

# **Interacting capacities: National bureaucracies' contribution to subnational performance**

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## **Abstract**

Boundaries between levels of government are usually blurred, and bureaucracies at different levels often interact on the field to achieve a policy goal. However, scarce literature has dealt with the contribution of national/federal bureaucracies to achieving subnational policy goals. This research explores the relationship between a national deconcentrated bureaucratic capacity and subnational decentralized government capacity in Colombia's secondary education provision. While Colombian schooling is decentralized at the subnational level, the national government indirectly contributes to schooling by administering child and youth protection services through a national agency (ICBF), which is highly deconcentrated over the country. Therefore, enrollment in secondary education is a salient issue for both subnational and ICBF bureaucracies. ICBF's personnel and spending figures capture national government capacity at the subnational level while numbers of teachers and high schools assess subnational government capacity. Using panel data for the 32 Colombian departamentos (provinces) over 2004-2013, results reveal both deployed national bureaucracy and subnational capacity boost high school enrollment; meanwhile, ICBF seems to partially substitute subnational capacity with the weakest subnational governments gaining the most from ICBF presence in the territory.

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The provision of social services in the developing world often configures a governance system with several levels of shared policy responsibility. In a context of substantial yet incomplete decentralization, subnational and local governments are in charge of providing certain services while the national government works on closely related areas thus affecting government performance at the local level. National governments often intervene via bureaucratic structures with direct operational work across the territory. Yet, the extent to which the national state exerts an influence on local communities is far from homogeneous. The literature in political science has explored the phenomenon of uneven reach of state capacity but more research is needed in order to disentangle the process of converting inputs into policy outcomes under these conditions. One might argue that the nature of the services provided by the national state in a territory vis-à-vis a service provided by the local government, might affect the way in which national bureaucratic capacity affects service provision. Is the national state complementing the work of subnational governments? Or is it offering a substitute to locally provided services?

The uneven capacity of the Colombian state across its own territory presents the opportunity to explore the relationship between national bureaucracies and those of the local governments to deliver specific socially desirable outputs. This paper explores the provision of education by Colombian subnational and local governments, and the role that ICBF, the Colombian national agency for the protection of children and the youth, plays on the delivery of this service. ICBF offices and operational centers spread over the country and provide a wide range of services related to the physical, emotional and social wellbeing of children and youth. In doing so, they influence the provision of education to the population, which is a responsibility of locally managed schools. An analysis of the 32 Colombian *departamentos* (provinces) over the

2004-2013 period shows national government capacity, via ICBF, influences the provision of education; moreover, ICBF capacity yields a greater impact in *departamentos* with low subnational government capacity. This interactive effect between local and national capacity on service provision might depend on the nature of the relationship between both bureaucracies. In the case of ICBF, its services related to ensuring education provision seem to be partial substitutes of some services already offered by schools. On the contrary, complementary capacities could result in reinforcing effects for service provision, but that case is out of the scope of this paper.

This paper aims to contribute an unexplored perspective to the understanding of the quality of government. Research designs that use local governments as unit of analysis to understand within-country variation of government performance are frequently used in the literature of public management (see for instance Avellaneda, 2008, 2009, and Walker & Andrews, 2013 for a review of the literature). Yet, the territorial unevenness of national state capacity and its influence on subnational government performance has not been explored so far. Meanwhile, in the vast literature of fiscal federalism and decentralization the national government is often perceived as the source of resource transfers or in the role of monitoring and overseeing; here, the national government is introduced as a bureaucratic actor on the field.

In the following sections, the theoretical underpinnings of the relationship between capacity and performance for subnational governments are explored and the phenomenon of unevenness state capacity in the developing world is described. Then, the next section discusses and formulates hypotheses about the interaction between the capacity of the national bureaucracy and local capacity for service provision in the context of decentralization and deconcentration. The case of education delivery in Colombia is then described, as well as the role indirectly

played by ICBF in this process. Data and methods are presented, as well as the results of the empirical analysis. A discussion of the main findings follows, and a final section offers some conclusions, avenues for further research and discusses the limitations of the paper.

### **Subnational government capacity and performance**

There is no consensus on the meaning of capacity in public management research. Christensen and Gazley (2008) offer a perspective of capacity as a multi-dimensional, multi-level, and highly contextual concept, based on a bibliometric analysis of the literature in public, non-profit and business management. The authors consider four broad dimensions (human resources, financial resources, infrastructure and external environment) to encompass the complexity of the term. Three of their four dimensions relate to internal capabilities. In their comprehensive study of organizational capacity in the US states, Ingraham, Joyce and Donahue (2003) had also mostly focused on internal capabilities such as human resources, financial resources and information systems. While organizational capacity will always need to be attached to a specific context (capacity to do what?), understanding it as a set of internal capabilities allows to establish some conceptual boundaries and facilitates the analysis of its relationship with performance. Capacity can be defined as a set of internal capabilities or resource stocks to be used for organizational performance, among which human and financial resources are central dimensions of the concept.

Meanwhile, performance itself is also a multi-dimensional and context-dependent concept (Walker, Boyne & Brewer, 2010). Yet, most approaches to the concept of performance in public management research follow under either the input-output-outcome model (IOO), the economy-efficiency-effectiveness (3E) model or something in between (Walker, Boyne & Brewer, 2010). Both approaches have in common an interest in performance as the result of an

organizational process of transforming inputs into outputs and outcomes, and the salient perception of organizational performance as effectiveness (i.e. the ability to achieve relevant outputs). For the purpose of this paper, organizational performance is mainly understood as effectiveness or quantity of outputs in service provision (Boyne, 2003) which is also fitting to the context of the empirical case, as it will be explored later.

Several models of organizational performance highlight the role of capacity as a main driver of performance in public organizations even when using different terms that also point to a set of organizational internal capabilities. For instance, O'Toole and Meier (1999) suggest that hierarchy, i.e. "formal authority to compel" (p. 508), and management substitute each other to provide the organization with the stability that is necessary to make use of their internal capabilities in order to perform. Moreover, information technology and human resource development are among the several factors, identified by Rainey and Steinbauer (1999), that affect organizational effectiveness. Boyne (2003) also includes elements of organizational capacity (e.g. resources and size) among the determinants for improvement in public service delivery. Thus, public management scholars have consistently incorporated capacity elements in their models of performance, with the logic that internal capabilities constitute the inputs or production factors that public organizations use in order to deliver outputs.

More attention at the theoretical and empirical level has been paid to explore the effect of other drivers of performance such as management, structure, regulation, markets and environmental context (Boyne, 2003). Yet, some literature has focused on understanding the interaction between capacity and some of these other factors whose association with performance is less clear. For instance, Carley, Nicholson-Crotty, and Fisher (2015) found a positive interactive effect of capacity and federal guidance on the use of funds of the American Recovery

and Reinvestment Act (ARRA) of 2009 by USA states. They assessed capacity as human capital, more specifically as the acumen of financial and policy-specific experience in the state government. Meanwhile, Andrews et al (2013) explored the moderating effect of administrative capacity on the relationship between environmental disruption (migration) and service provision by English local governments. Taking a broader understanding of government capacity, these authors operationalize the concept as the spending on local central administration per capita. Both cases suggest that government capacity can have an impact on performance beyond an intuitive direct linear relationship. The next section addresses the setting of uneven distribution of national capacity across the territory and its interaction with local capacity to potentially impact service provision.

### **The uneven reach of the state through the bureaucracy**

Several approaches associate the concept of state power to state capacity and to bureaucracy itself. Mann (1988, 2012) develops a “functional” exploration of the state regarding the array of functions it assumes and its ways of exercising power, proposing a differentiation between despotic and infrastructural state power. The first category corresponds to the power exercised at the will of the sovereign or the “state elites” without negotiation with the society (Mann, 1988). Historically, this was the kind of power early states enjoyed and exercised. However, despotic power has been decreasing with the evolution of modern states and stronger civil societies. On the other hand, infrastructural power is “the capacity of the state to actually penetrate civil society, and to implement logistically political decisions throughout the realm” (Mann, 1988). Mann (1988) identifies certain conditions that have led to the development of the infrastructural state: 1) division of labor, 2) literacy to send messages and store/record rules, 3) coinage, weights and measures to exchange commodities, and 4) rapidity of communication. The

first two conditions are similar in nature and motive to those characteristics of the ideal bureaucracy proposed by Weber (1922). Moreover, the third and fourth conditions resemble the standardization mechanisms for coordination and information flow within organizations as proposed by Mintzberg (1983). Given that complex organizations cannot depend on mutual adjustment between individuals or direct supervision over employees as simple organizations do, standardization allows for coordination of more intricate production processes (Mintzberg, 1983). Thus, infrastructural power is associated to the administrative and organizational capacity of the state through the bureaucracy. In other words, the bureaucracy is the apparatus formed and maintained by the state to exercise its infrastructural power.

Other scholars have also defined infrastructural power or state capacity in similar terms. Centeno and Ferraro (2013) identify four types of state capacity and among them there is an infrastructural state capacity. For them, this concept “involves the organizational and technical power to process information, build organizational structures, and maintain transportation and communication systems” (Centeno & Ferraro, 2013). This seems to be an even more operational perspective of the state action on society. In any case, both Mann, and Centeno and Ferraro strongly tie the bureaucratic apparatus to the infrastructural nature of the state. Centeno and Ferraro (2013) also offer three potential approaches to assess infrastructural power. They suggest that the effectiveness of policy intervention, the geographical extension of the state power, and the evenly application of regulatory power across social classes and categories constitute three valid dimensions of infrastructural power. Unfortunately, they do not elaborate on these dimensions. Meanwhile, Soifer (2008) identifies and develops three analytical approaches to infrastructural power somehow corresponding to Centeno & Ferraro’s. First, a “national capabilities” approach considers the potential of the state to penetrate or influence society. This

approach is related to the characteristic centrality of the state, and it assesses the potential capacity of the state to enforce its will on the territory. A second approach, the “weight of the state”, deals with the actual effect of policy implementation over society. Finally, Soifer (2008) proposes a “subnational variation” approach to infrastructural power. In this sense, assessing infrastructural power should also incorporate the variability of the reach of the state inside the territory. Soifer’s “subnational variation” approach and Centeno & Ferraro’s geographic approach recognize a reality that is better perceived in the developing world: the state’s presence and influence over society is often uneven across the territory.

O’Donnell (1993) described this unevenness of the state capacity and the high degree of heterogeneity among Latin American countries. He identifies weak rule of law, primacy of informal institutions, and insufficient capacity for policy implementation as the main consequences of the irregular distribution of state power. O’Donnell (1993) proposes that socioeconomic crises drive this unevenness while Soifer (2015) suggests it reflects the weakness of state-building projects. Meanwhile, Boone (2012) proposes that certain state-building projects are strategically designed to allow for disparity in state reach. Based on the context of sub-Saharan Africa, Boone argues that state leaders might incorporate or abandon certain social and geographic groups with the aim to reduce/control conflict or consolidate power. Regardless of the cause of the spatial configuration of infrastructural state power, this unevenness might affect government performance at the local level. As it will be discussed in the next section, even in contexts of decentralization where local subnational governments are vested with policy responsibilities, the reach of the national state yields an influence over policy outcomes.



## **Interacting bureaucratic capacities in decentralized governance**

All around the world, countries have experienced a process of decentralization as devolution (Rondinelli, Nellis & Cheema, 1983) in which central governments have transferred power, responsibilities and resources to lower levels of government. Over the last six decades, this process has resulted in the rise of subnational governance in both unitary and federal countries, with institutional arrangements that adapt to fit the heterogeneity of preferences, context and scale across countries (Hooghe & Marks, 2016). From the perspective of fiscal federalism, scholars have analyzed decentralization by studying the relationship between public service provision and citizens' preferences. Two of the most relevant seminal works on this field are due to Tiebout (1956) and Oates (1972). Both use formal modeling to explore the implications of decentralization on service provision and fiscal performance. Tiebout (1956) presents a model in which voters-consumers do not have restrictions to mobilize and are thus able to choose where to live according to the local government's level of public good provision and tax rates. While Tiebout's model attempts to explain a system with extensive decentralization such as the case of the United States, Oates (1972) offers a model to compare centralized versus decentralized provision. Decentralized governments should be more efficient than the central one regarding the provision of goods and services whose optimal level is heterogeneous across the territory. Reformers thus expect that decentralization allows local governments to tailor policy implementation to local needs and thus achieve higher outcomes. However, contemporaneous evidence and analysis have led scholars to agree on the fact that decentralization reforms per se do not lead to better outcomes in terms of service provision. Instead, effects of decentralization are contingent on context, design and implementation (Bardhan and Mokherjee, 2006; Treisman, 2007). Differences in political, social, economic and

institutional context affect the impact of decentralization in a developing world setting where several assumptions of fiscal federalism hardly apply (Bardhan, 2002).

Other branch of studies in federalism and decentralization has focused on the relationship between the central and subnational governments, in a context in which central governments still play several roles in governance at the local level. A subject of central attention in this literature is the role of intergovernmental transfers. Since the 1970s, economists have studied the anomaly of “flypaper effects”, or the empirically observed phenomenon in which lump-sum grants from the central government are treated differently by subnational governments than revenue locally collected (Courant, Gramlich & Rubinfeld, 1979; Hines & Thaler, 1995). While economic theory suggests that these differently sourced revenues should have the same impact on local government spending, the evidence shows that local governments spend more than expected when the revenue comes from the central government. Meanwhile, Rodden (2006) showed that the stability of fiscally federal systems relies on the credible commitment of the central government to step away from bailing out subnational governments. Local governments that rely mostly on fiscal transfers from the center have higher bailout expectations, and thus have less incentives for fiscal responsibility.

Less common are the studies on the role of national bureaucracies in the context of decentralized governance. The literature highlights the importance of central bureaucracy’s capacity and commitment to support local governments during decentralization implementation (Ayee, 1997; Rondinelli et al, 1983). Local governments would need this key support to build local capacity and adequate organizational arrangements in the beginning of the decentralization process (Wunsch, 2001); otherwise a resisting central apparatus can lead to a process of recentralization (Ribot, Agrawal & Larson, 2006). Decentralization does not imply, however,

that national bureaucracies disappear from the local scene. Exploring the health policy area in Brazil, Rich and Gomez (2012) showed that national bureaucracies, instead of going away because of decentralization, might redefine their role by focusing on monitoring and overseeing.

In other cases, the central government might deconcentrate, in a parallel but different process from decentralization. Certain policy functions and responsibilities that remain in the realm of the central government might require the deployment of field units across the territory. Thus, instead of the autonomy granted to subnational governments in decentralized arrangements, deconcentration implies that “the central government retains authority over the field office, and exercises that authority through the hierarchical channels of the central government bureaucracy” (Schneider, 2003, p. 38). Therefore, in the context of parallel processes of decentralization and deconcentration, two bureaucracies or two layers of government capacity interact in a given region. Moreover, not only government capacity may vary across subnational entities, but also, as previously discussed, the capacity of the national government can vary across the territory.

The provision of services by subnational governments can depend on the nature and quality of the services provided by the national government in the same territory. Either directly or indirectly, local governments still rely on the provision of certain goods and services by the national government to perform. For instance, defense and justice are among the primary responsibilities of most national states, and the quality of their provision in a specific territory frames the context in which local governments exercise their autonomy to address the specific needs of their constituencies. Moreover, some national governments directly provide services such as healthcare, policing, and technical assistance which may contribute to policy outputs at the local level. One can expect that the level of locally provided goods and services depends not

only on the capacity of the local government itself but also on the extent to which the national government exerts its influence (i.e. provides its own services), via its bureaucratic apparatus, across the territory. Therefore, one should expect a direct positive relationship of capacity, both national and subnational government capacity, with service provision at the local level, producing the following hypotheses:

H1: Subnational government capacity positively affects subnational service provision.

H2: National-level capacity is positively associated to subnational service provision.

The nature of the services provided by a deconcentrated national bureaucracy vis-à-vis locally provided services could affect the way the former influences performance at the local level. Theoretical approaches such as polycentric governance (Ostrom, Bish & Ostrom, 1988; McGinnis, 1999) and multi-level governance (Hooghe & Marks, 2003) also highlight the salience of flexible arrangements in which different governments interact to bargain and coordinate spaces of policy action. Even in systems like the United States, perceived as having a strict separation of powers between the federal and state governments, overlapping spaces of policy authority are common and might better describe the functioning of the entire system (Wright, 2007). Thus, national governments might conduct specific actions that local governments do not perform and which in some way contribute to achieve a local policy goal. Let us think, for instance, on public safety provided at the national level interacting with the provision of health promotion services by local agencies. At a given level of organizational capacity, local agencies should be able to perform better (e.g. higher quantity of outputs) in a context of higher safety that eases access to the population. Similarly, a low level of nationally provided technical assistance for agriculture could hinder the effectiveness of locally managed job-training programs. This reasoning leads to the following hypothesis:

H3a: There is a positive interactive effect of complementary national capacity and local capacity on local service delivery.

National bureaucracy might also deliver activities that are equivalent or substitutes to those of the local government. Blurry boundaries between of governments' spheres of influence make feasible a situation in which two layers of government supply similar goods or services. In the context of the United States, for instance, the federal government can step in to operate programs funded with federal grants when states fail to effectively do so (Thompson, 1983). Turnbull and Djoundourian (1993) explored the potential substitutability of city and county provision of policing and road construction in the United States with mixed results. Substitution might not occur between broadly defined services, but it could exist between specific activities even if these are being part of programs intended with different purposes. For instance, both national and local governments could provide health education as part of a public health or a community development program. In cases of capacity substitution, the influence of national capacity in the delivery of a locally pursued service would be greater in areas where local governments lack enough capacity. In other words, jurisdictions with weak local governments should benefit more from the presence of substitutive national capacity in their territory, thus conducting to the hypothesis:

H3b: There is a negative interactive effect of substitutive national capacity and local capacity on local service delivery.

The extent to which an interactive element is empirically observed might depend on the complexity of services provided and activities carried out by both the national and subnational governments. In other words, national capacity can be used for several services that might be either complements or substitutes of services provided at the local level. Thus, evidence for H3a

or H3b could be found depending on whether the nature of the services provided by the national bureaucracy tends to be more of a substitute or a complement to a specific service provided locally.

### **Decentralized provision of education in Colombia**

Colombia presents a fitting case to explore the interaction between national and local bureaucracies in service delivery. During the last two decades, Colombia has implemented changes over its territorial structure in order to advance decentralization at the administrative, fiscal and political levels (Alesina et al, 2005; Faguet & Sanchez, 2014). This process has been one of the most vertiginous in Latin America (Alesina et al., 2005) and has advanced in several differentiated stages. Falletti (2010) describes the Colombian experience with decentralization as a process championed by subnational elites interested in advancing political decentralization first, followed by fiscal demands and administrative responsibilities last. Political decentralization advanced with the election of municipal mayors in 1988. Colombia is made up of more than 1100 municipalities which in turn belong to 32 *departamentos*, political-administrative divisions similar to provinces. All the national territory, except for the capital district of Bogotá belongs to a *departamento*. Furthering political decentralization, governors (at the *departamento* level) were elected for the first time in 1992. Until then, the president would appoint governors and these, in turn, would appoint mayors. Hence, governors and mayors used to act as mere agents of a unified centralized government.

Fiscal decentralization incipiently started with the institution of the “Situado Fiscal”, the first attempt of intergovernmental transfers, in 1968. The 1991 Constitution strengthened the transfers system and vested the territorial entities with the responsibility of the provision of social services such as education, health care and basic sanitation, furthering administrative decentralization

(Bello & Espitia, 2011). The second-tier subnational governments of *departamentos* received the resource transfer and the operation of education and health systems, acting on behalf of the municipalities. However, Congress has passed legislation to allow the most capable municipalities autonomy in managing resources for education (Ley 715 de 2001). Beyond being a constitutional mandate for local governments in Colombia, schooling also represents the largest share of local government spending; this social policy area accounts for about 25% of municipal and *departamento* budgets. In 2001, Congress passed legislation to amend the Constitution and modify the resource allocation method to achieve fiscal sustainability and improve equality in education and health. Bello and Espitia (2011) showed that the 2001 constitutional amendment led to convergence in the statutory allocation of resources among *departamentos*.

The country has experienced substantial progress in the provision of education and health in the last three decades. Empirical evidence suggests that decentralization has contributed to this result (Faguet and Sanchez, 2014). In the case of education, Colombia has achieved full enrollment in primary education but that is not the case for high school (El Tiempo, 2017). While secondary education enrollment increased by about 10% between 2000 and 2013, still more than 1.1 million of Colombian teenagers did not have access to high school by the end of that period. Consequently, expanding high school enrollment has been and remains a salient policy goal in Colombia. About an 80% of the current enrollment in secondary education in Colombia corresponds to public schools. These are administered by the *departamento*-level governments except for the case of municipalities certified by the national government, which manage their own school systems. *Departamentos* and certified municipalities have the autonomy to manage national transfers and allocate part of their own revenues for the operation of the school system, with a strong focus in raising enrollment. A higher proportion of children out of the school

system are found among impoverished families, rural areas, and ethnic minorities (Delgado, 2014). Beyond the provision of education itself, subnational and local governments support schools in providing transportation, lunch programs and pre-enrollment outreach in order to ease access to the system. Furthermore, since 1994 all schools are mandated to implement an in-school counseling service which provides programs at the level of individual students, as well as group interventions for parents, teachers and the overall school community (Decreto 1860 de 1994). Among the several dimensions addressed by the school orientation service are school coexistence, occupational guidance, and individual counseling addressing problems that affect the student's staying in school (Monroy Mendoza, 2017).

### **The role of deconcentrated national bureaucracy: ICBF**

The Instituto Colombiano de Bienestar Familiar (ICBF, Colombian Institute of Family Wellbeing) is an agency of the Colombian government established in 1968 with the mission of working for the development and comprehensive protection of Colombian children, teenagers and families. From an organizational standpoint, ICBF operates through its headquarters in Bogotá and 33 regional divisions (*direcciones regionales*), one for each of the 32 departamentos plus one for the capital district of Bogotá. In turn, each regional division consists of headquarters in the *departamento's* capital city and *centros zonales* (field units) spread across the territory. Using the distribution of personnel within ICBF over time, Figure 1 illustrates the high degree of deconcentration of this organization. Out of 4381 public servants working at ICBF in 2007, 4029 (92%) belonged to regional divisions, and 2681 (61%) of them worked directly at the operational field units. Moreover, deconcentration has increased over time. By 2017, 95% (8426 out of 8864) of ICBF public servants were assigned to regional divisions, and 72% (6413) worked at



the field units<sup>1</sup>. The rise in deconcentration and in the overall number of employees denotes a trend towards increasing capacity for service provision.

[Figure 1 about here]

The Colombian public sector uses a pay scale with five categories which indicate certain degree of responsibility and an expected level of education and training needed to perform the job. Inside each category there is, in turn, a more detailed gradation of salaries. From the top down, the five categories are *Directivo*, *Asesor*, *Profesional*, *Técnico* and *Asistencial*. Positions classified as *Profesional* and above require a bachelor's degree at minimum. From the distribution of job positions across these categories, it can be inferred that the share of ICBF employees with a bachelor's degree increased from 58.7% in 2007 to 68.9% in 2013. Furthermore, at least half of the workforce in all but one ICBF regional divisions held a bachelor's degree over the 2007-2013 period. Even though these figures are not specific in terms of job tasks and type of degree acquired, one could suggest that they indicate an increase in human capital in the organization and a focus on better qualified personnel. Moreover, the average annual salary for each regional division over 2007-2013 varied between 22.6 and 39.5 million Colombian pesos of 2008<sup>2</sup> which can be considered competitive in a market that paid approximately 21 million Colombian pesos to a new bachelor graduate in 2014<sup>3</sup>.

ICBF devotes a substantial share of its resources (approximately a quarter of its programming budget) to fulfill the part of its mission related to the protection of the youth. Thus, ICBF offers a series of programs and strategies aiming to impact pre-teenagers and teenagers in

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<sup>1</sup> Calculations from data provided by ICBF Human Resources Department.

<sup>2</sup> At Purchase Power Parity, this would be equivalent to 21 to 37 thousand dollars a year.

<sup>3</sup> Calculations from data by Observatorio Laboral para la Educación (<http://www.graduadoscolombia.edu.co/>)

vulnerable environments<sup>4</sup>. For instance, the agency funds “high social impact massive actions” such as sport, cultural and artistic events, as well as programs to reinforce protective environments for children. ICBF field units also provide psycho-social support for vulnerable children and teenagers, and programs to prevent teen pregnancy. With this portfolio of actions, ICBF attempts to protect vulnerable youth by reducing their exposure to several risk sources. One of the risks ICBF aims to reduce is that of dropping out of school. Thus, ICBF actions affect, even though indirectly, outputs for the provision of education such as high school enrollment. Yet, the nature of the interaction between ICBF and local providers of education - local governments and schools- is not totally clear. Through counseling, schools offer similar services to those of ICBF in relation to reducing dropout risk, thus probably substituting for each other. However, these local actors not only directly provide schooling but also perform other activities conducive to raising enrollment such as school transportation, school lunch, and outreach for school pre-enrollment among vulnerable families. Therefore, one can think of ICBF’s capacity for maintaining or increasing school enrollment as a partial substitute of a more complex and direct service provided by local actors.

## **Data and Methods**

A panel for the 32 Colombian *departamentos* over the period 2004-2013 serves to test the hypotheses of interacting capacity layers in Colombia for the provision of education. The data comes from databases available in the Panel Municipal del CEDE (Acevedo & Bornacelly, 2014) unless indicated otherwise. Education provision is assessed as the percentage of students enrolled in secondary education out of the potential targeted population for this education level which the

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<sup>4</sup> Vulnerable situations include, for example, living below the poverty line, being an internally displaced person, having committed a felony, among other situations.

Ministry of Education defines as children between 10 and 16 years (Ministerio de Educación Nacional, 2014). A similar measure of enrollment, only for public schools also serves to indicate education provision. As mentioned before, the substantial gap in access to secondary education makes high school enrollment a salient policy goal in Colombia. Furthermore, this policy goal is not only pursued by local governments officially responsible for the provision of education but also indirectly by ICBF through its programs to advance healthy environments for children and youth.

Personnel spending and programming spending per capita for each of ICBF regional divisions operationalize national capacity<sup>5</sup>. While the number of ICBF employees per region would also serve as an assessment of national capacity, this indicator is only available for 2007-2013. In any case, the correlation between employees per thousand people and personnel spending per capita is 0.9719, thus rendering the use of ICBF employees unnecessary. Disaggregated data for programming between childhood (0 to 5 years old) and youth (6 to 17 years old) programs is available for the period 2004-2012; these data serve to build more a more specific indicator of national capacity per capita in the *departamentos* for the attention of the youth. The number of public high school teachers per each thousand people, and the total number of high schools (public and private) per each thousand people provide objective measures to assess local capacity for the delivery of secondary education. Figure 2 presents the evolution over time of both measures of enrollment for each of the 32 Colombian *departamentos*. Gross domestic product (GDP) per capita, the share of rural population in the *departamento*, and the number of internally displaced persons per each thousand people serve as control variables to account for the influence of socio-economic conditions, geographic difficulty

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<sup>5</sup> Calculated from data provided directly by ICBF Human Resources department.

for service delivery, and political violence respectively. Table 1 presents the descriptive statistics for these variables. Linear regression with two-way fixed effects allows to isolate the estimates of the impacts of capacity on service provision from the influence of unobservable variables that are territorially specific but time invariant (e.g. cultural and social traits) or that are not specific to a part of the country but vary over time (e.g. political and economic trends at the national level). Standard errors are robust and clustered at the *departamento* level.

[Figure 2 about here]

[Table 1 about here]

## **Results**

Table 2 presents the results for the analysis for public high school enrollment as the dependent variable. All models from (1) to (6) include controls, as well as the rate of public high school teachers and ICBF personnel spending per capita as explanatory variables. Models (1) to (3) include ICBF programming spending per capita while models 4-6 include ICBF youth programming spending as independent variables. In order to test the interactive effect of these measures of capacity, all of them are incorporated as deviations from the mean for each *departamento*.

[Table 2 about here]

The rate of public teachers, a measure of local capacity, holds a positive significant effect at the 0.01 level across all models (1) to (6). ICBF personnel spending reports a significant coefficient in models (2) and (3) while ICBF programming spending does it in models (1) and (3). Youth programming presents positive significant coefficients at the 0.01 level in models (5) and (6). The interactive term between public high school teachers and ICBF personnel spending,

tested in models (2) and (5), does not yield statistically significant results. Meanwhile, the interaction between public high school teachers and ICBF programming spending (both total programming in model 3, and youth programming in model 5) is significant and yields negative coefficients. Among variable controls, GDP per capita consistently presents a positive significant relationship with enrollment while the share of rural population consistently yields a negative coefficient.

Table 3 reports the results of the analysis for high school enrollment, in any public or private high school, as dependent variable. In this case, local capacity is represented by the number of high schools per thousand people across models (7) to (12). Following the same structure as models 1-6, controls and ICBF personnel spending are also included in all models. Models (7) to (9) include ICBF programming spending per capita while models 10-12 include ICBF youth programming spending as independent variables. The number of high schools presents a significant positive coefficient in models (8), (9) and (11). Measures of national capacity also present significant association to enrollment. ICBF personnel spending holds a significant coefficient at the 0.05 level in models (8) and (9) while ICBF programming spending (both total or youth programming) yields significant positive coefficients across all models. All the interactive terms tested between national and local measures of capacity present a significant negative coefficient. Meanwhile, GDP per capita consistently holds a positive relationship with enrollment across all models while rural population share consistently presents a significant negative coefficient. Across several models, the number of internally displaced people shows an unexpected positive relationship with performance.

[Table 3 about here]

## **Discussion**

The empirical analysis contributes some evidence on the relationship between national bureaucracies and local service delivery in Colombia. Measures of local capacity exhibit a consistent positive relationship with both measures of education provision (enrollment in public high schools and in high schools overall) across several specifications. These results provide evidence that supports hypothesis H1 that there is a positive relationship between local government capacity and performance in the form of service provision. At a higher level of theoretical building, this evidence aligns with the more fundamental relationship between capacity and performance.

The effect of ICBF capacity (personnel, total programming and youth programming spending per capita) on high school enrollment seems to be well established. Across most models in both specifications of high school enrollment (public and private, and public only schools), indicators of ICBF capacity exhibit a positive and statistically significant relationship. Hence, this is evidence in support of hypothesis H2 that deconcentrated national capacity is positively associated to service provision at the local level. Among the three measures of national capacity, personnel spending holds the weakest relationship with high school enrollment which is consistent with the fact that each regional division might allocate its human resources to different policy priorities. This paper does not go far enough as to consider the role that public managers have in establishing priorities in implementation, resource allocation and interorganizational partnerships which affect the way in which national capacity in a specific policy area influences local policy outputs. Meanwhile, the indicator for youth programming holds the strongest relationship with high school enrollment which could be expected given that

this indicator is the most accurate among the three used in the analysis to assess ICBF's interventions on the social environments of the young people.

The empirical results consistently show a negative effect of the interaction between ICBF deconcentrated bureaucracy and local capacity for secondary education over the rates of high school enrollment. As it was proposed in the theoretical section, the shape of the interaction between national and local capacities should depend on the specific nature of the services provided at both levels of government. These results are consistent with the proposition that ICBF acts as a partial substitute of local governments and schools to achieve the goal of increasing high school enrollment. Thus, the results provide support to hypothesis H3a that the interaction between national and local capacity is negative for service provision when they substitute each other.

## **Conclusions**

This paper aims to contribute to exploring the interactions occurring between different government capacity layers and their effect on service provision. By focusing on interacting organizational capacities, this research also intends to extend the discussion of the well-established literature in intergovernmental relations and management to the context where different governments operate on the field. That is the case of countries that have experienced both decentralization in the form of devolution to subnational and local governments, as well as territorial deconcentration of the national government. The case of education provision in Colombia served to explore that interaction. While schooling is strongly decentralized, the national government interacts with the provision of this service through the operation of ICBF, the agency in charge of child, youth and family protection. The empirical analysis shows that not only local capacity, but also national deployed capacity holds a positive relationship with service

provision as high school enrollment. Results also show that the nature of the services provided shape the interaction between national bureaucracy and local capacity. The partial substitution between local governments and schools on one side, and ICBF on the other side, in their activities to increase high school enrollment led to a negative interaction between both capacities. *Departamentos* with lower local capacity benefit more from ICBF (i.e. national capacity) than those where local capacity is greater.

This research comes with the limitation of focusing only on one policy area in a specific country. As such, it is not possible to explore whether institutional and managerial factors modify the relationship between national bureaucracies and local service provision.

Incorporating a different policy area, or another country case could shed light, for instance, on relationships that tend to be more of complementarity than substitution. Nevertheless, this paper opens the door to further questions about the nature of the interaction between national and local bureaucracies on the field. Understanding the nature of these relationships might have substantial policy implications in a world of overlapping and bargaining policy spheres between levels of government.



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## TABLES

**Table 1. Descriptive statistics**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Public high school enrollment (%)	320	62.38	11.65	30.92	90.10
Total high school enrollment (%)	320	68.87	13.81	30.92	92.63
Public high school teachers per 1000 people	320	3.66	0.67	2.11	6.63
High schools per 1000 people	320	0.76	0.18	0.37	1.46
ICBF personnel spending per capita (thousands of COP)	320	4.73	3.00	1.53	16.92
ICBF programming spending per capita (thousands of COP)	320	43.64	19.06	15.94	125.51
ICBF youth programming spending per capita	288	11.33	5.27	2.06	26.77
GDP per capita (thousands of COP)	320	7.16	4.33	2.24	25.18
Share of rural population	320	0.38	0.16	0.04	0.69
Internal displaced persons per 1000 people	320	8.21	8.29	0.00	51.18

**Table 2. Results for public high school enrollment**

<b>Public high school enrollment (%)</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
Public high school teachers per 1000 people	3.954*** (1.208)	4.619*** (1.102)	4.790*** (1.103)	3.736*** (1.172)	4.008*** (1.132)	3.738*** (1.159)
ICBF personnel spending per capita (thousands of 2008 COP)	0.0716 (0.313)	1.132** (0.537)	0.965* (0.547)	-0.265 (0.381)	0.135 (0.520)	0.138 (0.550)
ICBF programming spending per capita (thousands of 2008 COP)	0.0777* (0.0384)	0.0525 (0.0331)	0.0848** (0.0331)			
ICBF youth programming spending per capita (thousands of 2008 COP)				0.137 (0.0958)	0.382*** (0.100)	0.377*** (0.104)
GDP per capita (millions of 2005 COP)	0.259 (0.181)	0.452** (0.207)	0.430** (0.185)	0.141 (0.198)	0.458** (0.193)	0.467** (0.181)
Rural population share	-108.7* (57.10)	-200.0*** (58.96)	-179.5*** (57.59)	-141.8** (67.46)	-253.5*** (54.90)	-249.0*** (56.13)
Internally displaced people per 1000 people	0.0594 (0.0354)	0.0699* (0.0399)	0.0609 (0.0404)	0.0288 (0.0294)	0.0401 (0.0311)	0.0415 (0.0328)
Public high school teachers per 1000 people # ICBF personnel spending per capita (thousands of 2008 COP)		-0.644 (0.872)			-0.361 (0.602)	
Public high school teachers per 1000 people # ICBF programming spending per capita (thousands of 2008 COP)			-0.120*** (0.0416)			
Public high school teachers per 1000 people # ICBF youth programming spending per capita (thousands of 2008 COP)						-0.319** (0.141)
Constant	96.46*** (22.52)	134.1*** (22.73)	126.8*** (22.11)	109.7*** (26.63)	154.4*** (21.39)	152.8*** (21.73)
Observations	320	320	320	288	288	288

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

**Table 3. Results for total high school enrollment**

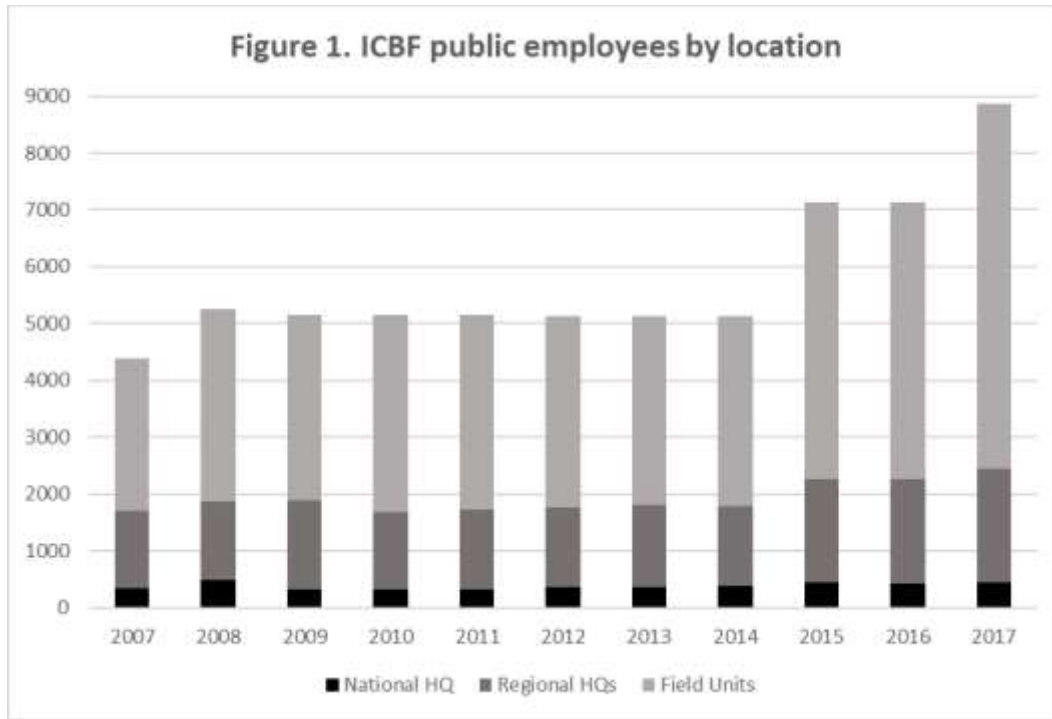
<b>Total high school enrollment (%)</b>	<b>(7)</b>	<b>(8)</b>	<b>(9)</b>	<b>(10)</b>	<b>(11)</b>	<b>(12)</b>
High schools per 1000 people	5.788 (3.449)	11.08*** (3.344)	7.888** (3.814)	4.674 (3.929)	6.844* (3.767)	5.328 (3.205)
ICBF personnel spending per capita (thousands of 2008 COP)	0.389 (0.335)	1.119** (0.439)	0.834** (0.387)	-0.0414 (0.426)	0.212 (0.462)	0.259 (0.480)
ICBF programming spending per capita (thousands of 2008 COP)	0.114*** (0.0392)	0.0566* (0.0328)	0.111*** (0.0312)			
ICBF youth programming spending per capita (thousands of 2008 COP)				0.233** (0.102)	0.370*** (0.0938)	0.361*** (0.0895)
GDP per capita (millions of 2005 COP)	0.588*** (0.195)	0.690*** (0.242)	0.623*** (0.213)	0.445* (0.229)	0.672*** (0.237)	0.605*** (0.217)
Rural population share	-163.1* (84.31)	-186.8** (72.95)	-177.3** (69.05)	-197.7* (97.16)	-262.1*** (75.53)	-255.8*** (73.83)
Internally displaced people per 1000 people	0.0824* (0.0421)	0.102** (0.0452)	0.0876* (0.0433)	0.0530 (0.0382)	0.0689* (0.0401)	0.0690* (0.0371)
High schools per 1000 people # ICBF personnel spending per capita (thousands of 2008 COP)		-5.161* (2.611)			-4.589* (2.570)	
High schools per 1000 people # ICBF programming spending per capita (thousands of 2008 COP)			-0.757*** (0.121)			
High schools per 1000 people # ICBF youth programming spending per capita (thousands of 2008 COP)						-2.199*** (0.275)
Constant	122.1*** (33.10)	133.8*** (28.48)	131.3*** (26.99)	135.7*** (38.07)	162.5*** (29.71)	160.9*** (29.06)
Observations	320	320	320	288	288	288

Standard errors in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



## FIGURES



**Figure 2. High school enrollment in Colombia (%), 2004-2013**

