Willing but Unable: Short-Term Experimental Evidence on Parent Empowerment and School Quality*

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Abstract

Giving communities power over school management and spending decisions has been a favored strategy to increase school quality, but its effectiveness may be limited by weak capacity and low authority. We examine the short-term responses of a grant to school committees in a context of low authority and capacity, and find that overall, parents increased participation and responsibility, but these efforts did not improve quality. Enrollment at the lowest grades increased and school resources improved, but teacher absenteeism increased, and there was no impact on test scores. We examine heterogeneous impacts, and provide a model of school quality explaining the results and other results in the literature. The findings of this paper imply that strategies to improve quality by empowering parents should take levels of community authority and capacity into account: even when communities are willing to work to improve their schools, they may not be able to do so.

1 Introduction

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, and in some cases getting worse as enrollment increases. One common strategy to improve quality

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is through improved management and oversight, and in particular by increasing involvement of parents and the community (World Bank, 2004). Community-based management policies have been widely adopted throughout the world over the past decade[1] (see Barrera-Osorio et al, 2009 for an overview). Grants to school committees are one potential way to increase school quality by increasing school resources and spurring parent participation. Such a strategy assumes that parents have the time, energy, and capacity to undertake these tasks. 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 program to encourage parent participation in school management, in a context of low parent authority and capacity, through placing financial resources directly under parent control. We show that parent contributions were not crowded out, and, on the contrary, parents increased participation and responsibility over school management without changing the amount of their financial contribution on average. We also observe more cooperation between school stakeholders. However, this increased participation and cooperation did not translate into increased quality: parents were willing, but unable, to increase quality through participation. On average, teacher attendance declined slightly and there was no impact on test scores, though there were improvements in school infrastructure and resources, and a small increase in student participation at the lowest grades. We use detailed analysis of shifts in spending, as well as an examination of heterogeneous impacts, to try to better understand the lack of impact on quality. The analysis shows that authority and capacity are important prerequisites for parents to undertake the more difficult aspects of management, that an alliance between parents and teachers may work better than a confrontational relationship, and that it should not be taken for granted that parents will always make optimal spending decisions to increase quality. We present a classical model of school quality, with two new parameters, teachers' preference for a centralized government and parents' real authority, and show that with this we can explain our results as well as the existing evidence on the effects of participatory programs.

This study is related to two different strains of the literature: parent participation and school resources. Previous evidence on the effectiveness of programs to increase quality via increased

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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, 2012).

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, Dupas and Kremer (2012) find that a training to empower the parents helped mitigate the negative response of regular teachers to the addition of a contract teacher. Blimpo and Evans (2011) find no impact of a training for school committees on learning except when the school committee members were educated. In a paper that touches on the issues of authority addressed here, Pradhan et al. (2014) find that an intervention to empower parents is effective only when combined with an intervention fostering the ties between the school committee and a local governing body. Other studies have argued 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. The context of rural Niger is likely to be substantially different from the context in Chicago or even some Latin American countries.

Previous studies on increasing school resources have found that such programs may have the effect of crowding out the contributions of other actors. For example, parents in Romania decreased time spent on homework when their child gained admittance 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, Dupas and Kremer, 2012).

We present a model that helps to explain the different findings in the literature and to formalize our argument that the extent to which communities can achieve the task set before them depends on the willingness, ability and authority of parents: 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 in practice 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)[2].

The data we use is from an experiment in a low authority context. In Niger, levels of education among adults are extremely low: 70% of the population age 15-44 in 2010 had no education[3], and the system for education is very hierarchical. In a controversial pilot program, the Ministry of Education of Niger, in partnership with the World Bank, gave grants, explicitly under school committee control, to schools with the aim of increase parent involvement and, consequently, the quality of education. All school committees in this experiment had been trained on how to manage schools, and the grant was randomly allocated to half of the school committees. We use detailed survey information and administrative data 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 late 2007 and was meant to continue over years, but a political coup occurred in 2009 and the evaluation ended. A survey took place in April-May 2008 and administrative data was 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, we find that 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 engaged in more participation actions (such as going to meetings and managing school supplies) and took over more responsibilities, although the average community did not engage in supervising teacher presence. Another finding related to parent response to the grant is that 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 and playground equipment, and, most unexpectedly, investment in agricultural projects which were, probably, non-educational but intended to make a profit[4].

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[2]Policies of *de jure* autonomy do not always lead to *de facto* autonomy (King and Ozler, 2004), 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)

[3]World Development Indicators, World Bank, source: International Institute for Applied Systems Analysis (IIASA)

[4]While such loans and investments were clearly not the intended or permitted use of the grants, more information on whether the profits of these investments eventually benefited the schools is needed to conclude whether this was a poor use of funds or not.

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 in the grade 1: fewer dropouts in 2007/2008 and increased enrollment in grade 2 in 2008/2009, but test scores were not changed. We also observe a small but significant decrease in teacher effort in response to the grant, which we attribute 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 invest the money to their advantage.

We examine heterogeneous effects along several different dimensions, and here we highlight three interesting patterns. First, we find that 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 teacher attendance in response to the grant (though this did not mitigate the negative effect of the grants on teachers). Second, in one-teacher schools, school committees increased the expenses which directly benefit the teacher, and teacher attendance increased in response to the grant in these schools. These results together suggest that teachers' response to parent participation depends on whether parents are acting in opposition to, or alliance with, the teachers. Third, we find that rural schools used some of the grant to invest in agricultural opportunities[5], and urban schools did not but invested in school infrastructure instead.

This paper makes three contributions. First, it provides evidence on the short-term parent and teacher behavioral responses to an increase in school resources under parental control in a context where parent capacity and authority is low. Second, the very rich information we collected provides evidence on different dimensions of spending, contributions, involvement and responsibility. Third, the paper provides a theoretical framework that formalizes parent and teacher behavior in school in order to clarify how a change in school resources (either under teacher or under parent control) affects school quality directly and through behavioral responses, explaining both our results and the existing results in the literature. This framework also provides some structure for the idea that power relationships between teachers and communities changes how they respond to policy. In addition, we show that empowering one actor may disempower another actor. Our paper is a first attempt to formally take into account real authority as a necessary condition for parent participation programs' success.

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[5]This difference may be related to severe credit constraints in rural areas, which are likely to be less severe in urban areas.

The remainder of the paper is as follows. Section 2 presents some background information on education in Niger, and describes the school grant experiment. Section 3 presents the data and our estimation strategy and Section 4 the empirical results. Section 5 presents a model of the dynamics of school resources, parent and teacher effort in producing education that explains the existing empirical evidence. Section 6 concludes.

2 Experimental Set-Up

2.1 Background on Education in Niger

Niger had made remarkable progress in education access 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 sixth graders who took the national exam at the end of primary school passed it.[6] Literacy rates are low, and education may be able to substantially improve livelihoods: the World Bank estimates that being able to read raises a Nigerien person's income by 150% (World Bank, 2010).

The education system in Niger has traditionally been very 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 bodies, there was 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 or user fee collection, but these efforts were undertaken only when needs were not provided for by the Ministry).

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 implicate parents and community members in the school, improve accountability, improve manage-ment, and thus enhance access to and quality of education.[7] As discussed in the introduction, the

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[6]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%.

[7]These school committees consist of 6 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 personnel resources (e.g. monitoring of teacher attendance and performance),

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 and information and communications infrastructure makes supervision of primary schools by the central government (or its regional structures) very costly, and the transmission of timely, local information to the central authorities for planning purposes is challenging.

In the districts where this program was carried out, the COGES were trained in financial management, governance (elections) and project planning. The training was carried out by multiple organizations. In 2006, a significant number of the newly created and trained school committees were not very actively engaged in school matters, nor did they develop an school improvement plan for the year. To spur school committee involvement and activity, the Ministry of Education introduced school grants in order 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. The pilot project was carried out as a randomized evaluation in order to provide reliable information on impact prior to national scale-up.

2.2 Experimental Design

The evaluation design included 1,000 schools in two regions of Niger, 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 all the public primary schools in Zinder and Tahoua, half of the 1,000 schools, i.e. 500 schools, 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 by ministry records. Strata were constructed by grouping the schools into inspection, then within each inspection into whether or not the school had existing

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financial resources (e.g. school meal funds) and material resources (e.g. purchase and management of textbooks, supplies etc.). One of the school committee's central tasks is the drafting of 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.

support, and then within each of those groups, whether the school was in an rural or urban area. This gave 50 strata. Schools were assigned a random number between 0 and 1, and within each strata 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) was used to confirm balance between control and treatment schools along various observable characteristics (data from 2006-2007 was not yet available at the time of sampling in August 2007). Table 1 shows p-values for the test of equality of means across control and treatment, from which we cannot reject any equality of means.

The size of the grant was based on the size of the school (the number of classrooms), and the average was $209 per school, or $1.83 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. On average, the control schools raised a little over $0.60 per year per student, and so the grant is relatively much larger than usual fund raising. For an idea of 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 the literature: Blimpo and Evans (2010) use a grant of $500 per school in Gambia. Gertler, Patrinos, and Rodríguez-Oreggia (2010) use grants of US$500 to US$700 per school in Mexico, and Pradhan et al. (2014) evaluate a grant of US$326 (to be completed soon with another US$544) per school in Indonesia. [8]

About a month before the grant arrived, all 500 treatment schools (and school committees) received a general 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 decided on by the school committee.[9] 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. As to compliance and program execution, the

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[8]The school committees selected for treatment received the grants in the last months of 2007 and first months of 2008. Note that schools do not, in general, receive other financial transfers from the government. The government does provide material in kind, such as books and classrooms, and teacher salaries are paid by the government (though payment has been irregular in the past). Some schools receive support from other community organizations or NGOs, but in general the amount of cash income available to schools is very small and is obtained through parental contributions. Since governmental contribution is in kind, we do not observe school budgets, but there is no doubt that the grant was very small relative to school budgets.

[9]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.

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grants arrived in 498 schools of the 500 program schools, 492 in the exact amount allocated to them and six in an different amount (see Section 3.1.4 for further details on compliance).

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 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 32% 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 including electrification or producing copies of exams were also undertaken. Fourteen 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 have been profitable. In the result section below, we present the impact of the grant on the composition and volumes of school committee spendings using the whole school sample.

The program was originally intended to last three years (with three cycles of grant disbursement). Due to issues with the financial transfer mechanism at the central level and political disruptions in 2009, the evaluation was terminated after only one year.

3 Data and Empirical Strategy

3.1 Data

3.1.1 Sources

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 and (iii) a financial 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 medersas (Koranic schools), which provide data on enrollment, teacher characteristics, school facilities and resources, and community characteristics. We use 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 to be administered to the 1,000 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 1 and 2) 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 85 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 expenditure).

3.1.2   Outcomes

To draw general conclusions about the experiment's impact, simplify interpretation, and to guard against cherry-picking of results, we present some findings 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 non-missing 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. We present three different types of outcomes: parent participation, school management, and school quality, as well as enrollment and test scores.

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Parent Participation in School

We construct four indices to describe the effect of the grant on parent participation in school: parent contributions, involvement, responsibility, and teacher oversight. See the Appendix for details on the construction of the indices.

Parent Contributions   Parent contributions reflect the material resources that parents provide to the school: the amount of fees, in-kind contributions and additional financial contributions (fundraising). Since it is not possible to estimate the amount of in kind contributions as we do not have information on the local market price of the items contributed, we use a dummy indicating whether the community provided some in-kind contributions to the school or not. Fundraising is measured through the question "How much money has the school raised since the beginning of the school year?". The answer to this question was divided by the number of pupils registered in 2007/2008. The variable we use is thus funds raised per pupil[10]. Finally, the amount of fees charged per pupil is declared by the school director.

Parent Involvement   Parent involvement measures the volume of parent participation in school management. We use 11 variables to measure parent involvement, of which nine use information from the April/May 2008 questionnaire: the number of school, communal, and parent committee meetings, the time elapsed since the last school or parent committee meeting, the number of topics which were discussed at the last school or parent committee meeting, and two measures of presence at the last school or parent committee meeting. From the 2008/2009 administrative data, we also use the number of school committee meetings and a dummy indicating whether the mother's association was active or not.

Parent Responsibility   The parent responsibility index measures the extent to which parents take some responsibility and exercise authority in making decisions. We use eight variables to measure parent responsibility, all dummies for whether the school committee is in charge of monitoring pupil attendance, sanctioning pupils for poor attendance, collecting financial contributions,

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[10]In the context of Niger, the funds are essentially provided by parents since there are very few NGOs. But it is important to note that our measure of financial contributions encompasses parental contributions and any other potential donors.

spending financial contributions, purchasing supplies, investing in infrastructure, and setting up the action plan.

Teacher Oversight One possible consequence of more empowered parents would be that parents engage in teacher oversight. We use six separate variables to measure teacher oversight: dummies indicating whether the COGES is in charge of monitoring teacher attendance, whether the COGES has taken remedial action against a teacher for repeated absence (remedial actions include talking to the teacher, giving a warning, or complaining to the teacher's supervisor). We also use dummies for whether the school or parent committee discusses teacher behaviour in school or parent committee meetings. Finally, we use dummies for whether the school committee spontaneously mentions being active to reduce teacher absenteeism or improving education quality[11].

School Management

We construct three indices to describe the effect of the grant on school management: accountability, cooperation, and expenses.

Accountability The accountability index reflects the capacity to keep track of facts, decisions and expenses, as well keeping receipts, although having receipts for everything is generally difficult for the communities. While most schools claim to keep registers for fundraising and expenses, fewer are usually able to produce registers to be seen by the interviewers. The same is true for the school action plan, seen by many as the key activity of the school committees. The government encourages schools to keep records on a number of subject matters: inspector visits, pupil attendance, teacher attendance, weekly activities, supplies, fundraising, and expenses. School committees and parent associations are also supposed to take minutes at each meeting. The accountability index is composed of 10 dummies for the presentation to the interviewer of a written school action plan, registers for pupil attendance, inspector visits, weekly activities, supplies, fund collection, fund expenditure, and teacher attendance, and minutes for the last school or parent committee meeting. The data for this index comes from the April/May 2008 survey.

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[11]The school committee president was asked to list the domains in which the committee is active, without suggesting any particular domain in order to avoid prompting responses. We thus elicit activities that come naturally to the top of school committee president's mind.

Cooperation   We use information about cooperation among school stakeholders, in particular between the school committee and the other actors, to assess whether the grant affected the quality of stakeholder relationships within schools. Our measures of cooperation are all self-reported by school stakeholders (the school director or the school committee president), which implies that we measure *perceived* cooperation which might differ from actual cooperation. The cooperation index is composed of 11 components. First, three variables indicate teachers' attitudes as reported by the school director and the school committee president: teachers' cooperation with COGES, with each other, and with the community - these variables are coded from 1 (not cooperative at all) to 4 (very cooperative). Second, seven dummies indicate whether the school committee president reports good support from the community, local authorities, the school administration, teachers, parent committee, and two different levels of the Ministry of Education hierarchy, the conseil pedagogique (education advisors) and inspectors. Finally, we also use a dummy for whether the school committee president reports that disagreements among school committee members are rare or inexistent (as opposed to occasional or frequent disagreements).

Expenses and Investments   The April/May 2008 questionnaire asked the COGES to list projects included on the school action plan, as well as the amount budgeted for them. These data are analyzed as total amount spent rather than indices. We coded these items into eight categories:

- Infrastructure includes expenses related to classrooms, desks, chairs, blackboards, school enclosure and security, and cleaning.

- Supplies and Textbooks includes expenses for notebooks, pens, and textbooks.

- Pupil Educational Support includes expenses like remedial 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 teachers such as teacher housing, furniture, supplies, guide books, and salary.

- COGES Expenses includes expenses related to COGES meetings, contributions to and travel

expenses for the "COGES communal" (a regional grouping of the COGES) and inspector visits.

- Schools Festivals and Playground includes expenses such as graduation ceremonies, parties, and soccer balls.

- Investments in Agriculture includes seeds, fields, crops and livestock, unrelated to education activities. For example, some schools reported the purchase of a field of peanut plants, others of a herd of goats, etc.

School Quality

Finally, we construct four indices to describe the effect of the grant on school quality: infrastructure, materials, health resources, and teacher effort. We also use data on dropouts, enrollment and test scores in order to examine the ultimate objective of increasing pupil participation and learning. Data for infrastructure, materials and health resources come from the 2008/2009 annual administrative database and so reflect changes between 8 and 10 months after receipt of the grants.

Infrastructure We create an index of infrastructure quality using data on the number of buildings and their condition, the number of blackboards, the number of desks for children, the number of teacher's desks, the number of teacher's chairs, the number of shelves, and whether or not the school has an enclosure (this is a fence or wall around the school grounds that separates the school from other public space). For the infrastructure index, the classroom, desks, blackboard and books figures are changes from year to year.

Materials Materials include textbooks, dictionaries, geography materials (such as maps and atlases) and math materials (such as rulers, protractors, and compasses). Since there is only one variable for textbooks but multiple variables for geography and math materials, if all variables are included in the index in the same way, we would weight the importance of each type of math material the same as the importance of textbooks, which seems to give too much weight to each kind of math or geography material. To avoid this, we first construct an index of math materials and then of geography materials and include those indices with the same weight as textbooks to construct the overall material index. We use the change in the amount of material between 2007/2008 and

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2008/2009.

Health Health resources include vitamin or micronutrient supplementation, school deworming, health information sessions (for example, on preventing malaria), availability of a first aid kit, trash disposal, number of latrines and access to water.

Teacher Effort We use three variables to assess teacher effort. First, the unannounced school visit in 2008 recorded how many teachers were present on the day of the visit, and the number of teachers are employed at the school. We use a simple percentage of the number of teachers who were physically present at the school. To accurately represent the loss of classroom time and avoid reporting inconsistencies, this figure includes both excused and unexcused absences. If the school was closed at the unannounced visit (which was on a day the schools were supposed to be open) all teachers were counted as absent. Second, we use the number of days when class was cancelled because teachers were on strike (this information was provided by the school director). Finally, we use a variable reflecting the opinion of the school committee on teacher assiduousness and punctuality, coded from 1 (not satisfactory at all) to 4 (very satisfactory).

Pupil Participation in Education We have two data points for participation in education. We use the number of dropouts reported by the school to our 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.

Test Scores We have two limited measures of actual learning. First, we use test scores from a test administered to pupils during the April/May 2008 questionnaire. The test was administered to three grades, 10 pupils per grade. The pupils were supposed to be sampled from those who were enrolled at the beginning of the year, but in practice this does not seem to have happened, and the 10 pupils appear to have been selected from the pupils present on that day. As discussed below, this leads to concerns of attrition bias in the test scores since there is reduced dropout in the treatment group. There are further quality problems with the test scores - including identical copies submitted by some grades in some schools - that raise concerns about whether the scores can be relied upon. However, there is no evidence that the problems are correlated with treatment,

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and appear instead to be related to insufficient oversight of the examiners, so it is possible that the quality problems only add noise rather than biasing the results. We therefore present the results as second-order evidence.

The overall results are nonetheless informative about the general level of education in rural Niger, and we present some examples here to help give the reader of the context. In general, pupils got about 1/3 of questions correct. For example, the following questions were asked:

- Grade 1: 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 4: 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 6: Pupils were asked to change an adjective from the masculine to the feminine form (Un nouveau maitre ==> Une _____ maitresse). 29% of pupils were able to do this.

Second, annual administrative censuses report the number of candidates for the national end-of-primary school exam and the number who passed. We use results reported on the 2008/09 census, which were for the end of the 2007/08 school year. Note that the schools did not generally present all of their 6th grade students to take this exam, but could chose who to present. There is no evidence that schools were punished in any way for a low pass rate, however. On average, slightly over half of the schools presented students for the end of 6th grade test (recall that most schools do not have all grades). The average number of candidates presented was 27 [12], and 61%, on average, passed the exam.

3.1.3 Interaction Variables

The sample size was chosen to be large enough to allow for testing for heterogeneous treatment effects along community characteristics, one of the initial objectives with this the study[13]. Descriptive statistics and balance information for the interaction variables is given in Table 2.

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[12]The number of pupils present for the exam is larger than the average size of the grade 6 class in the previous year. This is due to missing data for most of the small schools in the School Survey dataset. Most of the missing data is likely to be zeros, but we do not replace missing values with zeros. Replacing missing values with zeros does not change the results, but reduces the average number presented to 15.

[13]Unfortunately, we did not register our analysis plan in a secure independent register in 2007 when the experiment was designed, as is best practice today.

Education   We define a community as "educated" if one or both of the two interviewed members of the school committee completed primary school (excluding the director)[14]. Only 31% of school committees from control schools contain at least one member who completed primary school, which indicates an important heterogeneity across communities. These data come from the Spring 2008 Questionnaire. [15]

Experience in other organizations   Parents who have experience in other organizations may be better able to engage in management of the school because they might have more experience doing so. We use data from the April/May 2008 Questionnaire to construct a variable equal to 1 if either of the COGES members interviewed belonged to another community organization that was not engaged in the school (for example, religious communities, cooperatives, savings groups, and so on). About one-fifth (21%) of the control school COGES fall into this category. The correlation between education and experience is 0.15.

Wealth   We assume that the wealthier a community is, the more real authority parents will have because they will have a higher social status relative to the teachers (note that teachers are relatively homogenous in terms of wealth). These data come from the Spring 2008 Questionnaire. The wealth of school committee members is the first component of a principal component analysis of durable goods possessed by the two interviewed school committee members and the school director. Durable goods include means of transportation, animals and housing equipment. The wealth of school committee is then the average of this wealth index for the two interviewed school committee members. Note that the average wealth index does not have any material meaning in itself since the scale is one that measures individual's wealth relative to one another. The average wealth index is negative since the two school committee members are poorer, on average, than the school directors,

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[14]When information for one of the two interviewed members is missing, we impute the value of the member for whom information is available, in order to avoid dropping observations. We thus assume that the observed member is representative of the two sampled members. Results do not vary substantially when these schools are excluded but the sample size is reduced.

[15]Wealth and education are measured in the April/May 2008 questionnaire, after the treatment was implemented. We note that it would have been better to measure these characteristics before the treatment was implemented, though this was not possible in the context of program implementation. However, these characteristics would be changed by the treatment only if the grant induced a change in the composition of the school committee, with former members replaced by new ones with different characteristics. In the data, we observe a proportion of 20% of school committee members who took their position in 2008 both in the intervention and in the control group (so no more renewal due to the grant - result not shown), and school committee members exhibit the same characteristics in both groups (Table 2). We are thus confident that the grant did not affect the composition of the school committee and that observed community characteristics are not endogenous to the grant.

whose data was included in the construction of the wealth index. The standard deviation of this wealth indicator is large (1.46), indicating an important heterogeneity of wealth across communities.

Urban or Rural   Urban schools are more connected to the central government, and the students are likely to live somewhat closer to the school. Rural schools are schools where there is no village or settlement around. Urban schools are a marked minority: just over 10% of schools are located in urban areas. We do not hypothesize about the relationship of authority to urban or rural location, but we maintain this variable as an interaction term to help understand spending patterns and because we believe it is of more general interest to policymakers and planners.

One-Teacher Schools   Schools with only one teacher present a unique situation. One way that teachers have power in negotiations with communities is that they can leave if they are unhappy with conditions. When there is only one teacher, this threat may be even stronger (because there is no possibility of absorbing his or her students into another class). Seen from a different point of view, it may be easier for the parents to negotiate and work with a single teacher rather than a group of teachers, especially because if there is only one teacher that teacher is de facto a member of the COGES. In the fall of 2007, prior to the arrival of the grant, 12% of schools were one-teacher schools.

3.1.4   Internal Validity of the Experiment

Compliance   Two representatives from the COGES signed a document confirming effective receipt of the grant in the intended amount. These receipts were first collected at the regional level and the information was then entered into a database at the Ministry of Education as a way to verify the actual receipt of the grants at the school level. An additional survey was conducted in 85 randomly selected schools asking detailed questions about the receipt and spending of the grants, and financial management. This questionnaire also included information about any problems with the administration of the grant and qualitative feedback and suggestions from the COGES. The use of the grants was recorded in detail, including the existence of a receipt for each expenditure.

Grants were distributed as follows: the Ministry of Education issued an order to the District level, which allowed the district to withdraw cash from the Treasury to distribute to the schools. The grants were distributed first to the inspectors, and then either directly to the COGES or to

other officials who brought the grants to the schools. The vast majority of schools do not have bank accounts, and other mechanisms of distribution were infeasible.

The collection of grant receipts, financial questionnaires, and information from the Ministry indicated that of the 498 of the 500 treatment schools received the grant. Of the two that did not receive their grant, one school had closed, and so their grant was allocated to a school outside of the 1,000 school sample, and the other's grant was mistakenly given to a control school. Of the schools receiving the grant, our information indicates that four schools received less money than had been allocated to them (in 3 cases the schools received 500 FCFA (1 USD) less than the assigned grant amount of 73,500 FCFA (147 USD), and in one case 10,500 FCFA (21 USD) less than the assigned grant amount of 120,500 FCFA (241 USD)), while two schools reported receiving more than had been allocated (one school received 2,000 FCFA (4 USD) more than the assigned amount of 122,500 FCFA (245 USD), and the other received 27,000 FCFA (54 USD) more than the assigned amount of 167,500 FCFA (335 USD)). All in all, the data indicate that 492 out of 500 schools received the exact amount allocated to them, and six others received the grant but not in the correct amount. This is a reasonably high compliance rate[16].

Data from the qualitative questionnaire administered to the 85 randomly selected schools indicate that the majority of those schools received the intended grant amount. Among the 85 schools, one school that had been selected for the grant had been closed at the time that the grant arrived. In another case, the grant was accidentally given to another school. In a third case, a school reported receiving 500 FCFA (1 USD) less than the intended amount. Two schools reported paying some money to cover transport costs to the person who delivered the grant.

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 so

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[16]Note that this program was publicized within the administration and careful records were required at each step of transfer of the money. In addition, the government of Niger had recently engaged in intensive public prosecution of corrupt officials. This suggests that applications of this transfer mechanisms to other contexts might not be so effective.

many children went to the fields with their parents to plant. As a result, data from the evaluation questionnaire is available for only 814 schools (81.4%).

We test for differences by treatment group in the proportion of schools with missing outcome variables as a whole and sub-divided by district, urban and rural, and whether the school had external support (for example, NGO sponsorship) prior to the project. Results are reported in Table 3. Eighty-four tests on treatment and interaction between treatment and sub-groups yield one statistically significant differences (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).

3.2 Empirical Strategy

Average Treatment Effect   We estimate 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 matrix of stratification variables. Estimation of the intent-to-treat effect β is from the following equation:

$$Y_j = \beta T_j + X_j \gamma + \varepsilon_j \tag{1}$$

where Y_j is the outcome of school j. The covariates (X) 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.[17] The absolute magnitudes of the outcomes are in units of outcome's standard deviation, so the estimate shows the treatment effect in terms of standard deviation units over the control group.

Heterogeneous Treatment Effects Along Community Characteristics   In the second step, we estimate intent-to-treat effects with an interaction term to determine whether the average treat-

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[17]An alternative specification uses dummies for the strats used in random selection, which were defined using a dummy 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.

ment effect on parent and teacher behavior varies with real authority. We run regressions of the form:

$$Y_j = \beta T_j + \theta(C_j T_j) + \sigma C_j + X_j \gamma + \varepsilon_j \tag{2}$$

where C_j denotes a proxy of parents' real authority. In this case θ 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.

4 Results

4.1 Average treatment effects

On average, we observe that in response to the grant, parents did not reduce their own contributions and increased their involvement in and responsibility over school management, although they could 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 was not changed, but cooperation with school stakeholders improved. 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 we find no impact on test scores.

4.1.1 Parent Participation

We find evidence that, overall, school committee grants can increase some types of parent participation in schools, but does not increase teacher oversight.

Parent Contributions   Table 4 shows the impact of grants on parent contributions. The overall effect of grants is that parents do not change their contributions to schools. 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. 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)[18]. 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.

Parent Involvement   Table 5 shows the impact of grants on the volume of parent involvement in school management. We see that all indicators of parent involvement increased, 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. 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.

Parent Responsibility   The impact of grants on parent responsibility in school management is reported in Table 6. 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.

Teacher Oversight   There is no overall impact on parent supervision of teachers (Table 7). We see small and insignificant changes in the proportion of school committees which discuss teacher behavior in school committee meetings, declare that they are active in increasing teacher attendance and improving education quality, declare that they monitor teacher attendance, and take remedial

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[18]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). We think this is unlikely since the parents were notified in advance of the grants arrival.

actions against teachers. No trend emerges from these variables, and so there is no change in the teacher oversight index.

4.1.2 School Management

Accountability There is no impact of the grant on school accountability (Table 8). The analysis of the detailed components shows a 13% increase in the proportion of schools which could present a register for fund collection for examination, and a 21% increase in the proportion of schools which 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. 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.

Cooperation The impact of grants on cooperation between school stakeholders is reported in Table 9. Overall, we see an improvement in the cooperation between the school committee and different actors: school committees are significantly more likely to report support from the community (+5 percentage points), from the teachers (+3 percentage points), from the parent committee (+5 percentage points). 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 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 that giving resources under the control of the school committee enhanced the sense of respect for its activities.

Expenses and Investments Figure 2 presents the absolute and percent differences in amounts budgeted for a given type of project in treatment schools compared to comparison schools (significant differences in dark grey, non-significant in light grey). The amount budgeted for a given type of project was significantly larger for infrastructure, festivals and playground, as well as investments in agriculture (Table 10): the amount budgeted for infrastructure was larger in the treatment group

(107,705 FCFA (215 USD) vs. 86,119 (172 USD), a difference of 20%, significant at the 5% level), the amount budgeted for festivals and playground was sixfold greater than in the control group (1031 FCFA (about 2 USD) vs. 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) vs. 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 festivals and playground expenses (1,833 FCFA (a bit less than 4 USD) and 865 FCFA (almost 2 USD), respectively).

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, we cannot be sure that these investments were made for the profit of the school and have to consider the possibility that it did not benefit to the pupils in any way[19].

Finally, we see that 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 5 months after the grants arrived in treatment schools, the school committees have not yet budgeted any use of the remaining three-quarter grant. Together with the types of spending induced by the grant, our results suggest that the school budget constraint is not binding: a large part of

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[19]We would urge that future researchers examining local school management and activities collect 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.

the grant is still unemployed, and some money is spent on leisure and agricultural spendings which seem non-essential for pure educational purposes. Also, the amount budget 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 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.

Another explanation, which may be simultaneously be true, is that parents were saving the grant in the face of uncertain future cash flows (see Sabarwal, et al, 2014).

4.1.3   School Quality

Infrastructure   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 11), significant at the 10% level. This is largely driven by increases in the number of classrooms and the construction of walls around the compound (columns 2 and 5 of Table 11)[20]. 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 compared to 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).

Materials   We find no overall impact on the materials available at the schools (books and classroom materials such as rulers, protractors and maps) (Table 12).

Health Resources   There is a small (0.05 standard deviations) increase in the index of health resources (Table 13), significant at the 10% level. This increase is driven by increases in health information sessions (34% vs. 30% of schools), first aid kits (12% vs. 9% of schools), micronutrient

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[20]These items were also projects that were frequently reported by the schools as projects undertaken using the grant money.

supplementation (25% vs. 22% of schools), and deworming (64% vs. 62% of schools), though none of the individual components of the health index are significant alone.

Teacher Effort   We find no effect of the grant of the number of days when class was cancelled because teachers were on strike, nor the opinion of the school committee on teacher assiduousness and punctuality, but we observe a decrease in teacher presence 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 14). 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 all of the 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).

Dropout and Enrollment   There is no change in enrollment or dropout overall (Table 15), but there is a positive impact at the lowest grade levels. The grant program reduced dropouts from grade 1 at the end of the 2007/2008 school year (2% vs. 3% in the control schools) (column 4 of Table 15A), a finding which is matched by an increase in enrollment in grade 2 at the beginning of the 2008/2009 school year (33 vs. 30 pupils in the controls schools) (column 5 of Table 15B).

The fact that participation increases for youngest pupils suggests that participation is more elastic when the child is young, which might reflect the fact that the cost of education increases when the child gets older, especially because of opportunity cost of time of elder children.[21]

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[21]We also take the fact that only younger grades were impacted as 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.

Test Scores We find no impact on 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, or any of the math, french or oral tests administered during the April/May 2008 questionnaire visit (Table 16).

4.2   Heterogeneous Treatment Effects

We now examine 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.

Education of the COGES

Some measures of parent participation are higher in COGES with an educated member, though the indices themselves are not significantly higher. Educated COGES increased in kind contributions in response to the grant by 13% (significant at the 5% level) and did not reduce cash contributions (and there is no change in in kind contributions for non-educated COGES).

Most importantly, communities where the school committees were educated increased their supervision of teacher attendance. 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 attenuate the decrease in teacher attendance, suggesting that parents were not able to put pressure on teachers.

We find that there is reduced accountability due to the grant in schools with educated COGES on two of the component measures, but not on the overall accountability index. Following receipt of the grant, COGES schools are 12% less likely to have a register for weekly activities, and 8% less likely to have a register to monitor pupil attendance (both significant at the 10% level). Note that the treatment coefficient in the interaction specification for the accountability measures is near zero (e.g., for non-educated). This is a puzzling result which we cannot explain.

Educated COGES who got the grants focused their investments on infrastructure, perhaps to the detriment of other types of spending. They budgeted more money for infrastructure (58,755 FCFA (117 USD), significant at the 5% level), but not uneducated COGES. However, the increases in infrastructure in the following year were felt primarily in schools with non-educated COGES: the

coefficient on the interaction term of treatment and education is negative (-0.08 SD) and significant at the 5% level. One possible reason, if the data on spending is 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.

COGES without educated members, on the other hand, increased spending on Health Resources and Pupil Educational Support. For Health Resources, the treatment coefficient for the non-educated 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 non-educated 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 FCFA (16 USD), significant at the 5% level). 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 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.

Wealth of the COGES

We find no differences for wealthy communities in terms most forms parent participation, school resources and activities, or teacher and pupil outcomes. However, we do find that parent responsibility increased more in wealthy communities (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).

We highlight this and note that the results for wealth are different from the results for educated and experienced COGES, suggesting that the effects we find by education and experience are not proxies for wealth.

One-Teacher Schools

One-teacher schools seem to have made a different choice than larger schools: they budgeted more money for expenses related to Teacher Support (the coefficient on the interaction term is 8,985 FCFA (18 USD), significant at the 5% level). This may be because there was more threat 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).

Perhaps as a result, even though these are small absolute amounts, 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 (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). 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.

At the same time, infrastructure in one-teacher schools did not improve, in contrast to other schools (and 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). [22]

Urban vs Rural Schools

Increases in in kind contributions came from parents in urban schools, which were 17% more likely to have made in kind contributions, significant at the 10% level. The increase in the parent responsibility index is also driven by increases in urban rather than rural schools - 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.

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[22]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.

Only schools located in rural areas increased their spending on agricultural investments (2,046 FCFA (4 USD), significant at the 1% level). Urban schools did not increase spending on agricultural investments (the coefficient on the interaction term is -1,755 FCFA (3.5 USD), significant at the 5% level). We speculate that this is because credit constraints may be less severe in urban areas, but we have no data to confirm this.

Experienced COGES

Schools where the COGES has at least one member who is also a member in another community organization increased monitoring of teacher attendance in response to the grant (the interaction term is 0.11, significant at the 5% level). These schools are also those that enjoyed the increases in the cooperation index: 0.07 standard deviations, significant at the 10% level, whereas schools with no member that is also a member of another community organization had no increases.

5 The Model

Our results demonstrate, first, that complete crowding out is not inevitable: parents responded to grants to the COGES by increasing participation did not immediately change their financial contribution (with some evidence that some schools increased in kind contributions). This contrasts with the results in Das et al. (2013) and Pop-Eleches and Urquiola (2013) where additional resources to the school (not under parent control) decreased parental effort. We also find that only schools where parents are educated or are members in other community organizations respond to the grant by increasing teacher monitoring - the type of parent participation that is arguably the most difficult to do. Note, however, that there was no positive impact on teacher presence due to this increased monitoring. Pupil participation, at the lowest grades, increased. However, the ultimate impact on education quality, at least in the short run, is unclear: teachers were absent more frequently (which echoes the result in Duflo, Dupas and Kremer (2012) in Kenya where giving parents the responsibility over an extra-teacher led to a reduction in effort from civil-service teachers), except in the smaller schools where the grant was at least partly spent in a way that benefited them directly.

Taking into account that Niger is, in general, an environment where parents have little authority, our results contribute to the literature from many other countries, and supplement the existing results with new data. There are several experiments showing that the effectiveness of participatory

programs to improve school quality is related to the level of authority or empowerment of the parents: as King and Ozler (2004) demonstrate, policies of *de jure* autonomy do not always lead to *de facto* autonomy, and so participation may not be meaningful if communities have no actual power. Empowerment might be through education (Blimpo and Evans, 2011), ties with local government (Pradhan et al, 2014), training (Duflo, Dupas and Kremer, 2012), human capital (Gunnarsson et al, 2009), school-community relations and community organizational capacity (Gershberg and Shatkin, 2007), and pre-existing levels of poverty (Galiani et al, 2008).

In this section, we consider a model that formalizes the behavioral responses of parents and teachers to a change in school resources and the resulting effect on school quality. The motivation for this model is two-fold. First, the model helps to clarify how the grant program studied in this paper can affect parent participation, teacher effort and school quality. Second, we want to show that reasonable assumptions on school dynamics are able to produce predictions consistent with the evidence found in the literature.

Albornoz et al (2011) model the interaction between student, parent and teacher investments and school resources, to explain the ambiguous effect of resources on parent involvement at home. This model suggests that under some circumstances, an increase in school resources generate a decline in parent investment in education at home. Das and al (2013) also provide a model to explain the decrease in parental effort at home in response to an increase in school resources. But none of these theoretical frameworks take into account parental participation in school. The model proposed in this paper enriches our understanding of school dynamics by taking into account parents' effort both at home and at school, and the difference between giving more resources to school staff versus parents. It enlarges the set of interventions of interest and adds to our understanding of the effects of educational policies. It is an ex post exercise designed to make sense of existing evidence with the hope it can be tested in subsequent analyses.

5.1 Set-Up

The model involves three participants: parents, teachers and the government. Teachers decide how much time they put in teaching t_t. Parents decide how much time they invest for education at home t_h, as well as how much time they participate in school management t_p. Finally, the government chooses the level of governmental resources for the school, which decompose in two

parts, $G_t + G_p$, where G_t is resources in the hands of school staff (principals and teachers), while G_p is governmental resources for the school under the control of parents (typically, resources handled by the school committee).

Here, "participation" in school management refers to the many different kinds of participation that policy makers envision, where beneficiaries might be organized into committees, undertake projects themselves, such as construction or sanitation, raise funds, provide personal contributions, supervise, hire, and even fire teachers, engage in awareness campaigns, provide advice to staff, and so on. Participation is expressed in time units (financial participation is converted in time through hourly wage).

Children's Learning

Children's learning E is the addition of learning produced at home and learning produced at school.

Learning produced at home   Learning produced at home is assumed proportional to the number of hours parents devote to education at home, t_h (making sure kids get up on time and go to school or investing in private lessons, for instance). How much each hour spent on education translates into learning depends on parent's productivity at producing learning, denoted e, reflecting for instance parents' level of education (more educated parents produce more learning for each hour spent on helping with homework) or parents' hourly wage (a higher wage can pay for a higher amount of private lessons for each working hour invested in education). Learning produced at home is thus et_h.

Learning produced at school   Learning produced at school is proportional to the time teachers spend at school, t_t. How much each hour spent at school translates into learning depends on teachers' productivity, which results from school resources. Indeed, school resources encompass salaries (which should reflect both class size and teachers' quality) and school materials (infrastructure, textbooks, flip charts, blackboard, etc.) that allow teachers for producing more learning for the same amount of time spent with the children. So we assume that the level of resources is a factor of teachers' productivity.

Furthermore, we assume that parents' participation in school management interfere with school resources in the determination of teachers' productivity. Indeed, parents' participation is additional

resources: parents raise funds from the community, and do administrative tasks that allow teachers for focusing on teaching and producing more learning for the same amount of time spent at school. Moreover, parents' participation should increase the allocative efficiency of school resources by preventing rent capture and making expenses closer to educational needs and common interest (Barrera-Osorio et al, 2009). We thus assume that parents' time spent on school management, t_s, is a factor that increase the effect of resources on teachers' productivity[23]. This factor apply to resources under parental control, G_p, but not on G_t in which parents do not have a say.

We thus assume that learning produced at school is given by $(G_t + t_p G_p)t_t$ and total learning is given by $E = et_h + (G_t + t_p G_p)t_t$.

Parents' Utility

Parents' utility is the difference between the benefit they derive from children' learning E, and the opportunity cost of the time they spend on producing learning, $t_h + t_p$. The benefit from children' learning is assumed concave in E (for instance $ln(1 + E)$), so that learning produced at home and learning produced at school are substitutes.[24] The cost of time is assumed linear (for instance $t_h + t_p$), so parents' utility is given by:

$$U_p = ln(1 + et_h + (G_t + t_p G_p)t_t) - t_h - t_p \qquad (3)$$

Teachers' Utility

Similarly, teachers' utility is the difference between the benefit they derive from children' learning and the opportunity cost of their time[25]. We assume that teachers' benefit and cost take the same form as parents' ones, except that their welfare is also influenced by parents' participation in school management: teachers derive a benefit from parents' satisfaction towards their production of learning when parents can observe this production. This benefit takes the form of a social reward[26]

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[23]A richer model could take into account the idea that parents' participation might not translate into greater teachers' productivity because "pushy" parents might be disruptive to teachers. For the simplicity of the model, we make the assumption that parents are not aware of this fact and would not participate if they would know that their participation would decrease teachers' productivity. This assumption is equivalent to the idea that parents do not get utility from participating per se (for example, due to reputation effect or some sort of hedonic payoff).

[24]To the extent that parent participation is a contribution to a public good, free-riding may be a problem. For simplicity we do not include this in the model, but a more complete model might address this issue.

[25]In this model, teachers are intrinsically motivated. A richer model could incorporate a broader view which would incorporate both intrinsic and extrinsic motives. We do not incorporate extrinsic motives here since it would not add to the ability of the model to explain what we seek to explain.

[26]An equivalent way to put it is that teachers incur a social sanction from the community if they shirk and if parents can observe it.

that is proportional to the time teachers devote to school, with a factor of parents' participation: the more parents participate, the more they observe and reward each unit of time teachers devote to education.

However, teachers who have a preference for a centralized government might resent being monitored by parents because of the resulting loss of autonomy and leadership in school decisions. In this case, the effect of parents' participation on teachers' welfare can be negative, teachers' loss of welfare being also proportional to the time they devote to education, with a factor of parents' participation (the more devoted they are and the more parents participate, the more teachers are resentful). We denote δ teachers' taste for community participation in school management. A negative δ reflects a preference for a centralized government, whereas a positive δ reflects openness to collaborate with parents (a δ close to zero would reflect teachers' indifference).

As a result, teachers' utility is given by:

$$U_t = ln(1 + et_h + (G_t + t_p G_p)t_t) - t_t + \delta t_p t_t \tag{4}$$

5.2 Parents' and Teachers' Choices

The first-order condition for the teachers' problem is sufficient (U_t is infinitively differentiable and $U_t''(t_t) < 0$) and gives the optimal choice of teachers:

$$t_t = max\left\{\frac{1}{1 - \delta t_p} - \frac{et_h + 1}{G_t + t_p G_p}, 0\right\} \tag{5}$$

For the parents, the first-order conditions are also sufficient and give the optimal choices:

$$t_h = max\left\{1 - \frac{1 + (G_t + t_p G_p)t_t}{e}, 0\right\} \tag{6}$$

$$t_p = max\left\{1 - \frac{G_t}{G_p} - \frac{et_h + 1}{t_t G_p}, 0\right\} \tag{7}$$

From the expression of t_p, we see that parents invest more time in school management when resources under their control increase and when teachers make more effort. In contrast, parents invest less time in school management when resources in the hands of teachers increase, when they spend more time for education at home and when their efficiency with education at home increase.

Symmetrically, parents devote more effort for education at home when their efficiency at home increases, whereas they reduce effort at home when school resources increase, or when teachers' or their own effort at school increase.

Finally, teachers increase time they spend at school when school resources increase, whereas they reduce it when parents' effort or efficiency at home increase. However, the response of teachers to an increase in parents' participation in school management is ambiguous: if δ is positive, the response is clearly positive too: teachers spend more time at school. But in the region where δ is negative, for large absolute value of δ, the response is negative, meaning that teachers who have a strong preference for a centralized government reduce time at school when parents' participation in school management increases.

5.3 Heterogenous Best-Responses

For the best clarity and simplicity, the model above just includes the main dynamics in the school system. In this paper, we also explore the possibility that power imbalances are likely to induce different choices. This section explicit how parental real authority influences parents' and teachers' decision.

In our model, real authority of parents over the school would be captured by a parameter θ multiplying parents' time spent in school management: learning produced at school is given by $(G_t + \theta t_p G_p)t_t$, reflecting the fact that more powerful parents make better use of resources under their control, therefore extracting more learning from teachers for each hour invested in school than weak parents. Also, it should be noticed that real authority of parents θ is unlikely to be orthogonal to teachers' preference for a centralized government δ. On the one hand, teachers are more likely to resent being monitored by parents when teachers enjoy a high social status relative to parents, for instance when parents have a low if not no education, which is likely to coincide with parents' lack of real authority. On the other hand, teachers' preference for a centralized government largely determines the extent to which parents entitled to participate in school (have *formal* authority) are involved in decision making (have *real* authority). We thus posit that $\delta = \delta(\theta)$ with $\delta' > 0$. The best-responses with a parameter θ reflecting real authority are: $t_h = max\left\{1 - \frac{1+(G_t+\theta t_p G_p)t_t}{e}, 0\right\}$, $t_p = max\left\{1 - \frac{G_t}{\theta G_p} - \frac{et_h+1}{\theta t_t G_p}, 0\right\}$ and $t_t = max\left\{\frac{1}{1-\delta(\theta)t_p} - \frac{et_h+1}{G_t+\theta t_p G_p}, 0\right\}$.

Effect of real authority on parents' and teachers' decisions   Since their participation at school is more productive, parents with higher θ invest more time in school management and less time at home than parents with low θ. Teachers also invest more time at school because their productivity is fostered by parents' real authority. Moreover, the likelihood of δ being negative is lower when parents' real authority is larger, which adds to the general positive effect of parents' real authority on teachers' effort.

Effect of real authority on parents' and teachers' responses   Parents' response to an increase in teachers' effort or in resources under their control is amplified by real authority, just as teachers' response to an increase in resources under parental control. Moreover, teachers' response to an increase in parent's participation in school management is reduced in the negative region and amplified in the positive region by real authority. These predictions are consistent with the evidence presented in section 4.1 that the benefits of community-based interventions are larger when parents are more powerful.

5.4   The Effect of an Increase in School Resources

In the light of this model, what is the effect of an increase in governmental resources to schools? In the short run, parents won't take into account the fact that teachers will also react to the changing conditions (and reciprocally). We thus consider that parents take the teachers' actions as given (fixed at their past value) and *vice-versa*, and we determine the comparative statics and discuss the predicted behavioral trajectories. Our focus on short-term responses that do not take account of others' responses comes, first, because most empirical framework in the literature addresses such responses, and, second, because real-life behavioral adjustments to others' responses seem slow. Pop-Eleches and Urquiola (2013) show that responses after one year are different from responses in the longer run, reflecting the fact that it takes quite a long time for parents to adjust their behavior to others' responses. There are multiple reasons for slow adjustment to others' response. For instance, parents may not realize that teachers incur a loss of welfare from collaborating with them (formally, they have a imperfect perception of teachers' δ) because teachers do not disclose their reluctance to collaborate with parents in front of them (it would be rude). Even if teachers do give signals that they do not want parents to participate, it is also possible that parents do not

take what they observe in the short run into account because they expect continuous collaboration to make δ become positive in the future.

Effect in the absence of parents' participation in school

In the short run, an increase in school resources increase teachers' time at school and decrease parents' time for education at home. The fact that parents devote less time for education at home tends to reinforce teachers' response, which comfort parents with investing less time at home, etc. The long-term effect of an increase in school resources is thus clear-cut: teachers respond positively while parents respond negatively. The final impact on school quality is a mixed bag: the increase in school resources and teachers' response tend to improve education outcomes, while parents' response tend to reduce this effect. Pop-Eleches and Urquiola (2013) and Das et al. (2013) confirm that an increase in school resources reduced parents' effort (they do not observe teachers' response). In our framework, this policy is appropriate in contexts where (i) teachers actually use resources for educational purpose, and (ii) the effect of additional resources on teachers' productivity is large. The conditions of success of this policy are thus a sound institutional environment preventing rent capture and an initial level of school resources at which marginal gains of productivity are steep[27].

Effect in contexts where parents participate in school

Teachers' and parents' responses to an increase in school resources are the same as above, but now parents' re-optimize their level of participation in school management too.

Increase in G_t If the additional resources fall in the hands of teachers, parents *decrease* their participation at school. This in turn affects teachers' effort in a way which depends on teachers' preference for a centralized government: if teachers prefer a centralized government, the decrease in parents' participation in school management amplifies teachers' positive response to the increase in school resources, so teachers make unambiguously more effort. In contrast, if teachers are motivated by the collaboration with parents, the decrease in parents' participation reduces their incentive to work hard and the policy brings a smaller benefit. The conditions of success of this policy are thus

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[27]This analysis would benefit from evidence on the shape of teachers' productivity as a function of school resources to know which kind of regions would experience the larger gains in teachers' productivity. If this function is concave (resp. convex, S-shaped), gains in teachers' productivity are larger at the bottom (resp. top, middle) part of school resource distribution.

(i), (ii), plus the condition that (iii) teachers prefer a centralized government. France is an example of countries where this policy is likely to work well.

Increase in G_p If the additional resources fall in the hands of parents, parents *increase* their participation at school, which leads to the opposite situation in which teachers invest unambiguously more effort when teachers are motivated by the collaboration with parents through three positive effects: the effects of additional resources and of parents' participation in the management of the resources on their productivity, and the incentive produced by the social reward. When teachers prefer a centralized government, parents' participation creates a burden for teachers which reduces teachers' effort in a way that might be strong enough to offset teachers' positive response to school resources and to parents' management of the resources. In the long-run, this should eventually discourage parents to participate at school and encourage investment for education at home back up, but in the short-run concurrent increase in parents' participation in school management and decrease in teachers' effort can be observed, as Duflo, Dupas and Kremer (2012) find in Kenya. Our empirical results are also consistent with the situation where teachers' preference for a centralized government is strong and parents' real authority is weak, resulting in a negative short-term impact of parents' participation in school on teachers' effort. The impact on school quality can be at risk since the positive effects of school resources and parents' management of the resources are mitigated by a double decrease in parents' effort at home and teachers' effort at school.

When parents have a large real authority θ, the positive effect of parents' management of the resources is larger so parents' response is larger too, which is consistent with our empirical findings that parents contribute more and participate more in school management when they have more authority. The larger effect on parents' participation combined with the smaller likelihood of a preference for a centralized government leads to a more favorable teachers' response. Our data do not confirm this prediction, but Duflo, Dupas and Kremer (2012) do since they observe that parents' empowerment through school committee training reduced the negative response of civil-servant teachers.

According to this framework, the conditions of success of this policy are thus (i), (ii), plus the conditions that (iii) teachers are keen to collaborate with parents, and (iv) parents have real authority on teachers. These conditions are more likely to hold in countries where the social gap

between parents and teachers is small and where the education system is decentralized. The USA is an example of countries where this policy is likely to work well, whereas Niger and Kenya are not the ideal contexts for encouraging parental control over school management since (iii) and (iv) do not hold. However, one might argue that the short-term negative impact on teachers' effort is the price to pay for potential longer-term positive effect -which our results cannot exclude.

The general picture supported by existing empirical evidence and explained by our model is three-fold: first, an increase in school resources out of parental control tends to decrease parental effort. Second, an increase in school resources under parental control tends to increase parental effort. Finally, the size of the increase in parental effort and of the resulting effect on teachers' effort depends on power imbalances in school: the higher parents' real authority, the larger their response and the resulting increase in teacher's effort, with a risk of adverse effects in contexts where parents are weak. This paper is a first step that uses both formal tests and intuition to build a narrative about community participation in resource management. Our hope is that future work might build on this model to provide additional insights and rigorous empirical tests.

6 Conclusion

In Niger, parents responded to increased financial resources under their control by increasing participation on several dimensions, and did not decrease their own financial contributions. The implication of this finding is that the crowding out due to increased inputs found in other experiments may not be inevitable if parents are involved in the management of the funds. We also find that increased parent participation 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. 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 (at least in the short run). We also find that 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.

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The heterogeneous impact analysis, while second-order, yields potentially helpful suggestions for understanding the impact of the program. The most difficult type of participation - monitoring teachers - was attempted only by educated or experienced school committees. The implication of this finding is that participation initiatives need to take the capacity and authority of the intended participators into account. In addition, we find that one-teacher schools, which invested in the teacher's working conditions and/or made some type of transfer to the teacher, actually increased teacher attendance. We take this as evidence that teachers' negative reaction to parent participation might be reversed when parents behave like allies. Finally, we find that rural school committees as well as non-educated school committees invested a small part of the grant in agriculture, which might reflect that they did not give priority to education or that they invested the money in order to get more funds for the school in the future. We highlight it so that future programs might be aware of it and collect more data to understand what schools might do with grants and the role education preferences and credit constraints play in those decisions.

A model with a few assumptions about parents' and teachers' roles in producing education helps interpret these empirical findings along with the evidence found in the literature. Adding two key ingredients, teachers' preference for a centralized government and parents' real authority, to a classical model of school quality can reproduce the existing evidence on the effects of participatory programs.

There are four key policy implications of our findings. First, the degree to which outside inputs are treated as substitutes to a community's own contributions and efforts may depend on the degree to which the community has power over the inputs: when parents are involved in input management, inputs do not necessarily crowd out their contributions and efforts. Second, parent participation can reduce teacher effort when parents have low authority and are not "on the same side" as the teachers, and some attention should be given to designing programs with this possible response in mind. Third, programs that encourage community participation to increase school quality should take into account the ability of the community to make the good decisions (for example, the degree to which they have information about how schools work): we find in this experiment that parents used the grant in ways that were unlikely to increase school quality. Finally, behavioral responses to programs may cancel each other out: in the case of this grant, an increase in the effort of the parents and in the quality of the infrastructure was met with a decrease in the effort (presence) of

the teachers.

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Figure 1: Reported Use of Grant Money, by Total Amount Spent
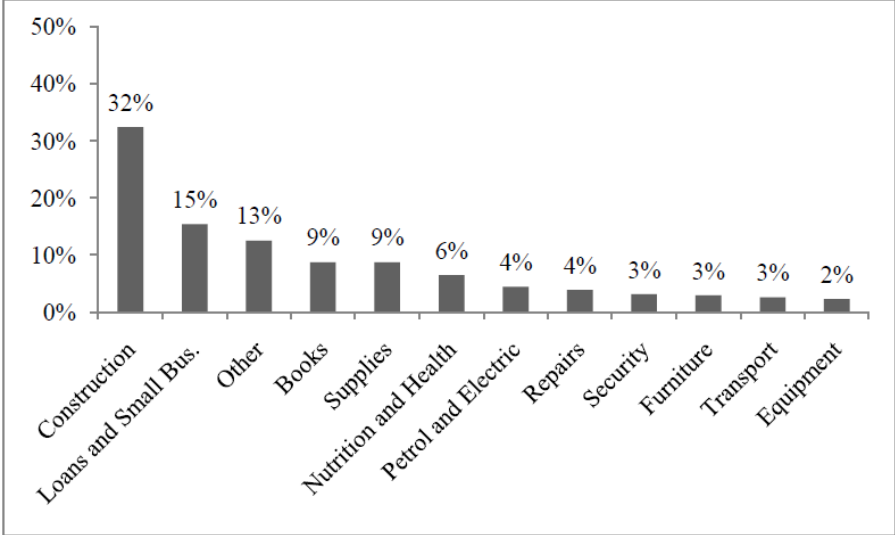
Source: Financial Control over 85 randomly selected schools

Figure 2: Differences in spending between treatment and control groups

Absolute differences

Percent differences
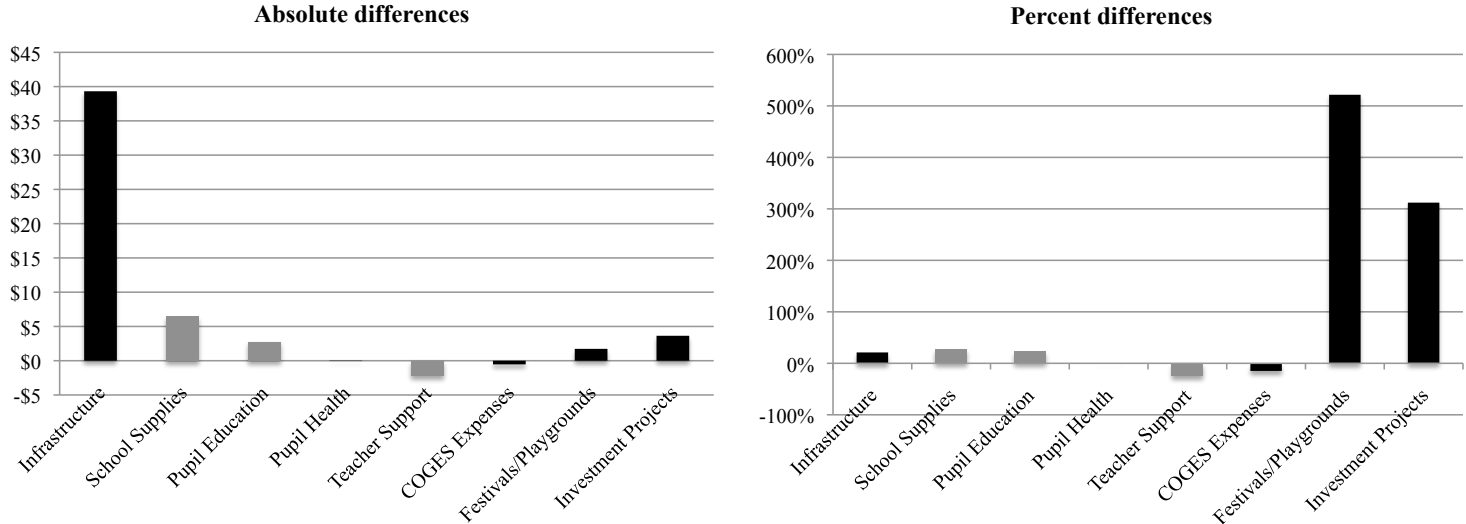
Table 1: Pre-program School Characteristics, by Treatment Group

	(1)	(2)	(3)	(4)	(5)	(6)
	Control		Treatment		Difference	
	N	mean	N	mean	T-C	pvalue
Pupil Characteristics						
Enrollment 07/08	500	149.6	500	141.72	-7.88	0.28
% Girls in 07/08	500	0.38	500	0.38	-0.01	0.26
% Passed Exam in 07/08	262	0.45	224	0.42	-0.03	0.28
Teacher Characteristics						
Number of Teachers	490	3.87	494	3.55	-0.32	0.13
% of teachers civil servants	490	0.2	494	0.2	0	0.91
Physical Infrastructure						
Number of Buildings in 07/08	490	3.91	494	3.68	-0.23	0.17
Number of Latrines in 07/06	500	0.89	500	0.82	-0.08	0.55
Water Access in 06/07	500	0.09	500	0.11	0.01	0.53
Electricity in 06/07	500	0.01	500	0.02	0.01	0.22
COGES Characteristics						
COGES sponsored in 07/08	500	0.57	500	0.55	-0.01	0.70
COGES Exists in 06/07	500	0.88	500	0.9	0.02	0.32
Location						
Tahoua	500	0.52	500	0.51	-0.01	0.85
Distance to Inspection	500	41.1	500	38.59	-2.5	0.17
Distance to Health Center	476	8.24	461	8.95	0.7	0.61

Data come from 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 is used. "Sponsored" COGES are those that have some sort of official sponsor or support group (such as an NGO).

Table 2: Community Characteristics used for Heterogeneous Treatment Effect Analysis

	Control Obs.	Treatment Obs	p-value of difference in attrition	Control Mean	Treatment Mean	Difference in means (T-C)	p-value of difference in means
Educated COGES member	369	370	0.94	0.317	0.305	-0.01	0.73
Experienced COGES member	369	370	0.94	0.209	0.227	0.02	0.55
Average wealth of school committee (PCA)	329	320	0.89	1.146	1.154	0.01	0.42
One-Teacher School	499	497	0.34	0.122	0.145	0.02	0.24
Urban School	500	500		0.108	0.110	0.00	0.92

Source: School survey conducted April-May 2008, except % of girls in 2007/08: 2007/08 administrative data.

Observations at school level. P-values are for tests of equality of the means across Treatment and Control.

Educated COGES member =1 if at least one member completed primary school. Experienced COGES member=1 if at least one member is also the member of another community organization.

The p-value of difference in attrition is calculated by creating a dummy variable equal to 1 if the data is missing for a particular school, and then calculating the p-value of the difference in this variable between groups.

Table 3: Attrition, by Treatment Group and Pre-Program School Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
						Parent
	COGES		COGES	Teacher effort	Parent	responsib
	education	COGES wealth	experience	index	contrib index	index
Treatment	-0.101	-0.128	-0.101	-0.104	-0.0225	-0.0984
	(0.133)	(0.135)	(0.133)	(0.126)	(0.126)	(0.127)
Treat*Enroll	0.0395	0.0524	0.0395	0.0591	0.0625	0.0522
	(0.0519)	(0.0527)	(0.0519)	(0.0490)	(0.0481)	(0.0523)
Treat*% girls	0.0334	0.0356	0.0334	0.0305	0.0107	0.0257
	(0.0320)	(0.0324)	(0.0320)	(0.0308)	(0.0308)	(0.0306)
Treat*Urban	0.00436	-0.109	0.00436	-0.0933	-0.107	-0.0604
	(0.0956)	(0.105)	(0.0956)	(0.0812)	(0.0816)	(0.0815)
Treat*Sponsor	-0.0121	-0.0180	-0.0121	-0.00630	-0.0227	-0.0266
	(0.0258)	(0.0261)	(0.0258)	(0.0245)	(0.0244)	(0.0249)
Treat*Num Teach	-0.0457	-0.0322	-0.0457	-0.0348	-0.0290	-0.0142
	(0.0551)	(0.0573)	(0.0551)	(0.0523)	(0.0525)	(0.0542)
Treat*Tahoua	-0.00777	0.00526	-0.00777	-0.0186	-0.0342	-0.0136
	(0.0284)	(0.0286)	(0.0284)	(0.0274)	(0.0272)	(0.0280)
Observations	1,000	1,000	1,000	1,000	1,000	1,000
R-squared	0.163	0.183	0.163	0.140	0.168	0.130
Control Group Mean	0.262	0.28	0.262	0.214	0.222	0.224

| | (7) | (8) | (9) | (10) | (11) | (12) |
| | Parent involv | Teacher | Cooperation | Accountability | | |
	index	oversight index	Index	index	Enrollment	Test scores
Treatment	0.00109	-0.0978	-0.0810	-0.0360	-0.00933	-0.147
	(0.0772)	(0.127)	(0.127)	(0.123)	(0.0312)	(0.124)
Treat*Enroll	0.00542	0.0411	0.0429	0.0633	0.00882	0.00727
	(0.0323)	(0.0500)	(0.0500)	(0.0447)	(0.0103)	(0.0461)
Treat*% girls	0.000701	0.0272	0.0229	0.00859	0.00543	0.0318
	(0.0193)	(0.0311)	(0.0311)	(0.0304)	(0.00689)	(0.0302)
Treat*Urban	0.00163	-0.0714	-0.0695	-0.0674	0.0171	0.0675
	(0.0590)	(0.0819)	(0.0820)	(0.0718)	(0.0274)	(0.0991)
Treat*Sponsor	0.00475	-0.00133	-0.00339	-0.0152	-0.00213	0.0354
	(0.0164)	(0.0248)	(0.0248)	(0.0234)	(0.00697)	(0.0272)
Treat*Num Teach	0.00146	-0.0284	-0.0284	-0.0297	-0.0170	-0.0120
	(0.0404)	(0.0528)	(0.0530)	(0.0452)	(0.0137)	(0.0478)
Treat*Tahoua	-0.0317*	-0.00607	-0.00977	-0.0277	-0.00577	-0.00675
	(0.0189)	(0.0276)	(0.0277)	(0.0263)	(0.00714)	(0.0283)
Observations	1,000	1,000	1,000	1,000	1,000	1,000
R-squared	0.062	0.132	0.134	0.149	0.009	0.133
Control Group Mean	0.084	0.22	0.222	0.198	0.014	0.278

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. Dependent variable in each column is a dummy variable equal to one when the value is missing for a given school. All regressions include the level variables from the interaction terms.

Table 4: Grant Impact on Parent Contribution

	(1) Amount of User Fees Charged by school	(2) Any Inkind contributions	(3) Parent Money contributed (per pupil)	(4) Parent Contribution Index
Treatment	35.48	0.0223	-72.86	-0.0117
	235.3	0.0252	54.23	0.0490
Constant	1,856**	0.634***	486.5**	-0.141
	772.3	0.102	194.7	0.167
Observations	745	758	719	782
R-squared	0.038	0.077	0.066	0.056
Control Group Mean	631.6	0.836	500.2	-0.00709

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. Any in kind contributions includes food, building supplies, wood, and so on. The Parent Contribution Index is the average of the z-scores in columns (1) to (3).

Table 5. Impact on Parent Involvement

	(1) Number of COGES meetings	(2) Time elapsed since last COGES meeting	(3) Number of APE meetings	(4) Time elapsed since last APE meeting	(5) Number of COGES meetings 08/09	(6) AME is Active, 08/09	(7) Number of Topics in COGES meeting	(8) Number of Topics in APE meeting	(9) Number of COGES Communal meetings	(10) Presence at APE meeting	(11) Presence at COGES meeting	(12) Parent Involv Index
Treatment	0.151	-0.135	0.101	-0.182	0.256	0.0492	0.0614	0.0530	0.0709	0.0800	0.00652	0.0600*
	0.182	0.124	0.147	0.200	0.176	0.0299	0.104	0.104	0.116	0.0830	0.0881	0.0321
Constant	4.421***	3.955***	2.890***	4.776***	4.786***	0.113	2.838***	2.035***	2.519***	1.607***	1.643***	-0.00756
	0.612	0.526	0.479	0.782	0.868	0.119	0.455	0.454	0.419	0.359	0.375	0.117
Observations	747	549	727	465	803	888	739	649	714	743	746	922
R-squared	0.043	0.137	0.029	0.051	0.056	0.066	0.085	0.074	0.071	0.074	0.066	0.059
Control Group Mean	3.758	2.653	2.470	3.691	4.601	0.272	2.363	1.918	2.518	2.057	1.757	-0.0355

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. APE is the Parent Association of the school. The Parent Action Index is the average of the z-scores of the variables in columns (1) to (11).

Table 6. Impact on Parent Responsibility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	COGES responsible for monitoring pupil attendance	COGES has taken remedial action on pupil attendance	COGES is responsible for supplies	COGES is responsible for infrastructure	Number of COGES tasks	COGES is responsible for fee collection	COGES is responsible for fee expenses	Parents are responsible for drafting the Action Plan	Parent Responsib. Index
Treatment	-0.0100	-0.00289	-0.0106	0.0451	0.0914	0.0767	0.0615	0.0308	0.0586*
	0.0222	0.0375	0.0353	0.0307	0.120	0.0476	0.0481	0.0204	0.0353
Constant	0.807***	0.643***	0.593***	0.571***	3.835***	0.213	0.131	0.873***	-0.0889
	0.0866	0.141	0.125	0.109	0.491	0.169	0.179	0.0868	0.129
Observations	754	581	752	749	735	401	401	732	780
R-squared	0.063	0.062	0.063	0.064	0.070	0.065	0.074	0.029	0.051
Control Group Mean	0.769	0.713	0.603	0.739	3.441	0.301	0.335	0.900	-0.0191

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. Parent Responsibility Index is the average of the z-scores of the variables in columns (1) to (8).

Table 7. Impact on Teacher Oversight

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	COGES discusses teacher behavior	APE discusses teacher behavior	COGES monitors teacher attendance	COGES takes remedial action on teacher	COGES works to reduce teacher absence	COGES works to improve education quality	Teacher Oversight Index
Treatment	0.0371	-0.00646	-0.0126	-0.0120	0.0319	0.0166	0.0266
	0.0255	0.0276	0.0219	0.0337	0.0293	0.0303	0.0389
Constant	0.343***	0.259*	0.844***	0.378***	0.372***	0.814***	0.335**
	0.124	0.133	0.0820	0.128	0.117	0.111	0.159
Observations	649	573	758	758	720	731	778
R-squared	0.070	0.045	0.064	0.049	0.099	0.088	0.110
Control Group Mean	0.103	0.121	0.766	0.329	0.271	0.621	0.00229

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. APE is the Parent Association of the school. The Teacher Oversight Index is the average of the z-scores of the variables in columns (1) to (6).

Table 8. Impact on Accountability

	(1) Book for Visitor Exists	(2) Weekly Planning Seen	(3) Supply Register Seen	(4) PV last COGES meeting	(5) PV last APE meeting	(6) Teacher Register Seen	(7) Pupil Register Seen	(8) Funds Register Seen	(9) Expenses Register Seen	(10) Action Plan Seen	(11) Account. Index
Treatment	-0.0123	-0.0185	0.0413	-0.0278	-0.0493	-0.0151	-0.0221	0.0619*	0.101***	-0.00642	0.0127
	0.0356	0.0279	0.0341	0.0344	0.0354	0.0214	0.0222	0.0353	0.0355	0.0292	0.0351
Constant	0.380***	-0.0764	0.369***	0.351***	0.473***	0.126	0.111	0.506***	0.447***	0.490***	-0.219*
	0.136	0.103	0.122	0.126	0.131	0.0869	0.0791	0.128	0.130	0.121	0.124
Observations	784	784	777	743	735	705	692	651	648	937	806
R-squared	0.043	0.095	0.124	0.130	0.113	0.032	0.021	0.218	0.213	0.223	0.124
Control Group Mean	0.519	0.224	0.509	0.594	0.520	0.0986	0.103	0.494	0.476	0.484	0.00325

*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. PV is proces verbal (minutes) taken in the meetings. The APE is the Parent Association of the School. The Accountability Index is the average of the z-scores of the variables in columns (1) to (10).*

Table 9. Impact on Cooperation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Teachers' coop with COGES	Teachers' coop with each other	Teachers' coop with comm.	COGES has support from the comm.	COGES has support from local auth.	COGES has support from the school admin.	COGES has support from teachers	COGES has support from APE	COGES has support from CP	COGES has support from Inspect.	Rare or no fights within COGES	Coop Index
Treatment	0.0234	-0.00037	0.00870	0.0482*	0.0312	0.0394	0.0315*	0.0509**	0.00846	0.0250	-0.0210	0.0661**
	0.0341	0.0329	0.0331	0.0271	0.0288	0.0240	0.0178	0.0203	0.0284	0.0297	0.0350	0.0306
Constant	3.517***	3.596***	3.400***	0.586***	0.656***	0.739***	0.842***	0.786***	0.652***	0.610***	0.473***	-0.220**
	0.130	0.121	0.127	0.113	0.114	0.0884	0.0665	0.0742	0.0965	0.0985	0.136	0.103
Observations	737	735	736	757	755	755	757	754	755	754	752	777
R-squared	0.048	0.109	0.112	0.084	0.070	0.077	0.084	0.057	0.113	0.071	0.065	0.078
Control Group Mean	3.329	3.485	3.329	0.797	0.776	0.854	0.918	0.889	0.792	0.770	0.610	-0.00756

*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. APE is the Parent Association of the school. Columns (8) and (9) refer to support from representatives of the Ministry of Education: CP is Conseiller Pedagogique (Education Advisor) and is from the hierarchical level just above the school, the Inspection refers to the level above the CP. The Cooperation Index is the average of the z-scores of the variables in columns (1) to (11).*

Table 10. Impact on Spending Decisions

	(1) Infrastructure and Equipment	(2) Supplies and Textbooks	(3) Pupil Educational Support	(4) Pupil Health	(5) Teacher Support	(6) COGES Expenses	(7) School Festivals and Playground	(8) Investments in Agriculture	(9) Total Amount
	Dependent Variable: Amount of money Spent on….								
Treatment	21,586**	3,222	1,435	1,253	-1,086	32.14	864.8***	1,833***	28,512***
	9,121	1,981	1,369	2,154	1,331	300.6	285.5	658.5	9,993
Constant	-24,197	836.7	-763.1	-13,404*	1,489	524.5	-1,599**	-861.4	-34,994
	38,103	8,622	4,031	8,062	4,576	1,046	765.0	1,098	41,928
Observations	726	733	734	734	734	738	736	731	698
R-squared	0.127	0.156	0.087	0.051	0.019	0.039	0.039	0.047	0.157
Control Group Mean	86119	11631	6058	8711	4352	782.7	165.8	582.9	115898

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 Equipement includes expenses related to classrooms, desks, chairs, blackboards, school enclosure and security, and cleaning. Supplies and Texbooks includes 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.

Table 11. Impact on Infrastructure

	(1) Change in the number of buildings	(2) Change in the condition of buildings	(3) Change in the number of blackboards	(4) Change in the number of desks	(5) Wall around school grounds	(6) Number of teacher's desks	(7) Number of teacher's chairs	(8) Number of bookcases	(10) Infrastructure Index
Treatment	0.0766*	-0.0155	0.138	0.187	0.0866***	0.0123	0.00454	-0.0106	0.0414*
	0.0452	0.0207	0.117	0.678	0.0316	0.0590	0.0332	0.0395	0.0236
Constant	0.187	0.480***	-0.352	-0.0640	-0.135	-0.0798	-0.104	-0.161	-0.454***
	0.183	0.0796	0.550	2.934	0.114	0.239	0.145	0.170	0.0936
Observations	947	988	905	597	847	896	891	894	978
R-squared	0.046	0.057	0.038	0.054	0.132	0.032	0.026	0.029	0.164
Control Group Mean	0.274	0.670	0.654	-0.724	0.343	0.0316	0.0618	0.0461	-2.98e-09

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. Columns (1) to (4) use change in the variable between 2007/2008 and 2008/2009. Columns (5) to (8) use the variable from 2008/2009 because of missing data in the earlier year. The Infrastructure Index is the average of the z-scores of the variables in columns (1) to (8).

Table 12. Impact on Materials

	(1) Change in number of books	(2) Dictionary	(3) Geography Tool Index	(4) Math Tool Index	(5) Materials Index
Treatment	1.267	-0.0162	-0.0422	-0.0705	-0.0439
	3.266	0.0281	0.0486	0.0470	0.0350
Constant	-0.438	-0.176	-0.365	-0.413**	-0.402**
	13.52	0.121	0.249	0.192	0.171
Observations	749	858	735	841	826
R-squared	0.086	0.108	0.037	0.256	0.174
Control Group Mean	-10.75	0.0472	-0.0165	-3.26e-05	-0.00411

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. Data are administrative data from the 2008/2009 school questionnaire. Change in the number of books is in comparison to the previous years administrative data. Dictionary is whether or not the school has a dictionary. Geography tool index is composed of whether the school has an atlas, map, or globe. Math tool index is whether the school has a protractor, ruler, or compass. Materials index is the average of the z-scores of the variables in columns (1)-(4).

Table 13. Impact on Health Resources

	(1) Vitamin / micronut supplement	(2) Deworming	(3) Health Information Session	(4) First Aid Kit	(5) Trash Collection	(6) Latrines	(7) Water	(8) Health Index
Treatment	0.0252	0.0220	0.0406	0.0283	-0.00198	-0.116	0.0133	0.0469*
	0.0272	0.0285	0.0293	0.0196	0.0209	0.134	0.0199	0.0270
Constant	0.131	0.474***	0.378***	-0.0331	0.00380	0.298	-0.0846	-0.396***
	0.115	0.118	0.113	0.0909	0.0809	0.665	0.0987	0.114
Observations	933	933	933	933	933	933	898	933
R-squared	0.061	0.219	0.096	0.062	0.048	0.343	0.220	0.238
Control Group Mean	0.223	0.615	0.305	0.0909	0.119	1.600	0.129	1.26e-08

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. All data are administrative data from the 2008/09 school questionnaire. For columns (1), (2), and (3) the dependent variable is an indicator for whether the action happened at least once. First aid kit indicates whether the school had a first aid kit or not. Trash collection indicates whether a system is in place to dispose of trash. Latrines is the number of latrines. Water is a dummy variable for whether there is clean water available at the school or not (piped or well). The health index is the average of the z-scores of these variables.

Table 14. Impact on Teacher Effort

| | (1) | (2) | (3) COGES | (4) |
| | | Teacher is | opinion of | Teacher Effort |
	Days on strike	Present	Teacher Effort	Index
Treatment	-0.541	-0.0382*	-0.0220	-0.0237
	0.490	0.0227	0.0253	0.0435
Constant	-2.071	0.937***	3.656***	0.484***
	2.292	0.0738	0.0932	0.158
Observations	706	799	734	784
R-squared	0.127	0.248	0.134	0.213
Control Group Mean	4.592	0.760	3.617	-0.00712

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).

Table 15. Impact on Dropout and Enrollment

	A: Dependent Variable: Dropout as reported at school visit in Spring 2008								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total	Total Girls	Total Boys	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Treatment	-0.00559	-0.206	-0.00469	-0.0136*	-0.00646	-0.00791	-0.00778	0.00264	0.00139
	0.00520	0.212	0.00609	0.00758	0.0107	0.00582	0.0100	0.00849	0.00987
Constant	0.0723***	0.775	0.0908***	0.0366**	0.0613**	0.0678***	0.143**	0.115**	0.0891**
	0.0165	0.662	0.0224	0.0183	0.0291	0.0240	0.0570	0.0455	0.0384
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								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total	Total Girls	Total Boys	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
Treatment	1.366	0.505	0.862	-0.604	3.256**	-0.471	-0.541	0.366	-0.639
	2.445	1.254	1.654	1.502	1.376	1.174	1.190	1.019	0.962
Constant	37.56**	-21.01***	58.57***	34.47***	-1.052	5.214	1.546	-1.388	-1.225
	15.14	7.562	9.652	6.267	6.441	4.881	4.534	3.911	3.925
Observations	988	988	988	988	988	988	988	988	988
R-squared	0.901	0.880	0.866	0.470	0.545	0.546	0.484	0.520	0.540
Control Group Mean	160.3	65.70	94.63	40.09	29.95	23.87	26.22	20.98	19.22

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 15A gives the impact of the treatment on dropout rates in the spring of 2008. Schools that do not have a particular grade level are missing. Note that some schools did not provide breakdowns by sex. Table 15B gives the impact of treatment on enrollment in the fall of 2008 (the academic year following the treatment). Schools that have zero enrollment at a given grade level (because they are missing a particular level) are counted as zeros.

Table 16. Impact on Test Scores

	(1) Oral	(2) Math	(3) French	(4) End Primary Pass Rate
Treatment	-0.101	-0.0351	-0.0338	-0.0244
	0.0749	0.0588	0.0586	0.0227
Constant	-0.0252	-0.159	0.0648	0.525***
	0.261	0.209	0.221	0.0706
Observations	499	763	739	557
R-squared	0.200	0.200	0.251	0.177
Control Group Mean	0.00828	0.00545	0.0145	0.614

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 1 and 2. The End Primary Pass Rate is the percent of students from the school who passed the exam at the end of grade 6 at the end of 2008 (administrative data).