Willing but Unable? Short-term Experimental Evidence on Parent Empowerment and School Quality

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Abstract

Giving power over school management and spending decisions to communities has been a favored strategy to increase school quality, but its effectiveness may depend on local capacity. Grants are one form of such a transfer of power. Short-term responses of a grant to school committees in Niger show that parents increased participation and responsibility, but these efforts did not improve quality on average. Enrollment at the lowest grades increased and school resources improved, but teacher absenteeism increased, and there was no measured impact on test scores. An analysis of heterogeneous impacts and spending decisions provides additional insight into these dynamics. Overall, the findings suggest that programs based on parent participation should take levels of community capacity into account: even when communities are willing to work to improve their schools, they may not be able to do so. The short-term nature of the experiment reduces the extent to which the results can be generalized.

JEL classification: 015, C93, I21

The dramatic expansion of access to schools in the last two decades is the result of an unprecedented effort to increase education in poor countries. However, the quality of education is often low. One common strategy to improve quality is through improved management and oversight and in particular by increasing involvement of parents and the community (World Bank 2003). Community-based
management policies have been widely adopted throughout the world over the past decade (see Barrera-Osorio et al. 2009 for an overview).

Grants to school committees, that is, putting money under the control of parents, are one potential way to increase school quality directly, by increasing school resources, and indirectly, by spurring parent participation. For this to work, parents must have the time, energy, and capacity to participate in school management effectively. Given the heavy investment in such programs, it is important to understand whether, and under which circumstances, they can actually work.

This paper provides evidence from a field experiment on the short-term impact of a program to encourage parent participation in school management through grants to school committees in a context of low parent authority and capacity. In Niger, levels of education among adults are extremely low: 70% of Nigeriens aged 15–44 in 2010 had no education, and the system for education is very hierarchical and centralized. In a pilot program to improve school quality, the Ministry of Education of Niger, in partnership with the World Bank, gave grants to school committees that had been trained in school management with the aim of increasing parent involvement. A randomized evaluation was incorporated into the pilot project to provide information for scale-up. Detailed data from one thousand schools (split into five hundred treatment and five hundred control schools) were collected to assess the impact of the grant on parent empowerment, school management, and school quality. An important limitation of the study is that it provides only short-term evidence on behavioral responses: the first grant arrived in late 2007 and was meant to continue several years, but the evaluation ended in 2009. The survey was administered during April and May of 2008, and administrative data were collected at the beginning of the 2008–2009 school year. This paper thus documents the short-term dynamics of an anticipated long-term program.

On average, parents were willing to increase their participation in school management, but educational quality did not improve in a meaningful way as a result of this participation. There is an overall positive impact of the grant program on parents’ involvement and responsibility: communities with the grant participated more and took on more responsibilities than those without the grant, although the average community did not engage in supervising teacher presence. Parents did not reduce their own contributions in response to the grant.

The impact on school management is mixed: cooperation between school stakeholders improved, but overall accountability did not change, and spending shows both expected and unexpected changes: there was more spending in infrastructure but also school festivals, playground equipment, and, most unexpectedly, investment in agricultural projects, which were probably noneducational but intended to make a profit.

Finally, school quality did not improve with these changes, at least in the short term. There were subsequent improvements in infrastructure and health resources, as well as an increase in participation at the lowest grades: fewer dropouts in 2007/2008 and increased enrollment in grade two in 2008/2009, but there is no evidence of a change in test scores (note that we cannot exclude the possibility of a downward bias in the estimate of test score impact due to differential dropouts, but the lack of change in test scores at levels that had no participation changes supports the finding of no impact on test scores). Teachers decreased their effort in response to the grant, which can be attributed to the fact that some teachers have a preference for a centralized government and might be reluctant to collaborate with parents, especially when parents do not spend the money on projects that make the teacher’s life easier.

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1 School-based management programs have been implemented in Argentina, Australia, Bangladesh, Canada, Guatemala, Honduras, Hong-Kong, India, Lebanon, Lesotho, Macedonia, Madagascar, Mexico, Nicaragua, the Philippines, Senegal, Serbia, Sri Lanka, the Gambia, the United Kingdom, and the United States (Duflo et al. 2015).

2 World Development Indicators, World Bank, source: International Institute for Applied Systems Analysis (IIASA).
The paper then examines heterogeneous effects along several different dimensions and highlights three interesting patterns. First, in situations where the school committee is educated or has experience in another community organization—both of which we take as proxies for real authority—parents increased monitoring of teacher attendance in response to the grant (though this did not mitigate the negative effect of the grants on teacher attendance). Second, in small (one-teacher) schools, school committees spent on items that benefited the teacher, and teacher attendance increased in response to the grant in these schools. These results together suggest that teachers’ responses to parent participation depend on whether parents are acting in opposition to, or alliance with, the teachers. Third, rural schools used some of the grant to invest in agricultural opportunities, while urban schools did not but invested in school infrastructure instead.

This study is related to two strains of the economics literature: parent participation and school resources. Previous evidence on the effectiveness of programs to increase quality via increased parent participation is mixed. Banerjee et al. (2010) report that providing information to parents about the school committee and training the community to measure educational performance in India had no impact on the activity of school committees and, therefore, no impact on education outcomes. Duflo et al. (2015) find that a training to empower parents helped mitigate the negative response of regular teachers to the addition of a contract teacher. In Madagascar, Lassibille et al. (2010) found that facilitating community/school interactions, combined with streamlining management practices had positive impacts on attendance and learning. Other studies have supplied evidence that empowering the community to manage schools improves school quality, though these papers generally do not include random variation in treatment assignment, and so the identification is weaker. Bryk et al. (1998) and Hess (1999) have argued that student achievement improved in Chicago after the implementation of reform involving the community in school management and Di Gropello (2006) overviews four school-based management programs in Latin America and concludes that school-based management models have led generally to greater community empowerment and teacher effort. Participation in school management may also be linked to social capital more generally: Sawada and Ishii (2012) employ matching and instrumental variable approaches to measure the impact of the COGES program itself in neighboring Burkina Faso and find increases in social capital measured using several different tools, including field experiments.

Another group of studies point to heterogeneity in the performance of participatory programs, and in the effect of decentralization more generally. Blimpo et al. (2015) find that training school committees had no impact on learning except in schools where school committee members were educated. Pradhan et al. (2014) find that an intervention to empower parents was effective only when combined with an intervention fostering the ties between the school committee and a local governing body. Decentralization of secondary school management in Argentina led to higher test scores in provinces with higher managerial capacity and lower test scores in provinces with lower managerial capacity (Galiani and Schargrodsky 2002). Galiani and Perez-Truglia (2013) review the empirical literature on school decentralization on educational outcomes and find that the better-off communities tend to profit more from decentralization than poor communities. Using panel estimation on PISA data, Hanushek et al. (2013) estimate that increasing school autonomy is associated with lower student performance in countries with generally lower performance and higher student performance in countries with generally higher performance. While the context of rural Niger is likely to be substantially different from these contexts, there is good reason to anticipate that there may be heterogeneous impacts of parent participation.

Previous studies on increasing school resources have found that it may crowd out the contributions of other actors. For example, parents in Romania decreased time spent on homework when their child was admitted to a better school (Pop-Eleches and Urquiola 2013). In Zambia and India, households decreased spending for education when they anticipated an increase in school funding (Das et al. 2013). In Kenya, civil-servant teachers decreased presence at school when school committee hired an extra teacher (Duflo et al. 2015).
This paper contributes specifically to the literature on heterogeneity by showing that authority and capacity are important prerequisites for parents to undertake the more difficult aspects of management and that cooperation between parents and teachers (rather than confrontation) may be key. An overall message is that parents will not always or even generally make optimal spending and management decisions to increase quality. It may be costly and time-consuming, parents may not have good information about how schools work and thus may not make optimal decisions, and it may be very difficult to put pressure on teachers to improve service quality. It may be particularly difficult since capacity depends on parent power vis-à-vis teachers, or “real authority” in the terms of Aghion and Tirole (1997), who underscore the fact that formal authority (the right to make decisions) need not imply real authority (effective control over decisions). 3

A major limitation of the paper is the short-term nature of the findings. Long-term follow-up was impossible, so it is possible that different results would have emerged after one or two more years. However, the results presented here are still useful: first, they give evidence about the barriers that communities may face at the beginning of participatory programs, and second, the richness of the data on spending decisions, contributions, involvement and responsibility, and link to community characteristics gives some insight into the mechanisms at work within communities when making school management decisions.

The remainder of the paper is as follows. Section II presents some background information on education in Niger and describes the school grant experiment. Section III presents the data and estimation strategy and section IV the empirical results. Section V concludes.

I. Background and Experimental Design

The grant program sought to empower parent school committees in a context where parents traditionally had very little control over their children’s schooling and where overall levels of learning were quite low. The experimental design was incorporated to give information on program effectiveness prior to an intended scale-up.

Background on Education in Niger

Niger made remarkable progress in access to education in the decade prior to this evaluation: the number of children enrolled in primary school had more than doubled from 656,000 in 2000 to 1,554,102 in 2008, and net enrollment had risen from 27% to 49% in the same period. However, only 44% of children who begin primary school finished all grades, and only 43% of the sixth graders who took the national exam at the end of primary school passed it. 4

The education system in Niger has traditionally been fairly hierarchical and rigid. Inherited from French colonization, the system replicates the French education system: highly centralized, with little, if any, room for local community participation. Unlike other systems, where the school might be supervised by a local governmental body, at the time of the evaluation there was generally no way for the local community to determine school policy or practice. Schools depended entirely on the hierarchical chain that originated in the Ministry of Education (except for some local fundraising, but these efforts were undertaken only when needs were not provided for by the Ministry).

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3 Policies of *de jure* autonomy do not always lead to *de facto* autonomy (King and Ozler 2005), and so participation may not be meaningful if communities have no actual power and even increase inequality by “leaving the poor behind” (Galiani et al. 2008).

4 The situation has continued to improve in terms of access to education: in 2011, net enrollment in primary school was 62%, and primary completion rates had risen to 46%.
In 2006 the Ministry of Education in Niger introduced school committees in all primary public schools in order to improve quality. These school committees (called the COGES) were designed to involve parents and community members in the school, improve accountability, improve management, and thus enhance access to and quality of education.5

As discussed in the introduction, the establishment of local community groups for the purpose of improving public service provision via community participation is a strategy that many country governments and civil society organizations advocate. In many respects, the circumstances of Niger make a strong case for school-based management: low population density, vast distances and limited transportation, information, and communications infrastructure make supervision of primary schools by the central government (or its regional structures) very costly, and the timely transmission of information to and from the central authorities for planning purposes is challenging.

In the districts where this program was carried out, the COGES were trained by several different organizations in financial management, governance (elections), and project planning. In 2006, many of the newly created and trained school committees were not actively engaged in school matters, nor did they develop a school improvement plan for the year. To spur school committee involvement and activity, the Ministry of Education introduced school grants to give the committees an incentive to meet, plan, and undertake activities. The grants were expected to improve school management through increased parental participation and accountability, to improve school infrastructure and the quality of education, and to potentially increase enrollment rates and learning. The pilot project was carried out as a randomized evaluation in order to provide reliable information on impact prior to national scale-up.

The Ministry selected the regions of Zinder and Tahoua because the COGES there were already functional and had received basic training on planning and financial management, whereas COGES in the other six regions of Niger had not been trained yet. However, the context of these two regions is specific, even relative to the rest of Niger. The Zinder region is culturally similar to Northern Nigeria, with a relatively conservative Muslim population that has lower rates of formal schooling. On the other hand, the Tahoua region is a nomadic region where formal education poses a challenge because the nomadic population (the Tuareg and the Fulani) may often rely on children for herding. In both cases, one may expect parents to adhere less to formal schooling than in other regions in Sub-Saharan Africa.

Experimental Design

The evaluation design included 1,000 schools in Tahoua and Zinder, randomly selected out of the 2,609 total public primary schools in those districts. Once these 1,000 schools were determined to be representative of the total pool of schools in those districts, half were randomly assigned to receive the grants and became the treatment group. The other 500 schools served as a control group. Both randomizations were stratified on inspection (a geographical administrative unit), existing support for the school committee (e.g., existing programs or sponsorship by NGOs), and whether the school was indicated as being in a rural or urban area in administrative data. Strata were constructed by grouping the schools into inspections, then within each inspection into whether or not the school had existing support, and then

5 These school committees consist of six representatives, including the school director, who serves as secretary, and parent representatives. The parents are supposed to elect the representatives, who may also be the leaders of the Parent Association (APE), which includes all parents, and the Mother’s Association (AME), which includes all mothers. In practice, the composition of the COGES varies by school. School committees are supposed to be responsible for the management of people working at the school (e.g., monitoring of teacher attendance and performance), financial resources (e.g., school meal funds) and material resources (e.g., purchase and management of textbooks, supplies and supplies). One of the school committee’s central tasks is to draft an annual school improvement plan that includes its projects, activities, budget, and timelines to guide its work for the school year. The school committee works parallel to the APE and AME. Additional details and background are given in appendix S1, available at https://academic.oup.com/wber).
within each of those groups, whether the school was in a rural or urban area. This gave fifty strata. Schools were assigned a random number between zero and one, and within each stratum they were sorted by this random number, with the first half being assigned to treatment and the second to control. Data from the Administrative School Census in 2005–2006 (the school census is described below) were used to confirm balance between control and treatment schools along various observable characteristics (data from 2006–2007 were not yet available at the time of sampling in August 2007). The balance checks for the randomization and p-values for the test of equality of means across control and treatment are presented in table 1, and show no statistically significant differences.

<table>
<thead>
<tr>
<th>Pupil characteristics</th>
<th>(1) Control</th>
<th>(2) Treatment</th>
<th>(5) Difference in means (C-T)</th>
<th>(6) p-value of difference in means</th>
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</thead>
<tbody>
<tr>
<td>Enrollment 07/08</td>
<td>500</td>
<td>500</td>
<td>149.6</td>
<td>141.72</td>
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<tr>
<td>% Girls in 07/08</td>
<td>500</td>
<td>500</td>
<td>0.38</td>
<td>0.38</td>
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<tr>
<td>% Passed exam in 07/08</td>
<td>262</td>
<td>224</td>
<td>0.45</td>
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<th>(6) p-value of difference in means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of teachers</td>
<td>490</td>
<td>494</td>
<td>3.87</td>
<td>3.55</td>
</tr>
<tr>
<td>% of teachers civil servants</td>
<td>490</td>
<td>494</td>
<td>0.2</td>
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<th>Physical infrastructure</th>
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<th>(5) Difference in means (C-T)</th>
<th>(6) p-value of difference in means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of buildings 07/08</td>
<td>490</td>
<td>494</td>
<td>3.91</td>
<td>3.68</td>
</tr>
<tr>
<td>Number of latrines 07/06</td>
<td>500</td>
<td>500</td>
<td>0.89</td>
<td>0.82</td>
</tr>
<tr>
<td>Water Access 06/07</td>
<td>500</td>
<td>500</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Electricity 06/07</td>
<td>500</td>
<td>500</td>
<td>0.01</td>
<td>0.02</td>
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<th>COGES characteristics</th>
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<th>(2) Treatment</th>
<th>(5) Difference in means (C-T)</th>
<th>(6) p-value of difference in means</th>
</tr>
</thead>
<tbody>
<tr>
<td>COGES sponsored 07/08</td>
<td>500</td>
<td>500</td>
<td>0.57</td>
<td>0.55</td>
</tr>
<tr>
<td>COGES exists 06/07</td>
<td>500</td>
<td>500</td>
<td>0.88</td>
<td>0.9</td>
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<tr>
<th>Location</th>
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<th>(2) Treatment</th>
<th>(5) Difference in means (C-T)</th>
<th>(6) p-value of difference in means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tahoua</td>
<td>500</td>
<td>500</td>
<td>0.52</td>
<td>0.51</td>
</tr>
<tr>
<td>Distance to inspection</td>
<td>500</td>
<td>500</td>
<td>41.1</td>
<td>38.59</td>
</tr>
<tr>
<td>Distance to health center</td>
<td>476</td>
<td>461</td>
<td>8.24</td>
<td>8.95</td>
</tr>
</tbody>
</table>

Source: Ministry of Education Administrative Data. The data from 07/08 are reported in November (prior to the intervention) and are used when available; otherwise data from 06/07 are used. “Sponsored” COGES are those that have some sort of official sponsor or support group (such as an NGO).

The original project plan called for recurrent grants to schools for three consecutive school years, to be distributed at the beginning of each school year to support COGES activities. The Ministry of Education and the Ministry of Finance jointly worked out the grant transfer mechanism, consisting of a direct release of funds from the national treasury into the accounts of the two regional education authorities (i.e., one hierarchical level down from the national government). The funds were then transferred to the inspection level and then to the COGES. The transfers from the regional authorities and below took place as transfers of cash, which were recorded using signed receipts, which were submitted to the Ministry of Finance.

In the first year, rather than receiving the grants at the beginning of the year as planned, the five hundred COGES received the grants during December 2007 and January 2008, with the school year already in full swing, due to logistical difficulties with the transfer. The grants were not immediately distributed during the 2008–2009 school year, due to problems with the transfer mechanism.6

6 The regional authorities were unable to obtain the actual funds from the local treasury due to a liquidity issue at the local treasury level.
Due to these issues and political disruptions in 2009, the evaluation was terminated after only one year. As a consequence, this evaluation evaluates only one year of the grant (the 2008/2009 grant was eventually distributed to some schools, after the evaluation had ended).

The size of the grant was based on the size of the school (the number of classrooms), and the average was 209 USD per school, or 1.83 USD per student. The grant was a relatively modest amount that was determined by considerations of financial sustainability in view of a potential extension of the program by the government. For the purposes of comparison, the control schools raised a little over 0.60 USD per year per student from the parents on average and had an overall budget of around 199 USD including donations from private NGOs, and so the grant is relatively large compared to the usual fundraising and about equivalent to the annual amount of money available for school projects (note that in principle most school inputs such as teachers and books were provided in kind by the central government and so not included in this 199 USD—if they were, the grant would be smaller than the overall operating budget of the schools). For an idea of the practical scale, the amount of the grant was not, except in the very largest schools, sufficient to build an additional classroom. This grant amount is smaller than grants provided to school committees in most other evaluations: Blimpo et al. (2015) use a grant of 500 USD per school in Gambia. Gertler, Patrinos, and Rodriguez-Oreggia (2010) use grants of 500 USD to 700 USD per school in Mexico, and Pradhan et al. (2014) evaluate a grant of 326 USD (to be followed with another grant of 544 USD) per school in Indonesia.

About a month before the grant arrived, all five hundred treatment schools (and school committees) received a letter informing them of the grant program and its objectives, and the grant amount allocated to their school. It also included general guidelines on the use of the grants, but the specific activity to be supported by the grants was to be decided on by the school committee.\footnote{One randomly selected group of schools received a slightly more restrictive list of potential expenditures, and another group received a warning that their projects might be audited. Analysis of spending patterns did not show any difference between these groups.}

One copy of this letter was distributed to the school director and a second copy to the president of the school committee before the arrival of the grants. Compliance in this respect was satisfactory: the grants arrived in 498 schools of the 500 program schools, 492 in the exact amount allocated to them and six in a different amount (see appendix S2, for further details on compliance).

II. Data and Empirical Strategy

Multiple sources contain rich information on potential treatment outcomes and community characteristics that can be used to generate estimates of treatment impact and heterogeneous impact using a simple ITT framework.

Data

Data come from three sources: (i) administrative data on primary schools (the Ministry of Education’s annual school census, also called administrative data), (ii) an evaluation survey administered to school staff and two members of the school committee at treatment and control schools (the 2008 School Survey), and (iii) a financial control survey administered to one member of the school committee on a subset of treatment schools.

The Ministry of Education in Niger administers an annual census of all primary schools, including community schools and madrassas (Koranic schools), which provides data on enrollment, teacher characteristics, school facilities and resources, and community characteristics. This paper uses the 2006/2007, 2007/2008, and 2008/2009 censuses. Each census is collected in the fall of the school year (for example, the 2008/2009 census contains the information reported by the schools in fall of 2008).
In addition to the administrative data, the Ministry and the World Bank worked with a local NGO to prepare a detailed school survey (the 2008 School Survey) to be administered to the one thousand schools included in the experiment in April/May 2008, five to six months after grant distribution, to understand the immediate effects of the grant. This questionnaire included information on school infrastructure and resources, pupil enrollment and attendance, school improvement plan, school committee functioning and membership, and school activities. It also asked detailed questions about the level of education and personal wealth of the school committee members. Three tests were also administered at this time: a math test, a French test, and an oral exam. The oral exam was administered to the youngest (grades one and two) pupils. Teacher’s physical presence at that visit was also recorded. The visit was on a day when the school was supposed to be open but was not announced in advance.

Finally, a financial survey was administered to eighty-five randomly selected treatment schools in January/February 2009, asking detailed questions about the receipt and spending of the grants, any problems with the administration of the grant, and use of the grants (including the existence of a receipt for each expense).

Use of the Grants
The school committees used the grants in a variety of ways. Eighty-five schools were randomly selected for a detailed questionnaire on grant arrival and spending. The most common use was for material inputs such as construction and office supplies, and other uses included investment projects, health and sanitation projects, and transportation. Overall, the largest share of spending of the grant was in construction, representing about a third of the total amount spent (figure 1). Construction activities included building classrooms, but communities also constructed lodging for teachers, latrines, school enclosures, and other buildings. Other projects included electrification or producing copies of exams. About fifteen percent of schools surveyed used at least part of the grant on some sort of agricultural investment project. It is unclear whether the loans or small business projects were profitable.

Figure 1. Reported Use of Grant Money, by Total Amount Spent

Source: Financial Control Questionnaire in eighty-five randomly selected treatment schools.
Outcomes

The analysis uses many different indicators of parent participation to draw general conclusions about the experiment’s impact. In order to simplify interpretation and to guard against cherry-picking of results, it presents results for indices that aggregate information over multiple outcome variables (following Kling et al. 2007). The aggregation also improves statistical power to detect effects that go in the same direction within a domain. The summary index Y is defined to be the equally weighted average of z-scores of its components, with the sign of each measure oriented so that more beneficial outcomes have higher scores. The z-scores are calculated by subtracting the control group mean and dividing by the control group standard deviation. Thus, each component of the index has mean 0 and standard deviation 1 for the control group. The index is the average of the nonmissing components, as long as the school has a valid response to at least two components. If only one component is available (or if no components are available), the school is dropped. Different types of outcomes are calculated in this way: parent participation, school management, and school quality. For each outcome, several indices are constructed. The details and full list of component variables for each index are given in appendix S3.

For parent participation in school, the paper uses indices of parent contributions (e.g., school fees), involvement (e.g., going to meetings), responsibility (e.g., in charge of supplies), and teacher oversight (e.g., monitoring teacher attendance). School management is measured by two indices: accountability (e.g., keeping records) and cooperation (e.g., reported conflicts), and also by total spending across eight possible spending categories (infrastructure, supplies and textbooks, pupil educational support (e.g., remedial courses), pupil health, teacher support (e.g., housing), COGES expenses (e.g., travel to regional meetings), school festivals and playground, and investments in agriculture). Finally, the effect of the grant on school quality is measured by four indices: infrastructure (e.g., number of desks), materials (e.g., textbooks), health resources (e.g., first aid kit), and teacher effort (e.g., teacher attendance). Data for infrastructure, materials, and health resources come from the 2008/2009 annual administrative database, collected in the fall of 2008, and so reflect changes between eight and ten months after receipt of the grants.

The paper also uses data on dropouts, enrollment, and test scores in order to examine the ultimate objective of increasing pupil participation and learning. Participation in education is measured by the number of dropouts reported by the school to surveyors at the April/May 2008 questionnaire and the change in enrollment from fall 2007 to fall 2008 reported to the Ministry of Education in the annual administrative censuses.

The paper uses two limited measures of actual learning. First, test scores are obtained from a test administered to pupils during the April/May 2008 questionnaire. The test was administered to three grades, ten pupils per grade. The pupils were supposed to be sampled from those who were enrolled at the beginning of the year, but in practice the ten pupils appear to have been selected from the pupils present on that day. There are further quality problems with the test scores—including identical copies submitted by some grades in some schools—that raise concerns about the quality of the test score data. There is no evidence that the problems are correlated with treatment and appear instead to be related to insufficient oversight of the examiners, so it is possible that the quality problems only add noise. However, as discussed below, the fact that participation is higher in the treatment schools and test takers were sampled from those present on that day leads to concerns of attrition bias in the test scores (if more children stayed in school in the treatment group, then the impact on test scores may be biased downwards). The results are therefore considered as second-order evidence. The overall results are nonetheless informative about the general level of education in rural Niger, and some examples are provided here to help give the reader a better idea of the context. In general, after discarding duplicate and suspect observations, pupils got about one third of questions correct. For example, the following questions were asked:
• Grade one: The interviewer asked the pupils to pick up a red crayon and a blue crayon out of a pile containing pieces of chalk of different colors: three white, one red, one blue, one yellow, and one green. 45% of pupils were able to do this.

• Grade four: Pupils were asked to place the following numbers in order, from smallest to largest: 807; 708; 788; 800. 24% of pupils were able to do this.

• Grade six: Pupils were asked to change an adjective from the masculine to the feminine form (Un nouveau maître ==> Une ____________ maitresse). 29% of pupils were able to do this.

The second measure of learning comes from the annual administrative censuses which report the number of candidates for the national end-of-primary school exam and the number who passed. Results for the end of the 2007/08 school year were reported on the 2008/09 census.\(^8\)

On average, slightly over half of the schools presented at least one student for the end of sixth grade test (recall that most schools do not have all grades).

Interaction Variables

The sample size was chosen to be large enough to allow testing for heterogeneous treatment effects by community characteristics, and this was one of the initial objectives of this the study.\(^9\) The dimensions chosen for measurement of heterogeneous effects are those that are likely to affect parent response to the grant or that have policy relevance: education, experience in other organizations, wealth of the COGES, whether the school is in an urban or rural area, and whether it is a one-teacher school. Descriptive statistics and balance information for the interaction variables are given in table 2.

Table 2. Community Characteristics Used for Heterogeneous Treatment Effect Analysis

<table>
<thead>
<tr>
<th></th>
<th>Control obs.</th>
<th>Treatment obs.</th>
<th>p-value of difference in attrition</th>
<th>Control mean</th>
<th>Treatment mean</th>
<th>Difference in means (C-T)</th>
<th>p-value of difference in means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educated COGES member</td>
<td>369</td>
<td>370</td>
<td>0.94</td>
<td>0.317</td>
<td>0.305</td>
<td>0.012</td>
<td>0.73</td>
</tr>
<tr>
<td>Experienced COGES member</td>
<td>369</td>
<td>370</td>
<td>0.94</td>
<td>0.209</td>
<td>0.227</td>
<td>-0.018</td>
<td>0.55</td>
</tr>
<tr>
<td>Average wealth of COGES (PCA)</td>
<td>360</td>
<td>358</td>
<td>0.89</td>
<td>-0.586</td>
<td>-0.674</td>
<td>0.088</td>
<td>0.42</td>
</tr>
<tr>
<td>One-teacher school</td>
<td>499</td>
<td>497</td>
<td>0.32</td>
<td>0.122</td>
<td>0.145</td>
<td>-0.023</td>
<td>0.29</td>
</tr>
<tr>
<td>Urban school</td>
<td>500</td>
<td>500</td>
<td>0.108</td>
<td>0.110</td>
<td>-0.002</td>
<td>-0.002</td>
<td>0.92</td>
</tr>
</tbody>
</table>

*Sources: Ministry of Education Administrative Data and 2008 School Survey. Observations at school level. Educated COGES member = 1 if at least one member of the COGES completed primary school. Experienced COGES member = 1 if at least one member is also the member of another community organization. Average wealth is negative because the PCA was carried out with the sample including teachers, who tend to be richer than the parents. The p-value of the difference in means is calculated by creating a dummy variable equal to 1 if the data are missing for a particular school and then calculating the p-value of the difference in this variable between groups.*

Our intuition is that COGES with higher levels of education and experience in other organizations are likely to have higher capacity to manage schools. To make sure that these dimensions are not merely proxying for wealth, wealth is also included as an interaction term (and it is not impossible that wealthy communities might react differently, either because they have more real authority or because they can leverage a larger supplemental contribution from the community). The distinction between urban and rural schools is important for education planners in general, and it is also important to ensure that the other interaction terms are not just proxies for the urban rural divide. Finally, one-teacher schools present a unique situation in terms of the power dynamics between the teachers and the parents, and

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8 Schools choose which of their sixth grade students would sit for the exam. There is no evidence that schools were penalized in any way for a low pass rate.

9 The analysis was not registered in a secure independent register in 2007 when the experiment was designed, as is best practice today.
these very small schools are also of relevance to education planners. Further details on the construction of these interaction terms are given in appendix S3.

Attrition
There is some attrition in the datasets. Each year, a handful of schools do not return the administrative data questionnaire, or the questionnaires are improperly filled out, leading to missing data for 3% of the schools for the infrastructure index and 1.4% of the schools for 2008/09 enrollment. The April/May 2008 survey was conducted on the basis of unannounced visits, which meant that many schools were closed. In addition, some schools were not visited due to security concerns, and still others closed early that year because the summer rainy season began early and many children went to the fields with their parents to work. As a result, data from the evaluation questionnaire are available for only 814 of the 1000 schools.

Differences in the proportion of schools with missing outcome variables are tested by treatment group as a whole and subdivided by district, urban and rural, and whether the school had external support (for example, NGO sponsorship) prior to the project. Results are reported in appendix S2, table A1. Eighty-four tests on treatment and interaction between treatment and subgroups yield one statistically significant difference (at the 10% level or higher), which is well within the amount that would be expected with random attrition. The comparability between treatment and control groups is thus intact. As to external validity, there are more schools missing in the region where security was a concern (Tahoua, in the north).

Empirical Strategy
The estimations present intent-to-treat effects as measured by the differences in the means of school outcomes between schools initially assigned to the treatment group and schools initially assigned to the control group. Let $T$ be an indicator for treatment group assignment and let $X$ be a vector of covariates. Estimation of the intent-to-treat effect $\beta$ is from the following equation:

$$Y_j = \beta T_j + X_j' + \epsilon_j$$

where $Y_j$ is the outcome of school $j$. The covariates $X_j$ are included to improve estimation precision and include whether the school is urban, the total proportion of girls in 2007/08, the total enrollment in 2007/08, whether the school was supported by an outside NGO in 2006/07, and the inspection (a geographic/administrative unit). All regressions use robust standard errors.10

The absolute magnitudes are in units of the outcome’s standard deviation (based on the control group), so the estimate shows the treatment effect in terms of standard deviations.

Heterogeneous Treatment Effects Along Community Characteristics
In the second step, intent-to-treat effects are estimated with an interaction term to determine whether the average treatment effect on parent and teacher behavior varies with community characteristics, using the following regression specification:

$$Y_j = \beta T_j + \theta (C_j T_j) + \sigma C_j + X_j' + \epsilon_j$$

where $C_j$ denotes a given community characteristic. In this case $\theta$ is the additional (or reduction of) impact for schools with characteristic $C_j$. We include an indicator for urban schools and the interaction of this indicator with the treatment assignment for each characteristic whose correlation with being located in an urban area is above 0.1, to disentangle the effect of this characteristic from the effect of being located in an urban area.

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10 An alternative specification uses dummy variables for the strata used in random selection, which were defined using a dummy variable for urban, the total enrollment in 2005/06, and support by an outside NGO in 2005/06. This specification does not substantially change the results, but increases precision of some coefficient estimates and decreases precision of others.
III. Results

On average, parents did not reduce their own contributions in response to the grant and increased their involvement in and responsibility over school management, although they did not go so far as to enforce rules on teacher attendance. At the same time, school committees increased investment in infrastructure (buildings and the school enclosure) and school festivals and invested in agricultural projects. Accountability did not change, but reported cooperation with a number of school stakeholders improved as a result of the grant. All these effects did not create a path to school quality improvement. While infrastructure and health resources improved and pupil participation increased a bit among the youngest, teacher attendance declined on average, perhaps because of resentment over parent empowerment, and no impact is found on test scores. Particular impacts on the detailed components of each index are given in appendix S4. Appendix S5 provides a model that explains the results of this paper and the existing results in the literature.

Parent Participation

The grants did not change parent contributions to schools (table 3, column 1). The contribution index mean of the treatment group is statistically and economically similar to the mean of the control group. The analysis of the component variables (funds collected per pupil, in kind donations, and official fees charged) shows that neither financial nor in-kind contributions were affected by the grant (table A2). This result contrasts with previous studies showing that parents decreased their contributions in response to an increase in school resources (Das et al. 2013; Pop-Eleches and Urquiola 2013).

![Table 3. Grant Impact on Participation, Management, and Quality Indices](image)

**Sources:** Ministry of Education Administrative Data and 2008 School Survey. Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10. Regressions control for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant, and inspection fixed effects. Details on the component variables and the impact of treatment on each component variable for each index are given in the appendix S3.

11 An alternative interpretation would be that this result derives from the fact that we measure only the first year of the grant, and so parents did not have time to change their own contribution of inputs (see Das et al. 2013, where crowding out was greater when a school grant was anticipated than when it was unanticipated). This is unlikely since the parents were notified in advance of the grants arrival.
Note that in general the amount of cash income available to schools is obtained through parental contributions. An important consequence of this is that, due to the increase in cash from the grant, cash on hand for schools increased and thus so did the possibility for investment.

The parent involvement index increased (table 3, column 2), as did all of the individual components, although no change in any individual component is significant: the number of meetings was higher, time elapsed since the last meeting was smaller, the number of topics addressed in the meetings is larger, and the presence at the last meeting is larger (appendix S4, table A3). Overall, the mean of the parent involvement index in the treatment group is 0.06 standard deviations larger than the mean of the control group, and this effect is significant at the 10% level.

The impact of grants on parent responsibility in school management is reported in table 3, column 3. The overall effect of the grants is positive: the mean of the index of the treatment group is almost 0.06 standard deviations above the mean of the control group. The analysis of detailed variables composing the index shows some small increases in the proportion of school committees in charge of infrastructure, collecting financial contribution and spending financial contributions, although none of these increases are statistically significant (although some of p-values are close to conventional significance), while the effect on the index itself is significant at the 10% level (appendix S4, table A4).

There is no overall impact on parent supervision of teachers (table 3, column 4). Changes in the proportion of school committees which discuss teacher behavior in school committee meetings, declare that they monitor teacher attendance, and take remedial actions against teachers are small and insignificant (appendix S4, table A5). No trend emerges from these variables, and so there is no change in the teacher oversight index.

**School Management**

While there is no impact of the grant on school accountability overall (table 3, column 5), the analysis of the detailed components shows a 13% increase in the proportion of schools that could present a register for fund collection for examination and a 21% increase in the proportion of schools that could present a register for fund expenses for examination, which might be simply the direct consequence of the fact that schools in the treatment group received money from the government and had something to record, rather than an overall change in accountability (appendix S4, table A6). However, the grant did not change the use of other registers nor the frequency of minutes, which suggests that the increased involvement and responsibility of parents did not lead to a higher demand for transparency and record keeping.

Overall, the cooperation between the school committee and different actors improved (table 3, column 6): school committees are significantly more likely to report support from the community (+5 percentage points), from the teachers (+3 percentage points), and from the parent committee (+5 percentage points) (appendix S4, table A7). The proportions of school committees reporting support from local authorities, school administration, educational advisors, and inspection are also consistently larger, although these differences are not significant. As a result, mean of the cooperation index for the treatment group is almost 0.07 standard deviations above the mean of the control group, significant at the 5% level. One explanation for the positive effect of grants on cooperation between school stakeholders and school committees is that giving resources under the control of the school committee increased respect for its activities. The positive effect of the grant on the cooperation between the school committee and the different actors may be important when considering the short term nature of the experiment.
It echoes the short term effect of a similar program on social capital observed in Burkina Faso (Sawada and Ichii 2012).

Treatment schools increased spending on infrastructure, festivals and playground, and investments in agriculture. The absolute and percent differences in amounts budgeted for a given type of project in treatment schools compared to comparison schools are presented in figure 2 (significant differences in dark grey, nonsignificant in light grey). The amount budgeted for a given type of project was significantly larger for infrastructure, festivals and playgrounds, and investments in agriculture (table 4): the amount budgeted for infrastructure was 20% larger in the treatment group (107,705 FCFA (215 USD) versus 86,119 (172 USD) significant at the 5% level), the amount budgeted for festivals and playgrounds was sixfold greater than in the control group (1031 FCFA (about 2 USD) versus 166 FCFA (0.33 USD), significant at the 1% level), and the amount budgeted for investments in agriculture was fourfold greater (2,416 FCFA (5 USD) versus 583 FCFA (about 1 USD), significant at the 1% level).

Note that the difference, while large relative to the amount spent in control schools on these activities, is small compared to the entire amount of the grant, so the bulk of the grant was not used on school festivals, playground and agricultural investments. The size of the increase in infrastructure spending in absolute terms (19,659 FCFA, or 40 USD) is much larger than the increases in agriculture and festival and playground expenses (1,833 FCFA (a bit less than 4 USD) and 865 FCFA (almost 2 USD), respectively).

Figure 2. Conditional Differences in Spending between Treatment and Control Groups

Source: 2008 School Survey. Conditional differences show the size of the coefficient on treatment from a regression including controls for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant, and inspection fixed effects. Light bars indicate that the difference is not significant.
The investments in agriculture do not seem to have been done in the interest of one person, which might be considered a theft of resources, but rather as an investment on the part of the school (since they were recorded in the school ledger). One interpretation of the investment in agricultural projects is that credit in many areas of Niger is severely constrained. There may be profit opportunities from investment in agriculture (either in terms of raising crops or arbitraging prices for inputs or food products), but since isolated areas suffer from low levels of credit, these profitable opportunities are unexploited. If the COGES is aware of these opportunities, and they are patient, it may be most optimal for the long-term interest of the school to invest the windfall cash grant rather than spend it on educational inputs immediately. However, one cannot be sure that these investments were made for the profit of the school and they may not have benefited the pupils in any way.12

Finally, school committees had spent just above a quarter of the grant at the time of the April/May 2008 questionnaire: the average increase in the total spending amount is 28,512 FCFA (57 USD), while the average grant is 104,500 FCFA (209 USD). This finding indicates that about five months after the grants arrived in treatment schools, the school committees had not yet used the remaining three-quarter grant. Together with the types of spending induced by the grant, these results suggest that the school budget constraint is not immediately binding: a large part of the grant is still unused, and some money is spent on leisure and agricultural spending, which seem nonessential for pure educational purposes. Also, the amount budgeted for teacher support is unchanged (the average amount in the treatment schools is even lower than in the control schools, although the difference is not significant), which is striking in a context where teachers suffer from long delays in the payment of their salary. Similarly, it seems surprising that the grant did not change the amount of money spent on supplies and textbooks, pupil

12 Future researchers examining local school management and activities should consider collecting data on school festivals, as well as school business investments, as potential targets of school spending. These expenditures were not foreseen and so detailed questions on these expenditures (for example, the number and type of school festivals, or the anticipated return of investment projects) were not included in the questionnaire, nor were questions about the local credit market.

### Table 4. Impact on Spending Decisions

<table>
<thead>
<tr>
<th>Dependent Variable: Amount of money Spent on...</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure and equipment</td>
<td>21,586**</td>
<td>3,222</td>
<td>1,435</td>
<td>1,253</td>
<td>−1,086</td>
<td>32.14</td>
<td>864.8***</td>
<td>1,833***</td>
<td>28,512***</td>
</tr>
<tr>
<td>Supplies and textbooks</td>
<td>(9,121)</td>
<td>(1,981)</td>
<td>(1,369)</td>
<td>(2,154)</td>
<td>(1,331)</td>
<td>(300.6)</td>
<td>(285.5)</td>
<td>(658.5)</td>
<td>(9,993)</td>
</tr>
<tr>
<td>Pupil educational support</td>
<td>−24,197</td>
<td>836.7</td>
<td>−763.1</td>
<td>−13,404*</td>
<td>1,489</td>
<td>524.5</td>
<td>−1,599**</td>
<td>−861.4</td>
<td>−34,994</td>
</tr>
<tr>
<td>Pupil health</td>
<td>(38,103)</td>
<td>(8,622)</td>
<td>(4,031)</td>
<td>(8,062)</td>
<td>(4,576)</td>
<td>(1,046)</td>
<td>(765.0)</td>
<td>(1,098)</td>
<td>(41,928)</td>
</tr>
<tr>
<td>Teacher support</td>
<td>726</td>
<td>733</td>
<td>734</td>
<td>734</td>
<td>734</td>
<td>738</td>
<td>736</td>
<td>731</td>
<td>698</td>
</tr>
<tr>
<td>COGES expenses</td>
<td>0.127</td>
<td>0.156</td>
<td>0.087</td>
<td>0.051</td>
<td>0.019</td>
<td>0.039</td>
<td>0.039</td>
<td>0.047</td>
<td>0.157</td>
</tr>
<tr>
<td>School festivals and playground</td>
<td>86,119</td>
<td>11,631</td>
<td>6,058</td>
<td>8,711</td>
<td>4,352</td>
<td>782.7</td>
<td>165.8</td>
<td>582.9</td>
<td>115,898</td>
</tr>
<tr>
<td>Investments in agriculture</td>
<td>(38,103)</td>
<td>(8,622)</td>
<td>(4,031)</td>
<td>(8,062)</td>
<td>(4,576)</td>
<td>(1,046)</td>
<td>(765.0)</td>
<td>(1,098)</td>
<td>(41,928)</td>
</tr>
<tr>
<td>Total amount</td>
<td>726</td>
<td>733</td>
<td>734</td>
<td>734</td>
<td>734</td>
<td>738</td>
<td>736</td>
<td>731</td>
<td>698</td>
</tr>
</tbody>
</table>

Sources: 2008 School Survey. Robust standard errors in parentheses. \***p < 0.01, \**p < 0.05, \*p < 0.10. Regressions control for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant, and inspection fixed effects. Dependent variable is the amount in FCFA spent by COGES in the corresponding category of activities, as declared by the president of COGES in the April/May 2008 survey. Infrastructure and Equipment includes expenses related to classrooms, desks, chairs, blackboards, school enclosure and security, and cleaning. Supplies and textbooks include expenses for notebooks, pens, and textbooks. Pupil Educational Support includes expenses like additional courses, awareness campaigns to increase enrollment, and academic rewards. Pupil health includes expenses related to nutrition and health like drinkable water, meals, latrines and drugs. Teacher support includes expenses benefitting to teachers like teacher housing, furniture, supplies, guide books, and salary. COGES Expenses includes expenses related to COGES meetings, contributions to "COGES communal" and inspector visits. Schools festivals and Playground includes expenses like graduation ceremonies, parties, and soccer balls. Investments in Agriculture includes fields, crops and livestock, unrelated to education activities.
educational support like remedial courses, or pupil health expenses, in a context where school equipment is very poor and pupils do not perform well at the primary school final exam. Overall, the impact of the grant on school expenses suggest that in the context of Niger, parents might not have sufficient information to make investments that are likely to improve school quality. Other explanations, which may simultaneously be true, are that parents were saving the grant in the face of uncertain future cash flows (see Sabarwal et al. 2014), that they were saving money in order to offset fees in the following year, or that they were saving money for lumpy investments.

School Quality

Improvements are observed only for infrastructure and health resources, alongside small increases in participation at the lowest grades. There is no improvement on materials nor on teacher effort. On the contrary, there is a small decrease in teacher attendance. There is no evidence that test scores increased in response to the program.

In the slightly longer term (one year after the treatment) there is a small improvement in the infrastructure index of schools: a 0.04 standard deviation increase in the index for infrastructure quality (table 3, column 7), significant at the 10% level. This is largely driven by increases in the number of classrooms and the construction of walls around the compound (appendix S4, table A8).13

The increase in the number of new classrooms amounts to 0.12 of a standard deviation, representing an additional 0.08 new classrooms per school in the treatment group over 0.28 new classrooms per school in the control group (a 29% increase). The increase in the proportion of schools with walls around the compound (enclosure) amounts to 0.18 of a standard deviation, with 9 percentage points more in the treatment group over 34% in the control group (a 26% increase). There is no overall impact on the materials available at the schools (books and classroom materials such as rulers, protractors, and maps) (table 3, appendix S4, table A9). There is a small (0.05 standard deviations) increase in the index of health resources (table 3, column 9), significant at the 10% level. This increase is driven by increases in health information sessions (34% versus 30% of schools), first aid kits (12% versus 9% of schools), micronutrient supplementation (25% versus 22% of schools), and deworming (64% versus 62% of schools), though none of the individual components of the health index are significant alone (appendix S4, table A10).

There is no effect of the grant on the number of days when class was cancelled because teachers were on strike, nor on the opinion of the school committee on teacher assiduousness and punctuality, but a decrease in teacher presence is observed in the treatment group: around 4 percentage points less than the average of 76% presence in the control group, significant at the 10% level (table 5). Teachers thus responded to increased resources under the control of parents with a reduction in their own inputs. Informal feedback from the field suggested that those teachers who felt the central government should make education decisions disliked that the communities were in charge of the grant, and they may have felt resentful that the grants undermined their authority (as representatives of the central government). In addition, the decreased teacher presence might also be related to the fact that the average school committee did not spend the grant on expenses supporting the teachers (teacher housing, furniture, supplies, guide books, and salary), even though school committees had not spent the entire grant at the time of the survey. As a consequence, teachers might have had the impression that parents were not capable of wisely investing the money allocated to them and might have been resentful. Any such resentfulness might have been exacerbated by the ongoing pay disputes between the teachers and the government at that time (in many cases, teachers’ salaries had been substantially delayed or teachers had not been paid).

13 These items were also projects that were frequently reported by the schools as projects undertaken using the grant money.
There is no change in enrollment or dropout overall (Table 6), but there is a positive impact at the lowest grade levels. The grant program reduced dropouts from grade one at the end of the 2007/2008 school year (2% versus 3% in the control schools) (column 4 of Table 6A), a finding that is matched by an increase in enrollment in grade two at the beginning of the 2008/2009 school year (thirty-three versus thirty pupils in the control schools) (column 5 of Table 6B).

Table 5. Impact on Teacher Effort

<table>
<thead>
<tr>
<th>(1) Days on strike</th>
<th>(2) Teacher is present</th>
<th>(3) COGES opinion of teacher effort</th>
<th>(4) Teacher effort index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>-0.541</td>
<td>-0.0382*</td>
<td>-0.0220</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.071</td>
<td>0.937***</td>
<td>3.656***</td>
</tr>
<tr>
<td>Observations</td>
<td>706</td>
<td>799</td>
<td>734</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.127</td>
<td>0.248</td>
<td>0.134</td>
</tr>
<tr>
<td>Control group mean</td>
<td>4.592</td>
<td>0.760</td>
<td>3.617</td>
</tr>
</tbody>
</table>

Sources: 2008 School Survey. Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10. Regressions control for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant, and inspection fixed effects. Days on strike is the number of days that the school was closed due to teachers striking in 2007/2008. Teacher is present is the school average of the dummy variable indicating 1 if a teacher is physically present at the day of visit (on a day when the school was supposed to be open). If the school was closed, all teachers were counted as absent. The Teacher effort index is the average of the z-scores of the variables in columns (1) to (3), oriented so that more beneficial outcomes have higher values.

There is no change in enrollment or dropout overall (Table 6), but there is a positive impact at the lowest grade levels. The grant program reduced dropouts from grade one at the end of the 2007/2008 school year (2% versus 3% in the control schools) (column 4 of Table 6A), a finding that is matched by an increase in enrollment in grade two at the beginning of the 2008/2009 school year (thirty-three versus thirty pupils in the controls schools) (column 5 of Table 6B).

Table 6. Impact on Dropout and Enrollment

A: Dependent Variable: Dropout as reported at school visit in Spring 2008

| (1) Total | (2) Total girls | (3) Total boys | (4) Grade 1 | (5) Grade 2 | (6) Grade 3 | (7) Grade 4 | (8) Grade 5 | (9) Grade 6 |
|-----------|----------------|---------------|------------|------------|------------|------------|------------|------------|------------|
| Treatment | -0.00559       | -0.206        | -0.00469   | -0.0136*   | -0.00646   | -0.00791   | -0.00778   | 0.00264    | 0.00139    |
| Constant  | 0.0723***      | 0.775         | 0.0908***  | 0.0366**   | 0.0613**   | 0.0678***  | 0.143**    | 0.115**    | 0.0891**   |
| Observations | 748          | 754           | 753        | 531        | 434        | 525        | 454        | 381        | 466        |
| R-squared | 0.059          | 0.036         | 0.055      | 0.038      | 0.042      | 0.046      | 0.090      | 0.068      | 0.104      |
| Control group mean | 0.0359      | 0.366         | 0.0379     | 0.0296     | 0.0328     | 0.0295     | 0.0364     | 0.0313     | 0.0508     |

B: Dependent Variable: Enrollment as reported in 2008/09 Administrative Data

<table>
<thead>
<tr>
<th>(1) Total</th>
<th>(2) Total girls</th>
<th>(3) Total boys</th>
<th>(4) Grade 1</th>
<th>(5) Grade 2</th>
<th>(6) Grade 3</th>
<th>(7) Grade 4</th>
<th>(8) Grade 5</th>
<th>(9) Grade 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>1.366</td>
<td>0.305</td>
<td>0.862</td>
<td>-0.604</td>
<td>3.256**</td>
<td>-0.471</td>
<td>-0.541</td>
<td>0.366</td>
</tr>
<tr>
<td>Constant</td>
<td>37.56***</td>
<td>-21.01***</td>
<td>58.57***</td>
<td>34.47***</td>
<td>-1.052</td>
<td>5.214</td>
<td>1.546</td>
<td>-1.388</td>
</tr>
<tr>
<td>Observations</td>
<td>988</td>
<td>988</td>
<td>988</td>
<td>988</td>
<td>988</td>
<td>988</td>
<td>988</td>
<td>988</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.901</td>
<td>0.880</td>
<td>0.866</td>
<td>0.470</td>
<td>0.545</td>
<td>0.546</td>
<td>0.484</td>
<td>0.520</td>
</tr>
<tr>
<td>Control group mean</td>
<td>160.3</td>
<td>65.70</td>
<td>94.63</td>
<td>40.09</td>
<td>29.95</td>
<td>23.87</td>
<td>26.22</td>
<td>20.98</td>
</tr>
</tbody>
</table>

Sources: Ministry of Education Administrative Data and 2008 School Survey. Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10. Regressions control for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant and inspection fixed effects. Table 7A gives the impact of the treatment on dropout rates in the spring of 2008. Schools without a particular grade level are missing. Some schools did not provide breakdowns by sex. Table 7B gives the impact of treatment on enrollment in the fall of 2008 (the academic year following the treatment). Schools that have zero pupils at a given grade level (because they are missing a particular level) are counted as zeros.
The fact that participation increases only for the youngest pupils suggests that participation is more elastic when the child is young. This might be because the opportunity cost of time is higher for older children.  

The number of candidates presented for the end of primary school exam at the end of the 2007/2008 school year, the pass rate for the end of primary school exam, and the math, French, or oral tests administered during the April/May 2008 questionnaire visit were not affected (table 7). Since participation increased (or fewer children dropped out) in the lowest grades, one cannot rule out a downward bias due to attrition. However, the fact that test scores remained unchanged in the higher grades where there was no change in participation supports the finding that there was no improvement in learning.

### Table 7. Impact on Test Scores

<table>
<thead>
<tr>
<th></th>
<th>(1) Oral</th>
<th>(2) Math</th>
<th>(3) French</th>
<th>(4) End primary pass rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>-0.101</td>
<td>-0.0351</td>
<td>-0.0338</td>
<td>-0.0244</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.0252</td>
<td>-0.159</td>
<td>0.0648</td>
<td>0.525***</td>
</tr>
<tr>
<td>Observations</td>
<td>499</td>
<td>763</td>
<td>739</td>
<td>557</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.200</td>
<td>0.200</td>
<td>0.251</td>
<td>0.177</td>
</tr>
<tr>
<td>Control group mean</td>
<td>0.00828</td>
<td>0.00545</td>
<td>0.0145</td>
<td>0.614</td>
</tr>
</tbody>
</table>

Source: 2008 School Survey. Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.10. Regressions control for whether the school is in a rural or urban area, total enrollment in 07/08, proportion of girls in 07/08, whether the school had NGO support prior to the grant, and inspection fixed effects. Oral, Math, and French test scores come from normalized test scores from the World Bank administered exam in the spring of 2008. Oral test scores were given only to pupils in grades one and two. The end primary pass rate is the percent of students from the school who passed the exam at the end of grade six at the end of 2008 (administrative data).

### Heterogeneous Treatment Effects

The paper now examines the different dimensions identified above to identify heterogeneous effects. Due to space limitations, we do not present the detailed regression tables in the paper, but they are available from the authors upon request. There are two overall messages from this analysis. The first is that the most difficult management task—monitoring teachers—was undertaken only by educated COGES or those with experience in other organizations, that is, those with higher capacity. The second is that, in one-teacher schools, there was a greater threat of teacher strikes, more of the grant was spent on items that benefited the teachers in some way, and, perhaps as a consequence of spending on items that benefited teachers, teacher presence increased slightly.

### Education of the COGES

Communities where the school committees were educated increased their supervision of teacher attendance in response to the grant. Educated school committees are 9 percentage points more likely to supervise teacher presence if the school was treated, significant at the 10% level. However, the increased monitoring did not reduce teacher absenteeism, suggesting that parents were not able to effectively confront teachers.

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14 The fact that only younger grades were impacted is evidence that the change in enrollment is not due to intentional misreporting by grant schools. In addition, the finding is replicated across two different types of data collections and at two different periods.
In terms of spending, educated COGES who received grants focused investments on infrastructure, perhaps to the detriment of other types of spending.\textsuperscript{15}

COGES without educated members, on the other hand, increased spending on Health Resources and Pupil Educational Support.\textsuperscript{16}

The negative impact of the grant on money for Pupil Educational Support and the health resources index might reflect that educated COGES increased expenses in infrastructure, which are generally lumpy investments, and might have required the school to spend less on other items.

There is also a negative impact of the grant on math and French test scores in schools with educated COGES (about one-third of a standard deviation, significant at the 5\% level for math and 10\% level for French). This negative impact of the grant on learning in schools with educated COGES, who focused spending on infrastructure, echoes the findings in the literature that providing more-of-the-same educational inputs typically has no impact on learning, whereas interventions such as remedial education and rewards are more effective at increasing learning (Kremer et al. 2013). Educated COGES may not have made the optimal choice because they decreased spending on pupil educational support, perhaps to finance the lumpy infrastructure investments.

**Experienced COGES**

Schools where the COGES has at least one member who is also a member of another community organization increased monitoring of teacher attendance in response to the grant. These schools are also those that enjoyed the increases in the cooperation index, whereas schools with no member that is also a member of another community organization had no increases.\textsuperscript{17}

**Wealth of the COGES**

Parent responsibility increased more in wealthy communities.\textsuperscript{18} We note that the results for wealth are different from the results for educated and experienced COGES, showing that the effects we find for education and experience are not merely proxies for wealth.

**One-Teacher Schools**

One-teacher schools seem to have made a different choice than larger schools, with important effects: they budgeted more money for expenses related to Teacher Support.\textsuperscript{19} This may be because there was more threat of striking from the teachers: one-teacher schools in the treatment group lost 1.3 days more to teacher strikes than one-teacher schools in the control schools (significant at the 10\% level).

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\textsuperscript{15} Note that while educated COGES budgeted more money for infrastructure (58,755 FCFA (117 USD), significant at the 5\% level), the increases in infrastructure in the following year were felt primarily in schools with noneducated COGES: the coefficient on the interaction term of treatment and education is negative (\(-0.08 \text{ SD}\)) and significant at the 5\% level. One possible reason, if the data on spending are accurate, is that the projects undertaken by educated COGES in response to the grant might have been larger and taken more time, so that they were not yet completed at the time that data on infrastructure was collected.

\textsuperscript{16} For Health Resources, the treatment coefficient for the noneducated COGES is 0.06 SD, significant at the 10\% level, while the coefficient for the interaction term is \(-0.12\), significant at the 10\% level, suggesting zero or negative impact of the grants on health resources in the educated COGES. For Pupil Educational Support, schools with noneducated COGES increased spending (3,639 FCFA (7 USD), significant at the 5\% level), but no impact (or a possibly negative impact) for schools with educated COGES (the coefficient on the interaction term is \(-8,215 \text{ FCFA (16 USD)}, \text{ significant at the 5\% level}\)).

\textsuperscript{17} For monitoring teacher attendance, the coefficient on the interaction term is 0.11, significant at the 5\% level, and for cooperation, the coefficient is 0.07, significant at the 10\% level.

\textsuperscript{18} Each standard deviation increase in wealth is associated with an additional 0.05 standard deviation increase in the parent responsibility index in response to the grant, significant at the 5\% level.

\textsuperscript{19} The coefficient on the interaction term is 8,985 FCFA (18 USD), significant at the 5\% level.
Perhaps as a result, one-teacher schools are the only schools to not suffer from the negative impact of the grants on teacher attendance on the day of the visit.\textsuperscript{20} In fact, the size of the coefficient on the interaction term suggests that teacher attendance actually increased in one-teacher schools. This suggests that by transferring some of the grant to teachers—or at least to investments that benefit teachers—the one teacher schools limited the reduced teacher attendance associated with the grant in other schools. However, infrastructure in one-teacher schools did not improve, in contrast to other schools.\textsuperscript{21}

**Urban and Rural Schools**

Increases in in-kind contributions are driven by parents in urban schools.\textsuperscript{22} The increase in the parent responsibility index is also driven by increases in urban rather than rural schools.\textsuperscript{23}

Only schools located in rural areas increased their spending on agricultural investments.\textsuperscript{24} This may be because credit constraints may be less severe in urban areas, but no data are available to confirm this.

**IV. Conclusion**

The short run impact of grants to school committees in Niger was to increase cooperation and participation along several dimensions without crowding out parent financial contributions. The implication of this finding is that one way to potentially avoid the crowding out due to increased inputs found in other experiments is to involve parents in the management of the funds. Increased parent participation also came with a small increase in young pupil participation.

However, more pessimistically, while the parents were willing to try to improve quality by participating, they were not able to do so, at least in the short run. One possible reason for this is that, in this context, parents (the majority of whom did not go to school) do not have sufficient information to make investments that are likely to improve quality. In particular, most investments focused on buildings, rather than extra lessons or materials, and these investments did not translate into improved learning. On average, teachers decreased their effort in response to the grant to the COGES. This finding reinforces other evidence in the literature of negative teacher reactions to participatory programs and highlights the importance of taking this potential reaction into account in policy planning.

The heterogeneous impact analysis, while second-order, yields potentially helpful insights for understanding the impact of the program and considering future programs. The most difficult type of participation—monitoring teachers—was attempted only by educated or experienced school committees. This suggests that participation initiatives need to take the capacity and authority of the intended participants into account. In addition, one-teacher schools that invested in the teacher’s working conditions and/or made some type of transfer to the teacher, actually increased teacher attendance. This finding suggests that teachers’ negative reaction to parent participation might be reversed when parents are “on the side” of the teachers. Finally, rural school committees as well as noneducated school committees invested a small part of the grant in agriculture, perhaps because they did not prioritize education or

\textsuperscript{20} The coefficient on the interaction term is 0.17, significant at the 5\% level, and the coefficient on the treatment term is -0.06, significant at the 5\% level.

\textsuperscript{21} Infrastructure may have even degraded—the coefficient on the interaction term is -0.17, significant at the 1\% level, while coefficient on the treatment variable is 0.06, significant at the 5\% level. Note that since the grant was based on the size of the school, one-teacher schools received smaller grants. They may then have been pushed away from investment in infrastructure since the lump sum was not enough to start a project.

\textsuperscript{22} Urban schools were 17\% more likely to have made in kind contributions, significant at the 10\% level.

\textsuperscript{23} The coefficient on the interaction term is almost 0.3 standard deviations, significant at the 1\% level, whereas the coefficient on treatment alone in the interaction specification is near zero.

\textsuperscript{24} Rural areas increased spending on agricultural investments by 2,046 FCFA (4 USD), significant at the 1\% level, and the interaction term for urban schools is -1,755 FCFA (3.5 USD), significant at the 5\% level.
because they invested the money in order to get more funds for the school in the future. We highlight this finding so that future programs might be aware of it and collect more data to understand what schools might do with grants and the role that education preferences and credit constraints play in those decisions.

These findings are from an evaluation that ended prematurely. As such, their generalizability is limited even as they do give us some insight into what may be the immediate barriers to a community’s ability to effectively leverage grant programs.

There are four key policy implications of the findings in this paper. First, on some measures, participatory programs can be successful: parents increased their participation in school management in response to the grant without immediately reducing their contributions. Second, on the other hand, there is no reason to assume that parents will make wise spending and management decisions. Third, capacity matters for difficult tasks, as in this case the parents with education or experience were those able to supervise teacher attendance. Finally, teachers may respond to parent empowerment by reducing effort, and avoiding this may require ensuring that teachers also benefit in some way.

References


