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Conflict of interest as a barrier to local accountability

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Abstract: Using a specially designed lab-type experiment conducted in the field, we compare the willingness of head teachers, centrally appointed public servants, and community representatives to hold Ugandan primary school teachers to account. We find no difference in the willingness of centrally appointed public servants and community representatives. However, head teachers are significantly less willing to punish teachers whose performance falls 20 to 40 percent below a generally accepted benchmark. In addition, head teachers are twice as likely to punish teachers who "over-perform", a behaviour akin to punishing rate-busters.

Conflict of interest as a barrier to local accountability

1. Introduction

That public sector accountability is a prerequisite for development is no longer a matter for debate.[2] However, the question of how to build and sustain accountability efficiently in developing countries remains largely unanswered. Governments need to establish well defined rules, benchmarks and penalties, but how and by whom these would optimally be applied is not yet clear.

Especially since its promotion by the World Bank (2004), the idea of increasing the involvement of citizens in the process of holding public servants to account has received considerable attention. Focusing specifically on the point at which public servants deliver services directly to citizens, the rationale behind this idea is straightforward; citizens are (1) the ultimate beneficiaries of publically provided services and (2) best placed to know how well or badly their public service providers are performing. So, if appropriately informed about what they should expect from their public service providers, how best to monitor those providers and what they can do if they find those providers lacking, then by acting in their own best interest, citizens will facilitate an improvement in accountability and public service provision.

While this rationale appears well founded, recent randomized interventions designed to empower, inform and train citizens to hold public service providers to account have been only variably successful. In Uganda, Bjorkman & Svensson (2009) found that a community-health-clinic monitoring programme substantially improved clinical staff attendance and health outcomes. In Kenya, Duflo et al. (2009) found that training communities to monitor and assess teachers led to a small improvement in the performance of centrally appointed teachers and a larger improvement in the performance of teachers who were locally appointed and paid out of community donations rather than the public purse. However, also in Kenya, de Laat et al. (2008) found that a program designed to strengthen ties between school committees and local educational authorities through training and joint meetings and under which school committees could award prizes increased committee activity and led to the election of more educated committee members but had no effect on teacher performance. In Uttar Pradesh, Banerjee et al. (2008) found that neither informing communities about the quality of local schools and what they should expect from schools, nor training communities to monitor and assess school performance had any impact on either levels of community involvement in holding schools to account or school performance.[3] And interim results from an ongoing randomized, controlled trial of a 'Whole School Development' program in Gambia, which provides training and cash grants to head teachers and Parent Teacher Association representatives, find no positive impacts – and even some evidence of negative impacts – on teacher preparedness and pupil learning (Blimpo and Evans 2010a,b).

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[2] According to Lewis and Peterson (2009) holding public officials/service providers to account involves rendering them "answerable for processes and outcomes and imposing penalties if specified outputs and outcomes are not delivered".

[3] By contrast, Banerjee and co-authors do find significant, positive effects from a third intervention, in which they trained community members to run reading camps.

So, should we be investing in local accountability systems that rely on citizen involvement or should we take another look at top-down systems in which public servants are monitored and held to account by other public servants?[4] Olken's (2007) comparison of community monitoring and top-down government auditing of locally managed road construction projects in Indonesia indicated that the latter could be significantly more effective at deterring resource expropriation. However, little discretion was afforded to the government auditors within the context of the study. Kremer and Chen (2001) afforded considerable discretion to Kenyan headmasters when inviting them to monitor and report teacher attendance so that bicycles could be awarded to those with good attendance records and, in contrast to Olken's government auditing, this top-down monitoring system failed unequivocally; all of the headmasters indicated that all of their subordinate teachers had sufficiently good attendance records to deserve a bicycle, while independent verification revealed otherwise (see also Kremer and Holla 2009 for a discussion). However, in this case, we do not know how well the communities served by the teachers would have performed in the monitoring role. A recent field experiment by Pradhan and co-authors (2011) finds no effect of providing grants and training to school management committees, but finds positive test-score impacts both of increasing 'linkages' between school management and village government in Indonesia and of enforcing the election of school management committee members. However, compliance with assignment to elections was extremely low (48%), and the election intervention actually decreased teacher presence. Moreover, the impacts of linkages arise not from improved accountability of teachers – teachers actually report *less frequent* use of rewards and sanctions by principals under the linkage intervention – but rather from direct educational interventions by village council members. What constitutes an effective accountability intervention and who should be charged with the duty of holding teachers to account remain open questions.

In general, the effectiveness of delegating authority to alternative stakeholders will depend not only on their access to a technology for rewarding or sanctioning behavior (such as control over bonuses, or hiring and firing powers), but also on their access to information about school performance and on their willingness to use their enforcement technologies in order to hold teachers to account for this performance. Institutional reforms can aim to shift authority across actors, or to change these parameters for particular actors. A difficulty in drawing lessons from existing field experiments for the design of accountability reforms stems from the fact that they typically do not allow researchers to attribute observed effects – whether good or bad – to induced differences in technology, information, or preferences.

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[4] Barrera-Osorio and co-authors (2009) provide a comprehensive review of available evidence on reforms to decentralize school management more generally, drawing together a total of 14 very diverse studies. These reforms include instances of 'administrative' (management) or 'professional' (teacher) control, and varying degrees of delegated authority. Barrera-Osorio (2009, p. 104) conclude that the "dearth of evidence on the impact or effectiveness of SBM in practice", arising from the limited number of experimental or well-identified quasi-experimental studies, precludes strong statements about impacts in general or the design of school-based management in particular. More recently, Khattri and co-authors (2010) use non-experimental methods to find small, positive test-score impacts of a school-based management program that provided discretionary funds and training to head teachers in the Philippines, and Lassibille and co-authors (2010) find limited evidence of positive learning impacts of an experimental intervention intended to improve the professional management of schools in Madagascar..

In this paper, using data from a specially designed lab-type experiment conducted in the field we undertake a direct comparison of the decisions made by community representatives and two types of public servants when empowered to hold Ugandan primary school teachers to account.[5] The use of a lab-type experiment allows us to control and standardize the conditions under which each of the three types of stakeholder are operating; in effect, we hold the sanctioning technology and information environment constant across the three stakeholder types. Doing so allows us to isolate the role of the as yet unexplored variable in accountability systems, namely the inherent willingness of different stakeholder types to engage in the act of holding public service providers to account.

Within the experiment, each stakeholder was afforded a considerable degree of anonymity when making his or her decisions. Each started out with an identical money endowment and faced an identical monetary cost of holding a teacher to account, and each observed and responded to an identical set of possible teachers' actions. Thus, any differences in the observed willingness of the community members and two types of public servant to hold the teachers to account can be attributed to differences in the level of satisfaction they derive from causing a public servant whose behaviour falls short of the acceptable level to be penalized.

At the outset, we conjectured that this level of satisfaction and the corresponding willingness to hold teachers to account would vary systematically depending on how socially proximate the stakeholder was to the teacher and to those who stood to benefit if a teacher was effectively held to account. Social proximity to the teacher results in a conflict of interest in the sense that the level of satisfaction derived from causing a teacher who underperforms to be penalized is reduced by the dissatisfaction of causing a relative, colleague or friend to be penalized. In contrast, social proximity to those who stand to benefit if a teacher is effectively held to account increases the level of satisfaction. Kremer and Chen's (2001) finding is consistent with headmasters being subject to a conflict of interest owing to their social proximity to subordinate teachers. Olken's (2007) finding is consistent with community members being subject to a conflict of interest owing to their social proximity to local project managers and government auditors not being subject to such a conflict. However, in neither case can we exclude alternative explanations. Within the lab-type experiment reported below, alternative explanations are excluded, to the extent possible, by design.

The downside of using a lab-type experiment is that the findings may not generalize to the context of specific interest. This problem, referred to as the problem of external validity, is inextricably related to the control that the method affords the researcher. However, steps can be taken to enhance and, in some cases, investigate external validity.

Our experimental design has several unique features aimed at enhancing the external validity of our findings. The experiment was conducted in one hundred Ugandan primary schools, each of which has a School Management Committee (SMC) that is charged with the duty of holding

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[5] Barr, Lindelow, and Serneels (2009) compared the willingness of appointed and elected individuals to hold service providers to account in a lab-type experiment. However, all of the roles in the experiment were played by trainee nurses in Ethiopia, i.e., within the experiment both the role of the service provider being held to account and the role of the holder to account was taken up by trainee nurses. Within the experiment reported here, actual Ugandan teachers are held to account by individuals who are charged with the very same duty in everyday life.

the teachers to account.[6] Each SMC is comprised of several representatives of parents (elected) and of the school's 'foundation body' (appointed) and two distinct types of public servant, centrally appointed representatives of the District Education Office and sub-county government, and the school's headmaster.[7] Thus, in each school, we were able to undertake the comparison of interest, while matching the relational structure, i.e., who is holding whom to account in whose interest, of the experiment to the relational structure of the school accountability system.

The lab-type experiment involved a version of Fehr and Fischbacher's (2004) Third-Party Punishment Game (TPG). In this game a first player is invited to divide a sum of money between him or herself and a second player. Then a third player can pay to have the first player fined either having seen the first player's division or conditional on the first player making any of a number of specified divisions. It is the third players' behaviour that is of particular interest here as, assuming some consensus about what is a fair division, the third players' fining decisions reveal how willing they are to punish first players who act unfairly towards second players. Fehr and Fischbacher's original experiment involved student subjects. In contrast, we invited teachers from the schools described above to divide a sum of money between themselves and parents of pupils at the school and a sample of SMC members to decide whether and when to fine teachers.

Aiming to enhance external validity is one thing, presenting evidence of success in this regard is quite another. If data generated using a lab or lab-type experiment correlates in expected ways with data from nature, it can be taken as evidence of external validity (Guala, 2001, 2002). However, in the current context, nature offers no potential correlate to fining in the experiment. Ugandan SMCs have no pecuniary powers; they cannot fine or pay bonuses, hire or fire. The only tool the SMCs have at their disposal is moral suasion, the use of which in nature would be exceedingly difficult to measure. Thus, we are unable to show that what the SMC members do in the experiment correlates with what they do in nature. However, we can show that the behaviour of the teachers in the experiment is correlated with their behaviour in nature and that aspects of the SMCs' behaviour in nature impact predictably on that correlation.

We find that head teachers are less willing than other SMC members to hold their subordinate teachers to account. We find no significant difference between community representatives and centrally appointed public servants.

The rest of the paper is structured as follows. Section 2 presents the design of the lab-type experiment. Section 3 presents our analytical framework. Section 4 presents the data. Section 5

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[6] The laws required to facilitate and regulate these SMCs were put in place soon after the introduction of universal primary school education in 1997. Today, every Ugandan primary school has an SMC. However, the SMCs have no powers relating to teacher remuneration, hiring or firing and their efficacy is in doubt. When conducting surprise visits, Chaudhury et al (2006) found that 27 percent of Ugandan primary school teachers were absent from their place of work, a higher percentage than they found absent in all of the five other countries they included in their study and could find no correspondence between SMC activity levels and teacher absenteeism.

[7] The foundation body is either a religious entity or the local government. In every case the representatives will be local community members. In our sample, 85 of the schools had a religious foundation body.

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presents the analysis and findings. Section 6 presents our indirect evidence of external validity. And section 7 discusses the findings and concludes.

2. Experimental design

The experiment was conducted in 100 primary schools, 25 randomly selected from the full list of primary schools in each of four purposefully selected Ugandan districts. In each school, one experimental session was held involving fifteen subjects. The experimental design specified that five teachers should be placed in the first player (money dividing) role, five parents of pupils at the school in the second player (passive) role, and five SMC members in the third player (fining) role. In some schools, five teachers and/or five SMC members were unavailable and so the quotas for the affected role or roles had to be made up using other subject types (usually pupils' parents). Thus, in the experiment as a whole, across the 100 schools, 487 teachers were assigned to the first player (money dividing) role, 474 SMC members to the third player (fining) role, and 500 parents to the second player (passive) role. The distribution of SMC members by type is presented in Table 1; 21 percent are head teachers, 17 percent are centrally appointed public servants, the remaining 62 percent are community representatives.

Table 1: Sample of School Management Committee members by type

	Freq.	Rel. freq.
Head teacher	100	21.1%
Centrally appointed public servants (CAPS)	80	16.9%
Community representatives	294	62.0%
Foundation body representative	140	29.5%
Parents' representative	150	31.6%
Alumni representative	4	0.8%
Total	474	100.0%

Each experimental session was conducted using a classroom, large enough to seat all fifteen subjects and four field researchers, and three decision-making stations located outside the classroom and at a sufficient distance to ensure complete privacy during one-on-one meetings. Each session proceeded as follows. On arrival, each subject was registered and given a badge bearing a number and either an orange, green or blue figure. Parents received badges bearing orange figures, teachers, badges bearing green figures, and SMC members, always including the head master, badges bearing blue figures. Following registration, each subject was invited to sit in an area assigned to their badge colour. Once all the subjects had arrived and were seated, one of the field researchers, standing at the front of the classroom, introduced the research team and went through a series of formalities relating to ethics and control. Then, before describing the experimental games, the presenter invited all those with green badges to raise their hands and asked "Am I right in thinking that you are all teachers?" Having received confirmation, she or he said "During the workshop I will refer to you as green players." The presenter then went through the same procedure with orange badge wearers, i.e., parents, and

blue badge wearers, i.e., SMC members. The aim of this exercise was to ensure that badge colours and the roles that the badge wearers assumed in their everyday lives were linked in the minds of the participants. This was the only atypical framing applied to the experiment.

Then the games were introduced. First, the teachers, randomly and anonymously paired with parents, were engaged in a Dictator Game (DG).[8] Then the teachers, randomly and anonymously paired with parents (new pairings), and the SMC members, randomly and anonymously matched to teacher-parent pairs played the TPG.[9] There was no feedback between games.

Each game was described using wall mounted visual aids depicting green, orange, and, in the case of the TPG, blue figures and moving representations of real Ugandan Shillings about to show allocations being made (see Figure 1). Once the subjects had been taught a game, the teachers were called to one-on-one meetings with field researchers, where they were taken through the game again, tested, and then invited to express their decisions by dividing ten real coins between the green figure representing themselves and the orange figure representing the parent they had been anonymously paired with on the table in front of them.[10]

Figure 1: Example of the visual aids used to explain the Third Party Punishment Game

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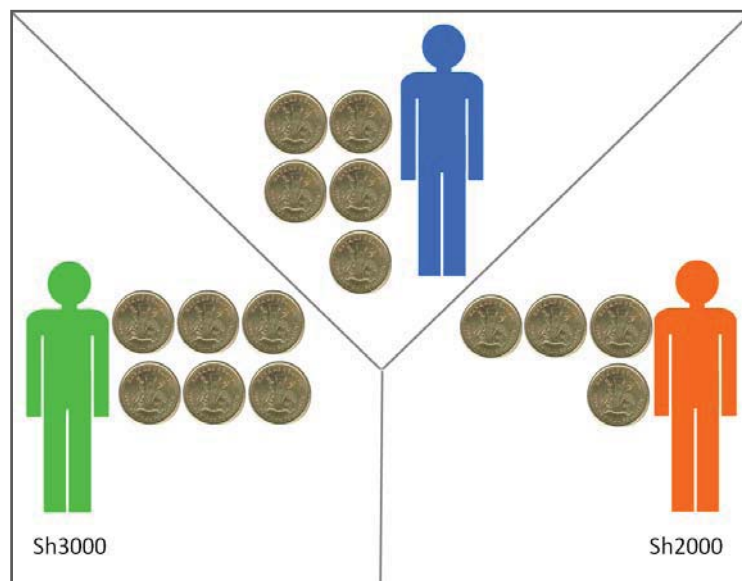
[8] The role of the DG was to supply a measure of teachers' intrinsic motivations to share with the parents and to support an analysis of the external validity of the experiments. In this analysis (reported in full elsewhere), we found an inverse correlation between the proportional allocation made by each teacher to a parent in the DG and that teachers' absenteeism rate. We take this as evidence that, for the teachers at least, behaviour in the experiments and behaviour in the everyday life of the school are, to some extent, motivated in the same way. The teachers' behaviour in the TPG was not expected to and did not correlate with absenteeism in the same way owing to the powers given to the SMC members within the game.

[9] Even though the SMC members were not directly involved in the DG, each was endowed with 2,500 *Sh*. We did this to emphasize the passive presence of the SMC members during the DG and to ensure that the SMC members did not enter the TPG, feeling under-remunerated.

[10] We had no reason to doubt the literacy and numeracy skills of the teachers. However, we knew that many of the parents and some of the SMC members would be illiterate and we wanted the teachers to be in no doubt that the parents understood the game and to apply the same protocol to all active subjects.

In both the DG and the TPG 500, Ugandan Shilling coins were used. So, each teacher was invited to divide 5,000 Ugandan Shillings between him or herself and one of the five parents in the session.[11] In the TPG each SMC member was initially endowed with 2,500 Ugandan Shillings and could pay 500 Shillings to have 1,500 Shillings taken away from the teacher with whom he or she was anonymously matched.

The SMC members' decisions were elicited using the strategy method. Each was asked whether he or she would "pay to fine" or "keep their money and not fine" in the event that the teacher allocated 3,500 to the parent and 1,500 to himself, 3,000 to the parent and 2,000 to himself, and so on all the way to zero to the parent and 5,000 to himself (eight choices in total). We did not ask what they would do if the teacher allocated less than 3,500 to him or herself as this either could have led to some teachers having negative net earnings or would have required some conditioning of the maths of the game and corresponding further explanation. Mindful of the need to keep the games as simple as possible both for the sake of the subjects and the field researchers who conducted the experiments, we decided to obviate these complications by simply not allowing the blue players to fine green players who allocated less than the value of the fine to themselves.[12] Like the teachers, the SMC members received further instruction, were tested, and made their fining decisions during private, one-on-one meetings.

In both games, the players were called to make their decisions in random order. All of the experimental sessions were conducted according to a script, drafted in English, translated into the principal local language in each of the four districts, and then back translated into English by an individual with no prior knowledge of the experimental objectives or design. This allowed us to check for consistency across the translations and ensure that no emotive words or phrases crept into the scripts. The scripts and protocols are available from the authors on request.

All of the sessions were conducted by field staff of the Ugandan Bureau of Statistics, from the same regions as the schools in which they worked and experienced in making respondents feel comfortable in their presence through prior work on household surveys investigating sensitive topics such as health outcomes. Further, the paperwork they carried and displayed and the identifying badges they wore were designed to indicate that, while they had the permission of the Ministry of Education and Sports to conduct the research, they were not in the employ of and should not be perceived as monitors sent by the Ministry.

3. Analytical framework

In the TPG the net benefit to an SMC member of fining the teacher with whom they are anonymously matched can be defined as

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[11] At the time of the experiment, 5,000 Ugandan Shillings was worth just under $3 and corresponded to half a day's pay for the average teacher in our sample.

[12] This was not explained unless players asked about it in one-on-one interviews. Then, they were provided with the explanation set out here.

$$B_{ij} = b_{ij}(\hat{a} - a_j, r_{ij}, s_{ij}, \boldsymbol{s_{ik}}) - c_{ij} \tag{1}$$

where B_{ij} is the total net benefit to i of fining j, b_{ij} is the internal or psychological benefit to i of fining j, and c_{ij} is the direct monetary cost to i of fining j. So, as c_{ij} is exogenously fixed at 500 Shillings, the SMC member's decision rule is fine if $b_{ij} > Sh500$ and who fines and when they fine depends on the factors determining b_{ij}.

The internal benefit to i of fining j, b_{ij}, is a function of how far j's allocation to the parent with whom they are matched, a_j, falls short of the acceptable or prescribed level, $\hat{a}$, i's official relationship to j, r_{ij}, i.e., whether they are charged with the duty of holding them to account, i's social proximity to or tendency to identify with j, s_{ij}, and i's social proximity to or tendency to identify with those who stand to benefit if i is effective in holding j to account, $\boldsymbol{s_{ik}}$.[13]

For a selfish, money-maximizing SMC member, i.e., one that has no regard for others or for their official duties, the first term on the right-hand side of (1) is zero. So, the net benefit reduces to $-c_{ij} = -Sh500$ and he or she will never fine.[14]

Now, consider an SMC member with net benefits to fining as defined in (1). Here, we expect that the further below the acceptable or prescribed level, $\hat{a}_j$, j's action, a_j, falls the greater the internal benefit i gets from fining j, $\partial b_{ij}/\partial a_j < 0$ if $a_j < \hat{a}_j$. If j's action exceeds the acceptable level we expect no fining. This expectation is derived from the observation that, within the context of a well functioning accountability system, teachers would never be penalised for exceeding the acceptable level of performance to the benefit of their clients. These conjectures translate into SMC members being more likely to fine teachers who allocate less to parents and having fining strategies that are either flat (never fine or fine in the case of all allocations to the parent) or monotonic (fine when the parent is allocated zero, do not fine when they are allocated 70 percent and switch once in between).

In addition, if as proposed by Akerlof and Kranton (2000) individuals prefer to act in accordance with their identities, the effect of any deviation of a_j from $\hat{a}_j$ on the internal benefit to i of fining j will be greater if i has assumed holder-to-account-of-j as part of his or her identity, $\partial b_{ij}/\partial r_{ij} > 0$, for a_j that falls short of $\hat{a}_j$. Conversely, the effect of such deviations would be reduced if i and j are socially proximate and doing harm to socially proximate others causes dissatisfaction, $\partial b_{ij}/\partial s_{ij} < 0$. Finally, the effect of such deviations would be enhanced if i and $\boldsymbol{k}$, i.e., those who stand to benefit from i successfully holding j to account, are socially proximate, $\partial b_{ij}/\partial \boldsymbol{s_{ik}} > 0$.

This framework can be used to interpret any differences in fining behaviour between the three types of SMC member in the TPG. The distinguishing feature of the head teachers is their

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[13] We denote by a vector to allow for the fact that the exact beneficiary of j's allocation is unknown to i, but is drawn from a set of five potential recipients.

[14] In Fehr and Fischbacher's (2004) original experiment over 60 percent of the students chose to fine under some conditions and in a cross-cultural study using a version of the TPG almost identical to the one use here, market integrated subjects in developing countries tended to engage in more fining than students Barr et al (2009).

probable social proximity to and tendency to identify with the teachers. If they fine less than community representatives and centrally appointed public servants, it can be taken as evidence that they are conflicted owing to this proximity. In contrast, we would expect the community representatives to identify with the wider community served by the schools. If they fine more than the centrally appointed public servants, it will be taken as evidence that this, the premise upon which local accountability systems are built, is well founded. Finally, we would expect the centrally appointed public servants to be least likely to be socially proximate to or identify with either the teachers or the community.

4. Data

The teachers' behaviour when placed in the money dividing role gives us some insight into what the teachers considered fair and appropriate within the context of the TPG. Figure 2 presents the distributions of allocations made by the teachers to the parents in the TPG. Compared to the allocations that students make in lab-based TPGs, the allocations made by the Ugandan teachers are high. This could be owing to the relatively low anonymity in the Ugandan game and/or to the subject pools and role matching.[15] The strength of the mode at the equal division is particularly striking; 27 percent of the teachers made such a division. Lower allocations to parents are made by 56 percent of the teachers and fewer than 15 percent of the teachers made higher allocations. These distributions are consistent with the majority of teachers considering the equal division to be appropriate and teachers varying with respect to the strength of their preference to act appropriately.

Figure 2: Distribution of Offers in the Third Party Punishment Game

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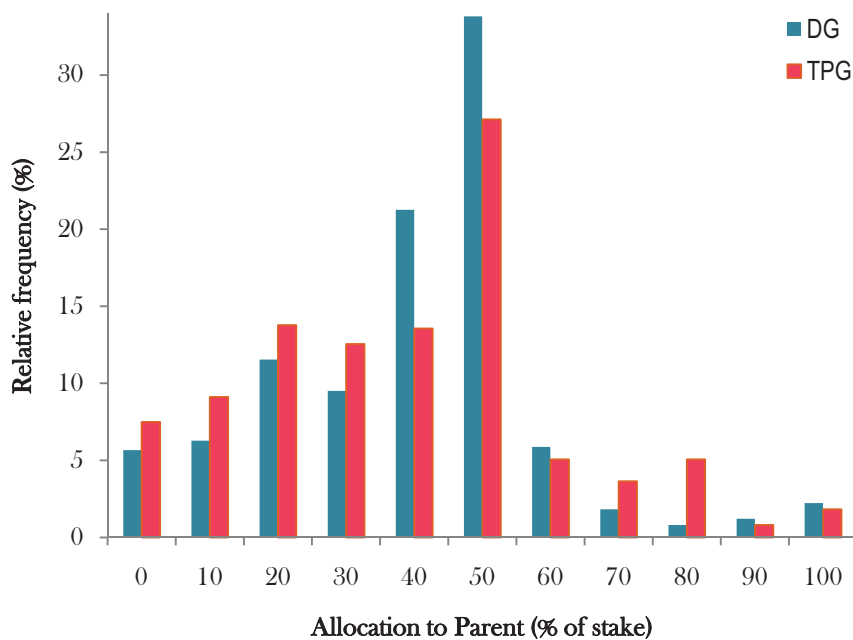
[15] See Barr et al (2009) for a comparison of DG and TPG allocations made by Emory students and individuals from a diverse range of variably developed societies.

Though not directly comparable with Fehr and Fischbacher's data owing to differences in the third parties' choice sets, the Ugandan SMC members appear to be more inclined to pay to fine than the original student sample. Only 63 percent of the students paid to fine first players who allocated nothing to second players, while over 80 percent of the Ugandan SMC members paid to fine teachers who allocated nothing to parents. This notwithstanding, the student's and SMC members fining strategies are similar in one important regard. Like the students, the SMC members' fining strategies indicate that the majority of them considered the equal division to be appropriate. Figure 3 plots the mean fining strategies of headmasters, centrally appointed public servants and community representatives. The allocations by the teachers to the parents appear on the horizontal axis and the proportion of SMC members of each type choosing to fine appears on the vertical axis. The SMC members of each type were least likely to fine a teacher who divided the money equally between him or herself and the parent.

Figure 3: Mean fining strategies for a head teacher and a locally elected representative
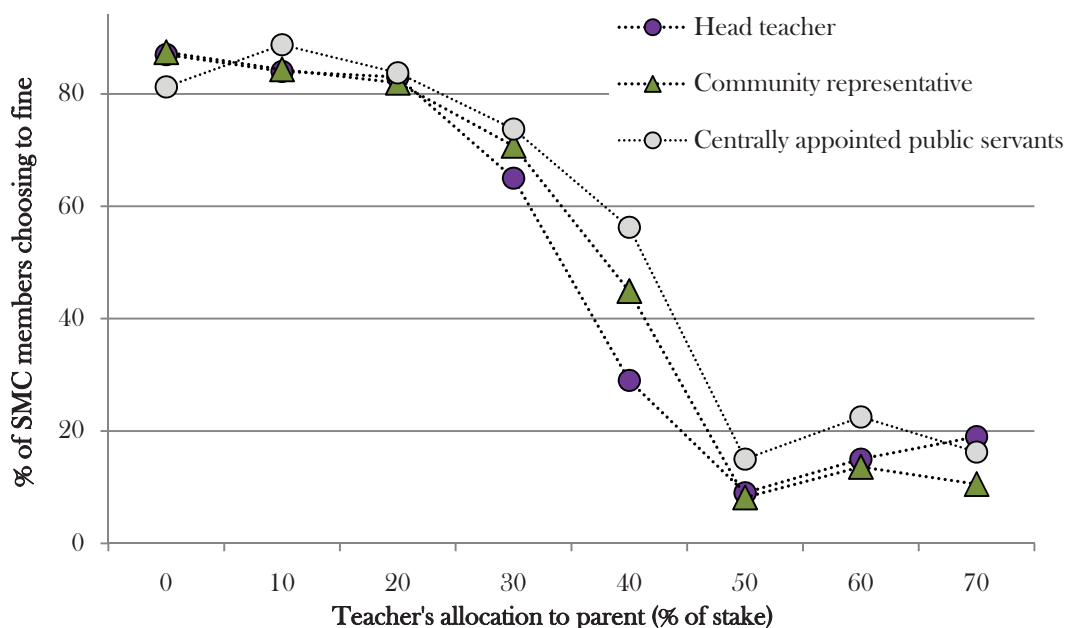
In general, the strategies also appear to accord with the framework set out above; teachers are more likely to be fined the lower their allocations to the parents. However, the plots indicate that some chose to fine when the equal division was made, more chose to fine teachers who made unequal divisions that favoured the parent than chose to fine the equal division, and some chose not to fine in the case of a zero allocation to a parent, but fined in the case of a 10 percent allocation.

A closer look at the data reveals that a considerable proportion of the SMC members chose fining strategies that are neither flat nor monotonic. In Table 2 the fining strategies are categorized according to shape. In the first column we see that only 71 percent of the SMC

members chose strategies that were either flat or monotonic. Within this category, 5 percent chose never to fine, 1 percent chose to fine the teacher irrespective of how much he or she allocated to the parent, 64 percent chose monotonic strategies involving fining in the case of low allocations to the parent and no fining in the case of high allocations, and across all flat or monotonic strategies 5 percent chose to fine teachers allocating half or more to the parent. This 5 percent of SMC members are acting as if they think that the teachers should be allocating more than half to the parents.

Table 2: Consistency in TPG fining strategies

	All	Head teachers	CAPS[†]	Community representatives
Monotonic or flat fining strategies	71.0%	66.0%	66.3%	73.8%
involving no fining	5.3%	7.0%	6.3%	4.4%
monotonic	64.6%	59.0%	56.3%	68.7%
all allocations (0-70%) fined	1.1%	0.0%	3.8%	0.7%
Convex fining strategies	8.3%	15.0%	3.8%	7.5%
Other fining strategies	20.6%	19.0%	30.0%	18.7%
Observations	474	100	80	294

Notes: † CAPS = Centrally Appointed Public Servants

Just over 8 percent of the strategies chosen were convex, involving no fining in the case of the equal division, fining in the case of both zero and 70 percent allocations to parents and two switch points. These strategies are consistent with teachers who make high offers being viewed as norm violators akin to rate-busters. So, it is a form of holding to account, but not in the interest of the schools' clients. Note that head teachers are considerably more likely than either community representatives or centrally appointed public servants to choose a convex strategy. We will return to this finding below.

Finally, almost 21 percent of the strategies are neither monotonic, nor flat, nor convex. These strategies could be pure noise - collections of random guesses made by SMC members who did not understand the task they were being asked to perform. If this is the case, including them in the analysis would reduce statistical power, while excluding them could introduce sample selection bias.[16] Alternatively these strategies could be manifestations of alternative rationales or consistent decision-making but with some error. If either of these is the case, the strategies are informative and should be included in the analysis. We were able to come up with a rationale for half of these strategies and observed that a further quarter were either monotonic or convex

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[16] The rates at which each type of fining strategy is selected vary across types of SMC member. Both Chi-squared tests and simple linear probability models with observations clustered by school indicate that community representatives are more likely than either type of public servant to choose flat or monotonic strategies and head teachers are more likely than either centrally appointed public servants or community representatives to choose convex strategies. Finally, after controlling for education and which of the field researchers each SMC member met in their private one-on-one meeting, community representatives are less likely than either head teachers or centrally appointed public servants to choose apparently random strategies.

excepting one possible error. So, throughout the analysis presented below we use the full sample of strategies.

Table 3: School Management Committee Characteristics

	All	Head teachers	CAPS[†]	Community representatives
Age in years	7.7	3.8	48.4	48.7
Female (%)	22.7%	25.8%	28.0%	20.2%
Years served on SMC	4.2	3.6	4.2	4.4
Education				
no formal education	0.9%	0.0%	1.3%	1.1%
incomplete primary education	14.6%	4.3%	20.0%	16.6%
completed primary education	34.2%	3.2%	45.3%	41.5%
completed O-level	30.8%	22.6%	32.0%	33.2%
completed A-level	12.1%	40.9%	1.3%	5.4%
completed university	3.4%	12.9%	0.0%	1.1%
holds a diploma or certificate	4.0%	16.1%	0.0%	1.1%
Completed O-level or higher	50.3%	92.5%	33.3%	40.8%
Observations	445	93	75	277

Notes: † CAPS = Centrally Appointed Public Servants

Finally in this section, we present the four control variables that we use during our analysis. The mean age of the SMC members is 47.7 years (s.d.=11.1), 77 percent are male, 23 percent female, 50 percent have O levels or above, and the mean number of years served on the SMC is 4.2 (s.d.=4.1). Table 3 suggests and t-tests and simple regressions confirm that the head teachers in our sample are significantly younger and more educated and tend to have served for fewer years on the SMCs to which they belong.[17] For these reasons and because it is highly likely that all three variables are associated with the willingness to hold teachers to account, it is important to control for these variables during the analysis even though this restricts the sample with which we can work owing to missing observations for 29 of the 474 SMC members who participated in the TPG.[18]

5. Results

Figure 3 suggests that the three types of SMC member may vary with respect to their willingness to fine teachers, but only when the teachers are making middle-of-the-range allocations to parents. In Table 4 we investigate whether the subtle differences in the fining strategies are

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[17] All of the other apparent differences in Table 3 are statistically insignificant according to t-tests and simple regressions.
[18] The 29 SMC members for whom we have missing characteristics data are statistically indistinguishable from the rest of the sample with respect to their fining behaviour.

statistically significant by estimating a series of three linear probability models.[19] In each of these models we treat each of the eight fining decisions made by each SMC member as a separate observation. The dependent variable is a dummy variable indicating that an SMC member chose to fine.[20] All three models include school fixed effects, a set of seven dummy variables each corresponding to one of the eight possible allocations by a teacher to a parent (a zero allocation is the basis for comparison), a dummy identifying the head teachers and a dummy identifying the centrally appointed public servants (the community representatives are the basis for comparison). Models 2 and 3 also include the SME members' age, sex, education (a dummy indicating that they have completed at least O-levels), and the years they have served on the committee. Model 3 also includes 35 interaction terms that are described and discussed below. Model 1 is based on the full sample of 3,792 fining decisions. Models 2 and 3 are based on the 3,560 fining decisions made by SMC members for whom we have characteristics data. In all models the standard errors are clustered at the school level to account for non-independence within both sessions and SMC members.

In Model 1 neither of the SMC-member-type dummies bears a significant coefficient and the linear restriction test result reported at the bottom of the table is also insignificant.[21] This suggests that all three types of SMC member are equally willing to fine teachers. However, in Model 2, where we control for the individual characteristics of the SMC members, the coefficient on the head teacher dummy becomes highly significant (1 percent level). This indicates that, when we compare like with like in terms of sex, age, education, and years served on the SMC, head teachers are significantly less willing to hold the teachers to account as compared to community representatives. Further, the linear restriction test results reported at the bottom of the table indicate that they are also significantly less willing to hold the teachers to account as compared to centrally appointed public servants (5 percent level).

The age of the SMC members, their education, and the years they have served on the SMC also bear significant coefficients: willingness to fine declines with age;[22] SMC members who have completed at least O levels are more inclined to fine as compared to less educated ones; and willingness to fine increases with years spent on the committee.[23]

In Models 1 and 2, differences in willingness to fine across SMC members can manifest only as vertical shifts in the fining strategy. However, Figure 3 indicated that the fining strategies of the three types of SMC member diverged most when allocations to parents of 30 and 40 percent were being considered. To investigate this further, while continuing to control for the SMC

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[19] We estimate linear probability models rather than probits or logits because most of our regressors are dummy variables and we also wish to account for school fixed effects in almost of the models.

[20] If all of the strategies were flat or montonic or we restricted our analysis to those that are flat or monotonic, we could use the minimum unfined allocation as the dependent variable. However, we want to include all of the strategies in our analysis to obviate problems of selection bias.

[21] If we restrict the sample to fining decisions made with reference to allocations of 50 percent or less to the parents, i.e., to allocations at or below the mode, the coefficient on the head teacher dummies is negative and weakly significant (10 percent level). If we restrict the sample to flat and monotonic strategies only, the coefficient on the head teacher dummy is negative and weakly significant (10 percent level).

[22] The square of age in years is insignificant when added to the models.

[23] It is worth adding here that when we estimate the models for community representatives only we find no difference in fining behaviour between Foundation Body representatives and elected parent representatives.

Table 4: Linear probability models of fining with school fixed effects

*Dependent variable = 1 if SMC member (i) chose to fine the teacher (j)*

	Model 1		Model 2		Model 3	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
CAPS[†]	0.016	0.025	0.018	0.026	0.018	0.026
Head teacher (HT)	-0.021	0.019	-0.060	0.023 ***	-0.008	0.038
Allocation to parent, a_i						
$a_i = 10\%$	-0.013	0.015	-0.016	0.015	-0.015	0.023
$a_i = 20\%$	-0.038	0.017 **	-0.036	0.018 **	-0.065	0.031 **
$a_i = 30\%$	-0.162	0.023 ***	-0.160	0.024 ***	-0.153	0.036 ***
$a_i = 40\%$	-0.428	0.031 ***	-0.429	0.031 ***	-0.383	0.045 ***
$a_i = 50\%$	-0.768	0.024 ***	-0.764	0.025 ***	-0.746	0.038 ***
$a_i = 60\%$	-0.709	0.028 ***	-0.721	0.027 ***	-0.695	0.039 ***
$a_i = 70\%$	-0.730	0.025 ***	-0.735	0.024 ***	-0.717	0.041 ***
Age in years			-0.002	0.001 **	0.000	0.002
Female			0.014	0.020	-0.012	0.035
Education > O-level			0.050	0.024 **	0.065	0.032 **
Years served on SMC			0.004	0.002 *	0.002	0.004
$(a_i = 10\%)$ x HT					-0.018	0.042
$(a_i = 20\%)$ x HT					-0.033	0.045
$(a_i = 30\%)$ x HT					-0.130	0.058 **
$(a_i = 40\%)$ x HT					-0.243	0.068 ***
$(a_i = 50\%)$ x HT					0.009	0.052
$(a_i = 60\%)$ x HT					-0.024	0.064
$(a_i = 70\%)$ x HT					0.086	0.056
Constant	0.865	0.015 ***	0.844	0.019 ***	0.833	0.024 ***
School fixed effects	yes		yes		yes	
Observations	3792		3560		3560	
CAPS ≠ HT (p-value)	0.202		0.012**		0.469	
Other sets of interactions included (p-value on joint significance)						
a_i dummies x Age	no		no		yes (0.112)	
a_i dummies x Female	no		no		yes (0.779)	
a_i dummies x Ed. > O-level	no		no		yes (0.305)	
a_i dummies x Yrs on SMC	no		no		yes (0.638)	

Notes: Basis for comparison is a male locally elected representative, age 47.7 (sample mean), with no O-levels, who has sat on the median (in terms of fining) SMC for 4.2 years (sample mean) considering a teacher who has allocated zero to a parent; school fixed effects included in all specifications; standard errors clustered to account for non-independence at the school level; *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level; † CAPS = Centrally Appointed Public Servants.

members' characteristics, we interacted the allocation-to-parent dummies with the head teacher dummy and individual characteristics, i.e., we introduced 35 interaction terms.[24] Within this model only one set of interaction terms was jointly significant, namely the interactions between the allocation-to-parent dummies and the head teacher dummy (p-value 0.002). The outcome is Model 3 in Table 4.

In Model 3 the uniteracted head-teacher dummy is statistically indistinguishable from zero. This tells us that head teachers are just as likely as other SMC members to fine teachers who allocate zero to parents. Turning to the interaction terms, the significant coefficients relate to allocations to parents of 30 or 40 percent. Head teachers are less likely to fine teachers allocating these amounts to parents.

Figure 4: Predicted fining strategies for a head teacher, a centrally appointed public servant (CAPS) and a locally elected representative
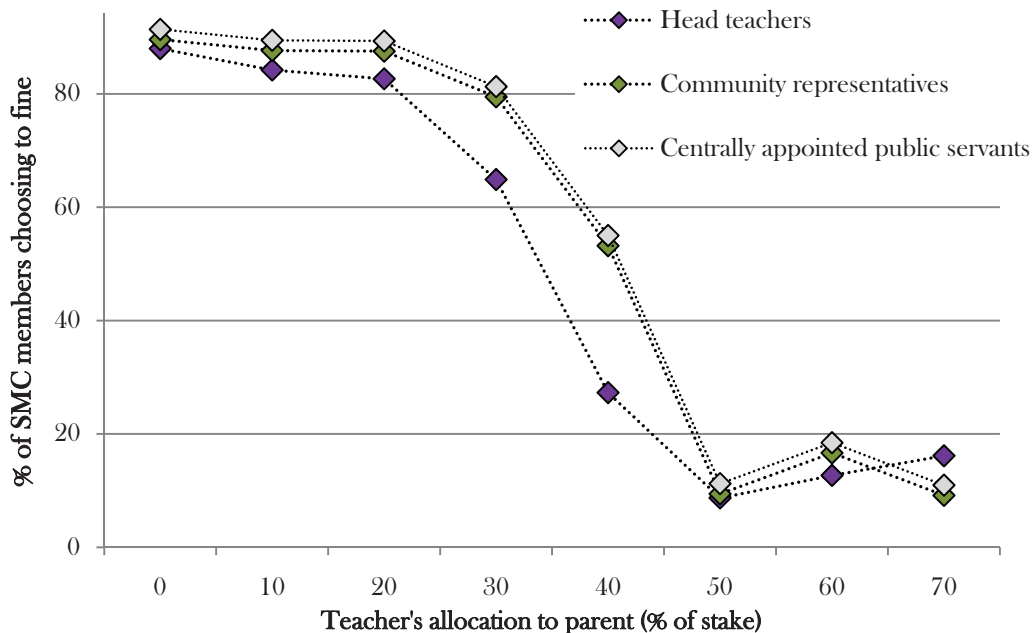
Note: Predictions based on Model 3 in Table 4 and relate to a 43.8 year old male with O levels or higher who has served for 3.6 years on the median (in terms of fining) SMC.

To investigate the magnitude of the difference in willingness to fine between head teachers and other types of SMC member, in Figure 4 we plot three predicted fining strategies each derived from the estimated coefficients in Model 3. These strategies relate to three 43.8 year old (the mean for the head teachers) males with O levels or higher who have served 3.6 years (the mean for the head teachers) on the median (in terms of fining) SMC, one a head teacher, one a centrally appointed public servant, and one a community representative. The plots show that

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[24] If we also include interactions between the centrally appointed public servant dummy and the allocations-to-parents dummies in this model they are jointly insignificant (p-value 0.21) and do not significantly alter the coefficients on the other explanatory variables.

the head teacher is 15 percentage points less likely than the other two to fine a teacher allocating 30 percent to a parent and 26 percentage points less likely, i.e., half as likely, to fine a teacher allocating 40 percent.

Table 5: Linear probability models of convexity in fining strategies

Dependent variable = 1 if SMC member (i) chose a convex strategy

Sample	All		Monotonic, flat and convex		All		Monotonic, flat and convex	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
CAPS[†]	-0.018	0.037	0.010	0.047	-0.019	0.049	0.010	0.039
Head teacher	0.075	0.031 **	0.107	0.038 *	0.065	0.046 **	0.090	0.038 ***
Age in years					-0.001	0.002	-0.001	0.001
Female					-0.023	0.043	-0.034	0.034
Education (O-level or above)					0.001	0.005	0.001	0.004
Years served on SMC					0.007	0.041	0.009	0.034
Constant	0.072	0.016 ***	0.082	0.019 ***	0.075	0.028 ***	0.085	0.024 ***
School fixed effects included	yes		yes		yes		yes	
Observations	474		376		445		358	

Notes: Basis for comparison is a male locally elected representative, age 47.7, with no O-levels, who has sat on the median (in terms of fining) SMC for 4.2 years; school fixed effects included in all specifications; standard errors clustered to account for non-independence at the school level; *** significant at the 1% level; ** significant at the 5% level; * significant at the 10% level; † CAPS = Centrally Appointed Public Servants.

Finally, before discussing and drawing conclusions from our results, it is useful to return to the finding reported in section 4 above, that head teachers are more likely than either centrally appointed public servants or community representatives to choose convex strategies, involving no fining in the case of the equal division, fining in the case of both zero and 70 percent allocations to parents and two switch points. In Table 4, the interaction terms indicate no significant difference between head teachers and other SMC members in terms of their willingness to fine teachers who allocate 60 or 70 percent to parents. However, in this analysis no distinction is made between decisions to fine such high allocations that are made within the context of flat or monotonic strategies on the one hand and convex strategies on the other. So, in Table 5, we present four linear probability models each taking a dummy variable equal to one if an SMC member's fining strategy is convex and zero otherwise as the dependent variable. All four models include school fixed effects and the two SMC member-type dummies. Models 2a and 2b also include the SMC members' characteristics. Model 1a is based on the entire sample of SMC members, Model 1b is based on the sample of SMC members who chose either flat or monotonic or convex strategies, Model 2a is based on the sample of SMC members for whom we have characteristics data and Model 2b is based on the intersection of the samples used in Models 1b and 2a. The coefficient on the head teacher dummy variable is

positive and significant in all four models and indicates that head teachers are around twice as likely as other SMC members to choose a convex strategy.

6. Discussion and conclusion

The analysis of the experimental data generated one null and two significant findings: community representatives and centrally appointed public servants are indistinguishable with respect to their willingness to hold teachers to account; head teachers are significantly less willing to hold teachers to account and only half as willing as other SMC members when the teachers' allocations to parents are only marginally below the generally accepted benchmark allocation of 50 percent; and head teachers are twice as likely to choose convex fining strategies in which they fine teachers making either low or high allocations but not teachers making the benchmark allocation.

We have located and determined the magnitude of the difference between head teachers and other SMC members within the context of the experiment. However, it remains to be seen whether and how this might translate into a difference in behaviour within the context of the school. By design, the experiment excludes a number of important factors, including any reputational concerns associated with making and acting on accountability-related decisions when others are watching. In addition, in the experiment the teachers were dividing a sum of money between themselves and a parent of a pupil, whereas in everyday life they are deciding how much time and effort to put into teaching pupils. Further research is required to establish whether and how these factors interact with the preferences investigated here.

With these caveats, our results do suggest that the head teachers' conflict of interest affects their behaviour in precisely the range where it matters most in the Ugandan education system. Suppose, following the data, that we take the equal division as the generally accepted benchmark for teachers' behaviour in the TPG. Then, the head teachers are performing least well relative to other SMC members when teachers' behaviour falls between 20 and 40 percent below the benchmark, whereas all SMC members show an equal willingness to punish extreme underperformance. Now, recall that Chaudury et al (2006) found an average underperformance rate in terms of attendance of 27 percent among Ugandan primary school teachers. So, if we assume a direct correspondence between teachers' underperformance rates in the experiment and in the school context, we find that the head teachers perform least well relative to other SMC members in precisely the conditions under which they need to perform to redress the current situation.

Now consider the finding that head teachers are twice as likely as other SMC members to choose convex fining strategies. A teacher who allocates 70 percent to a parent and then gets fined earns zero from the TPG. This is a harsh punishment and the motivations behind it need to be understood. To deter teachers from allocating more to parents is not in the interests of the parents and, in monetary terms at least, it is not in the interests of the finer either. However, if we view such fining as the punishment of norm violators akin to rate-busters, an alternative motivation comes into view. Elster (1989) argued that the punishment of rate-busters by co-

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workers could be viewed as serving the collective interests of the workers; if one worker out performs the rest the employer might choose to take that worker's performance as the benchmark against which to evaluate them all. Chaudhury and co-authors (2006) find that, across a range of countries, head teachers are *more* likely to be absent than their subordinates, which suggests that they may have particularly strong incentives to maintain a norm of imperfect attendance. This insight, combined with our finding that head teachers are twice as likely as other SMC members to choose convex fining strategies, suggests that some head teachers identify strongly with their subordinate teachers and care about their collective interests.

In many instances, having a head teacher who is socially proximate to and identifies strongly with his or her subordinate teachers is a good thing, especially if the head teacher is also a good leader; it could support coordination and cooperation among the staff of the school. However, our findings indicate that head teachers are not ideal holders to account.

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