Does Participatory Budgeting Improve Decentralized Public Service Delivery?

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Abstract[*]

This paper provides the first experimental evaluation of the participatory budgeting model showing that it increased public participation in the process of public decision making, increased local tax revenues collection, channeled larger fractions of public budgets to services stated as top priorities by citizens, and increased satisfaction levels with public services. These effects, however, were found only when the model was implemented in already-mature administratively and politically decentralized local governments. The findings highlight the importance of initial conditions with respect to the decentralization context for the success of participatory governance.

JEL classifications: H11, H41, H43, H70, P35
Keywords: decentralization; participatory budgeting; training; technical assistance; Russia

1. Introduction

Administrative, fiscal, and political decentralization has become more commonplace as a strategy to improve public service delivery (World Bank 2004).[1] However, the effects of decentralization on public service delivery are theoretically ambiguous. On the one hand, decentralization may bring decision making closer to citizens, so local preferences can be better reflected in policies (Oates 1972; Olowu and Wunsch 1990; Putnam 1993). As Wallis and Oates (1988) suggest, decentralization can make the government more responsive to the governed by "tailoring levels of consumption to the preferences of smaller, more homogeneous groups." On the other hand, decentralization may degrade public service provision when local governments are less efficient than central governments or relatively more susceptible to elite capture (Crook and Sverrisson 1999; Prud'Homme 1995; Samoff 1990; Smith 1985; Tanzi 1995). Empirical evidence also provides conflicting and inconclusive findings far from a coherent whole.[2] As a result, identifying innovative mechanisms to reinforce political accountability and to improve decentralized public service delivery has become a key challenge for policy makers and development agencies. One of the most important innovations was the participatory budgeting model developed in the city of Porto Alegre, Brazil, starting in 1989.

Participatory budgeting allows citizens to negotiate with government officials over budgetary allocation and its investment priorities. The model aims to bring two key elements to the traditional budgetary practices. The first part involves improving information flows between

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[1] For example, between 1987 and 2006, the World Bank committed about US$32 billion to 89 countries through 458 programs, projects, and grants in which decentralization was one of the key themes or classified as an activity.

[2] On the one hand, Humplick and Moini-Araghi (1996) find, in a cross-country study, that unit costs of road maintenance are lower and roads of better quality where maintenance is decentralized. Faguet (2004) finds that decentralization increased the responsiveness of public investment to local needs for several public services in Bolivia. More positive results come from Fiszbein (1997), Shankar and Shah (2003), de Oliveira (2002), and Parry (1997). They find that decentralization can spur capacity building in local government (Colombia), decrease levels of regional inequality through political competition (a sample of 26 countries), boost the creation and administration of protected areas (Bahia, Brazil), and improve educational outcomes (Chile), respectively. Rowland (2001) finds that decentralization improved the quality of democratic governance achieved in both large cities and small towns. However, Galiani, Gertler, and Schargrodsky (2008) show that, while decentralization had an overall positive effect on student test scores in Argentina, these gains did not reach the poor. They conclude that although decentralization may help the good get better, those individuals who are already disadvantaged may not receive these benefits. Ellis and colleagues (2003), Ellis and Mdoe (2003), and Ellis and Bahiigwa (2003) find that decentralization will likely depress growth and rural livelihoods by facilitating the creation of new business licenses and taxes that stifle private enterprise (Malawi), and propagate rent-seeking behavior down to the district and lower levels, so becoming "part of the problem of rural poverty, not part of the solution" (Tanzania and Uganda), respectively. Similarly, Bahiigwa, Rigby, and Woodhouse (2005) show that decentralization in Uganda has led not to independent, accountable local governments, but rather to their capture by local elites and, hence, to the failure of decentralization as a tool for poverty reduction.

authorities and citizens, leaving the former better informed regarding the goods and services deemed as top priorities by citizens. The second part involves strengthening accountability by functioning as a commitment device for the politicians as it stimulates more frequent checks on their (publicly promised) actions by the common citizen. The model has attracted remarkable attention worldwide but with a special emphasis in the Latin America and the Caribbean (LAC) region. Hundreds of LAC cities have implemented participatory budgeting. Some examples include Buenos Aires, Rosario, and Córdoba, Argentina; Santiago, Chile; Medellín, Colombia; Quito, Ecuador; Lima and Cuzco, Peru; São Paulo and Rio de Janeiro, Brazil; and cities in the Dominican Republic (where participatory budgeting was implemented in all local governments). Overall, more than 1,500 municipalities worldwide have implemented participatory budgeting.[3]

Despite having attracted global attention and having undergone significant scale-up, only one nonexperimental evaluation of participatory budgeting has been conducted for the case of Brazilian municipalities (Goncalves 2014). Findings suggest that participatory budgeting channeled larger fractions of public budgets toward investments in high-priority services for citizens (sanitation and health services), thereby reducing infant mortality rates. However, to the extent of our knowledge, no experimental evaluation has assessed the effects of implementing the participatory budgeting model. Our main contribution is to fill this gap with a randomized controlled trial implemented at the settlement level across three Russian regions (Adygea, Penza, and Perm).

After a major decentralization reform that took effect in 2006, all rural settlements in Russia were required by law to hold public hearings before approving newly legislated formal settlement budgets. Our intervention exploited this feature in order to randomize training and technical assistance directed toward implementing the participatory budgeting model.[4] Our intervention, therefore, aimed to put the law's requirements into the effective practice of budgetary decision making through the participatory budgeting model. We implemented two types of treatments. The first provided six training sessions (36 hours) covering the whole cycle of participatory budgeting (training treatment). The second provided the same training sessions plus two full-time consultants for 1 year who ensured the effective implementation of the whole

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[3] For an updated list of cities implementing participatory budgeting see http://www.participatorybudgeting.org/about-participatory-budgeting/where-has-it-worked
[4] We therefore evaluate the effectiveness of the participatory budgeting model implemented within already decentralized governance structures. Therefore, we do not evaluate the effects of decentralization per se.

cycle of participatory budgeting (technical assistance treatment). Each treatment was implemented in 22 randomly chosen settlements, having 65 additional control settlements where no intervention was conducted (an overall sample of 109 settlements distributed across the three experimental regions).

One year after the intervention, training did not lead to effective implementation of the participatory budgeting model. Although the law's requirements of having public hearings for budget approval was satisfied, citizens' effective participation was unchanged in the process of public decision making, level of local tax revenues collection, preference matching between citizens and authorities, allocation of public expenditures, and satisfaction with public services. By contrast, training in combination with technical assistance was successful in fully implementing the participatory budgeting cycle. Overall, such implementation increased citizens' effective participation in the process of public decision making and local tax revenues collection (implying an increased willingness to pay taxes). However, no significant effects were found for preference matching between citizens and authorities, the allocation of public expenditures, and satisfaction with public services.

These previous effects mask significant heterogeneous effects with respect to the baseline level of local self-governance. While the region of Penza had already been administratively and politically decentralized at the settlement level for 10 years before our intervention, the regions of Adygea and Perm were decentralized at the settlement level the same year our intervention was conducted. Therefore, intervened settlements within the latter regions needed to handle completely new responsibilities plus the duties brought about by the implementation of the participatory budgeting model. By contrast, settlement administrations located in Penza already had experience in decentralized public management and could better adapt to the demands of the new legislation while absorbing participatory budgeting practices introduced by the intervention.

Thus our findings show that technical assistance had significant effects only in a context in which participatory budgeting was implemented by the municipalities previously exposed to self governance for a long period of time. In this context, participatory budgeting increased citizens' effective participation in the process of public decision making index by 0.38 standard deviation with respect to the control group zero mean, annual local tax revenues collection per capita by US$37.34 (or 78 percent with respect to the control group mean), the level of preference matching between citizens and authorities by 29 percent with respect to the control

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group mean, annual public expenditures per capita in the top priority services for citizens by US$29.8 (or 177 percent with respect to the control group mean) and the settlement level public services satisfaction index by 0.37 standard deviations with respect to the control group zero mean.

Our findings suggest that introduction of participatory governance practices should be carefully sequenced. Saturating different reforms such as administrative, fiscal, and political decentralization together with participatory budgeting appears to diminish the potential that the latter can have when implemented in already-mature decentralized local governments. Nonetheless, our evidence suggests that participatory budgeting can be an important mechanism to improve information flows between citizens and elected authorities. This mechanism enhances government accountability and increases the likelihood that citizens' preferences are reflected in the implementation of public policies when applied in a mature decentralized local environment. More generally, our results show that experimental impacts greatly depend on the context in which interventions are conducted and highlight the importance of considering this potential heterogeneity when designing an evaluation.

This article relates to several strands of literature. First, it relates to the evaluation of mechanisms of participatory development focused on principles of bottom-up decision making and community empowerment. Potential benefits of this type of models include increased allocative efficiency and accountability resulting from greater citizen participation and information exchanges between authorities and final users. However, some authors suggest that these mechanisms are prone to local capture and exacerbation of preexisting inequalities (Bardhan and Mookherjee 2000; Mosse 2001; Platteau and Abraham 2002) and to losses of technical efficiency resulting from "shifting the locus of decision making downwards" (Bardhan and Mookherjee 2006; Brett 2003; Mansuri and Rao 2012; Oakley 1995). Previously studied mechanisms include setting up political quotas for minority groups in order to ensure that their interests are reflected in policy making (Besley et al. 2004; Chattopadhyay and Duflo 2004; Pande 2003); the introduction of service report cards (Bjorkman and Svensson 2009); the direct involvement of community members in school and health sector management (Banerjee, Deaton, and Duflo 2004; Jimenez and Sawada 1999; Kremer and Vermeesh 2005); involving citizens and community organizations in the monitoring of public programs (Olken 2007; Olken 2010) and the setting up of participatory institutions such as the Gram Sabhas in India (Besley, Pande, and

Rao 2005). We add to this literature by providing, to the extent of our knowledge, the first experimental evaluation of participatory budgeting as an additional mechanism of participatory development.

Second, as participatory budgeting aims to improve information exchanges between citizens and elected political authorities, we contribute to the literature that analyzes whether citizens' possession of information on the actions of politicians and bureaucrats improve accountability and government responsiveness (Besley and Burgess 2002; Ferraz and Finan 2008; Ferraz and Finan 2011; Stromberg 2003; Bjorkman and Svensson 2009; Loayza et al. 2011).

Third, we contribute to the debate on the merits of decentralized public service delivery. As argued before, theoretical and empirical literature diverges on the potential merits and drawbacks of decentralization. By experimenting with an institutional refinement that enhances community participation in a decentralized governance setting, we add evidence on whether decentralized and participatory regimes have an advantage in tailoring policies to the demands of the local population (Ahmad et al. 2005; Faguet 2012; Faguet and Sanchez 2008; Foster and Rosenzweig 2001).

Last, we add evidence to the literature exploring the effectiveness of training and technical assistance in adopting managerial practices. This literature has been focused on private sector firms regarding the provision of business training (Drexler, Fischer, and Schoar 2011; Karlan and Valdivia 2011; Bruhn and Zia 2011; Karlan, Knight, and Udry 2012; Calderon, Cunha, and De Giorgi 2013) and the provision of more intense technical assistance in the form of consulting services (Bloom et al. 2013; Bruhn, Karlan, and Schoar 2013; Valdivia 2014).[5] Regarding business training, some studies find significant effects on firm performance, although other studies find no effect. The evidence suggests that training appears to be effective when the baseline level of human capital or entrepreneurial quality is relatively high. Technical assistance in the form of consulting services, however, has been found to be more effective than training alone. Our study extends this literature to the public service sphere with the differentiated provision of training and technical assistance directed toward adopting the particular public managerial practice of participatory budgeting.

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[5] See McKenzie and Woodruff (2012) for an overview of business training evaluations.

The rest of this paper is organized as follows. Section 2 presents a description of the decentralization reforms conducted in Russia. Section 3 describes the intervention studied in this paper. Section 4 presents the data used and the empirical approach adopted in the analysis. Section 5 discusses our results, including the robustness tests performed. Last, section 6 concludes.

2. Decentralization in Russia

The state of social and economic development of the Russian countryside is one of the major gaps in the postsocialist transition of the Russian Federation. The incidence of poverty in rural Russia is twice that of the urban areas. According to the 2002 census, the share of the poor living in rural areas has doubled since the mid-1990s. About 60 percent of the extreme poor are rural Russians. With 27 percent of the population (about 38 million people) living in rural areas, this developmental gap is economically significant. One way in which the government of Russia tried to address this gap was through major decentralization reforms. We provide a brief overview of these reforms.[6]

In 1995, the Law on the General Principles of the Organization of Local Self-Government codified alternative models of local governments. The law outlined two models of local self-government and each of the 89 provinces could freely choose which model to implement in its territory. The first model of local self-government was single tier, wherein districts had the right to democratically elected heads who received the mandate to administer education (preschool, primary, and secondary); health care (general hospitals, maternity care, and ambulance services); municipal police; waste management; maintenance of libraries; utilities (electricity, gas and water); cultural and recreational activities; construction and maintenance of roads; public transportation; construction; and maintenance of housing for low-income citizens. Rural settlements in the one tier model were administrative units subordinate to the district administration and had no formal sources of revenue allocated to them nor independent formal service delivery madates. Of the 89 regions, 79 chose to implement this model of local government.

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[6] See World Bank (2011) for a detailed description of these reforms.

The second model encompassed one additional tier of local governance constituted by rural settlements. Settlement heads were also democratically elected by the local population and had administrative responsibility over the following settlement-level public services: utilities (electricity, gas, and water), waste management, cultural and recreational activities, construction and maintenance of local roads, and construction and maintenance of housing for low-income citizens. Districts were responsible for education (preschool, primary, and secondary), health care (general hospitals, maternity care, and ambulance services), municipal police, and public transportation. In this model, only district governments could deal directly with regional authorities on financial issues. District administrations distributed grants and locally assigned federal and regional taxes to second-tier local self-governments. Out of 89 regions, 10 opted for this model.

The second wave of decentralization legislation in the post-Soviet Russia was heralded by the umbrella Federal Law No. 131, On the General Organizational Principles of Local Self-Government in the Russian Federation (the Law), adopted in 2003 and enacted in January 2006. The Law codified a universal two-tier model (district/settlement) of local self-governance for all Russian regions. The law brought about dramatic decentralization of political, administrative, and fiscal powers to rural settlements in the country. After the legislation was passed, every settlement or group of settlements with a population above 1,000 became a formally independent administrative unit (*poselenija* or "settlement") with an elected head (executive), an elected council (representative body), a formal budget with assigned revenue sources. For the settlement level the mandated list of service providing responsibilities included:: utilities (electricity, gas, and water), waste management, cultural and recreational activities, construction and maintenance of local roads, and construction and maintenance of housing for low-income citizens. About 10,000 new administrative units were created (up about 40 percent from the total before the reform), mostly in rural areas. Following the provisions of the Law, local elections were held in October 2005 and newly elected authorities (both at the district and settlement levels) took office in January 2006 for a two-year term.

Settlements, therefore, became the smallest formal self-governing units in Russia. Next up are districts or *rayons*, which are agglomerations of settlements. Districts retain the responsibility for education (preschool, primary, and secondary), health care (general hospitals, maternity care, and ambulance services), municipal police, district-level institutions, and public

transportation. The mandates of the settlements are funded through land and property taxes (100 percent assigned to settlements), service fees and central transfers (assigned when local revenues result insufficient to provide the services under their jurisdictions). District-level administrations do not levy or collect taxes on their own and rely on transfers from the central government. This was a significant change since, for the first time, local governments were assigned their own sources of revenues in order to finance the delivery of public services under their responsibility.

The Law aimed to expand the institutional space for (a) citizens to participate in public decision making and (b) the allocation and use of public resources at the settlement level. Aside from elections, an important part of the legislation concerned increasing public participation in public decision making. To achieve this goal the Law mandated that public hearings be held prior to the adoption of the budget, and that citizens monitor the use of public resources through councils. Although these norms were passed, no training or technical assistance programs were created nationally or sub-nationally to prepare local officials in their implementation. Our intervention, therefore, took advantage of the law's requirement that public hearings must be held for budgetary purposes in order to provide training and technical assistance directed toward adopting the participatory budgeting model. Next, we describe our intervention design.

3. The Intervention

The intervention administered two different settlement-level treatments. Both of the treatments shared a common component, in which the newly elected settlement-level authorities and their teams were provided with six training sessions (36 hours) covering the whole cycle of participatory budgeting. These sessions covered key budgeting concepts, the law on local self-government, revenue alternatives, intergovernmental fiscal relations, performance management, and service improvement action planning. In addition, we provided training materials explaining the practical aspects of the settlement administrations' new responsibilities. These materials included a step-by-step guide for implementing the participatory budgeting process and also discussed the setting of social and economic priorities and the development of skills in demand-driven service provision. We denote this as the *training* treatment.

The second treatment in addition assigned two full-time consultants for a 1-year period to each treated settlement. The consultants were local residents trained in the fundamentals of fiscal planning, participatory budgeting and in the creation of the local legal documents necessary to

enact the provisions of the new law. The consultants constantly communicated with higher level specialists from the Institute of Urban Economics in Moscow. Since the practice of settlement-level participatory budgeting was new to Russia, staff of the Institute of Urban Economics were, in turn, trained and guided by international consultants from the Urban Institute.

Consultants were to guide the treated settlements through the first postreform budget cycle, organize meaningful public budgetary hearings, help public officials and citizens to identify three achievable budget priorities, and provide consultation assistance in achieving those priorities by mobilizing public and private resources and skills for each particular task. Consultants ensured the realization of six community meetings to delineate and approve budgetary priorities. In addition, they guaranteed the development and approval of a Service Improvement Action Plan—the last step before the annual budget is adopted for execution in the participatory budgeting process. It included the items and their budgetary allocations before execution, identified outcomes and performance indicators, established baseline indicators and targets, provided an annual action plan, and delineated the framework for monitoring and reporting results. We denote this as the *technical assistance* treatment.

Participatory budgeting is a continuous process with yearly cycles. Each cycle comprises five main steps. First, the yearly cycle is initiated with a community meeting where citizens express their demands and priorities for public service delivery. These priorities are registered through specially designed report cards, and some citizens' delegates are democratically elected in order to interact more closely with local authorities for budget formulation. After processing this information, local authorities and citizen delegates generate an initial budgetary proposal, which is presented and discussed in a second community meeting. In this meeting, further discussions are conducted to ensure an appropriate reflection of citizens' priorities in the budget. Second, using the feedback obtained from both community meetings, local authorities and citizen delegates formulate a final budget that needs to be approved by the local council in a third community meeting or budgetary hearing. Third, after budget approval, a fourth community meeting is organized to delineate the Service Improvement Action Plan associated with the approved budget. Fourth,citizen delegates and local authorities monitor the execution of the budget using the performance management indicators contained in the Service Improvement Action Plan and a monitoring community meeting is organized halfway through the annual

budget execution. Fifth, another community meeting is organized at the end of the annual budget execution in order to report the progress to citizens. Then the annual cycle starts again.

In short, the training treatment provided all the necessary guidelines and theoretical knowledge to implement the annual cycle of the participatory budgeting process. The technical assistance treatment provided on-the-ground specialized assistance that ensured the implementation of the first cycle of the participatory budgeting process. The training treatment was provided in the first semester of 2006, whereas the technical assistance treatment was provided during the entire year.

3.1 Randomized Controlled Trial Design

We implemented a double randomization scheme at the district and the settlement levels across the regions of Adygea, Penza, and Perm. First, we randomly selected eight information districts (two from Adygea, three from Penza, and three from Perm), eight technical assistance districts (two from Adygea, three from Penza, and three from Perm) and eight control districts (two from Adygea, three from Penza, and three from Perm). Second, for each training district, we randomly selected three training and three control settlements for the cases of Penza and Perm and two training and two control settlements for the case of Adygea. Similarly, for each technical assistance district, we randomly selected three technical assistance and three control settlements for the cases of Penza and Perm and two technical assistance and two control settlements for the case of Adygea. For each control district, we randomly selected three control settlements for the cases of Penza and Perm and two control settlements for the case of Adygea.[7]

Therefore, our final sample includes 21 control settlements in control districts (4 in Adygea, 9 in Penza, and 8 in Perm), 22 control settlements in information districts (4 in Adygea, 9 in Penza, and 9 in Perm), 22 control settlements in technical assistance districts (4 in Adygea, 9 in Penza, and 9 in Perm), 22 information settlements in information districts (4 in Adygea, 9 in Penza, and 9 in Perm), and 22 technical assistance settlements in technical assistance districts (4 in Adygea, 9 in Penza, and 9 in Perm). A total sample of 109 settlements distributed across three regions. The information treatment was implemented in the 22 information settlements, the

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[7] One of the selected control settlements in Perm was dropped from the sample given that we were unable to collect follow-up information for the evaluation.

technical assistance treatment was implemented in the 22 technical assistance settlements, and no intervention at all was conducted in the control settlements.

Our design was planned to estimate possible spillover effects. Although officials and residents in treatment settlements are systematically included in the training or technical assistance program, officials and residents in control settlements (located in the same districts) are not barred from participating. It could be the case that officials and residents from nontreatment settlements attended the training sessions or community meetings organized in treated settlements. This mechanism could generate spillover effects that would bias comparisons between treated and control settlements. Collecting and analyzing data from control settlements located in project and nonproject districts allows us to investigate whether significant spillovers existed as distances and institutional disunity among districts may make spillovers across districts prohibitive in the short term.

3.2 Regional Context

The three regions of focus in this study were purposely selected to assess how the existing governance context may affect the effectiveness of the intervention. Of the 89 regions in Russia, 10 already had a two-tier (districts and settlements) local governance structure since 1995, whereas 79 regions had a single-tier structure (districts only) and had to implement the second tier (settlements) after Law 131 and in conjunction with our intervention. From the 10 regions with previous two-tier governance, we chose one region: Penza. From the 79 regions with a single-tier structure, we chose two regions: Adygea and Perm.

Penza is located 370 miles southeast of Moscow. It has a territory of 16,720 square miles and a population of 1.4 million, with Russians accounting for 86.2 percent of the regional population. Penza is an industrial region (mostly mechanical engineering, metals, and forestry), and 36 percent of its population is rural. The region is 69th place out of 89 in gross regional product per capita. With Law 131 enacted in 2006, Penza already had local government bodies at the district and settlement levels. This implied that settlements' boundaries did not need to be redrawn to implement Law 131.

Perm is located 891 miles northeast from Moscow. It has a territory of 62,000 square miles and a population of 2.9 million. The economics base of the region is formed by the heavy industry, forestry, chemical, oil, and fuel industries. More than 100 ethnic groups and

nationalities exist in Perm, and 84 percent of the regional population is Russian. The rural population accounts for 25 percent. The region is 16th out of 89 regions of Russia in terms of gross regional product per capita.

Adygea has a territory of 3,010 square miles and is located on the northern slopes of the Caucasus range on the edge of the fertile Kuban plain (1,038 miles south of Moscow). It has a population of 0.5 million, with Adygs and Russians as the main ethnic groups, comprising 24 and 65 percent of the total population, respectively. Adygea differs from the other two regions in that it is the most agricultural and contains the highest percentage of rural population (48 percent rural population). The region occupies the 77th place out of 89 in terms of gross regional product per capita. Adygea and Perm fully implemented Law 131 on local self-governance as of January 1, 2006, devolving all the settlement level mandates at once. In these regions, all settlement municipalities were newly formed, and representative bodies and heads of municipalities were elected in October 2005 and took office in January 2006 for a two-year term.

In summary, these regions show a very clear contrast in terms of what Law 131 entailed regarding local self-governance. For Penza, the enactment of Law 131 affected neither political nor administrative decentralization schemes. The only change was the fiscal decentralization component of the law, which granted complete jurisdiction over land and property taxes for the settlement administration. By contrast, for Adygea and Perm, the law entailed a complete reform at the settlement level given that all municipalities at this level were newly formed and political, administrative, and fiscal decentralization was executed at the same time. As such, we empirically explore whether implementing participatory budgeting had differential effects with respect to the existing decentralized structures.

4. Evaluation: Data Collection and Empirical Strategy

4.1 Data and Outcomes of Interest

In treatment and control settlements, a baseline survey was conducted in February 2006 (1 month after local authorities took office), and the follow-up panel survey took place in November 2007 (1 month before the completion of authorities' term). The evaluation instruments included a questionnaire applied to an average of 15 randomly selected households per settlement (1,645 households distributed across 109 experimental settlements). The questionnaire covered

satisfaction levels with public services, priorities for public service delivery, and participation levels in public and collective actions. In addition, a similar questionnaire was applied to the head of the executive body and the head of the representative body in each settlement. Last, administrative data were collected with respect to fiscal revenues and expenditures for each settlement in 2006 and 2007.

Participatory budgeting was intended to improve knowledge of citizens' priorities by local public officials and to shift budget allocations in the direction of citizens' stated priorities. As such, the participatory budgeting model has potentially four main types of effects: on local decision-making processes, on enhanced willingness to pay taxes, on local budget allocations, and on the quality of public services.

Local decision-making processes would be affected by the quantity and quality of citizens' participation. Given that Law 131 already demanded the execution of budgetary hearings in all settlements, our intervention (as it implemented the participatory budgeting model) would mainly affect the quality of the interactions between authorities and citizens. We measured such quality with the usefulness of the participatory approach in terms of aligning preferences between authorities and citizens. In particular, we obtained the number of public meetings held from municipality records. From the household surveys, we quantified citizens' participation rates in the meetings. We also obtained citizens' perceptions regarding the usefulness of meetings. Last, using parallel questions directed to public officials and citizens regarding priorities for public services, we built a settlement level preference matching index that quantifies the share of citizens' top three priorities that are also listed by public officials within their own top three priorities.[8]

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[8] We exploited surveys administered to households and local authorities using the following procedure: We first rank within-settlement households' priorities for public services using their responses to the question, "Imagine that you were allocating budget. What issues would you spend the money on in the first instance?" (maximum of three answers possible). This question had 17 listed services from which to choose (development of nonagricultural small business; support to the former collective farms; support to private farmers, support to individual small-scale farming; condition of the housing fund; condition of communal services; public transportation; roads; law and order; problems of youth; condition of cultural institutions and recreational areas; preservation of natural and cultural monuments; collection, removal and utilization of waste; availability [access to…] general education; availability [access to…] preschool education; level [e.g., quality] of medical treatment; and maintenance of cemeteries). Similarly, local public officials were asked, "Imagine that the municipal budget receives an additional 10 million rubles. What amount of these 10 million would you allocate to addressing the following activities?" The response options for this question were exactly the same as the households' question. We aggregate the responses to this question at the settlement level and rank services according to the amount of money intended to be invested in each service. Using ranks provided by households and public officials, we quantified for each settlement how many of the

Proponents of the participatory budgeting model claim that an enhanced alignment between authorities' and citizens' priorities would increase citizens' willingness to pay taxes. Because Law 131 entailed a fiscal decentralization scheme where land and property taxes were completely decentralized to settlements, we measured whether the collection of these taxes were differentially affected for the treated settlements.

If authorities' and citizens' priorities were effectively aligned as a result of the intervention, we should observe actual budget allocations being more concentrated among public services in the top priorities. As such, we measured whether treatment influenced budget allocations among services reported with higher priorities by citizens.

Last, if budget allocations and execution were concentrated on services demanded by citizens, then we should observe an increased satisfaction with those services. Therefore, we measured whether the intervention increased satisfaction with public services administered by the settlement's government. To do so, we computed satisfaction indexes for each public service, exploiting the following question posed to citizens: "How would you evaluate the condition of the public services that I am going to list in your settlement? Please evaluate on a five-point scale where "1" means the worst; while "5" the best condition." We then normalized this scale to create a satisfaction index as follows:

$$S = \frac{R-1}{4},$$

where S is the satisfaction index and R is the self-assigned rating. Therefore, S ranges from 0 (*worst*) to 1 (*best*).

4.2 Empirical Strategy

We first regress the follow-up measure of each outcome on an indicator for each treatment group (the control group is the omitted category), the baseline measure of each outcome, and a set of region fixed effects:[9]

$$Y_{isr,2007} = \beta_1 \cdot T1_s + \beta_2 \cdot T2_s + \delta \cdot Y_{isr,2006} + \alpha_r + \varepsilon_{isr}, \ (1)$$

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top three priorities expressed by households were also listed within the top three priorities of local public officials. We then normalized this measure dividing it by three so that the preference matching index ranges between 0 and 1.

[9] We also estimate the model in simple differences, without any control variables. Estimated impacts were similar and are available upon request.

where i indexes households, s indexes settlements and r indexes regions. *T1* is an indicator for the training settlement. *T2* is an indicator for the technical assistance settlement. $Y_{isr,2006}$ is the baseline value of the outcome, and α_r is a region fixed effect. Last, $\varepsilon_{isr,2006}$ is a disturbance term that we allow being heteroscedastic and correlated across households within settlements.[10]

In the context of (1), estimates of β_1 and β_2 quantify the effects of the training and technical assistance interventions, respectively. The baseline values of the outcomes ($Y_{isr,2006}$) are included to improve estimation precision and to account for chance differences between groups in the distribution of pretreatment characteristics. Given that randomization was conducted in each region, we include fixed effects at the regional level to account for randomization strata and increase precision.

It is worth noting that each treatment was executed in a relatively low number of settlements (22 in each treatment arm). Therefore, standard approaches to estimating regression equations with a small number of clusters can introduce biases in the estimation of standard errors (Bertrand, Duflo and Mullainathan 2004). Cameron, Gelbach, and Miller (2008) suggest a bootstrapping procedure called wild bootstrap-t to produce an empirical *t* distribution that can be used to derive *p* values. We implement this bootstrapping procedure and derive critical values for t-stats, which are used to determine the appropriate significance levels in all of our analyses.

As noted in Banerjee and colleagues (2008), the large number of outcomes that could have been affected by the intervention constitutes an empirical difficulty, in that we could choose to emphasize significant or larger effects. Therefore, to circumvent this problem, we follow Katz, Kling, and Liebman (2007) and calculate the average standardized effect over each family or set of outcomes. Within our outcomes, we define two specific families: outcomes related to the process of public decision making and outcomes related to the satisfaction with settlement-level public services. For each family, we construct a summary index *Z*, defined to be the equally weighted average of *z* scores of its components.[11] The *z* scores were calculated by subtracting the control group mean of each outcome and dividing by the control group standard deviation.[12] In

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[10] We cluster estimated standard errors at the settlement level in all of our regressions to reflect the fact that treatments were implemented at that level.

[11] When constructing the summary index, the sign of each outcome within a family was oriented so that more beneficial outcomes have higher scores.

[12] If an individual has a valid response to at least one component of the index, any missing values for other components are imputed at the treatment group mean to which the individual was assigned by the random program

that way, each component of the index has mean zero and standard deviation one for the control group. Because the absolute magnitudes of the indices are in units akin to standardized test scores, the estimates on the treatment indicators show where the mean of the treatment group is in the distribution of the control group in terms of standard deviation units. We report estimated program effects on the individual components and summary indexes in all of our analyses.

Tables 1 and 2 provide evidence that our double randomization protocol was successful in generating balance between treatment and control groups. Among the 40 estimated baseline differences between treatment and control settlements (corresponding to 20 individually measured indicators), only one is significant at the 5 percent level. Moreover, none of the differences between treatment and control groups with respect to the indexes summarizing the process of public decision making and the satisfaction with settlement services is statistically different from zero.

5. Results and Discussion

5.1 Overall Effects

Table 3 shows estimated impacts on the governance process and settlement revenues. We first look at the quantity of citizens' participation regarding settlement level budgetary decisions. On average, control settlements had 6.21 public meetings during 2006 and, while imprecisely estimated, technical assistance settlements showed 2 additional meetings. Public participation in at least one public meeting reached 55 percent in control settlements, and there were no effects for either of the treatments. The intervention, therefore, did not have a noticeable effect on the quantity of public participation. This is consistent with the fact that Law 131 mandated that public meetings must be held to define and approve settlement budgets. Therefore, regardless of our intervention, settlement administrations complied with the law in terms of effectively organizing public budgetary meetings.

Although there were no effects on the quantity of public participation, our intervention was successful at introducing the participatory budgeting model differentially between treated

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placement. As Katz, Kling, and Liebman (2007) point out, "This results in differences between treatment and control means of an index being the same as the average of treatment and control means of the components of that index (when the components are divided by their control group standard deviation and have no missing value imputation), so that the index can be interpreted as the average of results for separate measures scaled to standard deviation units."

and control settlements. One key element of the model is the development of the Service Improvement Action Plan because it is the last step before the execution of the annual budget linking the budgeting and performance management processes. Accordingly, follow-up records showed that neither control nor training settlements had developed and approved a Service Improvement Action Plan for 2007, whereas all technical assistance settlements successfully developed one for the same year. This evidences that treatment compliance with respect to completing the planning phase of the participatory budgeting process was perfect when technical assistance was provided. However, training alone was totally unsuccessful in terms of affecting intervened settlements toward implementing the participatory budgeting process. As such, if participatory budgeting had the hypothesized effects, we should mainly observe them within technical assistance settlements.

We then turn to analyze citizens' perceptions with respect to the process of public decision making. These perceptions capture public engagement inthe matter of settlement budgeting, as well as the seriousness and relevance of interactions between authorities and citizens. We also capture perceived bargaining power between citizens and local authorities, as well as perceived relative power between settlement and higher level authorities. We group all of these outcomes into a single family, capturing the overall process of public decision making. Accordingly, Table 3 shows a significant effect caused by the technical assistance intervention equivalent to 0.15 standard deviations in this summary index, but no effect resulting from the training intervention.

Given that technical assistance affected the dynamics of the process of public decision making, the alignment of preferences between citizens and authorities could have improved as well. Although imprecisely estimated, technical assistance indicates a positive effect of 8 percentage points on the preference matching index (equivalent to 12 percent with respect to the control group mean). Most important, it appears that the improved public participation in the process of public decision making has increased the willingness to pay local taxes. Technical assistance has had a positive economically and statistically significant effect equivalent to US$33.46 in local tax revenues per capita collected during FY 2007.[13] This effect is equivalent to a 70 percent increase with respect to the control group mean. By contrast, the training

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[13] All budget figures are deflated and expressed in terms of 2006 US dollars using regional consumer price indexes and the prevailing PPP exchange rate by December 2006.

intervention had null effects on both preference matching and local tax revenues. Revenue transfers from central to settlement governments were not affected by our interventions.

In terms of budget allocations, the information collected provided three different budget lines. First, allocations labeled as housing and utilities. This includes all yearly investments in maintaining local roads, the housing fund for low-income citizens, provision of utilities, and settlement-level waste management. Second, allocations labeled as cultural institutions. This includes yearly investments in maintaining cultural institutions and recreational areas, as well as natural and cultural monuments. Third, expenses incurred in maintaining the functioning of the local government administration but not directly attributable to specific service provisions are labeled as administrative. At baseline, when citizens were asked about the services administered at the settlement level with top priority, all three regions consistently ranked local roads, the housing fund, and waste management as the top three concerns. Therefore, if participatory budgeting made local administrations more responsive to citizens' demands, we should observe positive effects on budget allocations for housing and utilities.

Table 4 shows that training had no effects on budget allocations. However, full implementation of participatory budgeting motivated by the technical assistance intervention had some influence in redirecting the extra revenues generated toward expenditures in housing and utilities. Although imprecisely estimated, the point estimate suggests an effect of US$16.7 per capita (or 99 percent with respect to the control group mean) in additional investments in the services catalogued as top priorities by citizens. We also observe null effects on budget allocations toward non priority services and a reduction in budget allocations toward administrative purposes equivalent to US$1.98 (or 8 percent with respect to the control group mean). Overall, although not conclusive, evidence points toward desirable effects of participatory budgeting in terms of redirecting extra revenues toward services catalogued as top priorities by citizens.

Last, we measure effects regarding citizens' satisfaction with public services administered at the settlement level. When analyzing the satisfaction summary index, it is clear that the training intervention did not produce any difference at all, with a point estimate equal to zero. Although the point estimate for the technical assistance intervention is positive, it is imprecisely estimated and statistically indistinguishable from zero.

Overall, our evidence suggests that participatory budgeting positively affected citizens' involvement in the process of public decision making. In addition, participatory budgeting had a sizeable effect on local tax revenues collection denoting an effective increase in citizens' willingness to pay taxes. The latter empirically corroborates one of the most important claims typically made by advocates of the model. Some suggestive evidence, although not significant, pointed to increased expenditures in top priority services and settlement-level satisfaction with public services. We now turn to analyze whether these overall effects mask differential regional-level heterogeneity with respect to the preceding level of decentralized experience.

5.2 Differential Effects by Previous Decentralized Experience

As detailed earlier, our intervention took place across different regional contexts. For Adygea and Perm, our intervention took place simultaneously and in combination with the implementation of a major decentralization reform that encompassed political, administrative, and fiscal delegation of authority at the settlement level. By contrast, for Penza, administrative and political decentralization at the settlement level had already been in place for 10 years. Therefore, our intervention took place only in combination with the fiscal decentralization provisions of Law 131. As such, we test whether participatory budgeting had differential effects with respect to the baseline level of decentralized experience by estimating the following regression model:

$$Y_{isr,2007} = \beta_1 \cdot T1_s \cdot NoExp_r + \beta_2 \cdot T1_s \cdot Exp_r + \beta_3 \cdot T2_s \cdot NoExp_r + \beta_4 \cdot T2_s \cdot Exp_r + \delta \cdot Y_{isr,2006} + \alpha_r + \varepsilon_{isr},$$

(2)

where *NoExp* is an indicator for region with no previous decentralized experience at the settlement level (i.e., it takes the value of one for Adygea and Perm, while zero otherwise). *Exp* is an indicator for region with previous decentralized experience at the settlement level (i.e., it takes the value of one for Penza, while zero otherwise). All other variables are defined as in (1).

In the context of (2), estimates of β_1 and β_2 quantify the effects of the training intervention for regions without and regions with previous decentralized experience respectively. Similarly, estimates of β_3 and β_4 quantify the effects of the technical assistance intervention for regions without and regions with previous decentralized experience respectively. Estimation results are shown in Tables 5 and 6.

The training intervention had no effects under any of the contexts in terms of public participation, the process of public decision making, preference matching, or willingness to pay taxes (columns 1 and 2 in Table 5). This is not surprising given that this intervention did not lead local governments to develop and implement the participatory budgeting model effectively. However, Table 6 evidences some differential effects of the training intervention regarding budget allocations and satisfaction. When training was provided in experienced decentralized governments, it increased investments in services within citizens' top priorities (housing and utilities) by US$4.76 per capita (or 28 percent with respect to the control group mean). This also improved citizens' satisfaction regarding the service placed in the top priority (local roads) by 0.14 points or 37 percent with respect to the control group mean (although no general satisfaction effects were found for the summary index). By contrast, training provided in conjunction with ongoing administrative and political decentralization led to substituting investments in services listed among top priorities, for investments in administrative expenditures (investments in housing and utilities decreased by US$3.87 and administrative expenditures increased by US$2.67 per capita). Overall, although training did not spur effective implementation of participatory budgeting and had no general effects, it appears that when provided in established decentralized contexts it could generate some mild positive effects in terms of budget allocations and satisfaction with high-priority services.

While technical assistance was effective in completing the planning phase of the participatory budgeting model (as evidenced by the completion of the SIAP) across all regions, its effectiveness differed with respect to the baseline level of decentralized experience. Table 5 reveals that the implementation of participatory budgeting through technical assistance had an impact on public participation only within a context of previous experience in administrative and political decentralization (column 5). Within this context, the intervention affected the likelihood of citizens' participation in at least one public meeting by 13 percentage points (equivalent to 23.6 percent with respect to the control group mean). There was also a noticeable effect on the dynamics of the process of public decision making equivalent to 0.38 standard deviations in the summary index. In particular, citizens report that local administrations take their problems seriously, that meetings with authorities solve important problems and that the settlement administration holds relatively higher local power with respect to authorities in higher tiers of the public governance structure.

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Similarly, we find that technical assistance has only affected preference matching between authorities and citizens within a context of previous decentralized experience. In this context, the intervention had a positive effect of 20 percentage points on the preference matching index (with respect to a control group mean of 0.68). Because this index is the share of the top three priorities of citizens that are also listed within the top three priorities of local authorities, reaching a level of 0.88 implies almost perfect alignment between citizens' and authorities' preferences. Willingness to pay local taxes, however, has been affected similarly for both regions with and without previous decentralized experience. Implementing the planning cycle of participatory budgeting increased local revenues per capita by US$30.22 in regions without previous decentralized experience and by US$37.34 in regions with previous decentralized experience (these effects are not statistically different between them). These are sizeable effects as they represent differences of around 70 percent with respect to the control group mean.

In terms of budget allocations, Table 6 shows that participatory budgeting has increased the level of resources invested in citizens' high-priority services only within regions with previous decentralized experience (column 5). We observe a positive effect equivalent to US$29.8 per capita in resources allocated to housing and utilities (177 percent increase with respect to the control group mean) along with decreased investments in low-priority services and administrative expenditures. By contrast and although implementing the planning phase of participatory budgeting also raised local tax revenues in regions without previous decentralized experience, budget allocations did not have an effect on high-priority services (column 4). Only an increase of US$8.34 per capita (35.5 percent with respect to the control group mean) was observed regarding investments in low-priority services (cultural institutions).

The effects on satisfaction levels are consistent with the effects found on budgetary allocations. Implementation of participatory budgeting had a positive effect equivalent to 0.37 standard deviations on the satisfaction summary index within regions with previous decentralized experience (column 5). However, no effects were found for regions without previous decentralized experience (column 4). Moreover, statistically significant individual components of the satisfaction index within regions with previous decentralized experience are concentrated on the top three priority services stated by citizens (local roads, housing fund, and waste management). Therefore, we find consistent evidence that participatory budgeting

effectively allocated resources to high-priority services and satisfaction levels with these services increased within regions with previous decentralized experience.

Overall, our findings suggest that participatory budgeting delivered all of its main hypothesized positive effects. However, this happened only in a context of established local governments where administrative and political decentralization had already been in place for about 10 years. In this context, the effective implementation of participatory budgeting positively affected citizens' involvement in the process of public decision making, preference matching between citizens and local authorities, local tax revenues collection, budget allocations in top priority services, and settlement-level satisfaction with public services. When participatory budgeting was implemented in conjunction with administrative, political, and fiscal decentralization reforms, it had a positive effect only on local tax collection. Therefore, it appears that implementing participatory budgeting in combination with decentralization reforms saturates local administrations in a way that its execution does not lead to improvements in preference matching, budget allocations toward high-priority services nor public satisfaction.

5.3 Spillover Effects

Our design allows exploring possible geographical spillover effects. Spillover effects represent a potential concern for our previous estimation of treatment effects because control settlements closely located to treatment ones may have also been affected by the intervention. This could have happened given that public officials and residents from control settlements (located in the same districts as treatment settlements) are not barred from participating in training sessions or public meetings. Therefore, it could have been the case that officials and residents from nontreatment settlements attended the training sessions or community meetings organized in treated settlements. Under such scenario, our previously estimated treatment effects would be downward biased.

To investigate this possibility, we restrict the sample to control settlements only. Then, we split these settlements into three subgroups: settlements located in technical assistance districts (22 settlements: 4 in Adygea, 9 in Penza, and 9 in Perm), settlements located in training districts (22 settlements: 4 in Adygea, 9 in Penza, and 9 in Perm), and settlements located in control districts (21 settlements: 4 in Adygea, 9 in Penza, and 8 in Perm). Specifically, we run the following regression model:

$$Y_{isdr,2007} = \beta_1 \cdot T1_d + \beta_2 \cdot T2_d + \delta \cdot Y_{isdr,2006} + \alpha_r + \varepsilon_{isdr} , (3)$$

where i indexes households, s indexes settlements, d indexes district and r indexes regions. $T1_d$ is an indicator for settlement located in a training district. $T2_d$ is an indicator for settlement located in a technical assistance district. All other variables are defined as in model (1). In the context of (3), estimates of β_1 and β_2 quantify spillover effects of the training and technical assistance interventions respectively.

Table 7 shows the results corresponding to model (3). Findings clearly suggest that no spillovers existed for either of the treatments. Therefore, we are confident that our previously estimated treatment effects are not biased by the possibility of geographical spillovers. In addition, Table 8 performs the spillover analysis differentiated with respect to the previous level of decentralized experience. Results are also consistent in that no discernible pattern of spillovers is found.

5.4 District-Level Outcomes

Given that our intervention was implemented at the settlement level and directed toward services provided by settlements' local governments, no effects on outcomes at the district level were expected. Therefore, we perform a falsification test by analyzing outcomes such as corruption perceptions for agencies administered at the district level and satisfaction levels with services administered by district governments. Given that our interventions did not affect district-level organisms, we should not observe significant differences on these outcomes between treated and control settlements.

Consistent with these expectations, Table 9 shows null effects of our interventions on district-level outcomes. In addition, Table 10 splits these estimated differences by the previous level of decentralized experience. Results are also consistent given that none of our treatments show significant effects on district-level outcomes under the different contexts related to baseline decentralized experience.

6. Conclusions and Policy Implications

The level of local governments' managerial capacities and the extent to which citizens participate in the process of public decision making are likely to influence the expected benefits

of the decentralization of public services. Whether decentralized public service delivery can be enhanced through institutional refinements aimed at increasing community participation is a question for which rigorous evidence is necessary. This paper contributes to the evidence by providing the first experimental evaluation of one of the most important innovations on this front: the participatory budgeting model. We also distill lessons on the elements of the intervention design that are likely to be successful in motivating a full implementation of the model. Moreover, our empirical design allowed us to discern how intervention results differ with respect to ex ante levels of decentralized governance experience.

We find that the provision of training containing all the necessary information to implement the participatory budgeting model was completely unsuccessful in spurring a full implementation by local authorities. None of the settlements where this intervention was provided effectively culminated the planning phase of the participatory budgeting cycle. As a result, it is not surprising that no effects were found in terms of public participation in the process of public decision making, preference matching between citizens and authorities, local tax revenues collection, budgetary allocations among top priority public services, and satisfaction levels with public services.

By contrast, the provision of technical assistance for one year in the form of two specialized consultants who provided on-the-ground guidance during the entire participatory budgeting cycle was successful in fully implementing the model. The implementation of the model, however, had marked heterogeneous effects with respect to the baseline level of decentralized experience. In regions where participatory budgeting was implemented in conjunction with administrative, political, and fiscal decentralization reforms, the intervention only increased the level of local tax revenues collection but no other effects were observed. When implemented in a context in which administrative and political decentralization was mature (established 10 years earlier), participatory budgeting had all the positive effects suggested by advocates of the model. It increased public participation in the process of public decision making, preference matching between citizens and authorities was enhanced, local tax revenues collection was positively affected, budgetary allocations were increased among top priority public services, and satisfaction levels with public services were improved.

Our results relate to the literature on business training highlighting the importance of technical assistance to motivate the adoption of desired managerial practices and ultimately

achieve the desired outcomes (Bloom et al. 2013; Bruhn, Karlan and Schoar 2012; Valdivia 2014). In the context of public management, it appears that training alone is ineffective in the short term in order to motivate the adoption of managerial practices such as participatory budgeting. An open question remains, however, on whether training might motivate the adoption of desired practices over a longer term.

The fact that participatory budgeting only manifested the full set of hypothesized positive effects when implemented in mature decentralized contexts highlights the importance of initial conditions for the success of this intervention. In particular, as participatory budgeting is a refinement directed toward decentralized governments, it appears that it is effective when such decentralized context is already mature. However, when local governments are not mature in decentralized public service delivery, the introduction of additional tools within a decentralization reform do not translate into the desired outcomes, at least in the short term. An open question, however, is whether the introduction of this refinement was sustainable in the long term. Our evaluation focused on the first budgetary cycle and therefore does not provide evidence on whether this initial implementation motivated subsequent implementations. Future research should investigate whether repeated implementations were undertaken and whether they had noticeable effects across regions with differential levels of initial decentralized public service experience.

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Table 1. Baseline Balance: Settlement Governance and Revenues

	Control Group Mean	Difference Training	Difference Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Head of settlement characteristics				
Age	48.09	-1.71	-0.34	1.37
		(2.37)	(2.35)	(2.87)
Male	0.76	0.10	-0.18	-0.28
		(0.12)	(0.12)	(0.15)**
College or higher education	0.63	0.09	0.06	-0.03
		(0.14)	(0.14)	(0.17)
The process of public decision making				
Made suggestions to local authorities	0.12	0.01	-0.01	-0.02
on settlement budget		(0.02)	(0.02)	(0.03)
Settlement administration takes	0.58	0.13	0.06	-0.06
citizens' problems seriously		(0.06)**	(0.07)	(0.09)
Think that meetings b/w authorities	0.45	0.07	0.08	0.01
and citizens solve important problems		(0.07)	(0.06)	(0.09)
If residents' and authorities' interests	0.37	0.07	-0.07	-0.14
do not coincide both make concessions		(0.05)	(0.05)	(0.07)**
Real power is held by the	0.20	-0.04	0.00	0.05
settlement administration		(0.05)	(0.05)	(0.07)
Average over family of	**0.00**	**0.08**	**0.03**	**-0.05**
outcomes (in standard deviations)		**(0.07)**	**(0.06)**	**(0.09)**
Preference matching index	0.38	-0.01	-0.02	-0.01
		(0.08)	(0.08)	(0.09)
Settlement revenues				
Local revenue *percapita*	21.61	18.40	4.24	-14.16
		(23.94)	(8.48)	(15.46)
Central transfers *percapita*	53.36	-13.29	25.92	39.21
		(8.76)	(15.34)	(24.06)

Notes: Column (1) reports the average for the control group at baseline. Columns (2) and (3) report coefficients from one regression where indicators for "training" and "technical assistance" treatments enter as explanatory variables. Regressions include Region fixed effects. Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. Baseline Balance: Settlement Public Service Delivery

	Control Group Mean	Difference Training	Difference Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Settlement expenditures				
Housing and utilities *percapita*	10.01	6.42	11.88	5.46
		(8.44)	(9.74)	(1.65)*
Cultural institutions *percapita*	24.11	1.67	-2.52	-4.19
		(5.58)	(1.44)	(7.02)
Administrative *percapita*	22.58	-0.50	10.77	11.27
		(1.40)	(6.41)	(5.04)
Satisfaction with settlement services				
Satisfaction index with	0.51	0.02	0.05	0.03
local roads		(0.03)	(0.04)	(0.05)
Satisfaction index with housing	0.54	0.04	0.04	-0.01
fund		(0.04)	(0.03)	(0.05)
Think that municipality is	0.67	0.02	-0.04	-0.05
clean or rather clean		(0.05)	(0.06)	(0.08)
Satisfaction index with collection,	0.52	0.04	0.03	0.00
removal and utilization of waste		(0.04)	(0.04)	(0.06)
Satisfaction index with cultural	0.56	0.05	-0.01	-0.06
institutions and recreational areas		(0.04)	(0.04)	(0.06)
Satisfaction index with natural	0.57	0.03	-0.04	-0.07
and cultural monuments		(0.04)	(0.03)	(0.05)
Average over family of	**0.00**	**0.13**	**0.04**	**-0.09**
outcomes (in standard deviations)		**(0.10)**	**(0.10)**	**(0.14)**

Notes: Column (1) reports the average for the control group at baseline. Columns (2) and (3) report coefficients from one regression where indicators for "training" and "technical assistance" treatments enter as explanatory variables. Regressions include Region fixed effects. Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3. Intervention Effects: Settlement Governance and Revenues

	Control Group Mean	Effect Training	Effect Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Public participation				
Number of public meetings held	6.21	0.91	2.03	1.12
during 2006		(1.61)	(1.62)	(1.95)
Participated in at least one	0.55	-0.04	0.01	0.04
public meeting		(0.04)	(0.05)	(0.07)
The process of public decision making				
Made suggestions to local authorities	0.09	-0.03	0.02	0.05
on settlement budget		(0.02)	(0.02)	(0.03)*
Settlement administration takes	0.57	-0.02	0.11	0.12
citizens' problems seriously		(0.07)	(0.08)	(0.10)
Think that meetings b/w authorities	0.44	0.02	0.12	0.10
and citizens solve important problems		(0.06)	(0.08)	(0.10)
If residents' and authorities' interests	0.43	-0.05	0.04	0.09
do not coincide both make concessions		(0.06)	(0.08)	(0.10)
Real power is held by the	0.20	-0.06	0.18	0.25
settlement administration		(0.05)	(0.09)**	(0.10)**
Average over family of	**0.00**	**-0.07**	**0.15**	**0.22**
outcomes (in standard deviations)		**(0.07)**	**(0.09)***	**(0.11)***
Preference matching index	0.68	-0.03	0.08	0.12
		(0.07)	(0.07)	(0.09)
Settlement revenues				
Local revenue *percapita*	47.95	-3.10	33.46	36.56
		(2.65)	(4.37)**	(4.53)**
Central transfers *percapita*	34.52	0.08	-9.61	-9.69
		(4.20)	(13.17)	(17.01)

Notes: Column (1) reports the average for the control group at follow-up. Columns (2) and (3) report coefficients from one regression where indicators for "training" and "technical assistance" treatments enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls (when available). Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Intervention Effects: Settlement Public Service Delivery

	Control Group Mean	Effect Training	Effect Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Settlement expenditures				
Housing and utilities *percapita*	16.85	0.52	16.70	16.18
		(3.83)	(12.61)	(8.84)
Cultural institutions *percapita*	23.49	0.97	4.01	3.04
		(1.05)	(4.32)	(3.28)
Administrative *percapita*	24.94	1.21	-1.98	-3.19
		(1.54)	(0.48)*	(1.96)
Satisfaction with settlement services				
Satisfaction index with	0.38	0.03	0.03	0.00
local roads		(0.04)	(0.04)	(0.06)
Satisfaction index with housing	0.45	0.03	0.03	0.00
fund		(0.03)	(0.03)	(0.04)
Think that municipality is	0.64	-0.04	0.08	0.12
clean or rather clean		(0.05)	(0.05)*	(0.07)*
Satisfaction index with collection,	0.35	0.02	0.02	0.01
removal and utilization of waste		(0.04)	(0.05)	(0.06)
Satisfaction index with cultural	0.46	-0.00	0.01	0.02
institutions and recreational areas		(0.03)	(0.04)	(0.05)
Satisfaction index with natural	0.46	-0.03	-0.00	0.03
and cultural monuments		(0.04)	(0.04)	(0.06)
Average over family of	**0.00**	**-0.00**	**0.08**	**0.09**
outcomes (in standard deviations)		**(0.00)**	**(0.08)**	**(0.08)**

Notes: Column (1) reports the average for the control group at follow-up. Columns (2) and (3) report coefficients from one regression where indicators for "training" and "technical assistance" treatments enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls. Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5. Effects by Previous Decentralized Experience: Settlement Governance and Revenues

	Effect Training		Difference	Effect Technical Assistance		Difference
	No Experience	Experienced	(2) - (1)	No Experience	Experienced	(5) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Public participation						
Number of public meetings held	1.32	0.60	-0.73	1.37	3.10	1.73
during 2006	(2.35)	(2.26)	(3.26)	(2.11)	(2.61)	(3.36)
Participated in at least one	-0.04	-0.03	0.01	-0.10	0.13	0.23
public meeting	(0.05)	(0.07)	(0.09)	(0.08)	(0.07)*	(0.11)**
The process of public decision making						
Made suggestions to local authorities	-0.04	-0.01	0.04	0.06	-0.03	-0.09
on settlement budget	(0.03)*	(0.03)	(0.04)	(0.04)	(0.02)	(0.04)**
Settlement administration takes	-0.04	0.01	0.05	-0.04	0.27	0.31
citizens' problems seriously	(0.08)	(0.15)	(0.17)	(0.07)	(0.13)**	(0.15)**
Think that meetings b/w authorities	0.05	-0.01	-0.06	-0.05	0.35	0.41
and citizens solve important problems	(0.08)	(0.08)	(0.11)	(0.06)	(0.15)**	(0.17)**
If residents' and authorities' interests	-0.02	-0.08	-0.05	-0.05	0.14	0.20
do not coincide both make concessions	(0.07)	(0.10)	(0.12)	(0.07)	(0.14)	(0.15)
Real power is held by the	-0.02	-0.11	-0.09	-0.02	0.40	0.42
settlement administration	(0.06)	(0.07)*	(0.09)	(0.06)	(0.16)**	(0.17)**
Average over family of	**-0.04**	**-0.10**	**-0.06**	**-0.03**	**0.38**	**0.42**
outcomes (in standard deviations)	**(0.08)**	**(0.11)**	**(0.13)**	**(0.07)**	**(0.18)***	**(0.19)***
Preference matching index	-0.08	0.01	0.09	-0.01	0.20	0.21
	(0.10)	(0.10)	(0.14)	(0.09)	(0.11)*	(0.14)
Settlement revenues						
Local revenue *percapita*	-5.86	-0.23	5.63	30.22	37.34	7.12
	(1.13)**	(0.11)	(1.23)**	(8.14)*	(0.08)***	(8.10)
Central transfers *percapita*	2.25	-1.89	-4.14	-16.34	-2.16	14.18
	(4.11)	(1.19)	(3.13)	(12.95)	(2.02)	(11.08)

Notes: This table presents evidence on heterogeneous treatment effects by previous level of experience in decentralized governance at the settlement level. Columns (1), (2), (4) and (5) report coefficients from one regression where indicators for "training" and "technical assistance" treatments interacted with indicators for previous decentralized experience status enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls (when available). Column (3) presents estimated coefficients and standard errors of the differences between coefficients in columns (2) and (1). Column (6) presents estimated coefficients and standard errors of the differences between coefficients in columns (5) and (4). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6. Effects by Previous Decentralized Experience: Settlement Public Service Delivery

	Effect Training		Difference	Effect Technical Assistance		Difference
	No Experience	Experienced	(2) - (1)	No Experience	Experienced	(5) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Settlement expenditures						
Housing and utilities *percapita*	-3.87	4.76	8.63	2.74	29.80	27.06
	(0.79)**	(0.15)***	(0.94)**	(1.16)	(0.06)***	(1.10)***
Cultural institutions *percapita*	2.70	-0.31	-3.01	8.34	-0.44	-8.78
	(1.66)	(0.54)	(2.19)	(0.62)***	(0.11)*	(0.51)***
Administrative *percapita*	2.67	-0.57	-3.23	-1.60	-2.39	-0.79
	(0.78)*	(0.12)**	(0.73)**	(1.21)	(0.25)**	(0.97)
Satisfaction with settlement services						
Satisfaction index with	-0.05	0.14	0.19	-0.07	0.17	0.24
local roads	(0.05)	(0.07)**	(0.08)	(0.05)	(0.08)**	(0.09)**
Satisfaction index with housing	0.00	0.06	0.06	-0.03	0.09	0.12
fund	(0.05)	(0.04)	(0.07)	(0.04)	(0.04)**	(0.06)**
Think that municipality is	-0.14	0.07	0.21	-0.06	0.25	0.31
clean or rather clean	(0.08)*	(0.08)	(0.12)*	(0.04)	(0.08)***	(0.09)***
Satisfaction index with collection,	0.04	-0.02	-0.06	-0.02	0.08	0.10
removal and utilization of waste	(0.05)	(0.06)	(0.08)	(0.10)	(0.06)	(0.12)
Satisfaction index with cultural	0.04	-0.05	-0.09	-0.07	0.12	0.19
institutions and recreational areas	(0.04)	(0.08)	(0.08)	(0.05)	(0.08)	(0.09)**
Satisfaction index with natural	-0.02	-0.05	-0.03	-0.04	0.04	0.08
and cultural monuments	(0.05)	(0.07)	(0.09)	(0.04)	(0.08)	(0.09)
Average over family of	**-0.06**	**0.07**	**0.13**	**-0.14**	**0.37**	**0.51**
outcomes (in standard deviations)	**(0.09)**	**(0.11)**	**(0.14)**	**(0.10)**	**(0.12)***	**(0.15)***

Notes: This table presents evidence on heterogeneous treatment effects by previous level of experience in decentralized governance at the settlement level. Columns (1), (2), (4) and (5) report coefficients from one regression where indicators for "training" and "technical assistance" treatments interacted with indicators for previous decentralized experience status enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls. Column (3) presents estimated coefficients and standard errors of the differences between coefficients in columns (2) and (1). Column (6) presents estimated coefficients and standard errors of the differences between coefficients in columns (5) and (4). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7. Spillover Effects

	Control Group Mean	Spillover Training	Spillover Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Public participation				
Number of public meetings held	4.27	2.59	1.92	-0.67
during 2006		(1.54)	(1.50)	(1.35)
Participated in at least one	0.50	0.07	0.08	0.01
public meeting		(0.06)	(0.06)	(0.09)
The process of public decision making	0.03	-0.12	0.01	0.12
		(0.09)	(0.37)	(0.38)
Preference matching index	0.67	0.07	-0.04	-0.11
		(0.09)	(0.09)	(0.09)
Settlement revenues				
Local revenue *percapita*	33.02	13.33	22.95	9.63
		(19.13)	(24.58)	(5.48)
Central transfers *percapita*	50.81	-16.15	-29.60	-13.45
		(18.62)	(25.59)	(7.04)
Settlement expenditures				
Housing and utilities *percapita*	13.37	5.42	2.56	-2.86
		(1.06)**	(6.63)	(7.11)
Cultural institutions *percapita*	23.75	0.63	-0.38	-1.02
		(4.37)	(2.48)	(1.88)
Administrative *percapita*	25.61	-0.33	-2.32	-1.99
		(1.63)	(2.08)	(0.52)*
Satisfaction with settlement services	0.03	-0.07	-0.04	0.02
		(0.09)	(0.09)	(0.13)

Notes: Sample is restricted to control settlements. Column (1) reports the average for control districts at follow-up. Columns (2) and (3) report coefficients from one regression where indicators for "training district" and "technical assistance district" enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls (when available). Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 8. Spillover Effects by Previous Decentralized Experience

	Spillover Training		Difference	Spillover Technical Assistance		Difference
	No Experience	Experienced	(2) - (1)	No Experience	Experienced	(5) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Public participation						
Number of public meetings held	4.47	1.02	-3.45	2.03	2.23	0.20
during 2006	(2.26)*	(2.10)	(3.08)	(2.03)	(2.23)	(3.02)
Participated in at least one	0.11	0.02	-0.09	0.03	0.13	0.09
public meeting	(0.08)	(0.12)	(0.14)	(0.08)	(0.11)	(0.13)
The process of public decision making	0.01	-0.27	-0.28	-0.14	0.18	0.33
	(0.24)	(0.14)*	(0.28)	(0.06)**	(0.14)	(0.15)**
Preference matching index	0.09	0.05	-0.04	-0.08	-0.00	0.08
	(0.16)	(0.12)	(0.21)	(0.15)	(0.12)	(0.19)
Settlement revenues						
Local revenue *percapita*	32.48	-4.59	-37.07	44.43	-0.41	-44.85
	(19.65)	(1.88)	(20.04)	(21.64)	(0.68)	(21.65)
Central transfers *percapita*	-41.55	5.33	46.87	-53.06	-4.09	48.98
	(22.85)	(3.26)	(23.84)	(22.80)	(8.65)	(23.64)
Settlement expenditures						
Housing and utilities *percapita*	5.25	6.71	1.46	8.98	-4.30	-13.28
	(1.79)*	(0.15)***	(1.68)	(1.13)**	(1.06)*	(0.72)***
Cultural institutions *percapita*	8.57	-4.10	-12.66	2.42	-2.48	-4.90
	(3.24)	(1.08)*	(4.31)*	(0.05)***	(0.88)	(0.93)**
Administrative *percapita*	1.88	-2.33	-4.21	0.24	-5.08	-5.32
	(1.04)	(0.78)*	(1.64)	(0.74)	(0.37)***	(0.88)**
Satisfaction with settlement services	-0.07	-0.06	0.01	-0.14	0.08	0.22
	(0.12)	(0.14)	(0.18)	(0.12)	(0.16)	(0.20)

Notes: This table presents evidence on heterogeneous spillover effects by previous level of experience in decentralized governance at the settlement level. Sample is restricted to control settlements. Columns (1), (2), (4) and (5) report coefficients from one regression where indicators for "training" and "technical assistance" districts interacted with indicators for previous decentralized experience status enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls (when available). Column (3) presents estimated coefficients and standard errors of the differences between coefficients in columns (2) and (1). Column (6) presents estimated coefficients and standard errors of the differences between coefficients in columns (5) and (4). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9. Falsification Test: District Level Outcomes

	Control Group Mean	Effect Training	Effect Technical Assistance	Difference (3) - (2)
	(1)	(2)	(3)	(4)
Corruption perceptions - district				
Report widespread corruption in the district administration	0.09	0.01 (0.04)	-0.00 (0.13)	-0.01 (0.13)
Report widespread corruption in the police	0.45	0.05 (0.06)	0.01 (0.08)	-0.04 (0.10)
Report widespread corruption in kindergartens	0.07	-0.00 (0.12)	-0.02 (0.02)	-0.02 (0.13)
Report widespread corruption in schools	0.06	-0.03 (0.02)	0.01 (0.02)	0.04 (0.03)
Report widespread corruption in health stops, polyclinics and hosp.	0.15	0.04 (0.04)	-0.03 (0.04)	-0.07 (0.06)
Report widespread corruption in forestry, fishing and hunting inspection	0.27	0.03 (0.09)	-0.00 (0.16)	-0.04 (0.18)
Average over family of outcomes (in standard deviations)	**0.00**	**0.00** **(0.02)**	**0.01** **(0.04)**	**0.01** **(0.05)**
Satisfaction with district services				
Satisfaction index with public transportation	0.48	0.08 (0.04)*	0.01 (0.04)	-0.06 (0.06)
Satisfaction index with law and order	0.53	-0.01 (0.03)	0.03 (0.02)	0.04 (0.04)
Satisfaction index with general education	0.78	-0.01 (0.04)	-0.01 (0.03)	0.00 (0.05)
Report class cancellations due to the teachers' absence	0.07	-0.03 (0.02)*	-0.01 (0.02)	0.02 (0.03)
Report not enough teachers to teach the main subjects	0.05	-0.02 (0.01)*	-0.02 (0.02)	0.00 (0.02)
Report school facilities in poor condition	0.05	-0.01 (0.01)	-0.02 (0.01)	0.00 (0.02)
Satisfaction index with pre-school education	0.61	-0.02 (0.05)	-0.09 (0.06)	-0.07 (0.07)
Satisfaction index with level of medical treatment	0.66	-0.02 (0.03)	-0.00 (0.04)	0.02 (0.05)
Average over family of outcomes (in standard deviations)	**0.00**	**0.05** **(0.05)**	**-0.01** **(0.06)**	**-0.06** **(0.07)**

Notes: Column (1) reports the average for the control group at follow-up. Columns (2) and (3) report coefficients from one regression where indicators for "training" and "technical assistance" treatments enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls. Column (4) presents estimated coefficients and standard errors of the differences between coefficients in columns (3) and (2). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 10. Falsification Test by Previous Decentralized Experience: District Level Outcomes

	Effect Training		Difference	Effect Technical Assistance		Difference
	No Experience	Experienced	(2) - (1)	No Experience	Experienced	(5) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Corruption perceptions - district						
Report widespread corruption in the	0.03	-0.01	-0.03	-0.01	0.01	0.02
district administration	(0.07)	(0.04)	(0.08)	(0.05)	(0.06)	(0.07)
Report widespread corruption in the	-0.10	0.15	0.25	0.06	-0.06	-0.13
police	(0.08)	(0.08)*	(0.12)	(0.08)	(0.13)	(0.15)
Report widespread corruption in	-0.04	0.03	0.07	-0.03	-0.01	0.02
kindergartens	(0.04)	(0.05)	(0.06)	(0.04)	(0.04)	(0.05)
Report widespread corruption in	-0.03	-0.02	0.01	-0.00	0.03	0.03
schools	(0.03)	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)
Report widespread corruption in	0.01	0.07	0.06	-0.01	-0.06	-0.05
health stops, polyclinics and hosp.	(0.07)	(0.06)	(0.09)	(0.05)	(0.05)	(0.07)
Report widespread corruption in	0.00	0.07	0.06	0.07	-0.09	-0.16
forestry, fishing and hunting inspection	(0.06)	(0.10)	(0.12)	(0.13)	(0.10)	(0.16)
Average over family of	**-0.05**	**0.05**	**0.09**	**0.04**	**-0.04**	**-0.08**
outcomes (in standard deviations)	**(0.07)**	**(0.12)**	**(0.15)**	**(0.06)**	**(0.10)**	**(0.12)**
Satisfaction with district services						
Satisfaction index with public	0.03	0.14	0.11	-0.04	0.08	0.12
transportation	(0.06)	(0.07)*	(0.09)	(0.06)	(0.09)	(0.11)
Satisfaction index with law	-0.02	-0.00	0.02	0.03	0.02	-0.01
and order	(0.03)	(0.04)	(0.05)	(0.03)	(0.03)	(0.05)
Satisfaction index with general	0.02	-0.04	-0.06	-0.00	-0.01	-0.01
education	(0.05)	(0.04)	(0.06)	(0.05)	(0.06)	(0.08)
Report class cancellations due	-0.03	-0.04	-0.01	-0.01	-0.02	0.00
to the teachers' absence	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.04)
Report not enough teachers to	-0.02	-0.03	-0.01	-0.02	-0.02	0.00
teach the main subjects	(0.02)	(0.01)*	(0.02)	(0.03)	(0.02)	(0.03)
Report school facilities in	-0.02	-0.01	0.01	-0.03	-0.01	0.02
poor condition	(0.02)	(0.02)	(0.03)	(0.01)**	(0.03)	(0.03)
Satisfaction index with pre-school	0.02	-0.08	-0.10	-0.17	0.01	0.18
education	(0.04)	(0.09)	(0.10)	(0.08)**	(0.07)	(0.11)*
Satisfaction index with level	0.00	-0.05	-0.06	-0.01	0.01	0.02
of medical treatment	(0.03)	(0.05)	(0.06)	(0.03)	(0.05)	(0.06)
Average over family of	**0.05**	**0.05**	**0.01**	**-0.07**	**0.06**	**0.12**
outcomes (in standard deviations)	**(0.07)**	**(0.07)**	**(0.10)**	**(0.07)**	**(0.09)**	**(0.11)**

Notes: This table presents evidence on heterogeneous treatment effects by previous level of experience in decentralized governance at the settlement level. Columns (1), (2), (4) and (5) report coefficients from one regression where indicators for "training" and "technical assistance" treatments interacted with indicators for previous decentralized experience status enter as explanatory variables. Regressions include Region fixed affects and the baseline values of the outcomes as controls. Column (3) presents estimated coefficients and standard errors of the differences between coefficients in columns (2) and (1). Column (6) presents estimated coefficients and standard errors of the differences between coefficients in columns (5) and (4). Estimated standard errors clustered at the settlement level are in parentheses. Given the small number of treated clusters (22 in each treatment arm), the critical values for t-tests were drawn from a bootstrapped-t distribution following the procedure suggested by Cameron, Gelbach and Miller (2008). * significant at 10%; ** significant at 5%; *** significant at 1%.