of State Capacity

State Capacity is a widely used term in political science and public economics. It is broadly defined as the state's ability to effectively perform a predetermined set of tasks. However, the definition of such a set varies considerably among different authors, ´depending on whether the interest lies in the state´s power to discourage violent conflict, in its ability to administer efficiently, or simply in its capacity to foster economic development´[7]. Thus, it ranges from capacities for national defense, warfare and internal security, to those required to raise taxes, design and execute efficient public service delivery policies, protect property rights and enforce contracts. Such a wide range of tasks complicates the coinage of a single operational definition.

The economics academic mainstream has so far focused its attention on state capacity's fiscal dimension, assessing the effect of several social, political, economic and security variables on taxes and other self-generated revenues of national or subnational governments. See for example Besley and Persson (2008); Cardenas, Eslava and Ramirez (2013); and Theis (2010).

Another group of economists has concentrated on operational capabilities linked to accountability, governmental transparency, contracting procedures and general bureaucratic quality. They argue that a competent state must not only be able to raise tax revenues, but also to transform such revenues efficiently into public goods and services of good quality.

5 This paper was financed by CAF-Banco de Desarrollo de América Latina
6 We thank Pablo Sanguinetti and other participants in the 2015 RED CAF meeting in Buenos Aires for useful comments on an earlier partial draft.
7 Cingolani, L, Thomsson, K, and D. de Crombrugghe, (2013)

Most indicators used in this approach stem from perception surveys and expert opinions, such as the Transparency International's indexes or those on which the World Banks Governance Indicators are based. For further detail on these perception indicators', see, for example, Pritchett, Woolcock and Andrews (2010) and Kaufmann, Kray and Mastruzzi (2009)

Finally, as mentioned, there is an institutional conception of state capacity as the ability to protect property rights and enforce contracts. This perspective is present, for example, in the seminal works of Engelman and Sokoloff (2002), Acemoglu and Johnson (2005) and the subsequent literature evaluating the impact of initial factor endowments, European immigrants and colonial institutions on present-day property rights, constraints on the executive power and economic development.

1.2 State Capacity in Decentralized Settings

Most often than not, State Capacity refers to the ability of a National State to perform such a diversity of tasks. However, in highly decentralized States it is legitimate to inquire about the ability of subnational governments to carry on the different tasks under their responsibility. Such inquiries are especially important in the context of Federal States.

Colombia is a peculiar case, as it is a unitary republic with a considerable degree of decentralization of State functions and activities, both with respect to ´Departments´ (the equivalent of States or Provinces in other countries) or Municipalities. Actually, the percentage of public expenditures executed by subnational agencies in Colombia is higher than in some Federal Latin American countries, such as Mexico or Venezuela, and almost as high as in the most decentralized of them (Brazil and Argentina). Another particular trait of Colombia is the large weight of municipalities in execution of public expenditures, service delivery and even tax collections, which are significantly higher and more dynamic in municipalities than in Departments.

In particular, municipalities play a key role in the delivery of three critical public services: water supply, basic health and educational services. Water supply and sewerage fall fully under their responsibility since 1986, though the Central Government provides part of the required financial resources through automatic transfers and keeps important regulatory and supervisory functions[8].

Provision of basic health services was municipalized in 1989 and departments and municipalities also receive automatic transfers from the Central Government for this purpose. However, a social security reform in 1993 established a competitive health insurance system, initially financed from individual mandatory contributions and since 2013 mostly through a special national tax, in which public and private health insurance and service providers compete under Government regulation and supervision, which interacts in a complex way with municipal responsibilities. Municipalities own and manage health insurance agencies, health posts and centers and, in many cases, public hospitals, and remain in charge of some basic prevention policies.

Basic education was also fully decentralized in Colombia since 1991, though the Central Government provides most of the required financial resources through automatic transfers, keeps important regulatory and supervisory powers and, critically, selects and allocate public teachers and determine their remuneration. Responsibility of basic education services was initially transferred to Departments and later on also to ´certified´ municipalities, which include all large municipalities. However, even smaller municipalities play a critical role in managing and supervising public schools.

In addition, even while central government transfers and royalties represent in most cases the bulk of financial resources available to municipalities for these services and general purposes, local taxes (and other locally generated revenues) are an important fraction of municipal finances in many cases and, overall, have been increasing rapidly since 2002. Indeed, municipalities have higher taxing capacity than Departments, as they can determine and collect property taxes, ´industry and commerce´ taxes (which have evolved towards a

[8] Through an autonomous Water Regulatory Commission and an autonomous Superintendence of Public Services

gross revenues tax applied to most economic activities), and a wide set of taxes and fees related to transit, registry of vehicles and diverse services. In contrast, Departments have a narrower and less dynamic tax base, related mostly to alcohol and tobacco consumption. Many municipalities make important contributions from local taxes to the financing of water supply and basic health and education services.

1.3 Definitions, data and methodology

In this paper, we adopt a comprehensive definition of State Capacity that embeds several elements of the different conceptions enunciated above and apply it to Colombian municipalities. More specifically, we dissect the concept of State Capacity into four distinct components, each evaluating a crucial feature of state capabilities for the provision of basic public goods and services at the municipal level.

To begin with, we collected and use indicators of the capacity to raise local taxes, as previous studies have shown that these tend to lead to higher accountability and efficiency and quality of services than resources obtained without local fiscal effort (Central Government transfers and royalties). See, for example, Pachón and Sánchez (2013). Specifically, we used local tax revenue over municipal GDP, tax offices per inhabitant and square kilometer and an indicator of local tax effort constructed by Pachón and Sánchez.

Second, we collected indicators of savings and investment capacity as these are essential to build assets required for service delivery. Colombian public finance figures classify teachers and health personal salaries as investment, and not as current expenditures, considering that they contribute as much as schools and hospitals to build ´human capital´ and are equally necessary to deliver education and health services. We follow this practice in this paper. These indicators need not be strongly related to the capacity to raise local taxes, as it was already observed that Colombian municipalities receive significant transfers from the central government to finance service provision (especially for education, health and water supply and sewerage services) and as many municipalities receive important resources

from oil and mining royalties[9], which can be invested more freely. Indeed, for most municipalities local taxes are a small fraction of the total resources at their disposal.

We used several investment and savings capacity indicators. We estimated investment ratios as a fraction of total expenditures, that indicate the current capacity to transform overall revenues into assets required for service delivery, (rather than splurging them in administrative and bureaucratic costs), as well as per capita investments in health and education, that specifically consider the potential expansion of these services. We also used savings ratios as a fraction of total current revenues (local taxes, transfers and royalties), that determine the long term capacity to invest and ensure long term sustainability of the expansion of service delivery capacities.

Third, we used indicators of physical capabilities, which gauge the current stock of physical and human assets dedicated to basic public services' provision: number of hospitals, health posts, teachers and judges per capita and per square kilometer.

Fourth and last, we used several indicators of ´operational capabilities´, intended to assess those capabilities required to invest and to use the current stock of assets in an efficient way to produce quality services that respond to citizens' needs and priorities. We relied on two alternative sources of data: (1) Indicators of government's transparency in public contracting, accountability, public workforce's human capital and managerial competence, estimated by Transparency International for a sample of municipalities (unfortunately a small and not a representative sample, as important regions –such as Antioquia and the coffee growing areas- are heavily under-represented); (2) Indicators of coverage and quality of the collection and organization of administrative information and compliance with norms about contracting and delivery of reports to control units; as well as about disclosure (e.g., on line

[9] Initially, royalties were shared between the national government and producing departments and municipalities in fixed shares determined by law. The 1991 Constitution elevated these provisions to constitutional norm, and included as beneficiaries other municipalities in producing Departments and along transport routes and port facilities. The National Government share was transferred to a Royalty Fund that financed investment proposals by any subnational agency. A Constitutional amendment in 2012 distributed all royalty proceeds among subnational agencies, reducing the share of producing Departments and Municipalities

government), public audiences and attention to citizens. These are collected by the Procuraduría General for most municipalities.

We then proceeded to construct indexes for these four types of state Capabilities using Principal Component Analysis. Alternative Operational capabilities indexes were estimated over the Transparency International and the Procuraduría general data bases. We initially pooled all the Procuraduría operational indicators together, and then separated them into two groups, one more related to administrative information and compliance and the other with accountability to citizens and service users. We report here results with the disaggregated indexes (six in total).

The estimates of these different components of State Capacity allow us to examine to what extent they are or not correlated among them and with variables such as income per capita and population density, as well as the eventual differential effects of a wide scope of potential determinants and controls upon each component. As we will see in the next section, some potential determinants indeed enhance one type of capabilities, while not being important for, or even hindering, another.

In the analysis of determinants of these aspects of State Capacity, we began by studying the effects of purely exogenous geographical variables such as distances to capital cities, regional dichotomous variables and soil's aptitude for agriculture and animal husbandry. Mineral extraction and oil production variables were initially also included to test for evidence on the existence of a "natural resource curse" on State capabilities, though because of data limitations we finally opted for using data for royalties received as a proxy (see below).

Following Acemoglu, Johnson and Robinson (2002), we also introduced altitude above sea level (to proxy for colonial European settler mortality), and presence of Spanish occupation and indigenous population in 1510-65, due to their respective influences on the emergence of colonial institutions. The two historical variables used were constructed by the Colombian historian Jorge Orlando Melo (1996) based on Spanish colonial tax archives.

Additionally, following a wide array of political science literature, and in particular the recent work of Sanchez and Pachón (2013) on political factors that contribute to explain

differences in coverage and quality of service delivery in Colombian municipalities, we also included a set of political variables to check if there is any association between the characteristics of local political struggle (competition and continuity) and incentives to build these aspects of state capacity.

Finally, in line with Cardenas, Eslava and Ramirez (2013) and Cardenas (2010), we also consider variables related to internal conflict's intensity (in particular, presence of coca leaf cultivation), as internal conflict may severely hinder the building or workings of State Capabilities related to service delivery.

As standard control variables, we used income per capita (which may reflect other potential determinants of State Capabilities that are not explicitly taken into account in our estimation) and population and population density, given that there might be economies of scale and agglomeration externalities that facilitate the building of efficient State Capabilities in populated and, specially, in densely populated areas.

With this interdisciplinary variable selection, we expected to provide a holistic explanation of State Capabilities related to service delivery and its determinants in Colombian municipalities. We present OLS estimates of determinants for each of these aspects of State Capacity. In addition, in order to deal with endogeneity problems we use instrumental variables for population density, coca cultivation and local taxation capacity. We are aware that some potential endogeneity problems may still remain, and thus we are cautious in interpreting the statistical associations found in terms of causation.

2. BUILDING INDICATORS OF STATE CAPABILITIES FOR COLOMBIAN MUNICIPALITIES

In this section we explain how we constructed indicators of State Capabilities for municipalities in Colombia**,** based on information gathered from a vast and diverse array of sources. Appendix 1 provides an extensive description of these data sources. Indicators for each of the individual components of State Capacity (Fiscal, Financial, Physical Assets and

Operational Capabilities) were estimated applying Principal Component Analysis upon a set of individual variables or indicators obtained from primary or secondary sources. The initial sets were composed of a total of 23 indicators, but were streamlined to reduce the loss of observations for econometric purposes. The streamlining also allowed removing variables considered redundant or available only for few, non-representative, municipalities. As mentioned, the remaining indicators were classified into four distinct categories and several sub-categories within them:

1. **Fiscal capabilities:** We used information on local tax revenue per capita and tax collection offices per capita and square kilometer. This indicator gauges a municipality's ability to generate revenue, *motu propio*, apart from the resources transferred by the central and provincial governments. This ability is determined by physical features, such as tax collection offices, but also by fiscal local authority's operational capacities and effort. To assess the latter we use the municipal self-generated revenue per capita, as is commonly done in the State Capacity literature that focuses on fiscal capacities. Previous work by Sanchez and Pachón [10] has shown that both the quantity and quality of services in education and water supply in Colombian municipalities are related (even after controlling for endogeneity) to the importance of local taxes in total municipal revenues. The authors conclude that this result is at least partially due to the fact that local taxes lead to greater demands by citizens about their use (more accountability) and to more responsiveness by authorities to citizens´ needs and priorities, in comparison with what happens with Government transfers or royalties.

2. **Financial Capabilities**: We used data on savings ratios (as a percentage of total revenues), investment ratios (as a percentage of total expenditures) and investments in health and education per capita. A successful municipality must be capable of transforming its financial resources (whether self-generated from local taxes or received from the central Government or from royalties) into assets for the provision of basic public services. We use the investment ratio as a measure of a municipality´s

[10] Sanchez, F. and M. Pachón, GDN, 2013

capability of focusing its expenditures (financed from all its sources of revenues) in investment rather than in purely bureaucratic and administrative costs. Special attention is given to investments per capita in health and education (which in Colombian municipal statistics include not just physical investments in schools and health infrastructure, but also teachers and medical and paramedical salaries, as mentioned before), as these are key basic services for economic and social development, in which municipalities play an important role.[11]

Additionally, we use the savings ratio, defined as the difference between current total income and expenditures (as a percentage of the former), because in the long term investment is constrained by savings. Moreover, a low saving capacity may impede the access to long term credit, essential for long term investments.

3. **Physical Capabilities:** We used available data on assets required to provide services**:** hospitals, health centers and health posts per capita and square kilometer; teachers per student in primary and secondary public schools; judges per capita and square kilometer. In other words, we use indicators of the relative stock of physical and human assets dedicated to the provision of basic public services. We focused our attention on health, public education and justice due to their significant impacts on productivity and social welfare. Stocks were normalized with respect to population and municipal area.

   Judicial variables were included due to the significant physical and juridical security problems that have plagued Colombia in recent decades, in spite of the fact that municipalities play a very limited direct role in the operation of the judicial system. Our assumption (arguably debatable) is that, even if it is a national responsibility, the

[11] Though the Central Government provides most of the resources for health and education services, through automatic transfers (Sistema General de Participaciones), the provision of these services are by Constitution the responsibility of Departments and Certified Municipalities (which include, among others, all municipalities with population higher than XXXX). But even non certified municipalities play an important role in building and maintaining schools. Previous work (Sanchez and Pachón, 2013) has shown that the quality of these services is higher, other things equal, in municipalities that finance with own resources a larger proportion of the corresponding expenditures, presumably because local taxation encourages higher accountability and citizens supervision.

local environment, on which municipal governments have a significant impact, influences the way in which the judicial system actually operates in different localities.

4. **Operational Capabilities:** This Component aims to gauge the municipality's operating capabilities that contribute to the efficiency and quality of public service delivery. A municipal government may not be able to invest in an efficient way and to provide quality services if it does not operate transparently, is not accountable to the citizens (and hence does not correctly prioritize and execute projects in a way that maximizes local social welfare) and does not follow minimal informational, managerial and legal requirements. See, for example, World Bank, Delivering services for the Poor, WDR, 2006 and Perry and Angelescu, Building Accountability for Service Delivery, GDN, 2013.

We constructed two different indicators for this purpose, based on different data sources with different municipal coverage. The first one is based on three indexes constructed by Transparency International: (1) A transparency and accountability index, which measures the local authority's efforts to inform citizens about expenditure plans and achievements; (2) An institutional quality index, that evaluates the degree of compliance with national rules concerning public contracting and that assesses public workforce's human capital (based on their educational achievements); (3) An index of disciplinary control and sanction which assesses the effectiveness to detect and prosecute disciplinary omissions and corruption. This last index includes the percentage of the investment budget that was consented with the public, as a measure of public participation in decision making, which is supposed to enhance social and administrative controls. These three indexes are unfortunately available only for 148 municipalities, which are not representative of all regions. [12]

Due to the relative scarcity and lack of representativeness of Transparency International's indexes, we estimated an alternative Operational Capabilities Index based on seven indicators produced by the Procuraduría General de la Nación (Inspector-General's

[12] In particular, the coverage is particularly low in Antioquia and the coffee growing region

Office), which also evaluate municipal operational capabilities. These indicators are available for all municipalities (1101) and provincial governments (32) in Colombia. The seven indicators asses, respectively: (i) the degree of compliance with the Internal Control Manual (MECI) which gathers a set of standardized procedures for evaluating and verifying municipal achievements; (ii) the effectiveness in the storage and classification of public documents and information in municipal archives, (iii) the degree of compliance with national laws concerning public contracting, (iv) the coverage of on-line government, (v) the degree of duly and complete deliverance of information to control organisms, (vi) the frequency of public audiences, with the general public and civic organizations, and finally, (vii) the effective attention to citizens' complaints. These indicators allow for the construction of an alternative operational capability's index with a much larger sample of municipalities, more suitable for statistical inferences.

The use of these two indexes provided a robustness check for results on determinants of operational capabilities.

In latter exercises, we divided the set of indicators obtained from the Procuraduría General de la República in two separate groups that are related to different aspects of operational capabilities, and estimated two separate Operational Capability Indexes:

1. **Administrative Information and Compliance: C**ompliance with Colombian laws on accounting, record keeping and contracting; duly deliverance of information to control organisms; application of the Internal Control Manual
2. **Accountability:** on-line government, accountability in public contracting, frequent public audiences and general attention to citizens.

2.1 Characteristics of individual indicators

Table 1 describes the individual indicators. Note that the country's capital, Bogotá, exceeds the national average on most indicators, as expected, with a few exceptions. First, Bogotá is lower than average on direct attention to citizens, revealing that smaller

municipalities may find it easier to facilitate personal access to their citizens for their requests and complaints (e government is in a separate indicator, and in this case, as expected, Bogotá ranks higher than the average municipality). Second, Bogotá ranks lower than average on hospitals, health posts and health centers per capita, probably because each hospital and health center are much larger and attend more patients, in larger cities. Consistent with this interpretation, these are precisely the indicators with the higher coefficients of variation. Consequently, these do not appear to be good indicators of Physical Capabilities for health services, but we do not have access, unfortunately, to a better one. The same happens, and probably for a similar reason, with tax offices per capita and square kilometer.

Table 1: Summary Statistics of Selected Indicators

Index	Observations	Mean	Standard Deviation	Minimum	Maximum	Bogotá D.C.
Self-generated revenue per capita (log)	1093	4,33	0,94	0,00	11,60	6,53
Tax collection offices per capita per km2 (log)	990	3,22E-07	1,40E-06	0,00	2,50E-05	1,14e-08
Percentage of total expenditures in investment	952	62,90	12,41	13,10	88,96	64,85
Saving capacity indicator	951	46,19	46,45	-271,55	84,73	69,36
Education Investment per Capita (log)	1068	3,90	0,80	1,28	10,75	5,52
Health Investment per Capita (log)	1073	5,29	0,66	0,00	12,44	5,39
Hospitals per capita per km2 (log)	990	0,019	0,058	0,00	0,812	0,001
Health Centers per capita per km2 (log)	990	0,043	0,136	0,00	1,858	0,001
Health Posts per capita per km2 (log)	990	0,022	0,072	0,00	0,898	0,001
Teachers per Student (log)	986	0,002	0,002	0,00	0,056	0,003
Transparency and accountability	152	50,22	14,69	16,41	82,98	-
Institutional quality and human capital	152	56,55	15,26	9,68	87,24	-
Capacity of controlling and disciplining	152	67,97	17,15	0,00	97,78	-
MECI Application	1100	68,07	37,10	0,00	100,00	96,42
Storage and Classification of Information	1100	29,13	27,63	0,00	100,00	13,33
Compliance with public contracting laws	1100	71,90	12,56	19,09	98,68	78,54
Deliverance of information to control organisms	1100	41,37	24,57	0,00	100,00	53,29
Public Audiences	1100	54,84	22,93	0,00	100,00	70,00
On-Line Government	1100	60,24	11,02	0,00	92,31	72,93
Attention to citizens	1100	37,66	15,73	0,00	98,08	24,62

Tables 2A to 2E include simple correlations among the indicators used for each index. Table 2A shows that local taxes and the density of tax collection offices are, as expected, positively, though weakly correlated. The low correlation coefficient is probably due to the fact that the latter includes both national and local tax offices in the municipality. Table 2B shows that all indicators of Financial Capabilities are positively correlated among them, as expected, except for a negative though weak correlation found between the savings ratio and health investment per capita, for which we do not have a good explanation. Table 2C shows that all indicators of physical capabilities have positive correlations among them, as expected, with one exception: the density of hospitals is negatively (though weakly) correlated with the density of health posts and centers, probably because hospitals attend basic health cases in addition to more complex ones. Thus, where there is a hospital, the municipality requires less health posts and centers.

Table 2A: Fiscal variables' correlations:

	Self-generated revenue per capita (log)	Tax collection offices per capita per km2 (log)
Self-generated revenue per capita (log)	1	
Tax collection offices per capita per km2 (log)	0,0185	1

Table 2B: Financial variables' correlations:

	Saving capacity indicator	Education Investment per Capita (log)	Health Investment per Capita (log)	Percentage of total expenditures in investment
Saving capacity indicator	1			
Education Investment per Capita (log)	0,1497	1		
Health Investment per Capita (log)	-0,0519	0,4500	1	
Percentage of total expenditures in investment	0,2038	0,0709	0,1765	1

Table 2C: Physical variables' correlations:

	Hospitals per capita per km2 (log)	Health Centers per capita per km2 (log)	Health Posts per capita per km2 (log)	Teachers per Student (log)
Hospitals per capita per km2 (log)	1			
Health Centers per capita per km2 (log)	-0,0544	1		
Health Posts per capita per km2 (log)	-0,0676	0,0277	1	
Teachers per Student (log)	0,166	0,2796	0,1026	1

Table 2D shows a positive and strong correlation between the three Transparency International Indexes, as expected. Table 2E shows that all indicators from the Procuraduría General also have positive and generally significant correlation coefficients, as expected. These results indicate that municipalities normally have either strong or weak operational

capabilities in all or most dimensions measured by these indexes. However, Public Audiences is more correlated with Compliance with Public Contracting Laws (which require them) than with Transparency and Accountability indicators. Hence we shifted it to the group of indicators on Compliance

Table 2D: Operational (T.I.) variables' correlations:

	Voice and Accountability	Institutional Quality	Control and Sanction
Voice and Accountability	1		
Institutional Quality	0,7610	1	
Control and Sanction	0,6109	0,6329	1

Table 2E: Procuraduría's variables' correlations:

	MECI Application	Storage and Classification of Information	Compliance with public contracting laws	On-Line Government	Deliverance of information to control organisms	Public Audiences	Attention to citizens
MECI Application	1						
Storage and Classification of Information	0,1343	1					
Compliance with public contracting laws	0,3491	0,1501	1				
On-Line Government	0,1247	0,0855	0,1943	1			
Deliverance of information to control organisms	0,1598	0,1301	0,2352	0,1209	1		
Public Audiences	0,1867	0,0867	0,2856	0,1112	0,1116	1	
Attention to citizens	0,0365	0,0800	0,0412	0,2871	0,0517	0,0419	1

2.2 Characteristics of constructed Capabilities Indexes

We then proceeded to construct synthetic indicators for each of the four main categories (and sub-categories) described above, using Principal Components Analysis. We only kept the first component for each group of variables. For all six categories, the first component's eigenvector is strictly positive (See Table 3), indicating that all selected variables are positively associated, *ceteris paribus*, with a higher state capacity in the respective categories, as expected.behaved, smooth, bell-shaped and single-peaked density functions (See Figure 1).

Further, the six constructed indexes have significant explanatory power: Table 4 reports the proportion of the variance captured by each of the components. They also have well behaved features (Figure 1). Also as expected, the three Operational Indexes have strong positive correlations among them, while the correlations between them and the Financial and Physical Capabilities Indexes is much weaker and in most cases negative. (Table 5)

Table 3: Constructed Capabilities Indexes: Principal Component´s Coefficients

	Index					
VARIABLES	Financial	Physical	Fiscal	Operational (I.T.)	Information and Compliance	Accountability
Self-generated revenue per capita (log)	-	-	0.7071	-	-	-
Tax collection offices per capita per km2 (log)	-	-	0.7071	-	-	-
Percentage of total expenditures in investment	0.4782	-	-	-	-	-
Saving capacity indicator	0.1369	-	-	-	-	-
Education Investment per Capita (log)	0.5825	-	-	-	-	-
Health Investment per Capita (log)	0.6428	-	-		-	-
Hospitals per capita per km2 (log)	-	0.2625	-	-	-	-
Health Centers per capita per km2 (log)	-	0.5711	-	-	-	-
Health Posts per capita per km2 (log)	-	0.3387	-	-	-	-
Teachers per Student (log)	-	0.7001	-	-	-	-
Transparency and accountability	-	-	-	0.5881	-	-
Institutional quality and human capital	-	-	-	0.5938	-	-
Capacity of controlling and disciplining	-	-	-	0.5491	-	-
MECI Application	-	-	-	-	0.4988	-
Storage and Classification of Information	-	-	-	-	0.3101	-
Compliance with public contracting laws	-	-	-	-	0.5652	-
Deliverance of information to control organisms	-	-	-	-	0.3932	-
Public Audiences	-	-	-	-	0.4254	-
On-Line Government	-	-	-	-	-	0.7071
Attention to citizens	-	-	-	-	-	0.7071

Figure 1: Constructed Capabilities Indexes Kernel Densities

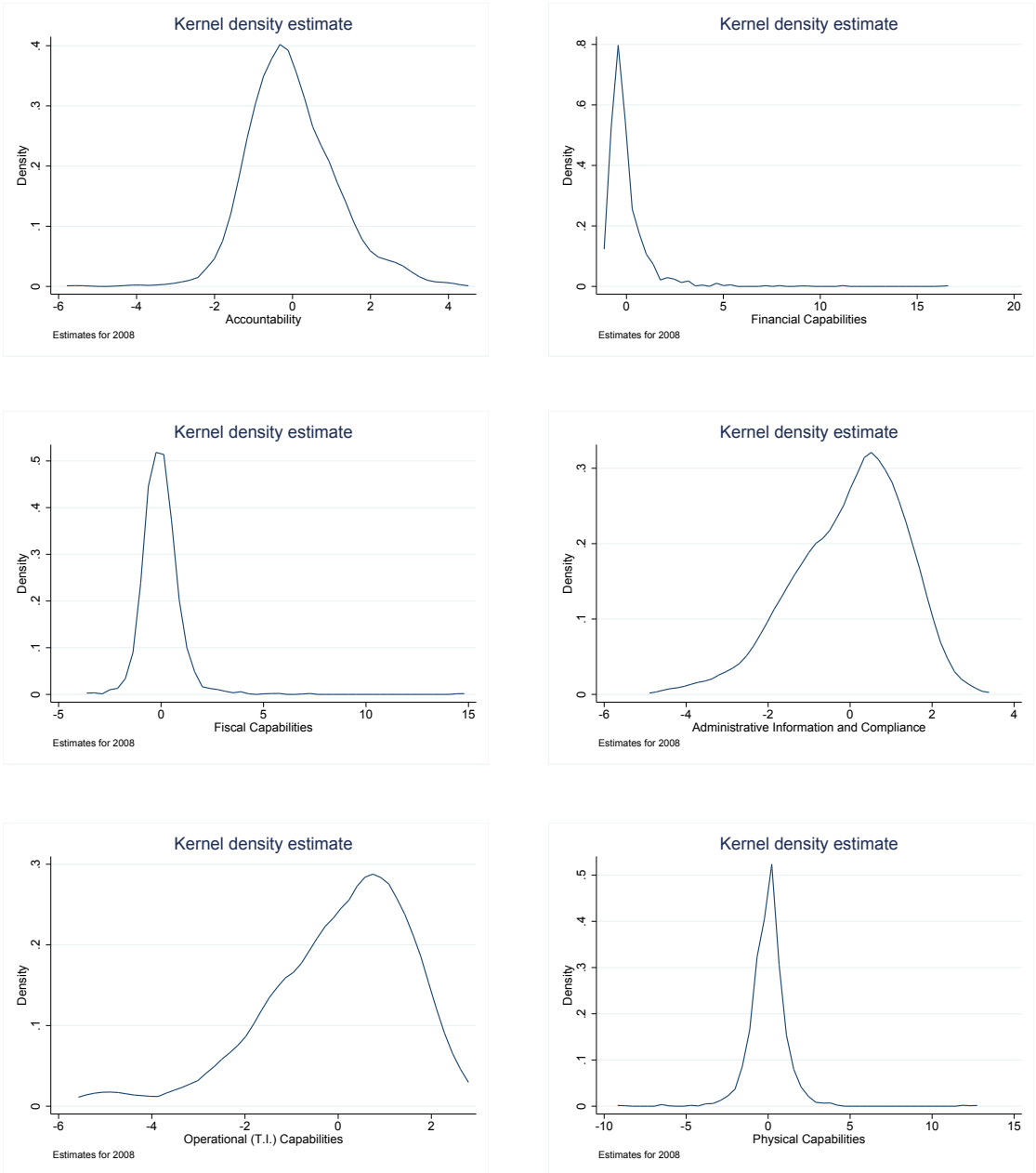


Table 4: Constructed Capabilities Indexes: Explained Variance

Index	Financial	Physical	Fiscal	Operational (I.T.)	Information and Compliance	Accountability
Explained Variance	38,61%	34,16%	50,93%	77,96%	35,34%	64,35%

Table 5: Correlations among Constructed Indexes

	Physical	Fiscal	Financial	Operational	Information and Compliance	Accountability
Physical	1					
Fiscal	0,0505	1				
Financial	-0,0282	-0,0642	1			
Operational	0,0371	0,2816	-0,0810	1		
Information and Compliance	-0,0712	0,5761	-0,074	0,2517	1	
Accountability	-0,052	0,2495	-0,013	0,1023	0,3011	1

Figure 2 show that all constructed Indexes are positively correlated with GDP per capita, except the Physical Capabilities Index. The positive correlation of the Financial Capabilities index with GDP is very weak, probably reflecting the fact that Governmental transfers in Colombia are positively related to inverse correlates of income per capita (such as the level of basic unsatisfied needs), and thus play an important equalizing role in terms of availability of financial resources. See Sánchez and Pachón (2013) and Perry and Olivera (2011). Note also that the correlation coefficients with GDP per capita are much higher for the Fiscal and the Operational Capabilities Indicators, while the variance is much larger for the latter, suggesting the influence upon these state capabilities of other variables not necessarily correlated with GDP per capita.

Population density has positive associations with the Fiscal and all the Operational Capabilities' indexes, suggesting economies of scale and positive agglomeration externalities for raising taxes and accessing a wider and concentrated pool of human capital and support activities for the delivery of quality services. The literature on public services has always highlighted the considerable economies of scale in service provision associated with high population densities in urban centers.

On the contrary, population density has a negative association with the physical capabilities' index. This result is even stronger when population is used instead of population

density (not shown here), suggesting indivisibilities (a minimum required capacity even for small populations) and economies of scale in physical capacities (for example, the fact already observed that hospitals and health centers are much larger and attend more patients in large cities). The lack of correlation with the Financial capabilities Index may be due to rules of allocation of national transfers, which tend to benefit Departments and Municipalities with low population, and the fact that mineral and oil exploitations (and thus royalties) tend to concentrate in areas of low density of population (see Perry and Olivera, CAF, 2011). See Figure 3.

Figure 2: Indexes' Correlation with GDP per capita

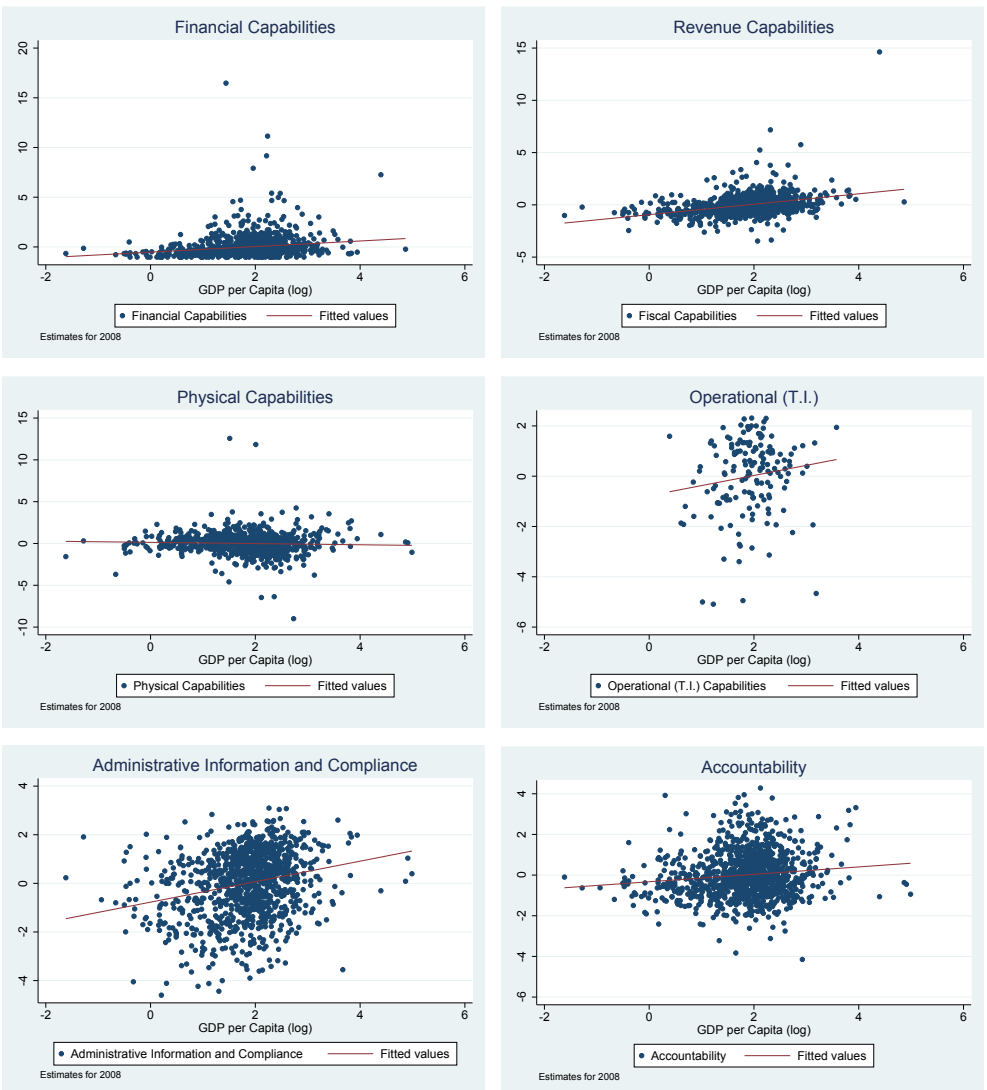
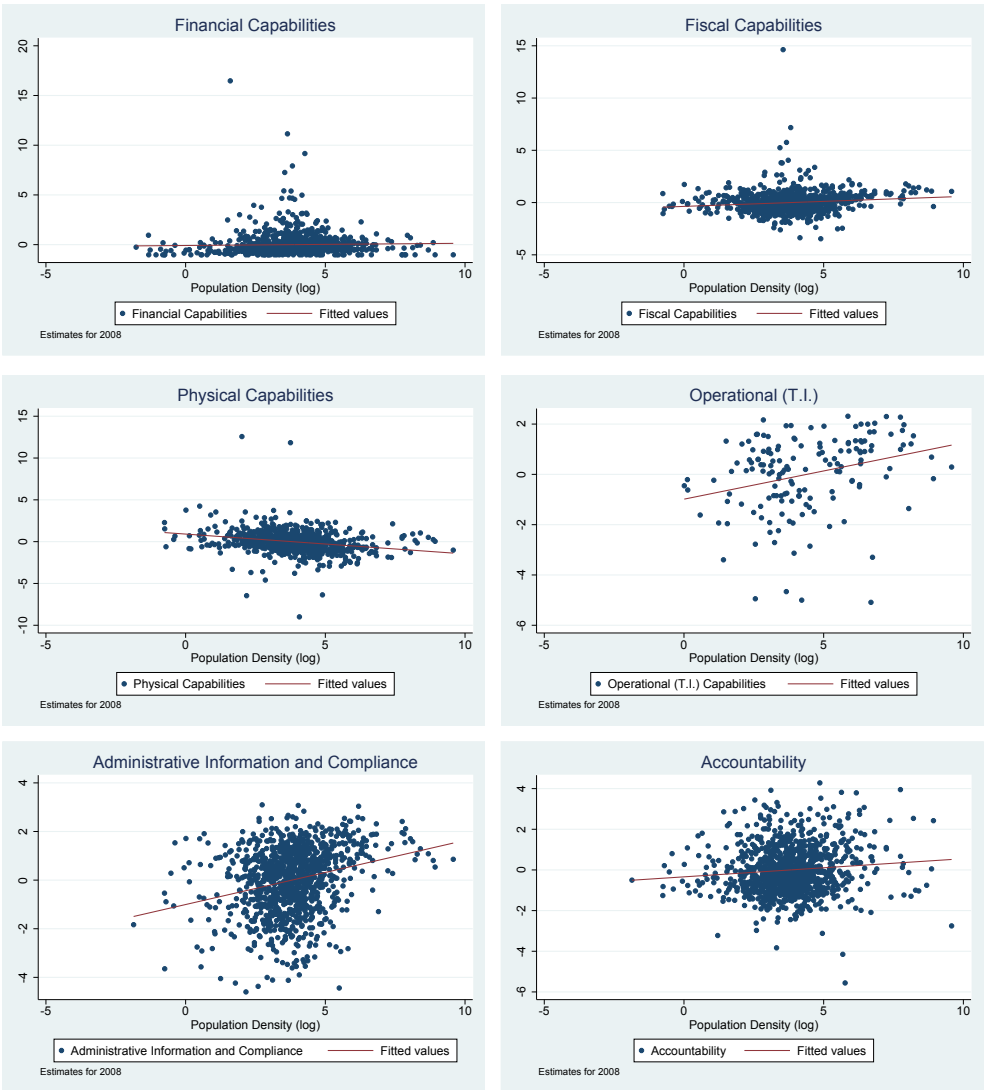


Figure 3: Indexes Correlation with Population Density



Finally, Colombia clearly shows a strong concentration of municipalities with high state capabilities in the Andean region, where most of our Indexes have their highest average values. The main exception is the Financial Capabilities Index, probably due to the fact that this index depends heavily on transfers and royalties per capita, which tend to be higher in other regions, especially in the Eastern region. See Table 6, as well as Maps 1 and 2 in the Appendix. There are also significant contrasts within other regions, as evidenced by some high Indexes in the Pacific and Eastern Regions, due to the presence of high capabilities municipalities in both of them (Cali and its surrounding municipalities in the first case, Villavicencio and a few others closer to Bogotá in the second case). This pattern, though, is not observed in the Caribbean, where most average state capabilities index lag significantly,

except the Financial Capabilities Index, probably due to the fact that this region is a high recipient of transfers per capita, which, as mentioned, have an equalizing effect in Colombia.

Table 6: Average Differences between Provincial Capitals and Regular Municipalities per Region.

Index		Andean	Caribbean	Pacific	Eastern
Financial	All	-0,02	0,05	-0,44	0,58
	Capitals Only	0,61	0,96	1,83	0,41
	St. Dev.	1,31	0,97	0,88	1,51
Fiscal	All	0,23	-0,59	-0,42	0,15
	Capitals Only	0,78	0,40	0,17	0,16
	St. Dev.	1,10	0,66	0,67	0,71
Physical	All	0,24	-0,33	-0,31	-0,40
	Capitals Only	-0,19	-0,25	-0,22	-0,52
	St. Dev.	1,40	0,51	0,58	1,51
Operational (I.T.)	All	0,37	-0,98	0,60	-0,11
	Capitals Only	1,01	-0,83	0,69	-0,25
	St. Dev.	1,43	1,62	0,88	1,35
Administrative Information and Compliance	All	0,28	-1,04	0,22	0,07
	Capitals Only	1,15	0,47	0,91	0,73
	St. Dev.	1,09	1,31	1,45	1,43
Accountability	All	0,04	0,01	-0,23	0,28
	Capitals Only	-0.53	0,75	0,65	0.06
	St. Dev.	1,12	1,12	0,92	1,32

Table 6 also shows how provincial capitals in general exceed common municipalities in most considered dimensions of state capacity. The Eastern region is the only region where this pattern is inverted. Some provincial capitals in this area have a notorious record of corruption and waste, associated with large inflows of royalties.

3. DETERMINANTS OF STATE CAPACITY

3.1 Geographical determinants

Due to their sheer exogenous nature, geographical characteristics are the first candidates when assessing state capacity's determinants. Since there are many geographical variables that could be considered, our first step consisted in selecting only those with a higher explanatory power, as we wished to retain as many degrees of freedom as possible for sub sequent econometric estimations in which historical and political variables are also included.

The literature relating geography's influence upon institutions is abundant, as initial factor endowments and local diseases are reckoned to influence immigration patterns, property rights and other institutions[13]. Institutions have a pervasive influence on almost all societal and economic interactions, have proven to have a significant degree of path-dependence and a determining effect upon state capacities and development. Thus, we included altitude above sea level, since this variable determined the presence of tropical diseases which were very important for colonial settler mortality and subsequent institutional development. [14]

Our first group of geographical variables also included linear distances between each municipality and Bogotá, and between each municipality and the corresponding provincial capital. With these indicators we intended to evaluate if the distance between the local authority and the central and provincial governments (and hence, their spillovers and influences) had any effect upon its fiscal, financial, physical or operational capabilities.

Some of our conjectures were confirmed. See Tables 7A and 7B. We control for income per capita, which shows a positive effect on all indexes, though not significant for the Financial Capabilities Index, probably due to the equalizing effect of transfers, as already discussed. We also control for population density, which also shows positive and significant

[13] See, for example, Acemoglu, Johnson and Robinson, Reversal of Fortunes (2002) and the Colonial Origins of Institutions (2001) and Engelman and Sokoloff (2000).

[14] Ibídem

effects on most indexes, except on the financial capacity index, where we obtain a negative and significant coefficient probably due, as mentioned above, to the fact that transfers and royalties happen to be inversely related to population density.

Table 7A: Geographical Determinants of State Capabilities.

VARIABLES	Financial		Physical		Fiscal	
Distance Prov. Capital	**-0.0020****	**-0.0019****	**-0.0026*****	**-0.0033*****	**-0.0015*****	-0.0006
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0006)	(0.0006)
Caribbean		0.1849		**-0.8165*****		**-0.7157*****
		(0.1211)		(0.1249)		(0.0877)
Pacific		**-0.3792*****		**-0.5048*****		**-0.4211*****
		(0.1260)		(0.1340)		(0.0914)
Eastern		0.1655		**-1.3054*****		**0.1947***
		(0.1584)		(0.1709)		(0.1157)
GDP per capita (log)	0.0962	0.0243	**0.2275*****	**0.2508*****	**0.2486*****	**0.2863*****
	(0.0598)	(0.0604)	(0.0660)	(0.0649)	(0.0431)	(0.0434)
Pop. Dens. (log)	**-0.2454*****	**-0.2316*****	0.0739**	-0.0031	0.0298	**0.0935*****
	(0.0344)	(0.0384)	(0.0368)	(0.0411)	(0.0246)	(0.0282)
Dist. To Bogota	0.0001		**-0.0013*****		**-0.0017*****	
	(0.0003)		(0.0003)		(0.0002)	
Altitude	**-0.0001****		**0.0002*****		**-0.0001*****	
	(0.0000)		(0.0000)		(0.0000)	
Constant	**0.9787*****	**0.9944*****	-0.2883	0.1675	0.1339	**-0.6939*****
	(0.2334)	(0.2203)	(0.2525)	(0.2297)	(0.1675)	(0.1575)
Observations	888	888	749	749	958	958
R-squared	0.0632	0.0751	0.1532	0.1849	0.1769	0.1765

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Tables' 7A and 7B results show that, as the distance to the provincial capitals increase, all types of municipal capabilities tend to diminish, though the coefficient for two of the operational indexes are not significant. As mentioned before, a plausible hypothesis is that there are spillovers of the higher state capabilities and human capital pools that are normally concentrated in provincial capitals, which benefit more municipalities that are closer to them and that fade out gradually with distance. Departments in Colombia have as one of their main functions to coordinate and support service delivery in the municipalities within its jurisdiction. Plausibly, municipalities closer to provincial capitals have easier access to the technical and administrative support from the provincial capital bureaucracy and the latter can more easily supervise the municipality and help build its state capabilities. In addition,

provincial capitals tend to have a wider pool of human capital and private sector services (e.g., construction and IT companies, accountants, lawyers) that can help develop and support municipal state capabilities. Thus, plausibly, municipalities closer to the provincial capitals have easier access to these human capital and private sector service pools than municipalities that require longer trips. Even more, some of such private sector firms, whose main market is in the provincial capital, are often located in neighboring municipalities to take advantage of cheaper land and lower taxes, and thus facilitate building state capabilities in their location.

Table 7B: Geographical Determinants of State Capabilities.

VARIABLES	Operational		Information and Compliance		Accountability	
Dist. Prov. Capital	-0.0019	0.0001	**-0.0032*** **	**-0.0019*** **	-0.0008	-0.0003
	(0.0033)	(0.0034)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Caribbean		**-1.2016*** **		**-1.2180*** **		0.0241
		(0.2997)		(0.1020)		(0.0980)
Pacific		0.2154		0.1537		-0.1463
		(0.4563)		(0.1085)		(0.1044)
Eastern		0.0033		**0.4082*** **		**0.5602*** **
		(0.4010)		(0.1381)		(0.1328)
GDP per capita (log)	0.1234	0.1455	**0.1548*** **	**0.2555*** **	**0.1409*** **	**0.1487*** **
	(0.2246)	(0.2300)	(0.0542)	(0.0524)	(0.0501)	(0.0504)
Pop. Dens. (log)	0.1009	**0.1927** **	**0.1671*** **	**0.2753*** **	**0.0802*** **	**0.1396*** **
	(0.0726)	(0.0859)	(0.0307)	(0.0333)	(0.0284)	(0.0320)
Dist. To Bogota	**-0.0016** **		**-0.0015*** **		**-0.0005** **	
	(0.0007)		(0.0002)		(0.0002)	
Altitude	**0.0004***		**0.0001*** **		**-0.0001** **	
	(0.0002)		(0.0000)		(0.0000)	
Constant	-0.3306	-0.8770	-0.2670	**-1.1918*** **	-0.2473	**-0.8025*** **
	(0.7570)	(0.6132)	(0.2089)	(0.1867)	(0.1931)	(0.1795)
Observations	145	145	1,046	1,046	1,046	1,046
R-squared	0.1922	0.1944	0.1761	0.2494	0.0367	0.0496

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Distance to Bogota also appears to weaken all municipal capabilities, probably for similar reasons. This is not the case, however, with the index of financial capabilities, probably because of to the fact that governmental transfers and royalties have often an inverse relation with the distance to Bogotá.

These observations led us to include transfers and royalties per capita as controls in our full econometric exercises shown below.

Altitude has a positive and statistically significant effect on physical and two of the operational capacities indexes, confirming partially the hypothesis of tropical diseases' effect on colonial settlements and through them on institutional quality. However, it seems to have a negative and significant effect on the other indexes, contrary to what was expected.

We observed, in Section 2, that there appear to be wide differences in the distribution of municipal state capabilities among the main Colombian regions, which may have to do with both these and other geographical and historical factors. As a consequence, we introduced a second group of geographical variables: three regional dichotomous variables for the Caribbean, Eastern and Pacific regions. Results show a significant lag of the Caribbean region in four of the six municipal capabilities indexes with respect to the benchmark, which is the Andean Region. The coefficient for the Financial Capabilities index is not significant, again probably due to the equalizing effect of transfers. The Pacific region showed underperformance in the fiscal, financial and physical capabilities. The fact that we do not find underperformance in the operational capabilities index maybe a consequence of the presence of Cali and other Valle del Cauca cities within this region, whose positive performance may compensate the negative performance of other municipalities. Finally, the Eastern region showed underperformance in the physical capabilities index (not surprising given its high territorial extension), though not in the financial capabilities index, probably due to the presence of high mineral and oil resources (and hence royalties) that increase savings and investment capacities. However, it quite surprisingly shows over performance in Fiscal and Operational capabilities. We do not have a good explanation for this result, but, as it is seen below, most of it disappears when we introduce the full set of potential determinants and controls.

Colombia´s geography implies that there is a strong correlation between these dichotomous regional indicators, the distance to Bogotá and the altitude above sea level. The Andean region tends to score low on the first and high on the second, while the opposite occurs in the other regions. Thus, the model including all geographical variables presented

strong multicolinearity and therefore turned out to be unsuitable to appropriately estimate coefficients and perform statistical inference. As a consequence, we opted to retain the dichotomous geographical variables in later econometric estimations and drop the distance to Bogota and the altitude variables, as this model had a higher explanatory power (higher R squared) for five of the six constructed indexes, in comparison with the initial alternative. See Tables 7A and 7B.

3.2 The full econometric model

We then introduced other potential determinants of municipal State capabilities: one geographical (soil aptitude), two historical (indigenous and Spanish presence around 1500), three political (political competition and recent and historical party continuity) and an indicator of violent conflict linked to illegal activities (presence of coca leaf cultivation). We also included two additional controls (transfers from the Central Government and royalties per capita) as suggested by the previous discussion.

Estimations with the full set of determinants and controls are shown in Tables 8 and 9. Table 8 is a simple OLS estimation. In order to deal with potential endogeneity problems, in Table 11 (see Appendix 1) we instrumented one control variable (population density) and one potential determinant (presence of coca leaf cultivation). The latter is used as a proxy for illegal activities and violent conflict. First stage regressions are shown in Table 10 and are discussed briefly in Appendix 1.

Geographical Determinants: In the full model the signs (and significance) of the coefficients of most of the geographical variables included are either preserved, or more consistent with what was expected (especially the results for the IV regressions):

1) Even controlling for all potential determinants included in the full model estimations,
    a. Municipalities in the Caribbean region lag in most capabilities indexes.
    b. Municipalities in the Pacific region lag in the fiscal, financial and physical capabilities indexes.

c. Municipalities in the Eastern region lag in the physical capabilities index, but show over performance on two operational capabilities indicators, a rather surprising result.

2) Distance to the provincial capital has negative effects on several capabilities indexes
3) Soil aptitude was included as an indicator of agricultural potential, which might have positively influenced the early development of state capabilities. Its coefficients were positive and significant only for the financial and physical capabilities indexes. Plausibly, the early presence of landowners, endowed with political power, may have promoted higher central Government transfers and investments, but did little to promote capabilities to raise local taxes or to develop operational capabilities. [15]

[15] We did not obtain good results for the Index based on TI indicators probably due to sample limitations.

Table 8: Determinants of State Capacity (OLS regressions)

VARIABLES	Financial	Physical	Fiscal	Operational (T.I.)	Information and Compliance	Accountability
			Geographical			
Distance Prov. Capital	-0.0012	**-0.0020****	-0.0003	-0.0012	**-0.0016****	-0.0004
	(0.0008)	(0.0008)	(0.0006)	(0.0038)	(0.0007)	(0.0007)
Caribbean	**-0.2237***	**-0.8633*****	**-0.7727*****	**-1.5160*****	**-1.1833*****	-0.0328
	(0.1212)	(0.1193)	(0.0911)	(0.3753)	(0.1088)	(0.1061)
Pacific	**-0.2864****	**-0.3551*****	**-0.4134*****	0.3223	0.1751	-0.1482
	(0.1216)	(0.1221)	(0.0909)	(0.5272)	(0.1098)	(0.1071)
Eastern	-0.0694	**-0.9264*****	0.1615	-0.1897	**0.3807****	**0.4974*****
	(0.1629)	(0.1661)	(0.1234)	(0.4532)	(0.1490)	(0.1453)
Soil Aptitude	**0.0758*****	**0.0611****	-0.0029	-0.0555	-0.0129	-0.0163
	(0.0272)	(0.0281)	(0.0208)	(0.0913)	(0.0246)	(0.0240)
			Historical			
Indigenous Presence	0.0740	-0.0428	-0.0153	0.1578	0.0351	**-0.1729****
	(0.0868)	(0.0941)	(0.0660)	(0.3369)	(0.0795)	(0.0775)
Spanish Occupation	-0.1311	**0.4006*****	**0.1241***	-0.3383	-0.0158	**0.2098*****
	(0.0887)	(0.0953)	(0.0672)	(0.3839)	(0.0813)	(0.0793)
			External Resources			
Royalties per Capita	**0.0015*****	**-0.0003****	**0.0006*****	0.0002	**0.0005*****	**0.0003****
	(0.0002)	(0.0002)	(0.0001)	(0.0006)	(0.0002)	(0.0001)
Transfers per Capita	-0.0007	0.0017	**0.0124*****	0.2578	**-0.0045***	0.0003
	(0.0027)	(0.0025)	(0.0021)	(0.4323)	(0.0026)	(0.0025)
			Political			
Political Comp.	-0.0057	**-0.0966*****	0.0164	-0.0007	0.0058	-0.0202
	(0.0148)	(0.0148)	(0.0110)	(0.0454)	(0.0131)	(0.0128)
Party continuity	0.0274	**0.0581***	0.0069	-0.1515	0.0072	-0.0273
	(0.0269)	(0.0302)	(0.0207)	(0.1100)	(0.0253)	(0.0247)
Max. Party continuity (1988-2007)	-0.0146	-0.0151	0.0115	-0.0434	0.0303	0.0146
	(0.0243)	(0.0254)	(0.0185)	(0.0844)	(0.0221)	(0.0216)
			Controls			
GDP per capita (log)	-0.0577	**0.1785*****	**0.2300*****	0.0490	**0.1864*****	**0.1300****
	(0.0601)	(0.0620)	(0.0448)	(0.2544)	(0.0550)	(0.0536)
Population Dens. (log)	**-0.1892*****	0.0529	**0.0909*****	**0.1826***	**0.2729*****	**0.1650*****
	(0.0406)	(0.0415)	(0.0305)	(0.1042)	(0.0369)	(0.0360)
Coca Presence	-0.1190	**-0.7467*****	-0.1174	-0.2335	**-0.2163****	-0.0046
	(0.1205)	(0.1229)	(0.0916)	(0.3559)	(0.1100)	(0.1073)
Constant	0.3697	0.0689	**-0.7646*****	0.0228	**-1.0853*****	**-0.6406****
	(0.3445)	(0.3488)	(0.2588)	(1.1273)	(0.3091)	(0.3015)
Observations	888	730	937	140	1,014	1,014
R-squared	0.1668	0.3129	0.2337	0.2485	0.2432	0.0668

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Historical Determinants: According to Acemoglou, Johnson and Robinson and Engelman and Sokoloff[16], areas in the Americas (and elsewhere) with high indigenous population at the time of European colonization, led to the establishment of 'extractive' institutions that sought to exploit available natural resources (mines, agricultural land) using the indigenous labor force under conditions of subordination to a few colonizers. The latter were granted most of property rights over land and mines and concentrated political power and access to state services, such as education. Hence, in these areas most of the population, from indigenous origin, had low access to property rights, education and political power. Further, according to these authors, the highly unequal and exclusionary traits of these colonial institutions showed considerable persistence overtime.

In contrast, colonial institutions were more liberal and there was broader access to property rights, education and political power in those areas in which there were earlier and larger European settlements. These were a consequence of wide land availability and the lack of indigenous labor, as well as to the presence of adequate health conditions (low incidence of tropical diseases). These institutional traits also showed high persistence overtime.

In summary, according to these theories and findings, the presence of large indigenous population ended up having a long term negative effect on the development of modern state capacities, while earlier European settlements had a positive effect on them.

These theories were initially applied to the analysis of differences in institutional quality and economic development across nations, but latter on have been tested as potential explanations of differences in state capabilities and development across provinces and municipalities within a country, with uneven results[17].

To test these potential long term effects of colonial institutions on differences in present state capabilities of municipalities, we included two dichotomous variables

[16] Acemoglu, D., S. Johnson y J. Robinson (2002). Reversal of fortunes: Geography and institutions in the making of the modern world income distribution. NBER Working Paper 8460; Engerman, S. y K. Sokoloff (2002) Factor endowments, inequality, and paths of development among new world economies. NBER

[17] See for example Acemoglu, Bautista, Querubin and Robinson (2007); Galán (2010); Meisel (2014) and Banerjee and Iyer (2004).

constructed by economic historian Jorge Orlando Melo that indicate indigenous presence and Spanish occupation in Colombian municipalities in the sixteenth century.

As expected, the ´Spanish occupation´ variable was positively and significantly associated with several capabilities indexes (Fiscal, Physical and Accountability Indexes). We found a significant negative association of the ´indigenous presence´ variable only with the Accountability index.

Royalties and Transfers from the Central Government: The inclusion of transfers and royalties per capita as potential determinants or controls lead to some interesting results. Both were found to be positively and significantly associated with the Fiscal Capabilities index. In other words, they do not appear to produce a ´fiscal laziness´ impact on municipalities, as much of the global decentralization literature finds elsewhere, and as some of the earlier decentralization literature in Colombia had found. This apparently surprising result may be due to the fact that the 2001 constitutional reform created some incentives in favor of local fiscal effort, built in the allocation rules of transfers among subnational entities. First, transfers for education and health are now proportional to *actual* enrollments and services (they were proportional before to potential users), so that a municipality that improves enrollment by raising more local taxes will get latter on higher transfers. Second, a small fraction of transfers is now allocated directly in proportion to a measure of local tax effort. As a consequence, as Sanchez and Pachón observe, municipal taxes have been raising fast since these changes were instituted. It is less clear why royalties could stimulate local fiscal effort, though the coefficient is smaller. It might be that municipalities perceive these revenues as temporary and use them to build capabilities to collect other taxes.

On the other hand, transfers per capita have a significant negative association with the Administrative Information and Compliance Index, in spite of the fact that in theory the National Planning Department and the national Control offices supervise the proper use and reporting of these resources. We did not find any significant association of transfers with the physical capabilities or the accountability indexes, which is not surprising as transfers are not expected to stimulate accountability, responsiveness or efficiency. However, we neither

found any significant association of transfers with the financial capabilities index, which is surprising, as these resources should permit higher savings and investments ratios.

As for royalties per capita, we found a positive and significant association with the Financial Capabilities Index, as expected, and a negative and significant association with the Physical Capabilities Index, which is not surprising as there is a lot of evidence of waste in the use of royalties. We also found a positive significant association with the Administrative Information and Compliance Index, which might suggest increasing requirements and supervision from the Planning Department and control organisms (these regressions are cross-sections on data circa 2008), given the previous scandals on misuse and waste which led to a major constitutional reform on allocation, use and supervision of royalties in 2010/11. We also found a positive and significant association with the Accountability Index, a rather surprising result. It may be due to the fact that the Planning Department and control organisms are requiring municipalities to organize regular public audiences regarding the use of mineral royalties.

Overall, these results do not suggest that royalties from oil and minerals are associated with a ´natural resource curse´ at the municipal level in Colombia, as a substantial part of the literature on natural resources and development would have predicted. They actually coincide with the conclusion of a previous study on the subject in Colombia (Perry and Olivera, CAF, 2010), that found strong evidence of a ´resource curse´ for most Colombian Departments in which oil production (though not coal) is concentrated, but did not find a negative statistical association between either oil or coal production, or royalties per capita, with municipalities income per capita, nor, in general, with their fiscal performance.[18]

We should observe that data on mineral production was available for too few municipalities (less than 15%) and presented abrupt temporal inconsistencies, impeding a

[18] Perry and Olivera´s explanation for this apparently paradoxical result is that most of the major oil producing Departments are frontier regions that had precarious institutions, economic activities and political culture when a fast and huge inflow of oil-based royalties appeared, and thus was essentially captured and wasted and inhibited institutional, political and economic development. Their bad performance dominated the small sample results. Though something similar might have happened in a few municipalities, there were a large number that received a more modest inflow of royalties and/or in which these conditions did not prevail, so the overall statistical association did not show a generalized resource curse.

more direct test of the natural resource curse hypothesis. In contrast, data on royalty payments (or the lack of them) are available for 98% of Colombian municipalities. Moreover, these payments include the extraction of hydrocarbons, construction materials and all other minerals hitherto discovered in Colombian soil, providing an indirect complete measurement of municipal natural resource wealth.

Political determinants: Our political competition indicator (the inverse of the concentration of votes for house representatives in a given municipality) was found to be negatively and significantly associated with the Physical capabilities index. This result resonates with Sanchez and Pachón findings and their interpretation: when votes for house representatives are more concentrated in a municipality, congressmen find in their interest to lobby the central government for additional discretionary projects and investments to satisfy their electoral clientele.

But this argument also implies that majors in these municipalities would be forced to increase more local taxes, given that they do not receive additional discretionary transfers or investments from the Central Government. Sanchez and Pachón indeed found a significant effect of this indicator of political competition on an indicator of fiscal effort (cadastral updates), which they (and we) use as instrument for local taxes per capita. We, however, did not find a direct significant positive association of this indicator of political competition on our Fiscal capabilities index, though we do find an indirect link, as Sanchez and Pachón did, through the effect of this type of political competition on cadastral updates in our First stage regressions for exercises with IV. See Table 10 in Appendix 1.

We also included two indicators of party continuity, to test the hypothesis, common in the political science literature, that in localities in which there has been significant party continuity, either historically or recently, politicians may develop a longer term horizon that leads to the building of state capabilities. Recent party continuity exhibited a significant positive association only with the physical capabilities index, probably because designing and implementing long term infrastructure projects demands the coordination of successive municipal administrations. Party continuity seems to facilitate this coordination. Our results suggest that this positive effect, however, does not extend to Fiscal, Financial or Operational

capabilities. We did not find significant associations of longer term historical party continuity on any of the constructed indexes.

Social conflict determinants: Social conflict in Colombia is mostly fueled by drug traffic and coca leaf cultivation. Both guerrilla and paramilitary groups in the country profited from these practices and fiercely fought for the control of coca producing zones. They also defended illegal producers from State action wherever they achieved territorial control. Thus, in these areas, violent territorial disputes among illegal armed groups ensued, as clashes between them and the army and police, were frequent, battering public infrastructure and forcing unarmed civilians to migrate to the main urban centers.

We indeed found that the physical capabilities' index is significantly and negatively affected by the presence of coca crops in the territory, probably as a consequence of the destruction and displacement of physical and human assets and the sheer capture of local municipal resources by armed groups. The presence of these crops also has a significant negative association with the Administrative Information and Compliance. The latter result is also quite plausible, as the presence of either guerrilla or paramilitary groups, closely associated and financed by drug traffic, has often resulted in their capture of municipal resources and widespread corruption.

General controls: GDP per capita has the expected positive sign and statistical significance with respect to our fiscal, physical and operational capabilities indexes.. These results suggest that a current high income per capita is positively associated with higher state capabilities in these areas. The coefficient with respect to the financial capabilities index are, however, not significant in any estimation. As mentioned before, this index was expected to depend more on transfers and royalties, which are either negatively associated or unrelated to income per capita.

Results associated with population density controls showed significant diverging effects across indexes. Population density was positively and significantly associated with the Fiscal and Operational indexes, as expected. Indeed, other things being equal, municipalities with higher population densities can benefit from a wider and more concentrated pool of

human capital for developing state capabilities, as well as from economies of scale in developing fiscal and operational capabilities. On the contrary, population density was found to be negatively associated with the financial capabilities index, perhaps because it depends more on transfers and royalties and both of these happen to be negatively associated with population density.

Results using total population as a control (not shown) were less significant. Plausibly, a municipality may not get advantage from economies of scale even with a large population, if it is too scattered in the territory. Additionally, under this scenario, public sector´s exploitation of the human capital reservoir may be hindered if transportation is too burdensome (very likely the case of many Colombian municipalities with undeveloped infrastructure). Further, a higher population (though not a higher population density) was found to be significantly associated with a lower municipality's score in the physical capabilities index, suggesting that small municipalities may require a minimum size of assets to deliver services and thus may require a higher number of schools, health centers and teachers per citizen or per student.

In summary, these results are suggestive of economies of scale and benefits of agglomeration associated with available specialized human capital and reductions of unitary costs, in physical, fiscal and operational capabilities. They are also suggestive of the presence of indivisibilities in physical capacities.

Fiscal Capabilities as Determinants of Other State Capabilities: As already mentioned, a significant chunk of the state capacity literature considers that fiscal capabilities (the capacity to raise taxes) is a precondition for the development of other state capabilities (as otherwise these could not be financed). Further, it could be a good indicator of broader state capabilities: a State that is able to effectively tax their citizens, is normally also able to achieve security and effectively deliver other services.

As Colombian municipalities receive today large transfers from the Central Government, and many of them significant oil and mining royalties, fiscal capabilities are no longer a precondition for their development of other capabilities. However, as capabilities

develop slowly overtime, high Fiscal capabilities today may be related to earlier development of fiscal and, hence, other state capabilities, that have carried over to present capabilities.

More likely, local taxation capabilities may be a good indicator of other operational capabilities. Indeed, as mentioned before, Sanchez and Pachón (2013) found that local municipal taxes, duly instrumented, contribute more to better service provision in education and water services, both in terms of coverage and quality, than transfers and royalties. Further, they interpret this result as indicating that citizens are more demanding about the use of their taxes, than about the use of transfers or royalties that do not burden them and about which they often have very precarious information. As a consequence, authorities end up being more responsive to citizens needs when they obtain a larger part of their available resources from local taxes.

For these reasons, we included the Fiscal capabilities index as a potential determinant of other state capabilities in additional regressions. Not oblivious of the potential endogeneity problems that could arise in these estimations, we conducted both OLS and IV regressions. See tables 9 and 11C (the latter in the appendix). Following Sanchez and Pachón earlier work, we instrumented the Fiscal capabilities index with the average cadastral sub-valuation indicator constructed by these authors. The delayed update of cadastral property values by municipal authorities dwindles municipal self-generated revenues via a lower property tax base. Not surprisingly, our first stage regressions show that, indeed, a higher cadastral sub-valuation is negatively associated with the Fiscal capabilities index. See Table 12.

Table 9: Determinants of State Capacity (OLS regressions with Fiscal Capabilities)

VARIABLES	Financial	Physical	Fiscal	Operational (T.I.)	Information and Compliance	Accountability
			Geographical			
Distance Prov. Capital	-0.0012	**-0.0019****	-0.0003	-0.0022	**-0.0015****	0.0000
	(0.0008)	(0.0008)	(0.0006)	(0.0042)	(0.0007)	(0.0007)
Caribbean	**-0.3405*****	**-0.6144*****	**-0.7727*****	**-1.4602*****	**-1.0351*****	-0.0045
	(0.1296)	(0.1182)	(0.0911)	(0.4204)	(0.1188)	(0.1150)
Pacific	**-0.2504****	**-0.2320****	**-0.4134*****	0.4514	**0.3186*****	-0.1156
	(0.1255)	(0.1179)	(0.0909)	(0.5425)	(0.1155)	(0.1118)
Eastern	-0.0643	**-1.0043*****	0.1615	-0.2566	**0.3508****	**0.4964*****
	(0.1648)	(0.1593)	(0.1234)	(0.4997)	(0.1552)	(0.1502)
Soil Aptitude	**0.0893*****	**0.0600****	-0.0029	-0.0886	-0.0008	-0.0141
	(0.0280)	(0.0269)	(0.0208)	(0.1045)	(0.0261)	(0.0253)
			Historical			
Indigenous Presence	0.0694	-0.0743	-0.0153	0.1169	0.0420	**-0.1821****
	(0.0885)	(0.0902)	(0.0660)	(0.3582)	(0.0829)	(0.0802)
Spanish Occupation	-0.1403	**0.3862*****	**0.1241***	-0.5946	-0.0254	**0.1817****
	(0.0906)	(0.0912)	(0.0672)	(0.4209)	(0.0845)	(0.0818)
			External Resources and Fiscal Capabilities			
Royalties per Capita	**0.0014*****	**-0.0006*****	**0.0006*****	0.0003	**0.0005*****	**0.0003****
	(0.0002)	(0.0002)	(0.0001)	(0.0007)	(0.0002)	(0.0002)
Transfers per Capita	-0.0018	-0.0032	**0.0124*****	0.1481	**-0.0058****	0.0002
	(0.0027)	(0.0025)	(0.0021)	(0.4492)	(0.0026)	(0.0026)
Fiscal Capabilities	**0.1007****	**0.3960*****		0.0376	**0.1096*****	0.0111
	(0.0492)	(0.0487)		(0.2537)	(0.0414)	(0.0401)
			Political			
Political Comp.	-0.0068	**-0.1051*****	0.0164	0.0177	-0.0005	-0.0123
	(0.0151)	(0.0142)	(0.0110)	(0.0495)	(0.0139)	(0.0134)
Party continuity	0.0307	0.0445	0.0069	-0.1514	0.0055	-0.0399
	(0.0274)	(0.0289)	(0.0207)	(0.1133)	(0.0260)	(0.0252)
Max. Party continuity (1988-2007)	-0.0166	-0.0177	0.0115	-0.0198	0.0245	0.0293
	(0.0249)	(0.0243)	(0.0185)	(0.0888)	(0.0232)	(0.0224)
			Controls			
GDP per capita (log)	-0.0862	0.0547	**0.2300*****	0.0355	**0.1625*****	**0.1236****
	(0.0628)	(0.0613)	(0.0448)	(0.2661)	(0.0571)	(0.0553)
Population Dens. (log)	**-0.1924*****	0.0190	**0.0909*****	0.1421	**0.2645*****	**0.1626*****
	(0.0414)	(0.0399)	(0.0305)	(0.1181)	(0.0385)	(0.0373)
Coca Presence	-0.1262	**-0.7227*****	-0.1174	-0.3907	**-0.2354****	-0.0236
	(0.1233)	(0.1177)	(0.0916)	(0.3746)	(0.1152)	(0.1115)
Constant	0.3371	0.4863	**-0.7646*****	0.4518	**-1.0776*****	**-0.7361****
	(0.3532)	(0.3378)	(0.2588)	(1.2379)	(0.3266)	(0.3161)
Observations	862	730	937	131	937	937
R-squared	0.1741	0.3714	0.2337	0.2585	0.2405	0.0646

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Most of the other coefficients retained their sign and significance. The political determinants, however, were a notable exception. Recent party continuity lost its statistical significance (though not its positive sign) when explaining physical capacities in the OLS and IV estimations. Significances of all political variables were lost in the IV regressions (Appendix) as cadastral sub-valuation is probably correlated with both recent party continuity and political competition. Recent party continuity could imply higher and more persistent efforts to update the cadaster. And, as it was discussed before, higher political competition could hamper congressional lobbying with the central government and consequently reduce transfers from the latter. This scenario could propel municipalities to duly update their cadasters more often in order to raise revenues.

We indeed obtained a marginal positive association of this variable with all other capabilities indexes in the OLS regressions, though coefficients were not significant for two of the operational capabilities indexes. See Table 9. When instrumented, it showed an even larger effect on the physical capabilities index. See Table 11C in the appendix. This result may indicate that a higher local fiscal effort leads indeed to more construction of public infrastructure.

4. Conclusions and policy implications

As expected, we found significant variances in all state capabilities indexes for Colombian municipalities, especially for those that attempt to capture operational capabilities. Several factors appear to be robust determinants of several indexes of Municipal State Capabilities, in particular GDP per capita, population density, local tax revenues per capita and local fiscal effort (the latter, in turn, determined, among other things, by the degree of local political competition for Congress representatives, as obtained by Sanchez and Pachón, 2012), Central Government transfers, oil and mining royalties, closeness to the provincial capital, soil aptitude and early Spanish occupation. We also found some differences in the determinants of indexes that attempt to capture different capabilities, in particular between indexes of operational

capabilities (including the capacity to raise local revenues) and indexes of present financial and physical capabilities, though patterns in such differences were less clear and robust than expected.

In addition, even controlling for these and other potential determinants, municipalities in the Atlantic Coast tend to lag in all state capabilities indexes and those in the Pacific region in several of them. These results suggest the need to establish capacity building programs that could mitigate present differences of state capabilities across municipalities, focusing on those that are poorer, have lower population density and are farther away from provincial capitals, and, among these, on those located in the Atlantic and Pacific regions.

Appendix 1

A note on endogeneity problems and instrumental variables

Our OLS estimations in Tables 8 and 9 are liable to suffer from several endogeneity problems. These are potentially particularly serious with respect to the controls used, the coca presence variable and fiscal capabilities, all of which may depend in turn on present or past municipal state capabilities. Thus, causality cannot be inferred from these results. In order to mitigate these problems we constructed and used instrumental variables for some of these variables and used them in our estimations in Tables 11 and 12.

Table 10 shows the first stage regressions for the instrumented variables. As already mentioned, the capacity to collect local taxes may determine higher state operational capabilities, but both variables may also have common unobserved determinants. To overcome this potential endogeneity problem we used Sanchez and Pachón cadastral sub valuation index (estimated on the basis of cadastral updates) as an instrument for local taxes per capita. Cadastral sub valuation is a relevant and valid instrument. On the one hand, it reduces the tax base of one of the two most important municipal taxes (the property tax)). On the other hand, cadastral updates can be considered an exogenous variable in most cases, given that they only require the political initiative of the major to request the National Cadastral Office (IGAC) to advance an update (and pay partially for it). Thus, cadastral updates do not depend on municipal state capabilities. There are a few exceptions such as the cities of Bogota, Medellin and Cali that run their own cadastral offices. The results in Table 12 show that this is also a relevant instrument from a statistical point of view.

Table 10: First Stage Regressions (Selected coefficients only)

Regression:	Financial	Physical	Fiscal	Operational (T.I.)	Information and Compliance	Accountability
Instrumented variable : Fiscal Capabilities Index						
Cadastral Sub-valuation	0.1295	0.0550	**-**	**-1.1679****	0.0550	0.0550
	(0.2079)	(0.2009)	-	(0.4412)	(0.2009)	(0.2009)
Instrumented variable: Coca Leaf Presence						
Lithic Plants	**-2.42e-10*****	**-2.48e-10*****	**-2.51e-10*****	8.02e-10	**-2.50e-10*****	**-2.50e-10*****
	(8.74e-11)	(8.69e-11)	(8.67e-11)	(2.49e-09)	(8.67e-11)	(8.67e-11)
Water Covered Zones	**1.20e-09*****	**1.19e-09*****	**1.20e-09*****	1.39e-09	**1.20e-09*****	**1.20e-09*****
	(3.19e-10)	(3.16e-10)	(3.15e-10)	(1.22e-09)	(3.15e-10)	(3.15e-10)
Instrumented variable: Population Density						
Catholic Churches	**0.0125*****	**0.0129*****	**0.0129*****	**0.0486*****	**0.0129*****	**0.0129*****
	(0.0032)	(0.0031)	(0.0031)	(0.0154)	(0.0031)	(0.0031)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

We also instrumented population density to overcome a potential endogeneity problem arising from reverse causality (i.e. people migrating to municipalities with higher state capacities). The chosen instruments were the number of Catholic and non-Catholic churches, which are likely to be closely associated with population density, but not with state capabilities.

Finally, we also instrumented coca presence to control for potential reverse causality (i.e. coca crops appearing more easily in low state capacity municipalities). The chosen instruments were: number of hectares with herbaceous lithic plants, number of hectares with xerophytes' vegetation and hectares of water covered zones. Of this only the latter proved to be a relevant instrument in a statistical sense. See Table 10.

Results shown below do not differ significantly with OLS estimates, except in a few cases already discussed in the main text, suggesting that endogeneity problems in our OLS estimations might not be as severe as expected.

Table 11A: Determinants of State Capacity (Coca Presence Instrumented)

VARIABLES	Investment	Physical	Fiscal	Operational (T.I.)	Information and Compliance	Accountability
Coca Presence (IV)	-0.2173	**-1.7656****	-0.0335	-0.9453	**-1.9861****	-0.3637
	(0.8947)	(0.8602)	(0.6971)	(1.7592)	(1.0008)	(0.8763)
				Geographical		
Distance Prov. Capital	-0.0015	0.0006	-0.0006	-0.0008	0.0004	-0.0000
	(0.0013)	(0.0013)	(0.0010)	(0.0043)	(0.0015)	(0.0013)
Caribbean	-0.4844***	-0.2127*	-0.7670***	-1.5599***	-1.2202***	-0.0631
	(0.1009)	(0.1222)	(0.0949)	(0.5255)	(0.1428)	(0.1251)
Pacific	-0.2553*	0.0211	-0.3479***	0.3493	0.4982***	-0.0571
	(0.1521)	(0.1501)	(0.1232)	(0.5052)	(0.1758)	(0.1539)
Eastern	-0.0365	-0.1322	0.0885	-0.1432	0.7979**	0.6114**
	(0.2763)	(0.2662)	(0.2156)	(0.5107)	(0.3100)	(0.2715)
Soil Aptitude	0.0522*	0.0529**	-0.0019	-0.0469	0.0053	-0.0240
	(0.0285)	(0.0264)	(0.0216)	(0.1223)	(0.0309)	(0.0271)
				Historical		
Indigenous Presence	-0.0557	-0.2476**	0.0197	0.1707	-0.1116	-0.2424**
	(0.1000)	(0.0971)	(0.0791)	(0.3405)	(0.1135)	(0.0994)
Spanish Occupation	-0.0336	0.1533	0.1741*	-0.3929	-0.2299	0.1922
	(0.1248)	(0.1254)	(0.1024)	(0.3872)	(0.1463)	(0.1281)
				Resources		
Royalties per Capita	0.0015***	-0.0005***	0.0006***	0.0001	0.0004**	0.0003*
	(0.0002)	(0.0002)	(0.0001)	(0.0006)	(0.0002)	(0.0002)
Transfers per Capita	-0.0016	-0.0047*	0.0121***	0.2097	-0.0058**	-0.0001
	(0.0026)	(0.0025)	(0.0020)	(0.4181)	(0.0030)	(0.0026)
Fiscal Capabilities	0.0711	0.4151***		0.0738	0.0353	0.0103
	(0.0433)	(0.0409)		(0.2465)	(0.0478)	(0.0418)
				Political		
Political Comp.	-0.0201	-0.0401***	0.0214*	-0.0022	0.0185	-0.0145
	(0.0156)	(0.0155)	(0.0125)	(0.0501)	(0.0181)	(0.0158)
Party continuity	0.0208	0.0187	0.0159	-0.1871	-0.0137	-0.0442
	(0.0290)	(0.0271)	(0.0221)	(0.1350)	(0.0317)	(0.0277)
Max. Party continuity (1988-2007)	-0.0095	-0.0356	0.0038	0.0244	0.0182	0.0265
	(0.0247)	(0.0226)	(0.0184)	(0.1162)	(0.0264)	(0.0231)
				Controls		
GDP per capita (log)	-0.1351	-0.1258	0.3300***	-0.1629	0.0062	0.1106
	(0.1125)	(0.1041)	(0.0856)	(0.3999)	(0.1218)	(0.1067)
Population Dens. (log)	-0.2053***	-0.1498***	0.0674*	0.1484	0.2056***	0.1505***
	(0.0512)	(0.0480)	(0.0393)	(0.1577)	(0.0562)	(0.0492)
Constant	0.8701*	1.0988**	-0.9235***	0.5449	-0.4328	-0.4764
	(0.4825)	(0.4366)	(0.3568)	(1.1861)	(0.5092)	(0.4459)
Observations	847	923	924	133	924	924

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11B: Determinants of State Capacity (Population Density Instrumented)

VARIABLES	Investment	Physical	Fiscal	Operational (T.I.)	Information and Compliance	Accountability
Population Dens. (log)) (I.V.)	**0.8971****	0.2393	0.2589	0.9334	0.1932	-0.5169
	(0.4114)	(0.2656)	(0.2230)	(0.5837)	(0.2850)	(0.3249)
			Geographical			
Distance Prov. Capital	0.0053*	0.0011	0.0007	0.0053	-0.0023	-0.0046**
	(0.0028)	(0.0018)	(0.0015)	(0.0067)	(0.0019)	(0.0022)
Caribbean	0.1384	-0.2406*	-0.8090***	-1.1945**	-1.1068***	0.1421
	(0.2050)	(0.1326)	(0.1029)	(0.5077)	(0.1421)	(0.1620)
Pacific	-0.4842***	-0.1907	-0.3722***	1.1007	0.2970**	0.0146
	(0.1862)	(0.1168)	(0.0965)	(0.7952)	(0.1247)	(0.1421)
Eastern	1.2406**	-0.0612	0.3203	1.4321	0.2448	-0.2813
	(0.5270)	(0.3427)	(0.2883)	(1.3696)	(0.3676)	(0.4190)
Soil Aptitude	0.1267***	0.0690**	0.0125	-0.1166	-0.0128	-0.0765**
	(0.0478)	(0.0315)	(0.0270)	(0.1115)	(0.0340)	(0.0388)
			Historical			
Indigenous Presence	-0.3254**	-0.2490**	-0.0306	0.0490	0.0254	-0.0482
	(0.1554)	(0.1016)	(0.0868)	(0.4033)	(0.1091)	(0.1244)
Spanish Occupation	-0.2304	0.2469***	0.1405*	-0.5895	-0.0183	0.3319***
	(0.1426)	(0.0880)	(0.0764)	(0.4505)	(0.0945)	(0.1077)
			Resources			
Royalties per Capita	0.0020***	-0.0003*	0.0007***	-0.0000	0.0004**	-0.0000
	(0.0003)	(0.0002)	(0.0002)	(0.0007)	(0.0002)	(0.0002)
Transfers per Capita	0.0022	-0.0029	0.0126***	0.8138	-0.0054*	-0.0023
	(0.0039)	(0.0026)	(0.0021)	(0.6706)	(0.0028)	(0.0032)
Fiscal Capabilities	-0.0266	0.3965***		-0.5723	0.0547	0.0684
	(0.0699)	(0.0450)		(0.5787)	(0.0480)	(0.0547)
			Political			
Political Comp.	-0.1448***	-0.0905***	0.0001	-0.0712	0.0091	0.0565
	(0.0499)	(0.0314)	(0.0269)	(0.0690)	(0.0337)	(0.0385)
Party continuity	0.0151	0.0329	0.0149	-0.1337	0.0075	-0.0383
	(0.0378)	(0.0245)	(0.0210)	(0.1217)	(0.0263)	(0.0300)
Max. Party continuity (1988-2007)	0.0193	-0.0194	0.0097	0.0317	0.0233	0.0066
	(0.0352)	(0.0232)	(0.0198)	(0.0971)	(0.0249)	(0.0284)
			Controls			
Coca Presence	0.2090	-0.3648***	0.0115	0.1391	-0.2261	-0.2403
	(0.2148)	(0.1387)	(0.1190)	(0.5478)	(0.1492)	(0.1701)
GDP per capita (log)	-0.2187**	-0.0224	0.3064***	-0.1964	0.1956***	0.2036***
	(0.0922)	(0.0599)	(0.0527)	(0.3000)	(0.0645)	(0.0735)
Constant	-3.5409**	-0.7481	-1.6905*	-2.9739	-0.7430	2.1753
	(1.6940)	(1.1151)	(0.9275)	(2.8586)	(1.1989)	(1.3667)
Observations	847	923	924	133	924	924

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11C: Determinants of State Capacity (Fiscal Capabilities Instrumented)

VARIABLES	Investment	Physical	Operational (T.I.)	Information and Compliance	Accountability
Fiscal Capabilities	-1.2223	9.6146	0.5251	-2.8083	-9.9914
	(2.9536)	(33.0275)	(1.0291)	(12.6718)	(36.6911)
			Geographical		
Distance Prov. Capital	-0.0020	0.0023	-0.0030	-0.0013	-0.0041
	(0.0019)	(0.0144)	(0.0064)	(0.0055)	(0.0160)
Caribbean	-0.6037	7.0064	-1.3019*	-3.4257	-7.5593
	(2.3905)	(25.4196)	(0.7561)	(9.7528)	(28.2392)
Pacific	-0.5894	2.7628	0.6347	-0.5896	-3.2859
	(0.9881)	(10.5752)	(0.8845)	(4.0574)	(11.7482)
Eastern	0.7107	-2.8650	-0.7483	1.0868	3.5047
	(0.8859)	(8.9460)	(0.7521)	(3.4323)	(9.9383)
Soil Aptitude	0.0505	0.3476	-0.0546	-0.0999	-0.3165
	(0.1073)	(1.0845)	(0.1807)	(0.4161)	(1.2048)
			Historical		
Indigenous Presence	-0.3301	1.0279	0.3951	-0.1544	-1.7081
	(0.4794)	(4.5097)	(0.5309)	(1.7303)	(5.0100)
Spanish Occupation	0.5227	-3.8650	-0.7072	0.9853	4.7688
	(1.2998)	(14.8991)	(0.6231)	(5.7164)	(16.5518)
			Resources		
Royalties per Capita	0.0027	-0.0075	-0.0035	0.0022	0.0074
	(0.0020)	(0.0242)	(0.0028)	(0.0093)	(0.0269)
Transfers per Capita	0.0138	-0.1154	1.5390	0.0292	0.1208
	(0.0355)	(0.3984)	(1.0168)	(0.1529)	(0.4426)
			Political		
Political Comp.	0.0182	-0.1469	-0.0472	0.0485	0.1097
	(0.0446)	(0.3806)	(0.0733)	(0.1460)	(0.4229)
Party continuity	-0.1130	0.6344	-0.1974	-0.1555	-0.7193
	(0.1764)	(2.2509)	(0.1484)	(0.8636)	(2.5006)
Max. Party continuity (1988-2007)	0.0716	-0.2904	0.0094	0.0855	0.3036
	(0.1038)	(0.9088)	(0.1267)	(0.3487)	(1.0096)
			Controls		
GDP per capita (log)	-0.0188	-1.5574	0.3275	0.7301	1.6410
	(0.4489)	(5.1635)	(0.3535)	(1.9811)	(5.7363)
Population Dens. (log)	-0.0632	-0.9888	0.1366	0.5086	1.1059
	(0.3189)	(2.9993)	(0.1665)	(1.1507)	(3.3320)
Coca Presence	-0.5988	0.7579	-0.3228	-0.4754	-1.7921
	(0.5748)	(5.2651)	(0.4950)	(2.0201)	(5.8492)
Constant	-0.1731	6.0755	-0.4696	-2.8276	-6.2725
	(1.7353)	(17.7536)	(1.6122)	(6.8116)	(19.7229)
Observations	361	387	63	387	387

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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