Global
Development
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GDN Working Paper Series

Decentralization, Fiscal Effort and Social Progress in Colombia at the Municipal Level, 1994-2009: Why Does National Politics Matter?

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Working Paper No. 77
July, 2013

The **Global Development Network (GDN)** is a public International Organization that builds research capacity in development globally. GDN supports researchers in developing and transition countries to generate and share high quality applied social science research to inform policymaking and advance social and economic development. Founded in 1999, GDN is headquartered in New Delhi, with offices in Cairo and Washington DC.

This paper was produced in the context of the Global Research Project "Varieties of Governance: Effective Public Service Delivery" managed by Global Development Network (GDN). The funds for the present study were provided by the Institutional Capacity Strengthening Fund (ICSF), managed by Inter-American Development Bank (IDB), thanks to the contribution of the Government of the People's Republic of China. This paper is published simultaneously in IDB's Working Paper Series and GDN's Working Paper Series. The views expressed in this publication are those of the authors alone.

Abstract[1]

The present paper explores the relationship between political competition and effective public goods delivery systems in a decentralized context to study whether the awareness generated through such a competitive environment and the existence of more political options are a part of the causal mechanisms for effective governance. In particular, we want to observe the effect of electoral competition on the incentives to build fiscal capacity and provide public goods such as education and water, that are to a large extent the responsibility of the local municipalities. The research hypothesis is that political competition strengthens the decentralized municipalities through building their local fiscal capacity. In turn, the fiscal capacity is the fundamental variable that explains the differences in sector performance across local governments. Local fiscal capacity brings about better policy outcomes, as well as a better match between resources and the needs – what we call responsiveness – which simultaneously ensures greater efficiency in local spending. Using a rich panel municipal dataset from 1994 till 2009, we have shown that on comparing the differences across education and the water and sewerage sectors, the power of fiscal effort appears to be the driving force behind better policy outcomes than any other resource commonly made available to the municipalities, such as national transfers or royalties.

Key words: Colombia, decentralization. Social progress, fiscal capacity, political competition, water services.

JEL Codes: E61, E62, E63, H21, H41

1. The authors would like to thank the Global Development Network and all the participants at the workshops held during the course of this project for their support and comments. They would specially like to thank Ramona Angelescu, Guillermo Perry, Matthias Krause, Jean Paul Faguet and Ben Ross Schneider for their very useful and insightful comments that helped advance the ideas that were put forth.

Introduction

The undertaking of decentralization policies has been advised and encouraged as a way to bring governments and public goods delivery closer to the people. It is expected that voters would elect local politicians who have a better understanding of the local needs, and once in office, would allocate the budget to better accommodate these needs. Faguet (2004), for example, found that after the decentralization reforms, the Bolivian local governments funded with larger resources those public goods that the local population needed the most. Melo (2005) and Faguet and Sánchez (2009) found evidence that decentralization played a major role in increasing access to education in Colombia. Yet any evidence of the impact of decentralization on social progress is mixed (Bardhan and Mookherjee 2006). As has been argued by Weingast (2009) and others, there are many factors that may jeopardize the efficient allocation of resources, prompted by a competitive political process. Among these are the asymmetries and lack of information in relation to the delivery of public goods at the local level, presence of interest groups, political party weaknesses, as well as clientelism and corruption – all leading to the slowing down of social progress.

The present paper explores the effect of electoral competition – both local and national, at the local level – on the incentives to build fiscal capacity and provide public goods such as education and water. The research hypothesis is that political competition at both these levels provides a boost to municipal decentralization as measured through the local fiscal capacity. Our findings support this hypothesis. For instance we find that fiscal capacity is the fundamental variable that explains the differences in sector-wise performance across local governments. Local fiscal capacity brings about a better match between resources and the needs – a responsiveness that simultaneously entails greater efficiency in local spending.

Our findings are consistent with the recent literature on decentralization, which stresses the importance of mobilizing local resources to foster social progress and economic development. As Weingast (2009) has recently suggested, it is necessary to take into account the type of incentives – in the local political context – that transfers generate without the existence of fiscal effort, and not only consider the "importance of transfers for mitigating horizontal and vertical imbalances" (p. 280). In the absence of a local fiscal effort, local authorities may not necessarily act to maximize social welfare. Also, voters in that case may not care to hold them accountable. Our paper argues that political competition has a significant impact on public service provision through fiscal effort. When municipalities are not controlled by a small regional elite segment but instead the municipal electorate supports a larger number of candidates, local politicians cannot rely on national politicians to obtain resources from the national government and thus have greater incentives for making a greater tax collection effort at the local level. To follow Gadenne (2011), we feel that citizens, by paying more local taxes will have greater incentives to monitor the local politicians, and electoral accountability will improve as awareness of public policy performance dawns on the population.

When local governments involve themselves in policies and actions to raise their own taxes – encountering in many cases a harsh political process – they in doing so become more accountable to their citizens. The voters would want to have better control over the destination of the new funds; they would demand greater efficiency in spending and would pressure the authorities for a budget allocation closer to the populations' needs. In a pure local fiscal framework, citizens internalize their marginal cost of taxes and consequently push for an allocation that better fits their needs, particularly in the sectors that yield the highest marginal benefit. Such sectors would be those that provide the public goods that are relatively less accessible to the local population.

Thus, in municipalities that make concerted efforts to raise their fiscal capacity, more rapid progress would be expected, especially when considering the indicators of social development, as the citizenry would demand better responsiveness and efficiency in the spending.

In addition, we suggest that electoral competition has a mediated impact through fiscal capacity on the distribution of expenditures, leading to positive outcomes of local resource allocation in education, water, and sewerage services. As political competition increases, so does awareness about citizens' needs and the competing parties' commitment to campaign promises that appeal to a larger electorate. In the absence of such competition, we could expect political leaders to reward their loyalists through a more clientelistic approach involving exchange of goods and services (targetable goods) for their political support. This, in turn, could adversely impact fair and efficient allocation of valued resources. A political process is efficient when it facilitates the correspondence, in relative terms, of need-based resource allocation. It is also expected that with a relatively higher correspondence between the real needs and budget allocation, expenditure efficiency must rise.

We analyze this relationship in two sectors: education, and water and sewerage – two areas of policy in Colombia where the municipality has substantial jurisdiction. Access to education has increased enormously in the last two decades, coinciding with the intensification of the decentralization process (Ministerio de Educación 2010; Rodriguez 2010; Faguet and Sánchez 2008). However, the differences in the growth of enrollment rates across municipalities are quite significant. Moreover, the quality of education seems to remain stagnant, as shown by the different international tests such as the PISA (Program for International Student Assessment) and TIMSS(Trends in International Mathematics and Science Study), and by the students' performance in the Colombian national tests. For example, most of the public schools rank among the lower tiers of the test distribution (ICFES 2009).

The water and sewerage sector has undergone major institutional changes, with an important part of their delivery being handled by private or semi-private firms (Silva 2007; Granados 2008; DNP 2006). As of today, more than 35 percent of municipalities have effected changes in their water provision services and have put these in the hands of private companies or specialized providers. Nevertheless, there is a great deal of discussion regarding the impact of such changes on the growth of coverage, and on the quality of the water and sewerage services.

To carry out our research, we used a rich dataset containing detailed information on sector-wise performance of all the municipalities in Colombia from 1994 – 2009, information on land tax gathered from the National Planning Department and cadastral information from the *Geographical Institute Agustín Codazzi*, as well as electoral results for the councils, mayors and House of Representatives across the country from 1994 till 2008 obtained from the *Colombian Electoral Office (Registraduría Nacional del Estado Civil)*. To complement the quantitative analysis, we also did several interviews of politicians from municipalities where we could observe the variations in the outcomes as well as in the independent variables, mainly with regard to fiscal effort and electoral competition.

This paper is divided into six parts. The second section briefly summarizes the evolution of the decentralization process in Colombia, giving an account of three aspects of the process: the evolution of the local finances, the quality and coverage of education and the provision of water and sewerage services. The third part is the theoretical framework and a summary of the more general expectations. The fourth part describes the empirical methodology linking the political and local state capacity (measured as fiscal effort), and then local state capacity to service delivery outcomes. The fifth section shows the results, and the sixth is the concluding section.

A Short Account of Colombia's Decentralization Reforms

The first steps of the Colombian fiscal decentralization reforms occurred at the end of the 1950s. According to Junguito and Rincón (2009) the 1958 Constitutional Amendment assigned at least 10 percent of the national budget to education expenditure, thus marking the beginning of "a formal scheme of transfers." The next steps included the 1968 Constitutional Amendment that created the "Situado Fiscal" – Law 33 of 1968 – that initiated the sharing system and the sales tax cession, and Laws 46 of 1971 and 14 of 1983 that aimed to reinforce the municipal and departmental taxes. Colombia, nonetheless, remained very centralized politically, as designed in the 1886 Constitution. All governors in Colombia were presidential appointees, and in turn, were in charge of naming all the mayors in the municipalities. None of them had fixed terms. As a result, most local political careers depended on their ties to the regional and national leaders. Although some resources were allocated to the departments and municipalities, the best way for them to get hold of more was through their congressmen. At the time, both House and Senate members were elected by department constituencies. Legislators, of course, monopolized access to resources for lower levels of government.[2]

The most significant departure from the 1886 Constitution was the 1986 Constitutional Amendment, which for the first time in the twentieth century in Colombia established that mayors should be popularly elected for two-year terms, with no possibility of immediate re-election.[3] Consistent with the 1986 Constitutional Reform, the 1991 Constitution ushered in a new stage of decentralization, establishing the rules that would allow the citizens greater say in the public policy as well as to oversee the functioning of their politically elected leaders. Thus, governors also became popularly elected. In addition, the Senate, previously elected in the departments, was changed to a national constituency in an attempt to "nationalize" the political debate and allow politicians to campaign all over the country, over, for example, an issue, instead of campaigning for their regional constituency.

Political decentralization was complemented with fiscal decentralization. Both types of decentralization augmented – according to Falleti (2010) – the autonomy of local and regional politicians from the Central Government, which brought about a significant change in the inter-governmental balance of power for governors and mayors. For that purpose, the 1991 Constitution introduced a new scheme of transfers and developed into the Law 60 of 1993 – with a very precise set of formulae – in which the Central Government's current revenues (mainly national taxes) were to be shared with the departments and with municipalities. Transfers were distributed on the basis of unmet basic needs to all municipalities, and then, municipalities had to distribute their own expenditure across sectors, each one with a fixed percentage. Under these rules, there were few incentives for municipalities and departments to increase their revenue generation capacity. The new institutional framework also defined the distribution of natural resource royalties among departments and municipalities (Articles 360 and 361).[4] In order to increase the efficiency of resource transfers, a reform of the system was undertaken in 2000. In the first place, it created

2. After the 1968 Constitutional Reform, each legislator had a separate fund which was called "auxilios parlamentarios," which they could distribute discretionally across their constituencies. This, of course, generated enormous criticism as the distribution of these resources ended up consolidating clientelistic networks in which the allocation was done based on political affiliation (Cárdenas, Junguito and Pachón, 2006).
3. The periods of mayors and governors changed to three years after 1994, and to four-year terms in 2003.
4. Before the reform, royalties would automatically be transferred to municipalities in which the extraction of resources was done. In June 2011 the Royalties Reform was approved in Congress, transforming the way in which they were regionally allocated. Instead of just transferring them to municipalities, sub-national entities need to compete for the resources by presenting projects which in turn need to be approved by entities with representation from the national, departmental and local tiers of government.

a revenue sharing system (Sistema General de Participaciones, or SGP) that fixed the amount of resources to be transferred and established a 2 percent annual growth in real terms. In addition, the formula to allocate the resources across sub-national entities based on Law 60 of 1993 was also changed by the Laws 715 of 2001 and 1176 of 2007. In an effort to better align incentives of politicians to improve their policy performance, the Law 715 determined that the distribution of the transfers would be based on the coverage and growth of the health and education services provided by the territorial entities, and not by population and poverty rates – criteria that had been established by Law 60 of 1993.

Also, if one considers that the length of the mayoral and governor's terms was, at the time, three years (from 1994 till 2003) with no possibility of re-election, political incentives were also de-aligned to pay the costs for raising taxes, without enough time to deliver better public services. Thus, the 1991 Constitution initiated a process of decentralization focused on the local provision of goods and services and on transfers, but neglecting the sub-national governments' (SNGs) generation of their own resources. As could be expected, during the 1990s, departments and municipalities financed most of their expenditures through transfers from the Central Government instead of making the effort to build a local tax base, which resulted in significant vertical imbalances and in most cases in fiscal deficits[5] that threatened fiscal sustainability and macroeconomic stability (Sánchez and Zenteno 2011).[6]

Municipal spending increased from 3.0 percent to 6.8 percent of GDP between 1994 and 2009, while its own revenues rose from 1.4 percent to 2.5 percent of the GDP during the same period. This means that only 30 percent of the increase in spending (in GDP percentage points) was financed with additional municipal fiscal effort. Thus, municipal vertical imbalances have been rising – a fact that may have distorted the incentives towards efficiency and responsiveness of local governments (Sánchez and Zenteno 2011; Sánchez et al. 2012). At the municipal level, almost 90 percent of the tax revenues are represented by the Property and Land Tax, Commerce and Industry Tax and the gasoline surcharge. Between 1996 and 2000, per capita municipal taxes did not present significant changes. From 2001, they began to steadily increase, particularly reflecting the behavior of the property, industry and commerce (ICA) taxes. The dynamism in tax collection can be attributed to the tax reforms, such as Law 488 of 1998 and Law 788 of 2003, which increased the base for some sub-national taxes such as the gasoline surcharge.

Descentralization Impact on Education: Better Coverage, Deficient Quality

Access to education, particularly quality education is a proven instrument for increasing employment opportunities for people and improving their lifetime income levels, health status and lowering pregnancy rates (UNESCO 2008). Recognizing this fact, the Constitution of 1991 established the right to education as a right for all citizens, compulsory for all children from 6 to 15 years of age. Although additional resources have been allocated for improving the coverage and quality of education (Rodriguez 2010), there are still enormous differences in the enrollment

5. According to Rodden (2002) large and persistent deficits occur when the sub-national governments depend strongly on inter-governmental transfers, and have, at the same time, free access to credit, generating fiscal indiscipline.
6. As a matter of fact, the territorial debt rose from 1.1 to 3.5 percent of the GDP between 1990 and 1999 (Ministry of Finance, 2009). In an effort to better align incentives of politicians to improve their policy performance, the Law 715 determined that the transfer's distribution would be based on the coverage and growth of the health and education services provided by the territorial entities, and not by population and poverty rates - criteria that had been established by Law 60 of 1993. Concerning the generation of own resources, Congress approved Law 488 of 1998 whereby the base for some sub-national taxes such as the register tax was increased, and Law 1111 of 2006, which raised cigarette taxes. In order to augment health revenues, Decree 127 of 2010 increased the rates of the departmental cigarette and liquors tax, as well as VAT for beer and gambling. Furthermore, the gasoline surcharge was unified, and a surcharge on diesel (ACPM) was levied.

rates and quality of education among the Colombian municipalities. Some of these differences are explained by structural factors such as poverty and wealth distribution, while others are related to regional and local aspects such as tax capacity and political processes.

Faguet and Sánchez (2008) and Melo (2005) have shown that starting 1993 students' enrollment in public schools rose significantly. Thus, the overall enrollment in schools – as a percentage of the population – grew steadily from 22 percent to 25 percent from 1993 to 2009 while public school enrollment increased from 14 percent to 21 percent, indicating that in net terms most of the new students joined the public school system. While Faguet and Sánchez (2009) state that the allocation of municipal resources may be the key factor in explaining the differences in enrollment growth, Melo (2005) argues that the increase in coverage may have been reached at the expense of quality.

Although national transfers go strictly by percentages when it comes to allocating money for expenditure on a sector, the local administration reserves the right to spend their own resources as they deem fit, be it on infrastructure, educational material, or on additional teachers, besides the ones hired by the department. The decision in terms of what to spend on is expected to have an impact on the coverage and quality of education. Also, municipal tax capacity further determines the amount that local governments may freely invest from their own resources. The evolution in spending came about, first, during the early decentralization of the 1990s when funds from local resources financed around 8 percent of the total education outlays. Such a proportion dropped to 2 percent – in part as a consequence of the increase in Central Government transfers – and rose back to more than 10 percent around 2008. Thus, after 2002 and coinciding with the Constitutional Reform of the Central Government transfer system, as well as the enactment of the Law 715, the proportion of educational spending coming from local resources began to grow.

In terms of quality, the education scenario seems to remain stagnant as demonstrated by the different international tests such as the PISA and TIMSS, and by the students' performance in the Colombian national tests. For example, most of the public schools rank in the lower tiers of the test distribution (ICFES 2009). Nonetheless, the evidence for Colombia is mixed and the different methodologies adopted have been subject to criticism.[7]

Descentralization Impact: Mixed Results on the Provision of Water Services

The issue of water and sewerage is particularly important in Colombia, as it involves different levels of government and the public and private sector. In this regard, the Central Government transfers the resources to the local governments, to be spent on water and sewerage, and at the same time the local service is provided by the municipality or by a public, semi-private or a solely private entity. Thus, it emerges that there is an interplay of different actors that brings about different outcomes depending upon the local political setup, the origin of the provider – public or private – and the local institutions.

Historically, water and sewerage expansion has been affected by political and electoral interference, given the political gains as represented by the provision of such essential services. By the late 1980s the situation of the service provision resembled what Spiller and Savedoff (2000) have called a "low-level equilibrium," in which tariffs were low and did not cover the costs as-

7. According to Rodriguez (2010) the lack of adequate data may explain why the results have suggested both positive and negative impacts of decentralization. Using panel data techniques she evaluates the effects of decentralization on the quality of education in public schools, concluding that reforms increase the gap in the results of standardized test preparation applied in public and private schools. She argues that the results are neither driven by the lack of transfers from Central Government, nor by the lack of investment of resources in the sector. They are mainly driven by the increased enrollment of poor students in public schools. When this factor is controlled for, it is found that the public education system serves a larger number of students, besides offering better quality education.

sociated with the expansions in coverage and service quality. Additionally, the system lacked a pricing mechanism to allow the rationalization of consumption. As part of this scenario, a reform of the system was undertaken within the framework of decentralization.

The reform transferred to the municipalities both the public works related operations and the management of the service. Simultaneously, the resources transferred from the Central Government to the municipalities were increased as a way to support the latter's autonomy, and to help develop their new responsibilities. Under this new framework, the Central Government was responsible for the planning, regulation, oversight and control of the services, while the provision was carried out by a provider, which could be one of the following: 1) public service companies incorporated as public limited liability companies (S.A. ESP, *Empresas de Servicios Públicos*); 2) municipalities as direct providers; 3) government-managed industrial and commercial companies (EICE, *Empresas Comerciales e Industriales del Estado*); 4) marginal or independent producers, or 5) organizations authorized to provide services in rural areas or specific urban areas.[8] Accordingly, under the new institutional framework the municipalities were autonomous although the Central Government continued to be the main source of financing for the sector's investments.[9] When observing the evolution of average own expenditures on the water sector, the trend was similar to that observed in the education sector: the more the national transfers, the smaller the investment of own resources in the sector. After the 2001 reform, incentives were transformed and the trend changed, increasing the average of own resources utilized.

The transformation pace of the municipal providers into a business-like management model for the case of water supply and sewerage services has been rather sluggish. In fact, the majority of direct providers are still the municipalities – representing nearly 35 percent of them (Silva 2007). Law 142, by incentivizing the replacement of the municipalities as direct providers by Companies of Public Utilities, intended to improve the coverage and quality of the services which would translate into better indicators of the quality of life. Analyzing the influence of governance on the performance of water and sanitation (WS) services in developing countries, particularly the Colombian case, Krause (2007) found that low quality governance of sub-national governments compromises the internal efficiency of service delivery and the widespread access to the services. The results obtained have yielded some evidence that PSP contributes to enhance the internal efficiency of service providers. When a local manager was asked about the municipal regime before it was transformed to an ESP he replied,

"Back then, all the jobs that had to do with the service delivery were political quotas. So, the "escobitas" [cleaners], you go, you go… as well as the person charging for the service were political quotas. People that had no clue of what they were doing were put in these positions in the municipality's small company. There were no clear policies or goals, the service was, in practical terms, free. People paid 20 pesos for the water".[10]

8. Law 142 of 1994, Article 15. Other changes introduced by Law 142 were: a) the definition of a pricing regime based on the cost of providing the service, b) the creation of a control mechanisms of the provider performance enforced by citizens, c) establishment of a regime of free enterprise which constitutes the base for the entry of the private sector as a provider and, d) for the implementation of management control and internal control systems within the provider companies. See Krause (2007) for a complete explanation of the differences between EICES and ESP.
9. Also, the Colombian system of user's fees follows a cross-subsidization approach in which residential users from low socio-economic strata (1, 2, and 3) receive discounts in their fees, which are covered by fees charged to the high socio-economic strata (5 and 6) as well as by the commercial and industrial users. Due to the deficit nature of the scheme in most municipalities, Central Government transfers partially finance these subsidies. The remaining resources cover a fraction of the investments needed to provide the services, either through direct subsidies to the provider – that could be municipality itself – or through the delivery of physical infrastructure (Silva 2007).
10. "En ese entonces, casi que todos los cargos adscritos a la prestación de estos servicios eran de cuotas políticas. Entonces, que las escobitas: vaya usted, vaya usted; que la persona que se encargaba de la facturación. Personas que no tenían ni idea que tenían que hacer en un cargo de esos y era así como se colocaban las posiciones de los cargos en una empresa de pequeña estructura que tenía el municipio. No había políticas claras, no había directrices, el servicio era prácticamente regalado: la gente pagaba 20 pesos por el agua." Manager, Water Company of el Peñol, Antioquia.

"However, for political competition to make a difference at the local level, political actors need to have enough autonomy for their decisions to make a difference in the outcome".

However, the transformation per se has not been shown to be enough (Krause 2007). The evidence on the advances in provision and quality in the sector is mixed. As for coverage, census data reveal that water coverage rose from 60.5 percent to 64 percent in the municipalities that did not reform and from 78 percent to 78.5 percent in the ones that did. Granados (2008) shows that water and sewerage coverage grew less in the municipalities with private provision, while the reduction in infant mortality was slower.[11] In contrast, Barrera and Oliveira (2007) found positive effects on coverage and health as a result of the involvement of private parties in the provision of these services, particularly in urban areas. Prasad (2006) indicates that the studies that focused on the performance of the provider companies from a microeconomic point of view – analyzing the efficiency and productivity indicators – are not conclusive in terms of the effects of private capital involvement. Gomez-Lobo and Meléndez (2007) also obtained mixed results on evaluating the Private Sector Participation (PSP) in the water and sewerage sectors. Concerning the affordability of the service, researchers found no statistically significant effect of PSP. Nonetheless, PSP does seem to increase the quality of service, measured as continuity of service, and sewerage connection rates.

Conceptual Framework: The Necessary Link between Political Competition, Local State Capacity, and Policy Outcomes

In the literature different governance factors have been considered to influence the provision of water and education, such as transparency, accountability, technical and fiscal capacity, quality of the local bureaucracy, participatory mechanisms and competitive political processes, among others (Andrews and Shah 2003; Krause 2007). In this paper, we focus on the effect that national electoral competition has on fiscal effort at the local level and thereby on public service delivery.

There are various arguments in the literature that tie local political competition to better policy outcomes (Weingast 2009; Basley et al. 2009). The basic argument is very simple: The more the political actors with real chances to win office, the better should be their performance and quality of candidates to avoid being ousted from power. The presence of opposition too plays an important role in the provision of information to the citizenry, lowering the probability of the misuse of public resources.

However, for political competition to make a difference at the local level, political actors need to have enough autonomy for their decisions to make a difference in the outcome. If there is no autonomy and transfers are only weakly related to sub-national income growth, the incentives for better performance can rapidly vanish. In Weingast's words, "Elections in the presence of fiscal

11. Referring to the municipalities in which the service is provided by private parties, the manager of the Water Company of El Peñol argued; "Los alcaldes generan compromisos con ese tipo de gente y vienen, ese modelo es perverso, muchas veces esa gente viene y esa gente de lo que tratan es de escurrir al usuario. Finalmente vienen, lo clavan con unas tarifas exorbitantes, le sacan el jugo al negocio, no hacen ninguna inversión y salen y se van con la plata. Entonces yo pienso que una entidad pública, siempre y cuando, se logre manejar con cierta autonomía administrativa, financiera, con cierta independencia del tema político, si se maneja así se puede manejar con unos criterios de rentabilidad más que, o sea una rentabilidad económica que le permita ser auto sostenible en el tiempo."

dependence and opportunism become a means of political control rather than of citizen expression" (Weingast 2009:280). In other words: under a soft budget constraint, politicians would be able to spend more than they collect, and by doing that, they could effectively protect or appeal to a certain constituency that they consider pivotal to their ascent in their political careers.

The budget constraint is also dependent on the availability of resources for the national government, which does not entail asking for more taxes from the citizens at the local level. When the regional or national elite can help ease the budget constraints, their role becomes more significant in determining the policy outcomes. This dependency allows for the national elite to control the local elite, forcing the latter to make sub-optimal decisions for their population, or provide them with additional resources in exchange for political rents and patronage. As a council member interviewed clearly stated,

"A good administration in this municipality is done with *gestión*.[12] That is why I said we would be among the best Santa Bárbara has had, as we have a direct connection with León Darío, [the brother of the elected mayor], in the Chamber of Deputies [former mayor, elected three times non-consecutively]. Also, on top of that, he belongs to the Third Committee, which you already know is the one that decides over the Budget and that gives him a number of advantages, like it is being the rapporteur, for which they are given some additional incentives compared to other members".[13]

There are costs associated with each of the two options to soften the budget constraint. Lobbying for additional national resources implies an electoral compromise and exchange for support with the regional leader who has the leverage to deliver additional resources. Possibly too, the mayor would need to prioritize the legislator's electoral interests instead of his own. Also, if the municipality is controlled by someone from among the regional elite, that person will take advantage of this closeness to extract whatever resources possible to deliver to his/her electorate. In places where there is greater competition for the votes, and consequently ties to the regional political network are thinner, the local politician may have reduced chances of gaining access to such resources. As competition increases at the regional level for national office, politicians too are required to maximize their vote share, and may opt for a campaign that appeals to voters by providing national public goods and policies instead of localized or appropriable goods (Cox 1987).

Local politicians can also choose to increase their resources by increasing their fiscal revenue. An increase in property and land tax – namely the updating of the local cadastre – is one of the most important fiscal policy decisions for a municipality to increase their resources and ease their budget constraint. Although updates are mandatory at least once every five years, they can even be done as often as every year. Local politicians consider the decision to update a difficult one, with associated costs such as the loss of popularity, which could be significant in an early stage of one's career. This update – a clear action of the fiscal effort – determines the property and land tax base and therefore its evolution. The lack of update brings about an undervaluation of the local properties in the local cadastre and consequently may lead to a tax collection below its potential.

Thus, in municipalities where politics would be captured by one or few groups, politicians would most likely lobby for more national resources instead of raising taxes. Consequently, instead of improving their career chances through the provision of public goods, they would provide public goods and rents through clientelistic practices that do not necessarily match the needs.

12. This is the term used by politicians to refer to the effort to find money from the national government.
13. "Básicamente una buena administración en este municipio se hace con gestión. Por eso les decía yo ahora que aspiramos a ser una de las mejores administraciones que haya tenido el municipio de Santa Barbara por la coyuntura que tenemos a León Darío en la Cámara. Porque aparte de todo, él pertenece a la comisión tercera, que como ustedes bien saben es la de presupuesto y eso le da ciertas ventajas frente a algunos representantes porque ser ponentes y participar en las ponencias del presupuesto, les dan algunos incentivos".

When asked about the cadastral update, a local politician from el Peñol, a small town in Antioquia that frequently updates the cadastre argued,

"People do not like that the administration updates the local cadastre. It is clearly an unpopular measure and if you do it as a mayor you lose popularity. But you have to do it, you have to respect the law and do it."

When asked about the reasons as to why updating the local cadastre every five years was not done by a great number of municipalities despite their obligation to do so, the Mayor of Monterrey, Casanare, said:

"If you tax newly established enterprises, you can do it and you will improve the collection. Despite the update, evasion is fairly generalized and it is difficult to force people to pay. Nonetheless, if you tell me I am required to update, I will do it only in the first year. I am finishing my term, and I think it would be political suicide to do it at another time."

Notwithstanding the political costs to update, it has been shown that the benefits to the municipality, as mentioned previously, are far greater than the ones received from other sources (Perry and Olivera 2009). For example, it has been shown that municipalities with royalties do not have better social indicators than those without royalties despite the significant difference in resources (Perry and Olivera 2009; Economia Urbana 2012). Hence, money that is collected from the citizenry may prove more beneficial in terms of the outcomes produced than money got from other sources. Thus, when local governments raise more local resources, have some autonomy to optimize their finances and are able to impact policy outcomes, political competition could explain improvements in policy outcomes. Since local politicians are to blame if things go wrong, incentives are aligned for both politicians and voters to make an additional effort in contributing to the public good, as well as exercising their right to take stock of their performance.

In this regard, Fisman and Gatti (2002) found that the rate of convictions for abuse of public office is high in the US states that rely more on federal transfers. Thus, larger fiscal dependence or mismatch between state revenues and expenditures led to greater corruption. In the same direction, Gadanne (2011) evaluated a program in Brazil that invests in the modernization of local tax administrations, and found that the increase in local taxes, prompted by the program, brought up educational enrollment levels as well as the number of schools built with greater efficiency than did Central Governments transfers. Gadanne stated that since citizens have better information on taxes than on transfers, rent-seeking opportunities of politicians are considerably diminished, leading to better spending of the resources.

In Colombia, as we have observed in the previous sections, municipalities had a soft budget constraint until 1997, the year in which significant restrictions were imposed on their capacity to be in debt. Following this, the municipalities, in order to increase their execution capacity, needed to increase their fiscal capacity. Thus, we argue that national political competition at the local level affects both the effort of the municipalities to increase their autonomy by raising more revenue and the decisions necessary to improve the service delivery. Local fiscal capacity not only depends on the wealth and economic activity of the municipality, but also on the fiscal effort, defined as policy actions that the local government undertakes to augment local revenues. The fiscal dimension of the State –understood as its ability to tax income and wealth – has recently been regarded as fundamental for the delivery of public goods, policies promoting development and the implementation of distributive policies (Careaga and Weingast 2003; Besley and Persson 2009; Cárdenas 2010). In this paper we allege that local fiscal capacity is also essential for the delivery of local public goods within a context of political and fiscal decentralization as experienced by Colombia after 1991. Thus, to understand the interplay between fiscal capacity and

political competition it is crucial to understand why the improvement of the population's welfare varies within and across Colombian municipalities.

We consider two policy sectors that are crucial to the welfare of the population: education and water. In both these sectors, the municipality plays a leading role vis a vis their performance. In education, for example, mayors are in charge of setting need-based priority levels in schools with regard to investment, as well as the type of investment, whether the need is for infrastructure, educational material, feeding programs, or for more teachers, to mention just a few. Equally, in the water sector, the mayor is responsible for taking a decision as to who will provide the service, who will monitor the provider, and whether the coverage should be increased to new areas of the municipality. The council and the mayor have the added responsibility of defining the levels of cross-subsidy from high to low income levels.

Within the education sector we scrutinize various indicators of coverage, quality, and responsiveness. While coverage and quality in education and water and sewerage services is quite intuitive, responsiveness is less so. Let us explain: We state that municipalities with higher fiscal effort will not only assign more of their resources to the different sectors – complementing with greater efficiency the resources coming through transfers – but that the fiscal effort will also improve the *responsiveness* of the local authorities. This implies that the resources are going to be spent in the sectors with relatively higher needs as revealed by the low coverage or quality of the specific local public goods. Measuring responsiveness is not an easy task, as it involves taking into account the relationship between the allocated resources and the local needs. It is assumed that the greater the alignment between the needs and the allocation of own resources in a particular sector, the better the responsiveness.[14] Primarily, the local government decides how much would be spent on education (or on any other sector). As for determining that amount, we just subtract – from the total educational spending – the transfers received from the Central Government for that sector. The *Educational Fiscal Effort* would then be the proportion of the total spending on education at the local level, financed with local taxes. It is expected that greater fiscal effort will facilitate the channeling of more resources into a particular sector.

The following section gives the methodology and measurement strategy to establish the link between political competition and local state capacity (measured as fiscal effort), and also to establish the link between local state capacity and service delivery outcomes.

Methodology

1. Link between Political Competition and Local State Capacity: How Often Do Mayors Update Their Municipality's Local Cadastre?

To operationalize the decision that best shows the intent of the mayors to have financial autonomy in spending and prioritizing the available resources, we focus on the decision to update the cadastre. The updates of the local cadastre allow us to calculate the underestimation of the

14. It should be mentioned that we tried different measures of responsiveness. We used, for instance, the proportion of sector spending from local taxes (education or water) to total local taxes instead to the proportion of sector spending from local taxes to total sector spending. Nevertheless, we kept the responsiveness measure that we had been using, for the following reasons: 1) using taxes in the denominator of responsiveness (dependent variable) against local fiscal effort -taxes- is almost the same as having the same variable in both sides of the equation; 2) as we control in the model for the local socioeconomic variables we are in fact taking into account differences in responsiveness that may emerge from local wealth and income and; 3) since we estimate a IV model using an instrument, the percentage of undervaluation would account for changes in responsiveness due exclusively to fiscal policy actions. In this regard, the use of instruments would correct the likely measurement errors of the responsiveness variable.

values of local properties – both urban and rural. Thus, once the undervaluation of properties is estimated it will be used as the instrumental variable of local tax revenues in the econometric exercises aimed at explaining coverage and quality outcomes in education and water. In fact, tax revenues may be endogenous to the provision of education and services; local officials may decide to increase local taxes when they face higher demand for such public goods.

Cadastral information indicates that the municipalities take on the task of cadastral updating approximately nine years after the last update took place. Nevertheless, 20 percent of the municipalities undertake updates after five years or less following the last urban update, or seven years or less of the last rural one. In order to determine the variables explaining the cadastral updates we estimate a number of hazard models with the following specification that includes the contextual variables that may affect the decision to update, as well as the political competition variables to observe whether it has the effect we have so far described:

$$UPDATE_{i,t}\ (=1) = \beta_1 * Years\text{-}to\text{-}last\text{-}Update_{i,t} + \beta_2 * Political\text{-}Variables_{i,t} + \beta_3 * SocioEconomic\text{-}Variables_{i,t} + \beta_4 * Coverage/Quality\text{-}Public\text{-}Goods_{i,t} + T_t + DP_k \quad (1)$$

where $UPDATE_{i,t}$ equals one in the years in which the local cadastre (either urban or rural) has been updated and zero for the other years. *Tt* and DP_k stand for time dummies and departmental fixed effects, respectively. It is expected that the longer it takes to update the local cadastre, the greater the likelihood of updating (β_1>0). We would also expect that the situation of coverage or quality of the local public goods should not be related to the cadastral updates (β_4=0) and that, as mentioned earlier, the political context, particularly political competition, would influence the cadastral updates.

After estimating the cadastral update hazard model, the undervaluation of local properties can be assessed. Such undervaluation depends on the number of years when there was no cadastral update and the number of updates within a given period of time. In other words, as the cadastre becomes older, the values and the number of properties tend to be lower than they should be. Thus, the lack of updates erodes the tax base, with tax collection remaining far below its potential. To determine the effect of the lack of updates on the value of properties, we first estimate a panel fixed effect model for the per capita value of municipal properties. Such value will be determined by the structural characteristics of the municipality – such as GDP per capita, poverty rates, concentration of land, participation of urban population among others – and by the number of years to the last update, as well as the number of updates undertaken. Thus, the per capita value of properties is estimated with the following fixed effect panel equation (see appendix for details):

$$Value\ of\ Properties_{it} = \zeta 1 * Local\text{-}Structural\text{-}Variables_{i,t} + \theta_1 * Number\text{-}of\text{-}year\text{-}to\text{-}last\text{-}cadastral\text{-}update_{i,t} + \theta_2 * Number\text{-}cadastral\text{-}updates_{i,t\text{-}to} + T_t + \sigma_i + \upsilon_{i,t} \quad (2)$$ [15]

Both the number of years to the last cadastral update and the number of cadastral updates are indicators of the local fiscal effort and should affect local tax revenue. The first are positively related to undervaluation and the second negatively.

Once equation number 2 is estimated we calculate the undervaluation of properties by using the following equation:

$$Estimated\text{-}Under\text{-}Valuation_{i,t} = \theta_1 * Number\text{-}of\text{-}year\text{-}to\text{-}last\text{-}cadastral\text{-}update_{i,t} + \theta_2 * Number\text{-}cadastral\text{-}updates \quad (3)$$

15. Several specifications were estimated for the years to the last cadastral update: lineal, quadratic, cubic and diverse forms of dummy variables for the number of cadastral updates.

> "We expect that when the citizens pay their dues they are in a better position to demand that the administration respond to their most urgent needs, and in turn, the administration should be able to maximize their electoral advantage by responding to their electorate".

Calculations based on the information from the cadastral office indicate that the average undervaluation of properties is about 0.2 log points (about 20 percent) with a standard deviation of 0.25 log points. The distribution goes from -0.06 to nearly 0.9 log points.

2. The Effect of Local State Capacity on the Efficiency of Service Provision Systems in Education and Water

The Model for Enrollment Rates and Quality of Education

As already mentioned, we suggest that higher fiscal effort of local governments should reflect itself in higher level of public goods provision. In this case, we expect that when the citizens pay their dues they are in a better position to demand that the administration respond to their most urgent needs, and in turn, the administration should be able to maximize their electoral advantage by responding to their electorate. We first address the education sector.

Then, the influence of the fiscal effort on the educational indicators is estimated using the following model:

$$Y_{i,t} = \alpha 1 * \text{Fiscal-Capacity (Taxes)} + \alpha 2 * \text{CG-Transfers}_{i,t} + \alpha 3 * \text{Royalties}_{i,t} + \alpha 4 * \text{Political-Variables}_{i,t} + \alpha 5 * \text{Socio-Economic Variables}_{i,t} + \Theta_i + T_t + e_{i,t} \quad (4)$$

where $Y_{i,t}$ represents an educational outcome – enrollment rates or quality of education – and the right hand expressions are the explanatory variables. Θi stands for the municipal fixed effects, while Tt are year dummies. It is expected that $\alpha 1 > \alpha 2$ and $\alpha 1 > \alpha 3$ as the efficiency of the locally raised funds should be greater than the efficiency of the Central Government transfers and royalties.

Nevertheless, the coefficient $\alpha 1$ may be biased as both local taxes and the educational indicators may be related to the omitted variables that change over time and hence are not fully captured by the municipal fixed effects. One example of an omitted variable, for instance, is the price of local production that may affect both local taxes through larger economic activity and educational outcomes of such enrollment rates. In order to correct the likely bias in the estimator we instrument the tax capacity variable. The instrumental variable used is the estimated undervaluation of the properties of the local cadastre, explained above. Such undervaluation depends exclusively on the frequency and number of cadastral updates. Conceptually, undervaluation is not related to the educational outcomes; it is only through greater tax capacity that a municipality may attain it when its tax base is enhanced by an administrative action.

Therefore, the first stage of the educational outcome equation is done using the following equation:

$$\text{Fiscal-Capacity (Taxes}_{i,t}) = \gamma 1 * \text{Estimated-Under-Valuation}_{i,t} + \gamma 2 * \text{CG-Transfers}_{i,t} + \gamma 3 * \text{Royalties}_{i,t} + \gamma 4 * \text{Political-Variable}_{si,t} + \gamma 5 * \text{Socio-Economic variables}_{i,t} + \Psi_i + T_t + e_{i,t} \quad (5)$$

It is then expected that γ 1<0 since an increase in the undervaluation for properties would reduce both the property and land tax base and, consequently, the potential tax collection.

The Model for Educational Responsiveness

Finally, we would like to test whether the allocation of the local administration's own resources leads to better outcomes. Primarily, the local government determines how much money would be allocated to the different sectors. To quantify the amount of its own educational spending, we use the reported total spending on education and subtract the transfers received from the Central Government for that sector. The educational fiscal effort would thus be the proportion of the total spending on education at the local level, financed with local taxes. It is expected that greater fiscal effort will facilitate the channeling of more resources into a particular sector. Therefore, educational fiscal effort may be expressed as:

$$(\text{Own Resource for Education}_{t,t-n})/(\text{Total educational Spending}_{t,t-n}) \quad (6)$$

According to the above expression we measure *Educational Fiscal Effort* over a period of time – between t and t-n – as it is assumed that what matters is the long-term response of spending on education to tax fiscal effort and not the annual or short term one that for some years may be nil. So, to establish whether the municipality is spending on the most needy sector, we set an indicator of educational responsiveness measured as a binary or dummy variable equal to one at time t, whenever the proportion of educational spending coming from local revenues – the educational fiscal effort indicator – in a given municipality is above the national average provided that the municipality's educational enrollment rate was below (or close to) the national average in the year t-n. If that were the case, it would suggest that the local government is aware of its lagging educational position and makes an effort to allocate resources to the sector. Hence,

$$\text{Educational Responsiveness}_{t,t-n} = 1 \text{ if Educational Fiscal Effort}_{t,t-n} > \text{Average Educational Fiscal Effort}_{t,t-n} \text{ and Education Enrollment Rate}_{t-n} < \text{Average education Enrollment Rate}_{t-n} \quad (7)$$

Thus, it is expected that if citizens pay higher taxes they would demand a spending that closely reflects people needs. The equation to be estimated (second stage) is then:

$$RES_{it,t-n} = \Psi 1 * \text{Fiscal-Capacity (Taxes)}_{it,t-n} + \Psi 2 * \text{CG-Transfers}_{it,t-n} + \Psi 3 * \text{Royalties,}_{t-n} + \Psi 4 * \text{Political-Variables}_{it,t-n} + \Psi 5 * \text{Socio-Economic variables}_{it,t-n} + e_{i,} \quad (8)$$

where $RES_{it,t-n}$ stands for the responsiveness of the local government i during the period t,t-n and $\Psi 1$ is the second stage coefficient of fiscal capacity instrumented with the estimated undervaluation of local properties as in equation 3. It is expected that $\Psi 1 > 0$ will indicate that positive variations of the local fiscal effort will increase the responsiveness of municipal governments.

The Model for Coverage and Quality of Water

As in the case of education, the estimated model let us determine the impact of the fiscal effort and the structure of the water sector on the indicator of coverage and quality of water at the municipal level. In the case of water coverage, we count with census data for 2005 at the municipal level and hence the models to be estimated are cross-section OLS and instrumental variable ones. Thus, the model has the following structure:

$$Wi, = \alpha 1*Fiscal\text{-}Capacity\ (Taxes)_i + \alpha 2*CG\text{-}Water\text{-}Transfers_i + \alpha 3*Political\text{-}Variables_i + \alpha 4*Socio\text{-}Economic\ variables_i + \alpha 5*EICE + \alpha 6*ESP + \alpha 7*Years\text{-}since\text{-}reform + e_i \quad (9)$$

where W_i stands for water coverage in 2005. For the rest of the variables we computed their average for the period 1994 – 2005. The variable EICE expresses whether water is provided by a Government Owned Company, ESP, whether it is provided by a mixed or private firm, and Year-since-reform stands for the number of years during which the EICE or the ESP has been delivering the service.

The Model for Water Responsiveness

Like in the case of education, we end by measuring what explains water responsiveness, to observe the match between own local resources being spent and the needs. The water fiscal effort would then be the proportion of the total spending on water at the local level, financed with local taxes. It is expected that greater fiscal effort will facilitate the channeling of more resources into a particular sector. Therefore, water fiscal effort may be expressed as:

$$(Own\ Resource\ for\ Water_{t,t\text{-}ni})/(Total\ Water\ Spending_{t,t\text{-}ni}) \quad (10)$$

According to the above expression we measure *Water Fiscal Effort* over a period of time – between t and t-n – (1994-2005) as it is assumed that what matters is the long-term response of spending on water to tax fiscal effort and not the annual or short term one that in many years is nil. So, to establish whether the municipality is spending in the neediest sector, we set an indicator of water responsiveness (same as the education responsiveness measure) measured as a binary dummy variable. The variable takes the value 1, when the proportion of spending on water from local revenues – the water fiscal effort indicator – in a given municipality is above the national average conditional that the municipality's water coverage rate was below (or close to) the national average in the year t-n (1994). If that were the case, it would suggest that the local government is aware of its lagging water coverage position and makes an effort to allocate resources to the sector. In all other cases, the variable takes the value 0. Hence,

$$Water\ Responsiveness_{t,t\text{-}n} = 1\ if\ Water\ Fiscal\ Effort_{t,t\text{-}n} > Average\ Water\ Fiscal\ Effort_{t,t\text{-}n}\ and\ Water\ Coverage\ Rate_{t\text{-}n} < Average\ Water\ Coverage\ Rate_{t\text{-}n} \quad (11)$$

Thus, it is expected that if citizens pay higher taxes they would demand a spending that closely reflects the people's needs. The probit model to be estimated (second stage) is then:

$$(Water\ Responsiveness=1)_{it,t\text{-}n} = \xi 1*Fiscal\text{-}Capacity\ (Taxes)_{it,t\text{-}n} + \xi 2*CG\text{-}Transfers_{it,t\text{-}n} + \xi 3*Royalties_{it,t\text{-}n} + \xi 4*Political\text{-}Variables_{it,t\text{-}n} + \xi 5*Socio\text{-}Economic\ variables_{it,t\text{-}n} + \xi 6*EICE + \xi 7*ESP + \xi 8*Years\text{-}since\text{-}reform + e_i \quad (12)$$

$\xi 1$ is the second stage coefficient of fiscal capacity instrumented with the estimated undervaluation of the local properties as in equation 3. It is expected that $\xi 1>0$ will indicate that positive variations of local fiscal effort will increase the responsiveness of the municipal governments.

Results

1. *The Link Between Political Competition and Local Tax Capacity*

The results of the hazard model are presented in Table 1. In the first column it is shown that the cadastral update is time dependent. That is, the older the last update the greater the likelihood of having one in the current year. In column 2, some political variables to measure political competition are introduced in the model: the effective number of parties in the municipality, and two dummies identifying mayors from the traditional political parties – Liberal and Conservative. The effective number of parties measures the local political competition[16], and the dummies for the traditional parties are to determine if mayors who have a national network have a smaller incentive to update. To measure the degree of political competition at the local level for national office we include two variables: GINI[17] for party share in the House votes (column 2), and the effective number of candidates in the municipality competing for the House (column 3). Both these variables indicate the degree of political competition at the local level, for a seat in the Chamber of Representatives (House). The variables capture the political control that a politician exerts in a particular municipality. For instance, if the entire share of the votes for the House in a given municipality is obtained by a particular politician it means that such a politician controls that municipality. In that case she would try to maintain her political stronghold by bringing in *additional public goods financed through Central Government resources*. Hence, the local politicians – mayors and council representatives – would not be so hard pressed to raise the local taxes.

Although all the variables have the expected direction, only the GINI is significant and is negatively related to the decision to update. This means that the lower the number of parties in the municipality competing for departmental votes, the fewer the incentives to update the cadastre (our measure of fiscal effort). Equally, seen from the perspective of the effective number of candidates weighted by their support within the municipality, the expectation that greater competition is positively related to the decision to update is confirmed.[18] Given this result, we feel that the regional political context within which the municipality's politics happen is fundamental to understanding the decision to strengthen local finances. The results, however, should be viewed with caution as we are assuming that the greater concentration of the regional votes would soften the local budget constraint. We do not have an exact measure of the resources that the regional politicians in the National Congress may have delivered to the local governments.

In column 3, we control for socio-economic variables whose results are not shown due to space constraints. Besides, the per capita transfers from the Central Government are strongly and negatively related to cadastral updates, indicating that local fiscal effort may be curtailed if the mu-

16. The measure of the effective number of parties is the inverse of the Herfindal Index to measure the competition among party shares of votes. The unit of analysis is the political party.
17. The GINI is a measure of statistical dispersion and measures the concentration across political parties. Thus, if one party controls all the votes for the House, the "political concentration" is highest (GINI of 1). If more parties do, then the "political concentration" goes down.
18. This is the same measure as the effective number of parties, but instead of taking the party as a unit of analysis each candidate is counted independently.

nicipality is financed through other sources. Finally, the last column indicates that education enrollment rates and quality of education *are not* related to cadastral update, implying that no fiscal effort is forthcoming from local governments because they are trailing in these indicators.

Table 1: Cadastral Update

Dependent Variable: Cadastral Update				
		Cadastral Updating LOGIT (Marginal Coefficients)		
Variables				
Years to Last Update				
Urban	0.1500*** (0.0119)	0.0092*** (0.0008)	0.0093*** (0.0008)	0.166*** (0.0136)
Rural	0.0775*** (0.0099)	0.0057*** (0.0006)	0.0058*** (0.0006)	0.109*** (0.0115)
Political				
Effective Number of Parties		0.0006 (0.0018)	0.00065 (0.0018)	0.0115 (0.0327)
Mayor from Liberal Party		-0.0022 (0.0062)	-0.00204 (0.0063)	-0.0588 (0.116)
Mayor from Conservative Party		-0.0017 (0.0067)	-0.00137 (0.0068)	-0.0321 (0.124)
Gini of Party Share		-0.6134*** (0.1714)	-0.64577*** (0.1735)	
Effective Number of House Candidates				0.386*** (0.110)
Decentralization				
Per-capita Transfers (In)		-0.0251*** (0.0065)	-0.2374*** (0.0066)	-0.426*** (0.119)
Royalties		-0.00022 (0.0006)	-0.00020 (0.0006)	-0.00191 (0.0106)
Coverage/Quality				
Students-Population ratio			-0.0302 (0.0523)	-0.354 (0.940)
Public Test Score			0.0922 (0.0803)	1.600 (1.450)
Departmental Fixed Effects	yes	yes	yes	yes
Year Effects	yes	yes	yes	yes
Observations	7826	7826	6497	6480

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Per-capita GDL (ln), Poverty Rate, Gini of Land Value and Urban Population were included as controls.
Source: see Annex 1: Data Sources

2. *The Positive Impact of Local Tax Capacity on Service Provision in Education*

Table 2 presents the results of the OLS and the instrumental variables (IV) panel models for student enrollment in public school as a proportion of the population. The OLS model indicates that an increase of 1 percent on local taxes augments the enrollment rate by 0.007 percentage points, such result being similar to the 0.008 increase in enrollment obtained through Central Government transfers. The first stage of the instrumental variable model in column 2 indicates that, as expected, the cadastral undervaluation of local properties is negatively related to local per capita tax revenue. In fact, if the estimated undervaluation rises by 1 percent, tax revenue would fall by 0.11 percent. The first stage also reveals that royalties and intra-party competition are positively correlated with local per capita taxes. The second stage indicates that changes in tax capacity as prompted by changes in tax effort do indeed positively affect student enrollment. According to the coefficient, a 1 percent positive exogenous variation of local taxes increases by 0.021 the proportion of the population enrolled in public schools. Or in relative terms, if per capita taxes go up by one standard deviation (in log =1.26) the educational enrollment rate would sizably increase by 0.58 (0.021*1.26/0.063) standard deviations.

Table 2: Determinants of Public School Enrollment in Colombian Municipalities, 1994 - 2009

	Public School Enrollment		
Variables	OLS	I 2SLS	IV
Decentralization			
Per-capita Taxes (In)	0.0078*** (0.000587)		0.0213* (0.0133)
Per-capita Transfers (In)	0.0816*** (0.000628)	0.017 (0.0108)	0.00815*** (0.000702)
Royalties	0.000113 (0.0000722)	0.004*** (0.00121)	0.0000509) (0.0000935)
Political			
Effective Number of Parties		0.0185 (0.0186)	0.00254** (0.00116)
Squared Effective Number of Parties		-0.0038* (0.0023)	-0.000254* (0.000149)
Intraparty Competition	-0.0000939 (0.0000828)	0.0059*** (0.0015)	-0.000109 (0.000120)
Proportion of Council Members from Mayor's Party	0.00156 (0.00151)	-0.043 (0.028)	0.00377** (0.00180)
Council Members Reelection Average	0.0000613 (0.0000880)	0.0015 (0.0014)	0.0000438 (0.0000924)
Mayor from Conservative Party	0.00191** (0.000955)	-0.00264 (0.0161)	0.00181* (0.000982)
Mayor from Liberal Party	0.00105 (0.000955)	-0.0308* (0.0162)	0.00123 (0.00107)

Variables	OLS	I 2SLS	IV
Constant	1.436*** (0.0293)		
Instrument			
Cadastral undervaluation		-0.1114*** (0.0242)	
Municipal fixed effects	yes	yes	yes
School fixed effects			
Year fixed effects	yes	yes	yes
F-test for instruments		21,05	
Prob>F		0,000	
Endogeneity test		21,11	
Chi-sq(1) p-value		0,000	
Observations	11146	11135	11135

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.

Standard errors in brackets.
Poverty rate, Gini of Land Value, Population (ln), Teacher-Student ratio (lagged), No. Official Students - Population ratio (lagged) were included as controls.
Enrollment: Group by Municipalities: 917/ 906/906; Quality: Groups by Schools: 5482/ 5373/ 5458/ 5346/5346

Source: see Annex 1: Data Sources

As for the other variables, the coefficient of the Central Governments transfer is equal to 0.008 and similar to the one obtained using the OLS panel model. The impact of royalties on coverage is zero. It is apparent that the taxes coefficient is greater than that of the transfers. This result may intuitively suggest that higher taxes lead to greater awareness among citizens with regard to the allocation of the local budget, which in turn calls for greater efficiency in the local public sector.

Finally, the political variables are only weakly correlated with the enrollment rates in public schools. The local effective number of parties (ENPP) correlates positively with enrollment, as does intra-party competition, although this last one is not statistically significant. This is a result that seems to hold throughout the analysis, suggesting that local politics have less of an impact than the logic behind national politics as mediated by fiscal autonomy.

Table 3 presents both the OLS panel and the instrumental variable panel model for the quality of education. The variables on the right-hand side are calculated both annually and as six-year averages (as it is assumed that the quality of education at the end of high school has its foundations in at least the previous six years). Quality is measured as the average school score of the senior high school students in the test SABER 11, relative to the test score of the average private high school of the department where the public school is located. The departmental average score was used, given that in many Colombian municipalities no private education is offered. The dependent variable is then

$Y_{j,i,t}^{k}=(School\text{-}Score_{j,i,t}^{k}/Average\text{-}private\text{-}Score^{k})$ where *j* denotes the public school, *i* the municipality, *t* the year and *k* the department where it is located.

Columns 1 and 4 show the OLS panel estimates of the relationship between per capita taxes and relative score. Such estimates reveal a positive, statistically significant correlation between the local taxes and test scores in public schools, especially in the six-year average. Moreover, a strong correlation is found between Central Government transfers and relative public scores, indicating that municipalities spend some of these resources on goods that help to raise the quality of education. It is noteworthy that the effect of local taxes on quality is substantially greater than the effect of transfers. The effect of royalties on the quality of education is negative, coinciding with the previous findings that null the effect of royalties on the welfare of the population (Gaviria, Zapata & González 2002; Olivera & Perry 2009). Column 2 presents the first stage of the quality of the education model. As expected, the estimated undervaluation of the local properties negatively impacts the local taxes. The political variables, again, do not exhibit a consistent relationship with the per capita taxes. For example, the variable-measuring intra-party competition is positive but with a low real impact, and low re-election average. This last variable would suggest that the more senior and successful the council representatives are at getting re-elected the lower the educational score. Moreover, the mayor's membership to the liberal or conservative traditional party is positively correlated with higher per capita taxes as well as higher relative scores. Most of the political variables, however, are not statistically significant.

Column 3 presents the second stage of the model. It can be noticed that the exogenous variations of the local per capita taxes affect the relative score of the public schools positively and significantly. In fact, a change in one standard deviation of per capita taxes prompts a fairly substantial increase of 0.5 (0.0116*1.27/0.04) standard deviations in the relative test score of the public schools. In this regard, the local fiscal effort would be manifest in better quality of education. Columns 4 to 6 display similar results but using the right-hand side variables averaged over the previous six years under the assumption that the quality of education takes several years to improve (or worsen). The results obtained are quite the same.

Table 3: Quality of Education: Ratio of Saber 11 of Public to Private Schools

	Quality - Ratio of Saber 11 of Public to Private Schools					
	OLS	I 2SLS	IV	OLS	I 2SLS	IV
Variables	Annual			Last Six Years Average		
Descentralization						
Per-capita Taxes (In)	-0.0001 (0.000329)		0.0120** (0.00543)	0.000675* (0.000393)		0.0192** (0.00771)
Per-capita Transfers (In)	0.00242*** (0.000188)	-0.0236*** (0.0030)	0.00271*** (0.000231)	0.00257*** (0.000205)	-0.0227*** (0.00276)	0.00300*** (0.000274)
Royalties	-0.000149*** (0.000031)	0.00006 (0.0005)	-0.000151*** (0.000031)	-0.000270*** (0.000037)	0.00160*** (0.00051)	-0.000302) (0.000041)

Variables	Quality - Ratio of Saber 11 of Public to Private Schools					
	OLS	I 2SLS	IV	OLS	I 2SLS	IV
	Annual			Last Six Years Average		
Political						
Effective Number of Paris	-0.000500* (0.000275)	0.03045*** (0.0044)	-0.000847*** (0.000320)	-0.00121*** (0.000422)	-0.03663*** (0.0057)	-0.000553 (0.000513)
Squared Effective Number of Parties	-0.000701*** (0.000231)	-0.030*** (0.0037)	-0.000346 (0.000284)	-0.000034 (0.000042)	0.00294*** (0.00056)	-0.000085 (0.000048)
Intraparty Competition	0.000108*** (0.00003)	0.00047 (0.00047)	0.0001*** (0.00003)	0.000093*** (0.00003)	-0.0018*** (0.00041)	(0.000128*** (0.000033)
Proportion of Council Members from Mayor's Party	-0.00657*** (0.000707)	-0.0357*** (0.01135)	-0.00614*** (0.000745)	-0.00710*** (0.000790)	-0.0572*** (0.01067)	-0.00605*** (0.000924)
Council Members Reelection Average	-0.000682*** (0.000201)	0.0247*** (0.0032)	-0.000948*** (0.000237)	-0.000501*** (0.00132)	0.0148*** (0.00178)	-0.000759*** (0.000173)
Mayor from Conservative Party	0.00148*** (0.000415)	0.0154** (0.0066554)	0.00128*** (0.000432)	0.00302*** (0.000468)	0.0212*** (0.00632)	0.00260*** (0.000512)
Mayor from Liberal Party	0.00333*** (0.000353)	0.0277*** (0.00567)	0.003*** (0.000391)	0.00356*** (0.000388)	0.0361*** (0.0052)	0.00289*** (0.000488)
Constant	1.023*** (0.0196)			1.010*** (0.0199)	(0.0052)	(0.000488)
Instrument						
Cadastral undervaluation		-0.0965*** (0.0082)			-0.069*** (0.007)	
Municipal fixed effects						
School fixed effects		yes	yes	yes	yes	yes
Year fixed effects		yes	yes	yes	yes	yes
F-Test for Instruments		136,96			97,74	
Prob>F		0,000			0.000	
Endogeneity Test		136,96			97,8	
Chi-sq(1) p-value		0,000			0,000	
Observations	41316	41207	41207	40827	40715	40715

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Poverty rate, Gini of Land Value, Population (ln), Teacher-Student ratio (lagged), No. Official Students - Population ratio (lagged) were included as controls.
Enrollment: Group by Municipalities: 917/ 906/906; Quality: Groups by Schools: 5482/ 5373/ 5458/ 5346/5346
Source: see Annex 1: Data Sources

So far, we have observed that in the education sector, the performance of the municipalities is significantly enhanced by their fiscal capacity, both in terms of coverage and quality, as compared to outcomes shown against the other sources of revenue that the mayors had available (national transfers and royalties).

Table 4: Educational Responsiveness: Match Between Own Expeditures and Needs

Variables (Last 10 Year Average)	Strong Responsivness - Probability of having Local Spending Responsive to Local Needs (Marginal Coefficients are shown for the PROBIT and IVPROBIT Model)		
	PROBIT	I 2SPROBIT	IVPROBIT
Descentralization			
Per-capita Taxes (In)	0.188*** (0.0218)		0.465*** (0.164)
Per-capita Transfers (In)	0.0731*** (0.0258)	0.169*** (0.0453)	(0.164) 0.0269
Royalties	0.0269*** (0.00414)	0.0282*** (0.00601)	0.0170* (0.00890)
Political			
Effective Number of Paris	0.0425 (0.0920)	0.0778 (0.137)	0.0238 (0.0997)
Squared Effective Number of Parties	-0.00845 (0.0131)	-0.0113 (0.0195)	-0.00529 (0.0142)
Council Members Reelection Average	0.0420** (0.0212)	0.0997*** (0.0351)	0.0138 (0.0311)
Imparty Competition	0.00569 (0.00618)	0.00874 (0.0104)	0.00334 (0.00701)
Proportion of Council Members from Mayor's Party	0.0379 (0.109)	0.0772 (0.169)	0.0301 (0.117)
Mayor from Conservative Party	-0.0197 (0.0610)	-0.233** (0.0977)	0.0351 (0.0784)
Mayor from Liberal Party	0.0478 (0.0609)	0.177* (0.0990)	-0.0142 (0.0768)
Instrument			
Cadastral undervaluation		-0383*** (0.107)	
Observations	946	916	916

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Poverty rate, Gini of Land Value, Population (ln), Teacher-Student ratio (lagged), No. Official Students - Population ratio (lagged) were included as controls.

Source: Annex 1: Data Sources

The estimations of the Responsiveness Model are displayed in Table 4. The marginal effects for strong responsiveness are shown in columns 1 and 2. The probit results imply that if the local per

capita taxes rise by one standard deviation, the probability of having a local spending which is more responsive to the local needs in education increases by 0.18 (0.89*0.21) points. Transfers from the Central Government are also positively related to strong responsiveness, although with lower impact. In fact, if educational transfers increase by one standard deviation the probability of strong responsiveness augments in 0.035 points. Royalties are also positively and significantly related to responsiveness although the coefficient is small. The first stage of the IV probit model reconfirms the strong negative relationship between cadastral undervaluation and fiscal capacity. As already found, the seniority level and experience of the council member is also related to higher fiscal effort. The IV probit model, in column 3, provides more solid evidence on the impact of the local capacity on spending responsiveness. Indeed, the marginal coefficient of per capita taxes equals 0.46, which means that if per capita taxes experience an exogenous positive variation of one standard deviation, the responsiveness probability increases by 0.44 points. All other variables in the IV probit are not significant with the exception of royalties and the poverty rate .

The results of *Responsiveness* would certainly imply that strengthening the local fiscal capacity might entail greater efficiency with regard to the local educational spending as expressed in higher enrollment rates and better quality of education, in addition to the greater responsiveness of spending to the local needs.

3. *The Positive Effect of Local Tax Capacity on Provision of Water Service*

The results of the OLS estimation presented in column 1 of Table 5 show that neither the local taxes effort nor royalties have any significant correlation with water coverage, whereas Central Government water transfers do. In fact, according to the OLS model an increase of 1 percent in the Central Government water transfers during the period 1994-2005 saw an increase in the proportion of municipal water coverage by 0.054 points. The measure of the number of years following the reform or the existence of an EICE in the municipality is also not statistically significant in the coverage equation. The existence of an ESP (Public Service Enterprise), on the other hand, is associated with greater coverage.

The IV estimations are in columns 2 and 3 of Table 5. The first stage of the model indicates that the average undervaluation of properties, as expected, negatively affects the average per capita taxes. Poverty rate, also as expected, is negatively correlated with tax capacity while the GINI coefficients for land ownership and population exhibit a positive correlation. The second stage in column 3 shows that an exogenous variation of the fiscal effort positively and significantly impacts water coverage. Thus, if per capita taxes increase by 1 percent (over 1994-2005) then the proportion of water coverage increases by a sizable 0.15 points. In the IV model, the water transfers did not turn statistically significant, as the existence of the public or private character of the providers did not explain the increase in water coverage. In conclusion, the differences in the fiscal effort are quite relevant when it comes to explaining the disparities in water coverage across Colombian municipalities. Again, as seen in the previous models for education, the impact of local politics cannot be observed with the variables that we measured. Although we know from qualitative accounts and more detailed fieldwork that local politics does matter, the variables – as presented here – do not capture the impact directly. Indirectly, however, one could interpret the efficiency differences in the impact between national and local resources available to municipal administrations as evidence of there being a virtuous cycle between fiscal autonomy and the outcome of public service delivery.

Table 5: Water Coverage for 2005 in the Colombian Municipalities

Variables	Water Coverage for 2005		
	OLS	I 2SLS	IV
	1994 - 2005 Average		
Decentralization			
Per-capita Taxes (ln)	-0.0125 (0.00800)		0.160*** (0.0502)
Per-capita Transfers (ln)	0.0548** (0.0240)	0.733*** (0.0915)	-0.0720 (0.0462)
Royalties	0.000422 (0.00213)	0.0385*** (0.00826)	-000683** (0.00327)
Water Institutions			
Number of Year after the Reform	0.00532 (0.00350)	-0.00570 (0.0136)	0.00675 (0.00417)
EICE Municipality	0.0381 (0.0250)	0.145 (0.0970)	0.00399 (0.0306)
ESP Municipality	0.0576*** (0.0217)	0.121 (0.0839)	0.0361 (0.0264)
Political			
Effective number of parties	-0.0208 (0.0505)	0.0890 (0.197)	-0.0235 (0.0604)
Squared Effective Number of Parties	0.00773 (0.00898)	-0.0225 (0.0349)	0.00983 (0.0107)
Council Members Reelection Average	-0.00144 (0.00199)	-0.00157 (0.00767)	-0.0031 (0.00235)
Intraparty Competition	0.00247	-0.00663 (0.00724)	0.00293 (0.00221)
Proportion of Council Members from Mayor's Party	-0.103** (0.0523)	0.0760 (0.206)	-0.0759 (0.0627)
Mayor from Conservative Party	0.0230 (0.0328)	-0.268** (0.129)	0.0468 (0.0409)
Mayor from Liberal Party	0.0773** (0.0334)	0.0850 (0.132)	0.0374 (0.0410)
Constant	0.540** (0.238)	-9.163*** (0.891)	2.068*** (0.536)
Instruments			
Cadastral Undervaluation		-0.775*** (0.127)	
F-test for instruments		37.21	
Prob>F		0.0000	
Endogeneity test		17.929	
Chi-sq(1) p-value		0.0000	
Observations	949	904	912

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Poverty rate, Gini of Land Value, Population (ln), Teacher-Student ratio (lagged), No. Official Students - Population ratio (lagged) were included as controls.

The variables for quality water are also explained by municipal fiscal effort as shown in Table 6. The dependent variable used is the compliance of local drinking water with the potable parameters during the period 2006-2009. In this case, the dependent variable is $W_{i,t}$ where i is the municipality and t the year.

Table 6: Determinants of Quality of Water, 2006 - 2009

	Local Drinking Water Compliance					
	OLS	I 2SLS	IV	OLS	I 2SLS	IV
Variables	Random Effects			Fixed Effects		
Descentralization						
Per-capita Taxes (In)	2.193 (1.913)		98.97**	3.577***		18.09*** (4.698)
Per-capita Transfers (In)	(5.287*** (1.528)	0.0311** (0.0156)	2.616 (2.582)	1.951* (1.139)	0.235*** (0.0268)	-2.092 (1.663)
Royalties	0.169 (0.184)	-0.00307 (0.00199)	0.310 (0.283)	0.179 (0.109)	0.0226*** (0.00251)	-0.152 (0.154)
Water Institutions						
Number of Years after the Reform	0.539 (1.119)	0.0131 (0.0118)	-0.397 (1.655)	0.0349 (0.240)	-0.00474 (0.00523)	0.000841 (0.226)
EICE Municipality				3.002 (2.355)	0.175*** (0.0511)	0.839 (2.378)
ESP Municipality				0.976 (2.111)	0.0104 (0.0446)	0.938 (1.982)
Political						
Effective Number of Parties	-14.16 (11.24)	0.171 (0.123)	-31.72* (18.26)	-4.875 (8.738)	-0.701*** (0.213)	7.310 (9.476)
Squared Effective Number of Parties	15.83 (11.24)	(0.155 (0.123)	31.53* (17.98)	5.578 (8.723)	0.748*** (0.212)	-7.321 (9.524)
Council Members Relection Average	-0.955 (1.394)	0.0222 (0.0151)	-3.242 (2.333)	-0.594 (0.772)	0.113*** (0.0178)	-2.145** (0.892)
Intraparty Competition	2.130*** (0.676)	0.0112 0.00722	0.235 (1.280)	0.129 (0.444)	0.0104 (0.0106)	-0.357 (0.464)
Proportion of Council Members from Mayor's Party	13.20*** (4.018)	0.00118 (0.0432)	10.91* (6.079)	10.31*** (2.907)	-0.0627 (0.0693)	10.31*** (3.039)
Mayor from Conservative Party	-6.407*** (1.967)	0.0245 (0.0208)	-3.652 (3.242)	-3.083** (1.361)	-0.132*** (0.0324)	-0.926 (1.531)
Mayor from Liberal Party	-2.235 (1.944)	0.00847 (0.0209)	-3.269 (2.914)	-2.524* (1.381)	0.121*** (0.0333)	-4.467*** (1.527)
Constant	12.14 (109.1)			94.45*** (12.91)	-4.63*** (0.0422)	171.1*** (26.33)

	Local Drinking Water Compliance					
	OLS	I 2SLS	IV	OLS	I 2SLS	IV
Variables	Random Effects			Fixed Effects		
Instrument						
Cadastral Undervaluation		-0.086** (0.030)			-0.385*** (0.0422)	
Municipal Fixed Effects	yes	yes	yes	no	no	no
F-test for Instruments		8.37			83.22	
Prob>F		0.0039			0.0000	
Endogeneity test		9.046			11,245	
Number of Municipalities	934	861	861	933	920	920
Chi-sq(1) p-value		0.0037				
Observations	3417	3209	3209	3414	3222	3222

*.**.***.= coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Socioeconomic variables such as Poverty Rate, Gini of Land Value and Population (ln) were included as controls.

"As with the education sector, both national transfers as well as royalties seem to have a limited impact on the provision of the goods, for different reasons. National transfers, on the one hand, may be too strict and rigid, while royalties may be too flexible".

Column 1 presents the results of the OLS fixed effect panel model, showing that per capita taxes are not statistically related to the quality of water while per capita transfers in fact are. Column 2 displays the first stage of the regression, revealing – as expected – that the undervaluation of the properties negatively impacts taxes. The second stage, in column 3, shows that an exogenous variation of per capita taxes leads to improved water quality. Both per capita transfer and per capita royalties are not significant in explaining water quality. The model also gave estimations using random effects – last three columns – and although the coefficient for per capita taxes is lower than with fixed effects it is greatly significant. Like in the IV fixed effects model the coefficients for per capita transfers and royalties are not statistically different from zero. While the political variables have no clear impact in the fixed effects model, some of them turn significant in the random effects model. The ENP squared has a negative impact suggesting that a limited or fragmented local party system could negatively affect the provision of quality water. Thus, we find convincing evidence that greater local fiscal effort is linked to greater coverage and better quality of water. As with the education sector, both national transfers as well as royalties seem to have a limited impact on the provision of the goods, for different reasons. National transfers, on the one hand, may be too strict and rigid, while royalties may be too flexible.

Table 7: Responsiveness for the Water Sector in the Colombian Municipalities

Variables (1994 - 2005 Average)	2005 Strong Responsiveness Probability of having local Spending Responsive to local needs (Marginal Coefficients are shown for the PROBIT and IVPROBIT Model)		
	PROBIT	I 2SPROBIT	IVPROBIT
Descentralization			
Per-capita Taxes (In)	0.0630*** (0.0125)		0.170* (0.0989)
Per-capita Transfers (In)	0.00164 (0.0343)	0.733*** (0.0907)	-0.0755 (0.0757)
Royalties	0.0234*** (0.00323)	0.0385*** (0.00819)	0.0218*** (0.00342)
Water Institutions			
Number of Years after te Reform	-0.0128* (0.00661)	-0.00570 (0.0134)	-0.0182** (0.00794)
EICE Municipality	0.0592 (0.0574)	0.145 (0.0961)	0.0558 (0.0614)
ESP Municipality	-0.0474* (0.0243)	0.121 (0.0831)	-0.0542 (0.0331)
Political			
Effective Number of Parties	0.311*** (0.111)	0.0890 (0.195)	0.305**
Squared Effective Number of Parties	-0.0680*** (0.0218)	-0.0225 (0.0346)	-0.0668*** (0.0247)
Council Members Relection Average	-0.0130 (0.0124)	.00157 (0.00759)	-0.0155 (0.0150)
Intraparty Competition	0.00158 (0.00259)	-0.00663 (0.00718)	0.00197 (0.00311)
Proportion of Council Members from Mayor's Party	-3.47e-05 0.0964**	0.0760 (0.204)	-0.0123 (0.0888)
Mayor from Conservative Party	(0.0483) 0.0656	-0.268** (0.128)	0.123* (0.0644)
Mayor from Liberal Party	(0.0492)	0.0850 (0.131)	0.0580 (0.0556)
Constant		-9.163***	
Instruments			
Cadastral Undervaluation		-0.775*** (0.126)	
Observations	949	912	912

*,**,*** = coefficients significant at the 10%, 5% and 1% levels; Panel regressions with robust standard errors.
Standard errors in brackets.
Poverty rate, Gini of Land Value, Population (ln), Teacher-Student ratio (lagged), No. Official Students - Population ratio (lagged) were included as controls.

The estimations of the responsiveness model are displayed in Table 7. The marginal effects for responsiveness are shown in columns 1 and 2. The probit results imply that if local per capita taxes rise by one standard deviation, the probability of having a local spending in water more responsive to the local needs increases by 0.068 (1.0*0.068) points. Transfers from the Central Government have no statistically significant effect on responsiveness. The effect of royalties is positive and statistically significant although small. Both the number of years after the reform and whether the water is provided by an ESP have negative impact on responsiveness.

The IV probit model in column 2 provides additional support for the impact of fiscal effort on spending responsiveness. Indeed, the marginal coefficient of per capita taxes equals 0.17, which means that if per capita taxes experience an exogenous positive variation of one standard deviation, the responsiveness probability increases by 0.20 points. The negative impact on responsiveness – of number of years after the reform and the existence of an ESP in the municipality – is maintained in the IV model. Water spending responsiveness is also associated with the effective number of parties, indicating that political competition leads to relatively increased spending in municipalities with low coverage.

The results of *Responsiveness* as shown here – like in the case of education – would indicate that strengthening the local fiscal capacity might entail greater efficiency in terms of local spending on water and consequently lead to wider coverage and better quality of the services.

Discussion and Conclusions

This paper is an attempt to study the interaction between a range of governance structures and variables with policy outcomes in two sectors: education and water. We were particularly interested in the effect of political competition on the provision of public goods in a decentralized context. Indeed, during the last two decades, Colombia moved from being an extremely centralized political and fiscal system to a highly decentralized environment where local actors have the ultimate responsibility of executing policy. From the theory behind the decentralization reforms, one should have expected that the closeness between the elected officials and citizens would have brought virtuous cycles of representation in which public goods provision could have flourished in a very natural way around the territory. However, results have not been uniform around the country, and even with abundant resources, some municipalities have been unable to achieve decent socio-economic indicators.

What is the underlying reason for these differences across the Colombian municipalities? Our argument has two parts. The first part suggests that the local authorities are faced with the dilemma as to how to get things done. They can either rely on their regional and national networks to search for resources in exchange for political support, or they can build their own political support by raising taxes, thereby increasing their political autonomy and capacity to deliver. National politicians too are faced with a dilemma. When they get their votes across different municipalities and on more diverse issues, they can compete over votes in two forms: one via providing rents, and the other via national policy programs. Whenever they control a territory big enough to get them elected, they will choose to provide rents. This in turn is a tempting option for the local politician, who knows he will assume a cost if he decides to raise local taxes. Thus, in the absence of competition, the traditional political networks will keep transferring the resources to the municipalities, and the mayor will continue delivering to his political network his political

support and that of his voters. If there is competition at the national level, and there is no obvious relation to the politicians at the municipal level (House members), the mayor would feel more pressured to increase his own resources in order to get things done and fulfill his prospective ambition. Thus, the greater the diversity and political competition, the greater are the incentives for the local political actors to increase their fiscal capacity.

In line with this first part of the argument, we find that national political competition at the local level matters insofar as it provides mayors with the right incentives to build their own fiscal capacity. Consequently, it is not the local political context that matters; what matters is the type of political networks within which local authorities perform to increase their capacity. We operationalize this capacity and the *fiscal effort*, and show that greater competition for national office at the local level, both among parties and candidates at the local level, both for parties and for candidates, matters when it comes to mayors' decision to update their local cadastre – the single most important decision in terms of increasing their own resources.

We also find that the resources resulting from taxes are more gainfully employed towards better provision of services as well as improved quality of water and education in Colombia, compared to resources provided by the national government in the form of transfers and royalties with specified uses. Although we could not measure the impact of local politics in the provision of these services through the variables included in the model measuring the politics at the local level, the differences across these diverse funding sources in terms of efficiency suggest that there is more virtuous use of the resources that are directly assumed by the local population. This result holds true for both the sectors, which have a very different structure. For royalties, results even show a negative correlation with the quality of education.

Thus, further research is required to understand how the government can prevent the municipalities from falling on a more clientelistic path, and instead opt for one on which they can build their own capacity to respond to the needs of the population. It is also important to continue searching for the links between national and local political competition, as from our results it would seem clear that holding elections at the local level does not automatically lead to better policy outcomes.

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Annex 1: Data Sources

Variable	Source
2005 Water Coverage	2005 Colombian Population Census, National Statistics Administrative Department (DANE)
Quality-Local Drinking Water Compliance	Territorial Development Office, National Planning Department (DNP)
Public School Enrollment	Planning Office of the Education Ministry and DANE
Quality - Ratio of Saber11 of Public to Private Schools	Scores from the Saber 11 test, Colombian Institute for Education Evaluation (ICFES)
Per-capita Taxes	Municipal Budgetary Executions, DNP
Per-capita Transfers	Municipal Budgetary Executions, DNP
Royalties	Municipal Budgetary Executions, DNP
Number of Years after the Reform	Public Services Superintendence
Poverty Rate	For 1993 and 2005 the data was taken from the 1993 and 2005 Population Census done by the DANE. For the other years the poverty rate was calculated by CEDE
Gini of Land Value	The data was taken from the Geographical Institute Agustín Codazzi and calculated by CEDE
Population	2005 Colombian Population Census, DANE
Effective number of parties	Electoral data for each of the years since 1994 from Registraduría Nacional del Estado Civil
Council Members Reelection Average	Electoral data for each of the years since 1994 from Registraduría Nacional del Estado Civil
Intra-party Competition	Electoral data for each of the years since 1994 from Registraduría Nacional del Estado Civil
Proportion of Council Members from Mayor's Party	Electoral data for each of the years since 1994 from Registraduría Nacional del Estado Civil
Cadastral Undervaluation	The data was taken from the Geographical Institute Agustín Codazzi and calculated by CEDE
Teacher-Student ratio (lagged)	Planning Office of the Education Ministry
6- year average Teacher-Student ratio (lagged)	Planning Office of the Education Ministry
No Official Students - Population ratio (lagged)	Planning Office of the Education Ministry
Per-capita Transfers (ln)	Territorial Development Office, National Planning Department (DNP)
Royalties (ln)	Territorial Development Office, National Planning Department (DNP
Number of Years after the Reform	Public Services Superintendence
Students-Population ratio	Planning Office of the Education Ministry
Public Test Score	Colombian Institute for Education Evaluation (ICFES)