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Varieties of Governance: Effective Public Service Delivery

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Abstract

The present paper explores the relationship between political competition and the adequate provision of public goods in a decentralized context to observe whether the existence of more information resulting from the competition and the existence of more political options are part of the causal mechanisms for effective governance. In particular, we want to see the effect of electoral competition on the incentives to build fiscal capacity and provide public goods such as education and water, of which are partially responsible the local municipalities. The research hypothesis is that political competition positively affects the strength of municipal decentralization measured through local fiscal capacity. In turn, fiscal capacity is the fundamental variable explaining differences in sector performance across local governments. Local fiscal capacity brings about better policy outcomes, as well as a better match between resources and needs –responsiveness-, which entails at the same time a greater efficiency of local spending. Using a rich panel municipal dataset from 1994 till 2009, we show that albeit the differences across both sectors compared, the power of fiscal effort to explain better policy outcomes is stronger than any other resource commonly received by the municipalities, such as national transfers or royalties.
Introduction

The undertaking of decentralization policies have 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 better interpret local needs, and in turn and once in office, would allocate the budget to better fit those needs. Faguet (2004), for example, found that after the decentralization reforms, Bolivian local governments funded with larger resources those public goods the local population needed the most. Melo (2005) and Faguet & Sánchez, (2009) found evidence that decentralization played a major role in increasing access to education in Colombia. Yet evidence of the impact of decentralization social progress is mixed (Bardhan and Mookherjee, 2006). As it has been argued by Weingast (2009) and others, many factors may distort the efficient allocation of resources prompted by a competitive political process. Asymmetries and lack of information, presence of interest groups, political party weakness, as well as clientelism and corruption are some of the factors that may prevent the efficient delivery of public goods at local level and hence slow down social progress. The present paper explores the relationship between political competition and the adequate provision public goods in a decentralized context to observe whether the existence of more information resulting from the competition and the existence of more political options are part of the causal mechanisms for effective governance. In particular, we want to see the effect of electoral competition on the incentives to build fiscal capacity and provide public goods such as education and water, of which are partially responsible the local municipalities. The research hypothesis is that political competition positively affects the strength of municipal decentralization measured through local fiscal capacity. In turn, fiscal capacity is the fundamental variable explaining differences in sector performance across local governments. Local fiscal capacity brings about a better match between resources and needs –responsiveness-, which entails at the same time a greater efficiency of local spending.

The present paper supports findings from the recent literature on decentralization, which stresses the importance of mobilizing local resources to better 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). Without a local fiscal effort, local authorities would not necessarily act to maximize social welfare. Also, voters would not care to hold them accountable as much as if they paid. 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 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 which generates incentives for
a greater tax collection effort at local level. Following Gadenne (2011), we suggest that citizens pay more local taxes they will have more incentives to monitor local politicians, and electoral accountability improves as the population increases public awareness of public policy performance.

When local governments embark themselves in policies and actions to raise their own taxes -facing in many cases a harsh political process- they become at the same time more accountable to citizens. The voters would want to have a better control of the destination of the new funds, demand more spending efficiency and would pressure 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 to which the local population have relatively less access. Thus, in municipalities that undertake fiscal effort actions 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 of the spending.

Moreover, we suggest that electoral competition a mediated impact through fiscal capacity on the distribution of expenditures, affecting positively local resource allocation in education, water, and sewerage services. As political competition increases, so do information regarding citizens’ needs, as well as campaign promises that appeal to a larger electorate. When no political competition exists, political leaders should reward their loyalists with goods which resemble a more clientelistic exchange with a more inefficient allocation of resources. A political process is efficient when it facilitates the correspondence, in relative terms, of resource allocation to population needs. It is also expected that with a higher relative correspondence between 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 which the municipality has enormous jurisdiction. Access to education has increased enormously in the last two decades coinciding with the deepening of the decentralization process (Ministerio de Educación, 2010; Rodriguez, 2010; Faguet and Sánchez, 2008). Nevertheless, the differences in the growth of enrollment rates across municipalities are quite significant. Furthermore, the quality of education seems stagnant as shown by 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).

The water and sewerage provision has undergone deep institutional changes as an important part of their delivery is carried out by private or mixed (public-private) firms (Silva, 2007; Granados, 2008; DNP; 2006). As of today, more than 35% of municipalities have
transformed their water provision, which is currently in hands of a private company. 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 undertake our research, we use a rich dataset which contains all the information of sector performance for all municipalities in Colombia from 1994 – 2009, information on land tax gathered from National Planning Department and cadastral information from the Geographical Institute Agustín Codazzi, electoral results for the councils and mayors across the country from 1994 till 2007 obtain from the Colombian Electoral Office (Registraduría Nacional). To complement the quantitative analysis, we also made several interviews of politicians from municipalities in which we could observe variation in the outcomes as well as in the independent variables, mainly on fiscal effort and electoral competition.

This paper is divided into six parts. The first section briefly summarizes the evolution of decentralization in Colombia, giving account of three aspects of the process: the evolution of local finances, the quality and coverage of education and the provision of water services. The second part is the theoretical framework and a summary of the more general expectations. The third part describes the link between political competition and fiscal effort. The fourth section describes the econometric strategy and models used, and the results for coverage, quality and responsiveness of education and water. Finally, the fifth section concludes.

**Short Account of Colombia’s Decentralization Reforms**

The first steps of the Colombian fiscal decentralization reforms occurred at the end of the 1950’s. According to Junguito and Rincón (2009) the 1958 Constitutional Amendment assigned at least 10% 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 “Situido Fiscal”, Law 33 of 1968 that initiated the sharing system and the sales tax cession, and Laws 46 of 1971 and 14 of 1983, which aimed to strengthen the municipal and departmental taxes. Nonetheless, Colombia remained very centralized politically as designed in the 1886 Constitution. All governors in Colombia were presidential appointees, and in turn, governors were in charge of naming all mayors in the municipalities. None of them had fixed terms, and as a result, most local political careers depended on their ties to regional and national leaders. Although some resources were allocated to the departments and municipalities, the most efficient 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 the access to resources for lower levels of government. After the 1968 Constitutional Reform, each legislator had a separate fund which was called “auxilio parlamentario”, which they could distribute discretionaly 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 & Pachón 2006).

The most important departure from the 1886 Constitution was the 1986 Constitutional Amendment, which for the first time in the XX century in Colombia, established that mayors should be popularly elected for two year terms, with no possibility of immediate reelection. The periods of mayors and governors changed to three years after 1994, and to four year terms in 2003.

Consistent with the 1986 Constitutional Reform, the 1991 Constitution ushered a new stage of decentralization, establishing rules that would allow for greater citizen’s say in the public policy and oversight 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. For that purpose, the 1991 Constitution introduced a new scheme of transfers—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 (the so-called Situado Fiscal, destined to education and health), and with municipalities (the so-called Participación Municipal, aimed at spending coverage of education, health, water and sewage) (see Figure 1). The new institutional framework also defined the distribution of natural resource royalties among departments and municipalities (Articles 360 and 361).²

² Nonetheless, in June 2011 the Royalties Reform was approved in Congress, transforming the way in which they were regionally allocated.
As seen in Figure 1, transfers were distributed on the basis of unsatisfied basic needs to all municipalities, and then, municipalities had to distribute their own expenditure across sectors, each on with a fixed percentage. Under these rules, there were few incentives for municipalities and departments to increase their capacity of revenue generation. Also, if one considers that the length of the mayoral and governor’s terms was at the time, 3 years (from 1994 till 2003) with no possibility of reelection, political incentives were also de-aligned to pay the costs for raising taxes, without the time enough 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 subnational governments (SNGs) generation of own resources. As could be expected, during the 1990’s departments and municipalities financed most of their expenditures by transfers from the Central Government instead of making the effort of building a local tax base, which
resulted in significant vertical imbalances and in most cases in fiscal deficits\textsuperscript{3} that threatened fiscal sustainability and macroeconomic stability (Sánchez and Zenteno, 2011). As a matter of fact, the territorial debt rose from 1.1% of the GDP to 3.5% of the GDP between 1990 and 1999 (Ministry of Finance, 2009).

Municipal spending increased from 3.0% to 6.8% of GDP between 1994 and 2009, while own municipal revenues rose from 1.4% to 2.5% of GDP during the same period. This means that only 30% 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 (See Sánchez and Zenteno, 2011; Sánchez et. al, 2012).

To curb the growing indebtedness and fiscal indiscipline of SNGs, two pieces of legislation were approved: Law 358 of 1997 which regulated the indebtedness of the territorial entities and Law 617 of 2000 which established limits to the growth of operating expenses. In addition, in order to increase the efficiency of transfers, a reform of the transfer system was undertaken. In the first place, it created a revenue sharing system (Sistema General de Participaciones, or SGP) that fixed the amount of resources to be transferred and established a 2% annual growth in real terms. In addition, the formulae to allocate the resources between the sub-national entities based on Law 60 of 1993 was also changed by 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 transfer’s distribution would be based on the coverage and the 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 (see Figure 2).

\textsuperscript{3} According to Rodden (2002) large and persistent deficits occur when the sub-national governments depend strongly on intergovernmental transfers, and have at the same time, free access to credit, generating fiscal indiscipline.
Concerning the generation 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.

At the municipal level, the Central Government has encouraged the compiling of municipal tax rules and the improvement of the efficiency regarding tax collection and evasion control (Ministry of Finance, 2009). Nevertheless, and in general terms, both the bases and tariffs of municipal taxes have remained unchanged during the last two decades. Almost 90% of 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. Since 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.

**Decentralization Results on Education: Better Coverage, Deficient Quality**

Access to, and quality of education has proven to be an important instrument for increasing people’s opportunities for employment and improving their lifetime income levels, health status and lowering pregnancy rates (UNESCO, 2008). Recognizing this fact, the Constitution of 1991 established the education as a right for all citizens, compulsory for all children from 6 to 15 years old. Although much more resources have been allocated for improving the coverage and quality, resources have been spent (Rodriguez, 2010), there are still enormous differences in enrollment rates and quality of education among the Colombian municipalities. Some of those differences are explained by structural factors such as poverty and wealth distribution, while others are related to regional and local aspects such tax capacity and political processes.

Faguet & Sánchez (2008) and Melo (2005) have shown that after 1993 students’ enrollment in public schools significantly rose. Thus, total school enrollment as a percentage of the population grew steadily from 22% to 25% from 1993 to 2009 while public enrollment increased from 14% to 21% 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 own local resources may be the key factor to explain the differences in enrollment growth, Melo (2005) argues that the increase in coverage may have been reached at expense of quality.

**Figure 3: Evolution of Own Resources in Total Education Spending**

![Graph showing evolution of own resources in total education spending](image)

Source: SSPD, DANE, DNP and own calculations
Although national transfers are strict with regards to the percentage of money spent on the sector, the local administration has the discretion to spend their resources on infrastructure, educational material, or additional teachers, besides the ones hired by the department. The decision on what to spend is expected to have an impact on the coverage and quality. Also, municipal tax capacity further determines the amount of own resources that local governments may freely invest.

Figure 3 depicts the behavior of the proportion of education spending in the municipalities financed with own resources. From the graph, it is evident that the evolution of spending has had two periods: one during the early decentralization of the 1990’s when own resources financed around 8% of the total education outlays. Such proportion dropped—in part as a consequence of the increase in Central Government transfers— to 2% and rose back to more than 10% 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 growing.

In terms of quality, education seems stagnant as shown by 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, evidence for Colombia is mixed and the different methodologies adopted have been subject of criticism.

In a recent paper, Rodriguez (2010) discusses that the lack of adequate data may help elucidate why results have suggested both positive and negative impacts Using panel data techniques she evaluates the effects of decentralization on the quality of education in public schools concluding that reforms increased the gap in the results of standardized test preparation applied in public and private schools. She argues that results are driven neither by lack of transfer from Central Government, nor by lack of investment of resources in the sector. They are mainly driven by the larger school enrollment of poor students to public education. If this factor is controlled for what is found is that the public education system is serving a greater number of students, but is also offering a better quality education.

**Decentralization Results: The Mixed Results on the Provision of Water Services**

The case 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 resources to the local governments to be spent in water and sewerage, and at the same time the local service is provided by the municipality or by a public, mixed (public-private) or solely private entity. Thus, it emerges 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 represented by the provision of such essential service. The management of national resources intended for the financing of water supply and sewerage systems was under the control of the Fondo de Fomento Municipal (FFM) (Municipal Development Fund) until 1950, and then such control was taken over by Instituto de Fomento Municipal (INSFOPAL) (Municipal Development Institute). INSFOPAL was in charge of planning, designing, building, operating, maintaining, managing and financing services in municipalities (Maldonado and Vargas, 2001).

By the late 1980’s the situation of the service provision resembles to what Spiller and Savedoff (2000) have called a “low-level equilibrium”, in which tariffs were low and did not cover the costs associated with expansions in coverage and service quality. Additionally, the system lacked a pricing mechanism that allowed the rationalization of consumption. As part of this scenario, a reform of the system was undertaken within the framework of decentralization. The reforms’ starting point was Law 11 of 1986 whereby municipalities were allowed to deliver the water and sewerage services without any interference from the Central Government. Law 12 of 1986 defined the fiscal bases of the reform. In 1987, Decree 77 of 1987 liquidated INSFOPAL as the final step towards the decentralization of the service. Government bailed out EMPOS and ACUAS, which were in financial trouble and their equity was transferred to municipalities (Domínguez et al., 2005). Nevertheless, as noted by Maldonado and Vargas (2001) the 40-year legacy of INSFOPAL’s centralized management was one of low coverage and bad quality.

The reform transferred to municipalities both the public works related and operation and management of the service. Simultaneously, the resources transferred from the Central Government to municipalities were increased as a way to support their autonomy, and to develop their new responsibilities. 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. In the early 1990s with the enactment of Law 60 of 1993, municipalities started to receive transfers to be spent specifically on the water and sanitation sector. Law 715 of 2001—which modified Law 60 of 1993—maintained the transfers destined to water and sewerage for the poorest and less populated municipalities. Those transfers were to be spent either in infrastructure constructions or in subsidies to the water and sewerage fees paid by the poorest households. As a result, 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

4 Law 715 of 2001 was supported on the so-called General System of Revenue Sharing (Sistema General de Participaciones) established in the 2000 Constitutional Reform and determined the criteria to distribute the transfers going to the departmental and municipal governments. For a more detailed description of SGP’s resources, see Silva and Rozo (2005).
fees, which are covered by fees charged to the high socio-economic strata (5 y 6)\(^5\) as well as by the commercial and industrial users. Due to the deficit nature in most municipalities of the scheme, 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).

Figure 4 shows the evolution of the average own expenditures on the water sector. The trend is similar to the one in education: the more national transfers, the smaller the investment of own resources in the sector. After the 2001 reform, incentives are transformed and the trend changes, increasing the average own resources.

**Figure 4: Local Own Resources for Water (Simple and Weighted Average)**

![Evolution of own resources in total water spending](image)

Source: SSPD, DANE, DNP and own calculations.

The possibility of service provision by non-governmental agents and the creation mechanisms to allow the participation of the users in the management and oversight of service provider companies was set forth in the 1991 Constitution, and regulated by Law 142 of 1994 on the Regime of Household Public Utilities (Régimen de Servicios Públicos Domiciliarios). Law 142 introduced a new institutional framework for household public utilities provision with the creation of the Regulatory Boards for each of the sectors: Telecommunications, Energy and Gas, and Drinking Water and Sanitation and the Superintendence of Household Public Services (SSPD). Under this new framework, the Central Government is responsible for the planning, regulation, oversight and control of the services while the provision is carried out by a provider, which can be one of the following: 1) public service companies incorporated as public limited liability companies (S.A. ESP),

\(^5\) Level 4 does not receive subsidy or pay contribution; the service corresponds to the service provision cost.
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 service in rural areas or specific urban areas.6

During the drafting process of Law 142, it was assumed that companies of public utilities (empresas de servicios públicos, ESP) should be in charge of providing the services. The adoption of a business-like model was considered to be the best way to reach the highest levels of efficiency in service provision.7 It was then expected that the existing municipal or regional entities that provided public services transformed themselves into Companies of Public Utilities. Nevertheless, despite that service provision through ESPs (Companies of Public Utilities) was intended to be the main way of service delivery, municipalities could also be direct service providers, where the setting up of an ESP was not possible although they were obligated -so as to improve efficiency— to comply all regulations and obligations determined by Law 142.8 In the case of decentralized entities, Article 17 of the referred Law offered the option of setting up an EICE.9

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% 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 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 services. The results obtained have yielded some evidence that PSP contributes to enhance the internal efficiency of service providers.

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6 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 to 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.

7 Statement of Motivations, Regime of Household Public Utilities. (Exposición de Motivos, Régimen de Servicios Públicos Domiciliarios) – Draft Law.

8 Law 142 states clearly on Article 6.4 that direct provision by municipalities is subject to the same terms and conditions as any other kind of entity, such as Public Utility Companies (ESPs).

9 Law 286 of 1996 ordered that all decentralized entities and companies that provided services, including Empresas Industriales y Comerciales del Estado EICE (Government-managed industrial and commercial companies) formed after 1994 should be transformed into empresas de servicios públicos, ESP (public utilities companies). For the purposes of this paper, the transformation process was accomplished with the initial setting up of an EICE, and not with the subsequent change in legal status to become an ESP.
When asked to a local manager about the municipal regime before it was transformed to an PSP 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

Nonetheless, the transformation per se has not been shown to be enough. The Colombian case shows evidence that the quality of governance also plays a role for clearing up the variation in service performance on the sub-national level. Strong civil society organizations, control of corruption and low levels of non-state armed groups’ activities appear to foster the efficiency of service delivery and the widespread access to WS services (Krause, 2007). In other words, good local governance and a sound institutional design of service delivery can be able to compensate for the disadvantages of public providers with respect to internal efficiency achievements. Krause’s (2007) results suggest that PSP is not necessary and even less sufficient for achieving widespread access to low-cost and good-quality services. Krause’s study (2007) concludes by emphasizing that the results from the Colombian case study show that flourishing WS sector reforms require much more than sound PSP. The analysis has found some evidence that PSP contributes to a higher internal efficiency of providers, which can be regarded as a partial success.

The evidence on the advances in provision and quality in the sector is mixed. Granados (2008) shows water and sewer coverage grew less in the municipalities with private provision, while the reduction of infant mortality was slower.11 In contrast, Barrera and Oliveira (2007) found positive effects in coverage and health as a result of the private involvement in the provision of these services, particularly in urban areas. Prasad (2006)

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10a. 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.

11Referring 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.”
indicates that the studies focused on the performance of provider companies from a microeconomic point of view -analyzing efficiency and productivity indicators- are not conclusive regarding the effects of private capital involvement. Gomez-Lobo and Melendez (2007) also obtain mixed results evaluating 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, Fiscal Effort, and Policy Outcomes**

The scope of the study is to determine the roots of the enormous differences in the provision of education and water with quality, across the Colombian municipalities within the context of the decentralization process that deepened after the 1991 Constitution. Literature has considered different governance factors that influence the provision with efficiency and quality of the mentioned services – transparency, accountability, technical and fiscal capacity, the 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 of electoral competition on fiscal effort and of the latter on public service delivery.

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

Nonetheless, 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 weakly related to subnational income growth, the incentives for better performance can rapidly vanish. In Weingast’s words, “Elections in the presence of fiscal dependence and opportunism become a means of political control rather than of citizen expression” (Weingast 2009, p. 280). 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 which they consider pivotal to ascend in their political careers.

Also, if there is fiscal dependence and opportunism, national elites could control local elites more easily, forcing them to make suboptimal decisions for their population, or provide them with additional resources without the need for making additional fiscal effort, in
exchange for political rents and patronage. As a council member interviewed clearly stated,\textsuperscript{12}

A good administration in this municipality is done with \textit{gestión}\textsuperscript{13}. 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.

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

However, 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 an active oversight over their performance.

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\textsuperscript{12} 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.

\textsuperscript{13} This is the term used by politicians to refer to the effort to find money from the national government.
In this regard, Fisman and Gatti (2002) found that the number of rate of convictions for abuse of public office is large 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, finding that the increase in local taxes prompted by the program, brought up educational enrollment and the number of schools built with greater efficiency than Central Governments transfers. Gadanne (2011) stated that since citizens have better information on taxes than on transfers, rent seeking opportunities of politicians are considerably diminished, leading to a better spending of the resources.

In Colombia, as we have observed in the previous sections, municipalities had a soft budget constraint until 1997, year in which significant restrictions were imposed to their capacity to be in debt. After this, municipalities were faced with the decision that in order to increase their execution capacity, they needed to increase their fiscal capacity.

**Thus, we argue that regional political competition affects both the effort 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 fiscal effort, defined as policy actions the local government undertakes to augment local revenues. The fiscal dimension of the State – understood as the 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 (Carreaga & 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, understanding how fiscal capacity and political competition interplay is crucial to understand why the improvement of the population’s welfare varies within and across Colombian municipalities.

We consider two policy sectors which are crucial for the population’s welfare; Education and water. In both sectors, the municipality plays a leading role in their performance. In education, for example, mayors are in charge of prioritizing the schools which require most investment, as well as the type of investment: Whether it is infrastructure, educational material, feeding programs, or more teachers to mention just a few. Equally, in water, the mayor is responsible to decide who will provide the service, monitor the provider, and decisions on whether the coverage should be increased to new areas of the municipality. The council and the mayor are also responsible to define the levels of cross-subsidy from high to low income levels.

Within education we scrutinize various indicators; coverage, quality, and responsiveness. While coverage and quality in both services are 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 ones coming as transfers-, but that the fiscal effort will also improve the responsiveness of local authorities. It 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 good. We hypothesize for the education sector, that greater responsiveness entails more efficiency, hence better educational outcomes.

The measurement of responsiveness is not an easy task, as it involves taking into account the relationship between allocated resources and local needs. It is assumed that the greater the alignment between needs and the allocation of the own resources in a particular sector, the better the responsiveness.14 Primarily, the local government decides how much would be spent in education (or any other sector). As for determining that amount we just calculated the difference between the total educational spending minus the transfers.

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14 Following the comments we estimated the responsiveness using 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 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 than 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 under valuation 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.
received from the Central Government for that sector. Thus, the *Educational Fiscal Effort* would be then the proportion of the total spending in education at local level that is financed with local taxes. It is expected that higher fiscal effort will facilitate the channeling of more resources into a particular sector. The following sections will explain in further detail the measurement strategy for each case.

The next section proposes a way to evaluate fiscal effort in Colombian municipalities, showing that besides the structural variables expected to influence fiscal effort, regional political competition also explains the likelihood that a municipality will make the decision to do increase their fiscal revenue. Consequently, the greater the political competition at the regional level, the greater the fiscal autonomy. In turn, the greater fiscal autonomy, the better the performance on the services of water and education.

**Results**

*Explaining Fiscal Effort in the Colombian Municipalities*

As was mentioned earlier in the paper, in order for mayors to better provide for their citizens and improve their chances for a successful career, they are required to maximize the resources available: both national, regional and local. For example, to maintain good levels of national transfers, they are required to fulfill certain indicators. Nonetheless, the resources from national transfers are strictly regulated and provide for limited autonomy on execution. Consequently, the local politician has two further options to soften their budget constraint: Look for more money from the national government through his regional/national political network or increase the municipality’s fiscal revenue. He can also combine either two and act simultaneously on all of these strategies.

There are costs associated with either two options. Lobbying for additional national resources implies an electoral compromise and exchange for support with the regional leader that has 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 small regional elite, he/she will take advantage of its closeness to extract whatever resources he can to deliver to his 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 less possibilities of having access to these types of 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 which 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. The increase of 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 soften their budget constraint. Although updates are mandatory for at least every 5 years, they can be done as often as every year. Local politicians consider the decision to update a difficult one, with costs associated such as the loss of popularity, which could be significant in an early stage of their career. This update—a clear action of fiscal effort—determines the Property and Land Tax base and therefore the evolution of it. The lack of update brings about an under valuation of the local properties in the local cadastre and consequently may lead to a tax collection below its potential.

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 enquiring the mayor of Monterrey, Casanare, about the reasons why updating the local cadastre every five years was not done by a great number of municipalities despite their obligation to do so, he 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 for the municipality, as mentioned previously, are far greater than the ones received from other sources (Faguet & Sánchez, 2009; Geys et al. 2010). For example, it has been shown that municipalities with royalties do not have better social indicators than the ones that lack of them despite the significant difference in resources. Thus, money which is collected from the citizenry may be more efficient in terms of the outcomes produced than money from other sources. Consequently, to operationalize the decision which best shows the intent of mayors to have financial autonomy to spend and prioritize the resources available, we will focus on the decision to update the cadastre. The updates of the cadastre will allow us to calculate the underestimation of the values of local properties—both urban and rural. Thus, once the under valuation 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.

How Often Do Mayors Update Their Municipality’s Local Cadastre?

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16 Interview done in October 13, 2011. Bogotá.
The descriptive statistics indicate that municipalities embark themselves in cadastral updating approximately nine years after the last one took place. Nevertheless, 20% of the municipalities undertake updates after 5 years or less than the last urban one, or 7 years or less of the last rural one.

In order to determine the variables explaining cadastral updates we estimate a series of hazard model with the following specification which include 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:

\[
UPDATE_{i,t} (=1) = \beta_1 \times \text{Years-to-last-Update}_{i,t} + \beta_2 \times \text{Political-Variables}_{i,t} + \beta_3 \times \text{SocioEconomic-Variables}_{i,t} + \beta_4 \times \text{Coverage/Quality-Public-Goods}_{i,t} + T_t + DP_k (1)
\]

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. \(T_t\) and \(DP_k\) stand for time dummies and departmental fixed effects. It is expected that \(\beta_1 > 0\) -the higher the number of years without update, the greater the likelihood of occurring one and that \(\beta_4 = 0\) –as the situation of coverage or quality of the local public goods should not be related to the cadastral updates. We also expect, as mentioned earlier, that the political context—particularly political competition—would influence cadastral updates.

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\(^{17}\), and the dummies for traditional parties are to identify is 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 included two variables; GINI\(^{18}\) for party share in the House votes (2), and the effective number of candidates in the municipality for the House (3). Although all variables have the expected sign, only the GINI is significant and negatively related to the decision to update. This means that the fewer presence of parties in the municipality competing for departmental votes, the less the incentives to update. Equally, seen from the perspective of the effective number of candidates\(^{19}\) weighted by their support within the municipality, the expectation that more

\(^{17}\) The measure of 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.

\(^{18}\) The GINI is a measure of statistical dispersion and measures inequality across political parties. Thus, if one party controls all votes for the House, it is highly unequal. If more parties do, then the “political inequality” goes down.

\(^{19}\) This is the same measure as the effective number of parties, but instead of taking the party as unit of analysis each candidate is counted independently.
competition is positively related to the decision to update is confirmed. Given this result, we suggest that the regional political context in which the municipality’s politics happen is fundamental to understand the

In column (3) we introduce socioeconomic variables, which show that neither land concentration nor poverty rates are related to cadastral updates. What does seem to be highly and positively related to cadastral updates are municipal GDPs per capita and the percentage of urban population in the municipality. Besides, the per capita transfers from the Central Government are strongly and negative related to cadastral updates indicating that local fiscal effort may be curtailed if the municipality is financed from other sources. Finally, the education enrollment rates and the quality of education are not related to cadastral update implying that local governments do not undertake that kind of fiscal effort actions because they are trailing in those indicators.
Table 1: Cadastral Update

After estimating the cadastral update hazard model, the undervaluation of local properties can be assessed. Such undervaluation depends on the number years without cadastral update and the number of updates within a given period of time. In other words, the values and the number of properties tend to be lower than they should be, as the cadastre becomes older. Thus, the lack of updates erodes the tax base, taking tax collection away from 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, per capita value of properties is estimated with the following fixed effect panel equation (see appendix for details):

\[
\text{Value of Properties}_{it} = \zeta_1 \times \text{Local-Structural-Variables}_{i,t} + \theta_1 \times \text{Number-of-year-to-last-cadastral-update}_{i,t} + \theta_2 \times \text{Number-cadastral-updates}_{i,t-10} + T_t + \sigma_i + \nu_{i,t} \tag{3}
\]

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

Once equation (3) is estimated we calculate the undervaluation of properties by using the following equation:

\[
\text{Estimated-Under-Valuation}_{i,t} = \theta_1 \times \text{Number-of-year-to-last-cadastral-update}_{i,t} + \theta_2 \times \text{Number-cadastral-updates} \tag{4}
\]

The descriptive statistics pinpoint that the average undervaluation of properties is about 0.2 log points (about 20%) with a standard deviation of 0.25 log points. The distribution goes from -0.06 to nearly 0.9 log points.

**The Effect of Fiscal Autonomy in More and Better Service Provision in Education and Water**

**The model for Enrollment Rates and Quality of Education**

As mentioned above, we suggest that higher fiscal effort of local governments should reflect itself in a higher level of public good provision. In this case, we expect that when citizen’s pay their dues they are in a position to better demand the administration to respond to their most important 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.

Consequently, in order to determine the fiscal effort’s influence on the educational indicators the following model is estimated:

\[
Y_{i,t} = \alpha_1 \times \text{Fiscal-Capacity (Taxes)} + \alpha_2 \times \text{CG-Transfers}_{i,t} + \alpha_3 \times \text{Royalties}_{t} + \alpha_4 \times \text{Political-Variables}_{i,t} + \alpha_5 \times \text{Socio-Economic Variables}_{i,t} + \theta_i + T_t + e_{i,t} \tag{1}
\]

Where \(Y_{i,t}\) represents an educational outcome -enrollment rates or quality of education—and the right hand expressions are the explanatory variables. \(\theta_i\) stands for the municipal fixed effects while \(T_t\) are year dummies. It is expected that \(\alpha_1 > \alpha_2\) and \(\alpha_1 > \alpha_3\) as the

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20 Several specifications were estimated for the years to the last cadastral update: linear, quadratic, cubic and diverse forms of dummy variables for the number of cadastral updates.
efficiency of locally raised funds should be greater than the Central Government transfers’ and royalties’ ones.

Nevertheless, coefficient $\alpha_1$ may be biased as both local taxes and the educational indicators may be related with omitted variables that change over time and hence they are not fully captured by the municipal fixed effects. One example of an omitted variable is, for instance, the price of local production that may affect both local taxes through larger economic activity and educational outcomes 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, it is not related to the educational outcomes but only through the greater tax capacity that a municipality may attain 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:

$$Fiscal-Capacity (Taxes_{i,t}) = \gamma_1 * Estimated-Under-Valuation_{i,t} + \gamma_2 * CG-Transfers_{i,t} + \gamma_3 * Royalties_{t} + \gamma_4 * Political-Variables_{i,t} + \gamma_5 * Socio-Economic variables_{i,t} + \psi_i + T_t + e_{i,t}$$

(3)

It is then expected that $\gamma_1 < 0$ since an increase in the undervaluation for properties would reduce both the property and land tax base and, in consequence, the potential tax collection.

*The Model's Results*

Table 2 presents the results of the OLS and instrumental variables panel models for student enrollment in public school as a proportion of the population. The OLS model indicates that an increase of 1% on local taxes augments the enrollment rate in 0.007 percentage points being such result similar to the 0.008 obtained for Central Government. 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% tax revenue would fall by 0.11%. The *second stage indicates that changes in tax capacity prompted by changes in tax effort indeed positively affect education enrollment*. According to the coefficient, a 1% positive exogenous variation of local taxes increase by 0.021 the proportion of the population enrolled in the public schools. Or in relative terms, if per capita taxes go up by one standard deviation (in log =1.26) education 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.
As for the other variables, the coefficient of Central Governments transfer is equal to 0.008 and similar to the one obtained using the OLS panel model. The impact of royalties in coverage is zero. It is apparent than the taxes coefficient is greater than that of the transfers’. This result may intuitively suggest that higher taxes bring about stronger citizenry awareness on the allocation of the local budget, encouraging more efficiency of the local public sector.

Finally, the political variables are only weakly correlated to the enrollment rates in public schools. The local effective number of parties (ENPP) correlate positively with enrollment, as well as intraparty 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 mediated by fiscal autonomy.

Table 3 presents both the OLS panel and the instrumental variable panel model for the quality of education calculated annually and as the six year average (as it is assumed that the quality of education at the end of high school has its origins at least six years back). Quality is measured as the average score of the senior high school students in the test SABER 11, relative to the test score of the private high school of the department where the public school is located in. The departmental average score was used, given that in many Colombian municipalities no private education is offered. Thus, the left hand side variable is measured at school level—with over more than 5000 schools; hence the model specification is slightly modified. The dependent variable is then $Y_{j,i,t}^k = \frac{\text{School-Score}_{j,i,t}^k}{\text{Average-private-Score}^k}$ where $j$ denotes the public school, $i$ the municipality, $t$ the year and $k$ the department where it is located.

Column 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 local taxes and test scores in public schools, especially in the six year average. Moreover, a strong correlation between Central Government transfers and relative public scores is found. It is worthy of note that the effect of local taxes is substantially larger than the one of transfers. The effect of royalties on quality of education is negative, coinciding with previous findings which show the null effect of royalties on population’s welfare (Gaviria, Zapata y 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 local taxes. The political variables, again, do not exhibit a consistent relationship with per capita taxes. Again, the variable measuring intraparty competition is positively but with a low real impact, as well as the council’s reelection average. This last variable would suggest that the more senior and successful at getting reelected are, the less educational score. Nonetheless, most of them are not statistically significant.

Column 3 presents the second stage of the model. It can be noticed that exogenous variations of local per capita taxes affect positive and significantly the relative score of the public schools. 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, local fiscal effort would be manifest itself in better quality of education.

Table 3: Quality of Education: Ratio of Saber 11 of Public to Private Schools
So far, we have observed that the municipal’s fiscal capacity has a significant impact in the performance of municipality in the education sector. Both for coverage and quality, the municipality’s fiscal capacity has a larger impact on outcomes compared to the other sources of revenue mayors had available (national transfers and royalties). Finally, we would like to test whether the allocation of their own resources lead to better outcomes. Primarily, the local government decides how much would be spent in education (or any other sector). As for determining that amount we just calculated the difference between the total educational spending minus the transfers received from the Central Government for that sector. Thus, the Educational Fiscal Effort would be then the proportion of the total spending in education at local level that is financed with local taxes. It is expected that higher fiscal effort will facilitate the channeling of more resources into a particular sector. Therefore, Educational Fiscal Effort may be expressed as:

\[
\text{(Own Resource for Education}_{t,t-n}^{i})/(\text{Total educational Spending}_{t,t-n}^{i})
\]
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 in many years is nil. So, to establish whether the municipality is spending in the neediest 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 conditional 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,

\[
Educational\ Responsiveness_{i,t-n} = 1 \text{ if } \frac{Educational\ Fiscal\ Effort_{i,t-n}}{Average\ Educational\ Fiscal\ Effort_{t-n}} \text{ and } \frac{Education\ Enrollment\ Rate_{i,t-n}}{Average\ Education\ Enrollment\ Rate_{t-n}} < 1
\]

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

\[
RES_{i,t-n} = \psi_1 * \text{Fiscal-Capacity (Taxes)}_{i,t-n} + \psi_2 * \text{CG-Transfers}_{i,t-n} + \psi_3 * \text{Royalties}_{t-n} + \psi_4 * \text{Political-Variables}_{i,t-n} + \psi_5 * \text{Socio-Economic\ variables}_{i,t-n} + e_i \tag{4}
\]

Where \( RES_{i,t-n} \) stands for strong responsiveness of local government *i* during the period *t,t-n* and \( \psi_1 \) is the second stage coefficient of fiscal capacity instrumented with the estimated under valuation of local properties as in equation (3). It is expected that \( \psi_1 > 0 \) indicating that positive variations of local fiscal effort will increase responsiveness of municipal governments.

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 local per capita taxes rise by one standard deviation, that probability of having a local spending in education more responsive to local needs increases by 0.18 (0.89*0.21) points. Transfers from the Central Government are also positively related to strong responsiveness, although it has a 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.

**Table 4: Educational Responsiveness: Match Between Own Expenditures and Needs**
The IV probit model in column (2) provides more solid evidence on the impact of local capacity on spending responsiveness. Indeed, the marginal coefficient of per capita taxes equals 0.5, which means that if per capita taxes experience an exogenous positive variation of one standard deviation, the responsiveness probability increases by 0.44 points. The rest of the variables but royalties in the IV probit are not significant with the exception of the poverty rate. The results of Responsiveness would certainly imply that strengthening local fiscal capacity might entail more efficiency of the local educational spending expressed in higher enrollment rates and better quality of education - in addition to the greater responsiveness of spending to local needs.

The model for Coverage and Quality of Water

In the same manner as for education, this section presents the model to be estimated so as to determine the impact of the fiscal effort and the structure of the water sector on the indicator of coverage and quality of water at 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:

\[ W_i = \alpha_1 \cdot \text{Fiscal-Capacity (Taxes)}_i + \alpha_2 \cdot \text{CG-Water-Transfers}_i + \alpha_3 \cdot \text{Political-Variables}_i + \alpha_4 \cdot \text{Political-Variables}_i + \alpha_5 \cdot \text{Socio-Economic variables}_i + \alpha_6 \cdot \text{EICE} + \alpha_7 \cdot \text{ESP} + \alpha_8 \cdot \text{Years-since-reform} + e_i \]  

(2)

Where \( W_i \) stands for water coverage. 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’s Results

The results of the OLS estimation presented in column (1) of table 5 show that neither local taxes effort nor royalties are significantly correlated to water coverage, while CG water transfers are. In fact, according to the OLS model an increase of 1% of the Central government transfers during 1994-2005 for water, increases the proportion of municipal water coverage by 0.054 points. The number of years after the reform and existence of an EICE in the municipality are not statistically significant in the coverage equation. The existence of an ESP is, unlike the EICE, associated to greater coverage.

The IV estimations are in columns (2) and (3) of table 5. The first stage of the model that indicates that the average undervaluation of properties as expected negatively affects the average per capita taxes. The second stage in column (3) shows that an exogenous variation of fiscal effort positively and significantly impacts water coverage. Thus, if per capita taxes increase by 1% (over 1994-2005) then the proportion of water coverage increases by a sizably 0.15 points. In the IV model the water transfers turn not statistically significant for explaining water coverage while the existence of ESP is - unlike the EICE- associated to greater coverage. In conclusion, differences in fiscal effort are quite relevant to explain 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 we measured. Although we know from qualitative accounts and more detailed fieldwork politics does matter, the variables here presented cannot get at the mechanism directly. Nonetheless, and indirectly, one could observe the differences in the impact of both three available resources and suggest more inefficient uses of transfers and royalties than of money that comes from the taxpayer. Thus, we could observe the same virtuous cycle between fiscal autonomy and public service results.

Table 5: Water Coverage for 2005 in the Colombian Municipalities
The quality water variables are also explained by municipal fiscal effort as shown in Table 6. The dependent variable used is the local drinking water compliance 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: Local Drinking Water Compliance in Colombian Municipalities

<table>
<thead>
<tr>
<th>Variables</th>
<th>OLS</th>
<th>2SLS</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decentralization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-capita Taxes (ln)</td>
<td>-0.0127 (0.00802)</td>
<td>0.160*** (0.0501)</td>
<td></td>
</tr>
<tr>
<td>Per-capita Transfers (ln)</td>
<td>0.0572** (0.0241)</td>
<td>0.761*** (0.0930)</td>
<td>-0.0704 (0.0464)</td>
</tr>
<tr>
<td>Royalties</td>
<td>0.000434 (0.00214)</td>
<td>0.0393*** (0.00830)</td>
<td>-0.00682** (0.00327)</td>
</tr>
<tr>
<td>Water Institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Years after the Reform</td>
<td>0.00540 (0.00350)</td>
<td>-0.00560 (0.0136)</td>
<td>0.06683 (0.00416)</td>
</tr>
<tr>
<td>EICE Municipality</td>
<td>0.0359 (0.0250)</td>
<td>0.145 (0.0975)</td>
<td>0.00239 (0.0307)</td>
</tr>
<tr>
<td>ESP Municipality</td>
<td>0.134 (0.164)</td>
<td>0.206 (0.191)</td>
<td>-0.00833 (0.199)</td>
</tr>
<tr>
<td>ESP Municipality*Effective Number of Parties</td>
<td>-0.0303 (0.115)</td>
<td>0.928 (0.839)</td>
<td>0.0470 (0.139)</td>
</tr>
<tr>
<td>ESP Municipality*Squared Effective Number of Parties</td>
<td>-0.000350 (0.0196)</td>
<td>-0.948 (0.839)</td>
<td>-0.0111 (0.0234)</td>
</tr>
<tr>
<td>Political</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective number of parties</td>
<td>-0.0383 (0.0605)</td>
<td>0.0609 (0.203)</td>
<td>-0.0494 (0.0726)</td>
</tr>
<tr>
<td>Squared Effective Number of Parties</td>
<td>0.0119 (0.0113)</td>
<td>-0.00911 (0.0363)</td>
<td>0.0153 (0.0135)</td>
</tr>
<tr>
<td>Council Members Reelection Average</td>
<td>-0.00142 (0.00199)</td>
<td>-0.00181 (0.00766)</td>
<td>-0.00129 (0.00234)</td>
</tr>
<tr>
<td>Intraparty Competition</td>
<td>0.00253 (0.00183)</td>
<td>-0.00741 (0.00739)</td>
<td>0.00294 (0.00221)</td>
</tr>
<tr>
<td>Proportion of Council Members from Mayor's Party</td>
<td>-0.107** (0.0525)</td>
<td>-0.00160 (0.208)</td>
<td>-0.0799 (0.0629)</td>
</tr>
<tr>
<td>Mayor from Conservative Party</td>
<td>0.0246 (0.0329)</td>
<td>-0.250* (0.129)</td>
<td>0.0485 (0.0409)</td>
</tr>
<tr>
<td>Mayor from Liberal Party</td>
<td>0.0786** (0.0335)</td>
<td>0.114 (0.132)</td>
<td>0.0389 (0.0410)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.563** (0.238)</td>
<td>-9.218*** (0.897)</td>
<td>2.069*** (0.532)</td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadastral Undervaluation</td>
<td>-0.753*** (0.131)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Observations: 949 904 912

* ** *** = 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.

F-test for Instruments: 32, 84; Prob>F: 0.000; Endogeneity Test: 33.54; Chi-sq(1) p-value: 0.000
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 under valuation of properties negatively impact taxes. The second stage –in column (3) – shows that an exogenous variation of per capita taxes increases water quality. Both per capita transfer and per capita royalties are not significant for explaining water quality. The model was also estimated 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 effect 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 effect model, some of them turn significant in the random effects model. The ENPP squared has a negative impact suggesting that limited or too fragmented local party system could affect negatively the provision of water with quality. Thus, we find convincing evidence that greater local fiscal effort is linked to higher coverage of water and better quality. 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 may be, on one hand, too strict and rigid, while royalties may be too flexible.

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

\[
\left( \frac{\text{Own Resource for Water}_{t,n}}{\text{Total Water Spending}_{t,n}} \right)
\]

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 measured as a binary or dummy variable equal to one at time \( t \) whenever the proportion of educational spending coming 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. Hence,

\[
\text{Water Responsiveness}_{t,n} = 1 \text{ if } \text{Water Fiscal Effort}_{t,n} > \text{Average Water Fiscal Effort}_{t,n} \text{ and Water Coverage Rate}_{t,n} < \text{Average Water Coverage Rate}_{t,n}
\]

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

\[
(Water \text{ Responsiveness} = 1)_{t,n} = \xi_1 \text{Fiscal-Capacity (Taxes)}_{t,n} + \xi_2 \text{CG-Transfers}_{t,n} + \xi_3 \text{Royalties}_{t,n} + \xi_4 \text{Political-Variables}_{t,n} + \xi_5 \text{Socio-Economic variables}_{t,n} + \xi_6 \text{EICE} + \xi_7 \text{ESP} + \xi_8 \text{Years-since-reform} + e_{i,t} \quad (4)
\]
$\psi_1$ is the second stage coefficient of fiscal capacity instrumented with the estimated under valuation of local properties as in equation (3). It is expected that $\zeta_j > 0$ indicating that positive variations of local fiscal effort will increase responsiveness of municipal governments.

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

<table>
<thead>
<tr>
<th>Variables (1994-2005 Average)</th>
<th>PROBIT</th>
<th>1SPROBIT</th>
<th>IVPROBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descentralization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-capita Taxes (ln)</td>
<td>0.0630***</td>
<td>0.170*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0125)</td>
<td>(0.0989)</td>
<td></td>
</tr>
<tr>
<td>Per-capita Transfers (ln)</td>
<td>0.00164</td>
<td>0.733***</td>
<td>-0.0755</td>
</tr>
<tr>
<td></td>
<td>(0.0343)</td>
<td>(0.0907)</td>
<td>(0.0757)</td>
</tr>
<tr>
<td>Royalties</td>
<td>0.0234***</td>
<td>0.0385***</td>
<td>0.0218***</td>
</tr>
<tr>
<td></td>
<td>(0.00323)</td>
<td>(0.00819)</td>
<td>(0.00342)</td>
</tr>
<tr>
<td>Water Institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Years after the Reform</td>
<td>-0.0128*</td>
<td>-0.00570</td>
<td>-0.0182**</td>
</tr>
<tr>
<td></td>
<td>(0.00661)</td>
<td>(0.0134)</td>
<td>(0.00794)</td>
</tr>
<tr>
<td>EICE Municipality</td>
<td>0.0592</td>
<td>0.145</td>
<td>0.0558</td>
</tr>
<tr>
<td></td>
<td>(0.0574)</td>
<td>(0.0961)</td>
<td>(0.0614)</td>
</tr>
<tr>
<td>ESP Municipality</td>
<td>-0.0474*</td>
<td>0.121</td>
<td>-0.0542</td>
</tr>
<tr>
<td></td>
<td>(0.0243)</td>
<td>(0.0831)</td>
<td>(0.0331)</td>
</tr>
<tr>
<td>Political</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective number of parties</td>
<td>0.311***</td>
<td>0.0890</td>
<td>0.305**</td>
</tr>
<tr>
<td></td>
<td>(0.111)</td>
<td>(0.195)</td>
<td>(0.125)</td>
</tr>
<tr>
<td>Squared Effective Number of Parties</td>
<td>-0.0680***</td>
<td>-0.0225</td>
<td>-0.0668***</td>
</tr>
<tr>
<td></td>
<td>(0.0218)</td>
<td>(0.0346)</td>
<td>(0.0247)</td>
</tr>
<tr>
<td>Council Members Reelection Average</td>
<td>-0.0130</td>
<td>-0.00157</td>
<td>-0.0155</td>
</tr>
<tr>
<td></td>
<td>(0.0124)</td>
<td>(0.00759)</td>
<td>(0.0150)</td>
</tr>
<tr>
<td>Intraparty Competition</td>
<td>0.00518</td>
<td>-0.00663</td>
<td>0.00197</td>
</tr>
<tr>
<td></td>
<td>(0.00529)</td>
<td>(0.00718)</td>
<td>(0.00311)</td>
</tr>
<tr>
<td>Proportion of Council Members from Mayor's Party</td>
<td>-3.47e-05</td>
<td>0.0760</td>
<td>-0.0123</td>
</tr>
<tr>
<td></td>
<td>(0.0795)</td>
<td>(0.204)</td>
<td>(0.0888)</td>
</tr>
<tr>
<td>Mayor from Conservative Party</td>
<td>0.0964**</td>
<td>-0.268**</td>
<td>0.123*</td>
</tr>
<tr>
<td></td>
<td>(0.0483)</td>
<td>(0.128)</td>
<td>(0.0644)</td>
</tr>
<tr>
<td>Mayor from Liberal Party</td>
<td>0.0656</td>
<td>0.0850</td>
<td>0.0580</td>
</tr>
<tr>
<td></td>
<td>(0.0492)</td>
<td>(0.131)</td>
<td>(0.0556)</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.163***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.883)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrument</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadastral Undervaluation</td>
<td>-0.775***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.126)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>949</td>
<td>912</td>
<td>912</td>
</tr>
</tbody>
</table>

*, **, *** = coefficients significant at the 10%, 5% and 1% levels; Standard errors in brackets. Socioeconomic variables such as Poverty Rate, Gini of Land Value and Population(ln) 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, that probability of having a local spending in water more responsive to 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 years after the reform and whether the water is provided by an ESP have negative impact of 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 brings up relatively more water spending in those municipalities with low coverage.

The results of Responsiveness in water –similarly than in education - would indicate that strengthening local fiscal capacity might entail more efficiency of the local water spending and hence higher coverage and better quality of the service -in addition to the greater responsiveness of spending to local needs.

**Discussion and Conclusions**

This paper is an attempt to look at the interaction between 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 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 elected officials and citizens would have brought virtuous cycles of representation in which public good provision could have flourished in a very natural way around the territory. Nonetheless, results have been uneven around the country, and even with abundant resources, some municipalities have been unable to achieve decent socio-economic indicators.

What explains the differences across Colombian municipalities? Our argument has two steps. The first step suggests that local authorities are faced with a dilemma to get things done. They can either rely on their regional and national networks to search for resources as an exchange for political support, or they can build their own political support by raising taxes, increasing their political autonomy and capacity to deliver. National politicians too, face 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 rents, and the other via national policy programs. Whenever they control a territory, big enough to get them
elected, the politician 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 flowing the resources to the municipalities, and they mayor as well will do the same. If there is competition at the national level, and not an obvious relation to the politicians at the regional level, the mayor would feel more pressured to increase his own resources to get things done and fulfill his prospective ambition. Thus, the more diversity and political competition there is, the better the incentives for the local political actors to increase their fiscal capacity.

In line with this argument, we find that regional political competition matters as far as it offers mayors with the right incentives to build their own capacity. Consequently, is not the local political context which matters by itself, but instead, is the type of political networks within which local authorities perform that matter for municipalities to increase their capacity. We operationalize this capacity and *fiscal effort*, and show that greater competition at the regional level, both for parties and for candidates, matter for mayor’s to make their decision to update their local cadastre, the single most important decision in terms of own resources.

We also find that the resources resulting from taxes explain better provision and quality of water and education in Colombia, compared to those provided by the national government in the form of earmarked transfers and royalties. 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 different sources in terms of efficiency suggests that there is more virtuous use of the resources which are directly assumed by the local population. This result holds true for both sectors, which have a very different in structure. For royalties, results even negatively correlated as we show with quality of education.

Thus, further research is required to observe how the government can prevent municipalities to fall on a more clientelistic path, instead of one in 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 having elections at the local level does not automatically bring about better policy.

**Bibliography**


