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School committee composition: Exploring the role of parental and female representation in India

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Summary

Motivation

The adoption of school-based management (SBM) reforms has led to the formation of local-level school committees in many low- and middle-income countries. These committees are usually created with the stated aim of giving parents or local community members a greater say in school management. Various studies have, however, highlighted difficulties with parental and female participation, casting doubt on the extent to which greater community representation improves school management.

Purpose

The article examines empirically whether greater parental and female representation in Indian school management committees (SMCs) is associated with school improvement as measured by increases in the school-level provision of basic infrastructure and services.

Methods and approach

Fixed-effects regression models are estimated using school-level panel data.

Findings

I find that increased parental representation is not associated with improvements in school infrastructure/service provision. Rather, what contributes strongly to improved outcomes is increased representation of elected local authority members. Overall, schools with female-majority SMCs also perform better.

Policy implications

While the requirement for Indian SMCs to include representation from local government appears to be an effective feature of their composition, there is a need for capacity-building efforts to ensure that parent members also contribute effectively to school management. SMCs should also be encouraged to meet the female representation quota, as the analysis suggests a positive association between female representation and school outcomes.

Keywords

Gender, India, school management committee (SMC), school-based management (SBM)

1 INTRODUCTION

School-based management (SBM), which emphasizes the decentralization of decision-making authority down to the school level, has been enthusiastically adopted in many low- and middle-income countries (LMICs) as a solution to the problem of failing schools. SBM reforms have been adopted in Latin America (including Colombia, El Salvador, Honduras, Mexico, and Nicaragua), sub-Saharan Africa (including Gambia, Kenya, Madagascar, Niger, and Uganda), and Asia (including India, Indonesia, Philippines, and Sri Lanka) (Carr-Hill et al., 2018). Advocates of SBM base their support on the notion that there will be greater school accountability and improved school management when those most familiar with the school (school principals and teachers) or most affected by the quality of its educational service (pupils' parents or guardians) are given a role in overseeing the school (Barrera-Osorio et al., 2009; World Bank, 2003).

Quantitative analyses of SBM have focused primarily on evaluating its effects on school and student outcomes. Evaluations of this kind have found positive effects on teacher attendance (Blimpo & Evans, 2011), teacher effort (Di Gropello & Marshall, 2011; Sawada & Ragatz, 2005), teacher behaviour such as homework assignment and meetings with parents (Umansky & Vegas, 2007), student absenteeism (Blimpo & Evans, 2011; Jimenez & Sawada, 1999), dropout rate (Jimenez & Sawada, 2014; Skoufias & Shapiro, 2006), pass rate (Carnoy et al., 2008; Gertler et al., 2012; Skoufias & Shapiro, 2006), and test scores (Carr-Hill et al., 2018). For the most part, however, these studies have taken the form of SBM as given and have not investigated the effect of differences in the composition of school committees on outcomes. For instance, while most SBM policies are predicated on the notion that participation by parents and local community members will lead to improvements in school quality, there is a lack of large-N, quantitative studies that test whether increased representation of this group in school committees contributes to better outcomes. Similarly, while some SBM policies mandate quotas for female representation in school committees, quantitative analyses have not examined the effect of female representation on outcomes.

Some of these questions have been addressed in a separate strand of SBM literature, which takes a qualitative, small-N approach to examining the dynamics within school committees and how they affect committee functioning. The findings from these studies do not always support the notion that increasing parental and female representation improves committee performance. They find that parents, and local community members in general, are sometimes reluctant to engage because of the high opportunity costs of participation (Essuman & Akyeampong, 2011), do not feel particularly empowered when they do participate (Chen, 2011; Okitsu & Edwards, 2017), sometimes perceive school teachers and principals as being uninterested in their opinions (Rivarola & Fuller, 1999), and defer to more powerful or privileged committee members for decision-making (Okitsu & Edwards, 2017; Prinsen & Titeca, 2008; Rose, 2003). These issues appear to be even more significant for female members. Rose (2003), for instance, found that the female quota on school committees in Malawi could often not be filled.

While the findings from these studies add nuance, depth, and complexity to our overall understanding of SBM effectiveness, it is difficult to generalize from them as they typically deal with a small handful of individual cases. Probably for this reason, they have tended to be overlooked in the broader literature on the effects of SBM (Okitsu & Edwards, 2017). To address this research gap, this article takes a large-N approach to exploring the relationship between school committee composition and school improvement. Empirical analysis of this relationship is useful because it can yield policy-relevant insights into how school committees can be structured to achieve better outcomes. More broadly, the article contributes to the empirical evidence on user committees in LMICs, specifically to the relatively small strand that examines the relationship between user committee characteristics and performance (e.g. Adhikari & Lovett, 2006; Cook et al., 2019; Leino, 2007).

Using a panel dataset of Indian government schools that have implemented SBM via the creation of school management committees (SMCs) between 2010 and 2016, I examine the association between parental and female representation in school committees and improvements in school-level provision of basic infrastructure and services. Overall, the results show that, in the Indian context, increasing parental representation in SMCs

is not associated with school improvement. What is associated with such improvement, however, is increased local government representation. Both male and female local government nominees are associated with improvements in school infrastructure provision, but the marginal effects of increasing female local government representation are stronger than those of increasing male local government representation. Keeping the overall share of parental representation in the SMC constant but replacing male parents by female parents is also positively associated with improved provision of school infrastructure overall, but there is evidence of heterogeneity across categories: female parents perform better than their male counterparts in terms of provision of toilets and medical check-ups for students, but worse in terms of library construction and provision of functioning electricity connections.

A recent article (Jain & Nandwani, 2021) drew on school-level panel data from the same source used in this article to examine the relationship between female representation and school-level outcomes. Although a direct comparison of the results is not possible due to differences in the measurement of both the dependent and independent variables, their results similarly indicate heterogeneity across categories of school resources. The authors also examine the association between female representation and characteristics of the school teaching staff, and find that increased female representation is positively associated with an increase in the number of female teachers as well as better-qualified teachers.

The article is structured as follows. Section 2 reviews the relevant literature and derives a set of testable hypotheses. Section 3 describes the institutional setting for the research, namely school committees in India. Section 4 describes the data and operationalization of variables. The econometric methods used and results of the analysis are presented in section 5. Section 6 discusses the findings and concludes.

2 LITERATURE REVIEW

2.1 Parental representation

SBM reforms first started in high-income countries such as Australia, Canada, New Zealand, and the UK, but interest in them soon grew in LMICs as well. While national governments took the initiative in some cases, international development agencies played a major role in the popularization of SBM reforms in LMICs, often making decentralization reforms a precondition for financial aid (Bjork, 2006). Barrera-Osorio et al. (2009) reported that SBM projects constituted about 10% of all World Bank education projects and 18% of its total education financing between 2000 and 2006. Consequently, Caldwell (2005, p. 3) observed that “school-based management has been evident in policy and practice for more than three decades to the point that there are now few nations that have not moved down this track.”

Although there had been previous models of SBM in which control over school management was awarded solely to school principals and/or teachers, most SBM reforms in LMICs prioritized the involvement of parents and the local community. Barrera-Osorio et al. (2009, p. 17) noted that “SBM in almost all of its manifestations involves community members in school decision making.” The rationale for this was to bypass higher levels of educational administration by creating a “short route” to accountability (World Bank, 2003): one in which parents, who have a large stake in improving the quality of the school that their children attend, were empowered to have a say in school management. In this respect, SBM reforms were seen as part of a wider movement to improve public services by strengthening community-based accountability mechanisms.

However, the “short route” of accountability argument did not adequately take into account the issue of local community capability. Qualitative research on SBM has revealed concerns about whether parents truly have the time, willingness, and ability to monitor the working of the school and drive substantive improvements. Okitsu and Edwards (2017) reported that parents in rural community-managed schools in Zambia experienced a lack of confidence at meetings, which tended to be dominated by more powerful and privileged members such as the chair, teachers, or district officials. Rose (2003) noted that, although most of the schools she surveyed in Malawi had constituted school committees, these committees were rarely directly involved in

school management. Teachers made most decisions about what kind of school development projects were required, these decisions were communicated to the school committee by the head teacher, and the committee's main task was to gather contributions in cash and kind for the projects. Prinsen and Titeca (2008) also found that most power was concentrated in the hands of the head teacher and the committee chairperson in Ugandan school committees. Essuman and Akyeampong (2011) noted in the case of Ghana that there were high opportunity costs to participation in school committees for community members, to the extent that elected or appointed members sometimes withdrew once they realized the demands participation made on their time. Chen (2011) concluded that school committees in Indonesia did not feel very empowered and parental participation was low, although more recent evidence suggests that participation has since improved (Bandur et al., 2022).

Evidence from a recent randomized experiment also suggests that, even when parents do play a meaningful role in school management, school-level outcomes do not necessarily improve as a consequence. Barrera-Osorio et al. (2020) found that giving Mexican parents a greater say in school management via the provision of financial grants to parents' associations had no effect on students' test scores, potentially due to a decline in relational trust between parents and teachers.

A large portion of the available evidence, therefore, is at odds with the normative belief underlying SBM policies that parental representation in school committees will lead to improved outcomes for the school. It is therefore useful to empirically test the following hypothesis:

H1: All else being equal, school committee outcomes improve as parental representation in the school committee increases.

2.2 Role of gender

Gender has been found to be positively correlated with successful local-level collective action in many LMIC contexts. Possible reasons for this include the fact that women sometimes have better local knowledge than men of the relevant goods or services (e.g. women may have better knowledge of local forests since they are usually responsible for collection of firewood and other non-timber forest products), can draw on their social networks with other women to convert them to the collective cause, and may have a higher predisposition towards co-operation. Agarwal (2009) found that the increased representation of women in community forestry executive committees improved forest conditions, Naiga et al. (2017) and Naiga (2018) found that women in Ugandan water-user committees not only made greater in-kind and financial contributions than men, but were also considered more trustworthy when placed in key positions, and Cook et al. (2019) found that community forest conservation groups that were randomly assigned a gender quota conserved more trees.

At the same time, other empirical studies conducted in LMICs have observed women's constrained participation in mixed-gender groups. Rose (2003) noted that, although SBM policy required a third of school committee seats in Malawi to be reserved for women, in several cases the quota was not met. Even where met in theory, women often did not show up at meetings, or did not speak if they did attend. Okitsu and Edwards (2017) also noted that women seldom spoke at school committee meetings. Leino (2007) found that randomizing an intervention to encourage women to participate in local water-management committees in rural Kenya did increase the number of women on committees, but had no effect on maintenance outcomes. Prokopy (2004) listed low education and self-confidence, lack of experience in decision-making and leadership, cultural norms that discourage women from speaking in public, and the demands of household work and childcare as barriers to women's effective participation. To this list, Das (2014) added the possibility of higher intra-household conflict when women step into public spaces.

This discussion suggests that the effect of parental representation on school outcomes may be different for mothers and fathers. Therefore, in addition to exploring the role of parental representation as such, I also explore the role of female parental representation in particular:

H2: All else being equal, school committee outcomes improve as the representation of female parents in the school committee increases.

In addition to examining the role of male and female parents separately, it is also useful to examine the role of the gender composition of the entire group. Some of the literature on the role of gender in local collective action suggests the existence of a critical mass effect. This is the notion that female representation in groups needs to reach a threshold level before it can exert a positive influence on group outcomes. In groups with few women, women are still so much in the minority that they may find it difficult to participate effectively. However, when there is a critical mass of women in the group, the presence of other women bolsters the confidence of each individual woman and enables her to make effective contributions. This idea lies at the heart of policies to create gender quotas in political institutions (Duflo, 2012).

The limited empirical evidence on gender quotas in user committees, however, is mixed. Using data from community forestry groups in India and Nepal, Agarwal (2010) found that committees where about a third of members were women were more likely to exhibit effective female participation: women were more likely to attend meetings and speak up at them. On the other hand, Hannah et al. (2021) concluded that gender quotas for Kenyan water committees may have increased the nominal participation of women but did not alter their effective participation. It is therefore useful to examine whether achieving a critical threshold of female representation in SMCs is associated with improved SMC outcomes.

As will be detailed in the next section, the legislation on SMCs in India stipulated that half of SMC seats should be reserved for women. Using this as the threshold value, I test the following hypothesis on female representation:

H3: All else being equal, school committee outcomes are improved for committees in which female representation accounts for half or more of total membership.

3 SCHOOL MANAGEMENT COMMITTEES IN INDIA

The Right to Education (RTE) Act of 2009 required all government and government-aided schools in India to set up SMCs (Government of India, 2009). Section 21 of the Act stated that SMCs should consist of pupils' parents or guardians, teachers, and elected local authority representatives; that parents or guardians should comprise at least 75% of SMC membership; that proportionate representation should be given to parents or guardians of children from socially disadvantaged sectors; and that women should make up half of the committee members. SMCs were expected to monitor the working of the school and the use of government grants. They were also expected to prepare school development plans (SDPs), which would serve as the basis for future government grants to the school.

Within India's federated structure, education is a concurrent list subject in the constitution, meaning that both the central and state governments can legislate on it. The central government formulates the general direction of national education policy, while the state governments formulate state-specific policies through state legislative acts and state rules within the framework set down by the centre (Centre for Civil Society, 2019). In order to provide more guidance to state governments about how to operationalize the requirements of the RTE Act, the central government formulated a set of model rules. The model rules provided more details about the central government's vision of SMC structure and function. They stipulated that (1) SMCs should serve for a term of two years before they are reconstituted; (2) 75% of SMC membership should consist of parents or guardians, while the remaining 25% should be drawn equally from among elected local authority members, teachers at the school, and local educationalists or children at the school1; (3) every SMC should have a chairperson and vice-chairperson, to be elected from among the parent members; (4) SMCs should meet at least once a month, and minutes should be recorded and made available to the public; and (5) SMCs

should carry out a number of other functions in addition to those mentioned in the Act, including conducting checks on the attendance and punctuality of teachers and ensuring that teachers held regular meetings with parents, ensuring that the school complied with minimum infrastructural and instructional norms and standards specified in the Act, ensuring that children living in the catchment area were enrolled in, and attended, school, monitoring the implementation of the free mid-day meal scheme, etc.

While some states followed the centre's model rules verbatim when drafting their own state rules, not all states did. Most states complied with the centre's guidelines to reserve at least 75% of SMC seats for pupils' parents or guardians, but not all complied with the 50% target for female representation. The state rules of Goa, Madhya Pradesh, and Andhra Pradesh, for instance, did not include any provision for female representation (Central Square Foundation, n.d.). As the centre's model rules did not specify the number of members in an SMC, the rules of different states specified different numbers, ranging from 12 in Gujarat to 27 in Andhra Pradesh (Central Square Foundation, n.d.). Several states required SMCs to meet at least once a month, while others required them to meet once every two months or once a quarter.

Moreover, examination of the data shows that SMCs do not necessarily comply with state rules. While Madhya Pradesh prescribed 16 members for SMCs in primary schools and 18 members in upper primary schools (Central Square Foundation, n.d.), the average SMC in the state has 14.7 members (see state averages in Appendix A). While Andhra Pradesh state rules required SMCs to meet at least once a month (Government of Andhra Pradesh, 2011) and Gujarat rules only required them to meet once a quarter (Government of Gujarat, 2012), the average number of meetings a year is actually higher in Gujarat than in Andhra Pradesh. The analysis below will exploit these variations between schools to explore the relationship between SMC characteristics and school outcomes.

4 DATA AND VARIABLES

4.1 Data

I use school-level data obtained from the District Information System for Education (DISE) maintained by the National University for Educational Planning and Administration (UDISE+, n.d.). DISE contains annual data from all public, private-aided, and recognized private-unaided schools in the country, including school type, infrastructure, student enrolment, teacher numbers and characteristics, and (since 2010) SMC-related information, including whether an SMC has been constituted in the school, how often it meets in a year, and its composition. DISE data are entered by head teachers at the school level and go through a series of verification checks at cluster, block, district, state, and national levels before being finalized and collated (Bordoloi & Kapoor, 2018). Although there are some consistency issues in the data, their overall reliability has been highlighted in previous studies (Adukia et al., 2020; Li & Sekhri, 2020). There are no ethical considerations with the use of DISE data for this article as they are drawn from publicly available administrative sources and school-level data have been anonymized.

The dataset used for this analysis is constructed as follows. First, 20% of schools in all states, except the former state of Jammu & Kashmir (which was not required to implement the RTE), are randomly selected from the DISE database between the years 2010 (the year in which the SMC mandate came into force) and 2016. If a school is selected in any one year, all available years of data for it are also included. The annual samples of schools are then merged, resulting in a large, unbalanced panel dataset.

Next, the three main categories of government schools—those managed by state departments of education, tribal/social welfare departments, and local bodies—are retained for the analysis, while private-aided schools, private-unaided schools, and schools managed by religious institutions are dropped. Private-unaided schools are omitted because the RTE Act did not require them to constitute SMCs. Private-aided schools are dropped because the prescribed role of SMCs in private-aided schools changed in 2012, confounding the association between SMC characteristics and school improvement. While the RTE Act initially envisaged the same role

for SMCs in private-aided schools as in government schools, a 2012 amendment to the Act (Government of India, 2012) weakened this provision, stating that SMCs in private-aided schools would henceforth perform only advisory functions. The same amendment also clarified that none of the provisions of the RTE Act, including the requirement to constitute SMCs, applied to religious schools.

Further, government schools with no elementary section (classes 1–8) are excluded, as the provisions of the RTE Act only applied to schools providing elementary education. Single-sex government schools, which form a very small minority of all government schools, are also excluded to facilitate comparison of the number of boys' and girls' toilets across schools.

Next, I drop schools that never formed an SMC between 2010 and 2016. Such schools are irrelevant for the purposes of this analysis, the intention of which is to examine the association between SMC composition and school improvement. I also drop schools that formed an SMC in some year between 2010 and 2016, but either dismantled the SMC in a subsequent year, or failed to confirm whether they had an SMC in a subsequent year (missing data). Such schools are dropped to avoid confounding the role of changes in SMC composition with discontinuities in SMC functioning. The combined effect of these procedures is to ensure that the data used for the analysis only consist of those government schools that (a) formed SMCs at some point between 2010 and 2016, and (b) having once formed an SMC, never reverted to not having an SMC.

Finally, I drop schools that reported having an SMC in a particular year but did not hold any SMC meetings that year. These are schools that do not, in effect, have a functioning SMC, even though they report having created one. For the same reason, I also trim the data of schools reporting the bottom 5% values of SMC size. The final dataset comprises 496,007 observations and 88,772 distinct government schools.

Summary statistics for the sample are shown in Table 1.

4.2 Dependent variables

I use indicators of basic school infrastructure and services to measure SMC performance. While the provision of additional school infrastructure and material inputs has been found to contribute only weakly to student achievement in high-income countries, the situation is different in LMICs. There, baseline levels of school infrastructure provision are low (Glewwe & Kremer, 2006), and hence improvements can have large effects on students by enabling the creation of an atmosphere conducive to teaching and learning (Gershberg, 2015; Glewwe et al., 2011; Murillo & Román, 2011).

I use the following dummy variables to measure the provision of basic school infrastructure and services: (1) whether the school has at least one toilet for boys; (2) whether the school has at least one toilet for girls; (3) whether the school has a functioning electricity connection; (4) whether the school has a library; and (5) whether the school conducts medical check-ups for students. I also add these five dummy variables together to obtain a composite index (Index), the value of which lies between 0 and 5.

4.3 Independent and control variables

The DISE data pertaining to SMCs include information on the total number of SMC members, parent members, and local authority members by gender, and the number of SMC meetings held in the past year. The key independent variables I use for the analysis are the share of parent members in total SMC membership, the share of parent members by gender, and a dummy variable that measures whether female representation in the SMC is at least 50%. I also use the share of local government members and “other” members. The latter is a residual category constructed by subtracting the share of parent and local authority members from total SMC membership. In most states, this category includes teachers, local educationalists, and school pupils (Central Square Foundation, n.d.).

TABLE 1. Summary statistics.

	Mean	SD	Min	Max
School infrastructure and services				
i. Does school have at least one boys' toilet? (0 = no, 1 = yes)	0.78	0.42	0	1
ii. Does school have at least one girls' toilet? (0 = no, 1 = yes)	0.87	0.34	0	1
iii. Does school have electricity connection? (0 = no, 1 = yes)	0.42	0.49	0	1
iv. Does school have library? (0 = no, 1 = yes)	0.79	0.41	0	1
v. Does school have medical check-ups for students? (0 = no, 1 = yes)	0.74	0.44	0	1
Index (sum of i-v)	3.62	1.24	0	5
SMC characteristics				
SMC size	14.75	3.28	5	39
SMC meetings per year	8.31	3.15	1	16
Number of parent members	10.40	3.71	0	29
- As share of SMC membership (%)	68.38	19.80	0	100
Number of parent members (male)	4.86	2.19	0	14
- As share of SMC membership (%)	31.87	12.95	0	100
Number of parent members (female)	5.57	2.55	0	15
- As share of SMC membership (%)	36.51	14.41	0	100
Number of local government members	2.17	1.80	0	14
- As share of SMC membership (%)	13.84	11.44	0	100
Number of local government members (male)	1.24	1.18	0	8
- As share of SMC membership (%)	8.14	8.14	0	100
Number of local government members (female)	0.96	1.07	0	6
- As share of SMC membership (%)	5.71	6.40	0	83.33
Number of other members	2.58	3.10	0	36
- As share of SMC membership (%)	17.78	20.94	0	100
Number of other members (male)	1.45	1.86	0	19
- As share of SMC membership (%)	10.18	13.09	0	100
Number of other members (female)	1.15	1.78	0	20
- As share of SMC membership (%)	7.60	11.95	0	100
School demographics and other characteristics				
Male enrolment	52.85	74.76	0	2733
Female enrolment	52.32	67.84	0	2697
Total enrolment	105.17	137.26	0	4706
Total teachers	3.77	3.85	0	128
Government visits per year	11.02	9.41	0	297
Socially disadvantaged share in enrolment (%)	87.06	24.93	0	100

SMC-level control variables include SMC size and the number of meetings per year. Group size has been hypothesized to be an important determinant of the efficacy of group collective action. It has been suggested that larger groups are less effective at collective action than smaller ones, since each participant in a larger group that is collectively accountable for the outcome has more incentive to shirk, and shirking is also harder to detect in larger groups (Abadzi, 2020; Olson, 1965). However, it should be noted that these hypotheses are not always borne out by the evidence. For instance, experiments have found that the provision of public goods increases, rather than decreases, with group size (Diederich et al., 2016; Weimann et al., 2019).

The literature on collective action also emphasizes the importance of group meetings. Ostrom (2010) noted that the frequency of face-to-face communication is positively related to the efficacy of collective action, with potential channels including the development of group solidarity and possibility of more effective moral

suasion, i.e. convincing recalcitrant members to act in the group interest. However, it is also possible that more frequent meetings create higher transaction costs (Meinzen-Dick et al., 2004), and lead to more disagreement by allowing more viewpoints to emerge.

School-level control variables used are total enrolment in the school, the total number of teachers, the total number of annual government visits, and the share of students from socioeconomically disadvantaged backgrounds in total enrolment. Annual government visits include academic inspections as well as visits by Block Resource Centre (BRC) and Cluster Resource Centre (CRC) officers.2 The level of social disadvantage in school enrolment is calculated as the percentage of all students who are from socioeconomically disadvantaged sectors, which include the scheduled castes (SC), scheduled tribes (ST), and other backward classes (OBC).

5 MODEL SPECIFICATIONS AND RESULTS

I start by estimating the following two-way fixed-effects regression:

$$y_{st} = \beta SMCparentprop_{st} + X_{st}\gamma + \alpha_s + \delta_t + \varepsilon_{st} \quad (1)$$

where y_{st} represents the provision of school infrastructure and services for school s in year t;

$SMCparentprop_{st}$ is the share (in percentage terms) of parent members in the SMC; X_{st} is a vector of SMC- and school-level characteristics for school s in year t; α_s represents school fixed effects; and δ_t represents year fixed effects. The school fixed effects control for time-invariant unobserved characteristics of schools, while the year fixed effects control for annual shocks that are school-invariant and affect all schools in the same way. Hence, the two-way fixed-effects model removes some important elements of endogeneity. Standard errors are clustered at school level.

Table 2 shows the results of estimating regression (1) using the composite measure Index as well as each individual measure of school infrastructure/service provision as dependent variables. Examining the control variables first, we find that larger SMCs perform better, but that increasing the frequency of SMC meetings is not always associated with improved outcomes. As might be expected, schools that cater to higher proportions of socially disadvantaged students are associated with lower values of the dependent variables, while schools that receive more frequent government visits are associated with higher values. Overall, keeping everything else constant, schools with higher student enrolment are associated with lower values of Index, while the total number of teachers does not have a significant association with Index.

Turning to the key independent variable of interest, we find that increased parental representation in SMCs is negatively and significantly associated with Index. Examining the individual indicators constituting Index, the negative association is strongest in the case of libraries, electricity, and boys' toilets. The coefficient on parental representation is negative but statistically insignificant for girls' toilets and medical check-ups.

What Table 2 shows, therefore, is that SMC performance worsens when non-parent members are replaced by parent members while holding SMC size constant. Non-parent SMC members, however, are drawn from two different categories—local government representatives and others (non-government members)—and reducing the shares of the two categories may have different consequences. To investigate this, I examine what happens when parental representation is increased by drawing down one of these two categories, while holding the share of the other one constant. Accordingly, I now estimate the following two regressions:

$$y_{st} = \beta_1 SMCparentprop_{st} + \beta_2 SMCgovprop_{st} + X_{st}\gamma + \alpha_s + \delta_t + \varepsilon_{st} \quad (2)$$

$$y_{st} = \beta_1 SMCparentprop_{st} + \beta_2 SMCotherprop_{st} + X_{st}\gamma + \alpha_s + \delta_t + \varepsilon_{st} \quad (3)$$

where $SMCgovprop_{st}$ and $SMCotherprop_{st}$ are the shares of local government members and other (non-parent, non-government) members in the SMC, respectively.

Panel A of Table 3 shows the results of estimating regression (2), i.e. increasing parental representation while holding local government share constant (and therefore drawing down the share of "others"), while Panel B shows the results of estimating regression (3), i.e. increasing parental representation while holding the share of "others" constant (and therefore drawing down the local government share).

TABLE 2. Increasing SMC parental representation.

	(1)	(2)	(3)	(4)	(5)	(6)
	Index	Boys' toilet	Girls' toilet	Electricity	Library	Medical
Share of parent members	−0.0008***	−0.0001**	−0.0000	−0.0003***	−0.0004***	−0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0000)
SMC size	0.0218***	0.0077***	0.0107***	0.0007**	0.0009**	0.0023***
	(0.0011)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)
SMC meetings	−0.0035***	−0.0032***	−0.0023***	0.0009***	−0.0004	0.0014***
	(0.0007)	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0003)
Share of socially disadvantaged students	−0.0007***	−0.0001	−0.0001*	−0.0001	−0.0003***	−0.0001*
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Government visits	0.0018***	0.0004***	0.0003***	0.0004***	0.0002**	0.0006***
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Total enrolment	−0.0003***	−0.0002***	−0.0001***	0.0001***	−0.0002***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Total teachers	0.0010	0.0020***	0.0004	−0.0021***	0.0046***	−0.0039***
	(0.0013)	(0.0006)	(0.0004)	(0.0004)	(0.0005)	(0.0005)
Constant	2.5032***	0.3598***	0.4980***	0.3434***	0.6393***	0.6543***
	(0.0244)	(0.0107)	(0.0098)	(0.0074)	(0.0085)	(0.0084)
Observations	341,386	341,764	341,764	341,736	341,451	341,683
R-squared	0.3385	0.2552	0.1766	0.0370	0.1207	0.0384
Number of schools	82,082	82,109	82,109	82,104	82,092	82,096
School FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Numbers in parentheses are standard errors adjusted by clustering at school level.

***p < 0.01.

**p < 0.05.

*p < 0.1.

The results show that increasing parental representation in SMCs is almost always associated with worse outcomes, irrespective of whether it is achieved by drawing down the share of local government officials or other SMC members. Apart from a positive and significant association with the likelihood of building girls' toilets in Panel A, the coefficient on increased parental representation is either statistically insignificant, or negative and statistically significant, everywhere.

What Table 3 also illustrates, moreover, is the important role played by local government representatives. Panel A shows that increasing local government representation in the SMC is positively and highly significantly associated with Index and all the individual school infrastructure measures apart from electricity. On the other hand, Panel B shows negative consequences on the provision of school infrastructure and

services when local government representation is drawn down to increase the representation of parents and other SMC members.

TABLE 3. Increasing SMC parental representation while controlling for local government representation and other representation.

Panel A. Controlling for local government representation						
	(1)	(2)	(3)	(4)	(5)	(6)
	Index	Boys' toilet	Girls' toilet	Electricity	Library	Medical
Share of parent members	−0.0003**	0.0000	0.0002***	−0.0003***	−0.0003***	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0001)	(0.0000)
Share of local government members	0.0056***	0.0018***	0.0022***	0.0001	0.0008***	0.0006***
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
SMC-level controls	YES	YES	YES	YES	YES	YES
School-level controls	YES	YES	YES	YES	YES	YES
School FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	341,386	341,764	341,764	341,736	341,451	341,683
R-squared	0.3413	0.2567	0.1802	0.0370	0.1213	0.0388
Number of schools	82,082	82,109	82,109	82,104	82,092	82,096
Panel B. Controlling for representation of other (non-parent, non-government) members						
	(1)	(2)	(3)	(4)	(5)	(6)
	Index	Boys' toilet	Girls' toilet	Electricity	Library	Medical
Share of parent members	−0.0059***	−0.0018***	−0.0021***	−0.0004***	−0.0011***	−0.0006***
	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Share of other members	−0.0056***	−0.0018***	−0.0022***	−0.0001	−0.0008***	−0.0006***
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
SMC-level controls	YES	YES	YES	YES	YES	YES
School-level controls	YES	YES	YES	YES	YES	YES
School FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	341,386	341,764	341,764	341,736	341,451	341,683
R-squared	0.3413	0.2567	0.1802	0.0370	0.1213	0.0388
Number of schools	82,082	82,109	82,109	82,104	82,092	82,096

Note: Numbers in parentheses are standard errors adjusted by clustering at school level.

***p < 0.01.

**p < 0.05.

*p < 0.1.

The results show that increasing parental representation in SMCs is almost always associated with worse outcomes, irrespective of whether it is achieved by drawing down the share of local government officials or other SMC members. Apart from a positive and significant association with the likelihood of building girls' toilets in Panel A, the coefficient on increased parental representation is either statistically insignificant, or negative and statistically significant, everywhere.

What Table 3 also illustrates, moreover, is the important role played by local government representatives. Panel A shows that increasing local government representation in the SMC is positively and highly significantly associated with Index and all the individual school infrastructure measures apart from electricity. On the other hand, Panel B shows negative consequences on the provision of school infrastructure and

services when local government representation is drawn down to increase the representation of parents and other SMC members.

I now turn to investigating the role of female representation in the SMC. I explore the consequences of replacing male parents by female parents in SMCs, while keeping the shares of local government members and other members constant (by gender), by estimating the following regression:

$$y_{st} = \beta_1 SMCparentprop\_F_{st} + \beta_2 SMCgovprop\_F_{st} + \beta_3 SMCgovprop\_M_{st} + \beta_4 SMCotherprop\_F_{st} + \beta_5 SMCotherprop\_M_{st} + X_{st}\gamma + \alpha_s + \delta_t + \varepsilon_{st} \quad (4)$$

where $SMCparentprop\_F_{st}$ represents the share of female parent members, $SMCgovprop\_F_{st}$ and $SMCgovprop\_M_{st}$ represent the shares of female and male local government members, and $SMCotherprop\_F_{st}$ and $SMCotherprop\_M_{st}$ represent the shares of female and male "other" members, respectively

TABLE 4. Increasing SMC female parental representation while controlling for local government representation and other representation by gender.

	(1)	(2)	(3)	(4)	(5)	(6)
	Index	Boys' toilet	Girls' toilet	Electricity	Library	Medical
Share of parent members (F)	0.0011***	0.0011***	0.0012***	−0.0008***	−0.0011***	0.0006***
	(0.0003)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Share of local government members (F)	0.0102***	0.0041***	0.0037***	−0.0002	0.0008***	0.0019***
	(0.0005)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Share of local government members (M)	0.0034***	0.0010***	0.0019***	0.0000	0.0004***	0.0001
	(0.0004)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0002)
Share of other members (F)	0.0023***	0.0014***	0.0012***	−0.0002	−0.0008***	0.0008***
	(0.0003)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Share of other members (M)	−0.0003	−0.0001	−0.0001	−0.0002**	0.0002*	−0.0002*
	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
SMC-level controls	YES	YES	YES	YES	YES	YES
School-level controls	YES	YES	YES	YES	YES	YES
School FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	341,386	341,764	341,764	341,736	341,451	341,683
R-squared	0.3420	0.2576	0.1811	0.0374	0.1219	0.0395
Number of schools	82,082	82,109	82,109	82,104	82,092	82,096

Note: Numbers in parentheses are standard errors adjusted by clustering at school level.

***p < 0.01.

**p < 0.05.

*p < 0.1.

Table 4 also shows that both male and female local government nominees are positively associated with school infrastructure outcomes, with the coefficients for female local government representation being considerably larger than those for male local government representation. The association between other (non-parent, non-government) SMC members and school infrastructure outcomes, however, vary by gender. While replacing male parents by female members from the "other" category is associated with several improved outcomes, replacing them by male members from the same category is not.

Finally, I examine the association between increased female representation overall (rather than increased female parental representation only) and school outcomes by estimating the following regression:

$$y_{st} = \beta SMCfemaledummy_{st} + X_{st}\gamma + \alpha_s + \delta_t + \varepsilon_{st} \quad (5)$$

where $SMCfemaledummy_{st}$ is a dummy variable that takes the value one when the proportion of female members in the SMC is at least 50%, and zero otherwise. The results, which are shown in Table 5, mirror those in Table 4, which is not particularly surprising given that female parents account for the largest share of female SMC members. SMCs in which half or more members are female exhibit higher levels of the overall *Index* and higher provisioning of toilets and medical check-ups, but lower provision of electricity and libraries.

TABLE 5. Achieving or exceeding 50% female representation.

	(1)	(2)	(3)	(4)	(5)	(6)
	Index	Boys' toilet	Girls' toilet	Electricity	Library	Medical
Female representation dummy	0.0173***	0.0168***	0.0189***	−0.0099***	−0.0148***	0.0068***
	(0.0055)	(0.0025)	(0.0022)	(0.0018)	(0.0022)	(0.0021)
SMC size	0.0215***	0.0074***	0.0104***	0.0010***	0.0012***	0.0021***
	(0.0011)	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0004)
SMC meetings	−0.0032***	−0.0031***	−0.0022***	0.0009***	−0.0004	0.0014***
	(0.0007)	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0003)
Share of socially disadvantaged students	−0.0006***	−0.0001	−0.0001*	−0.0001	−0.0003***	−0.0001
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Government visits	0.0018***	0.0004***	0.0003***	0.0004***	0.0002**	0.0006***
	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Total enrolment	−0.0003***	−0.0002***	−0.0001***	0.0001***	−0.0002***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Total teachers	0.0009	0.0019***	0.0003	−0.0020***	0.0046***	−0.0040***
	(0.0013)	(0.0006)	(0.0004)	(0.0004)	(0.0005)	(0.0005)
Constant	2.4456***	0.3492***	0.4932***	0.3261***	0.6158***	0.6526***
	(0.0228)	(0.0100)	(0.0090)	(0.0070)	(0.0079)	(0.0080)
Observations	341,386	341,764	341,764	341,736	341,451	341,683
R-squared	0.3383	0.2554	0.1770	0.0369	0.1206	0.0385
Number of schools	82,082	82,109	82,109	82,104	82,092	82,096
School FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: Numbers in parentheses are standard errors adjusted by clustering at school level.

***p < 0.01.

**p < 0.05.

*p < 0.1.

6 DISCUSSION AND CONCLUSION

The results discussed above have several interesting implications. The first key finding is that increasing parental representation in Indian SMCs does not appear to make them more effective. Although many SBM reforms, including India's, tend to attach great importance to the representation of parents and the local community in school committees, the results presented here indicate that institutional provisions to involve them in school management do not automatically result in school improvement. There could be many

underlying reasons for this: parents may nominally agree to be members of school committees but not attend meetings or play an active role in practice due to the high time costs of participation (Essuman & Akyeampong, 2011); they may feel inhibited to participate actively in the presence of school principals and teachers (Okitsu & Edwards, 2017); and they may lack the skills for effective participation because they do not receive adequate training (Thapliyal, 2012). This suggests that merely adopting SBM arrangements is not enough; for parents and local community members to make a meaningful contribution to school management and truly exercise the “short route” to accountability, it is imperative to invest adequately in training and capacity-building efforts. It is also important to consider what form this training should take. In the Indian context, for instance, government-provided training has tended to focus primarily on providing information regarding the roles and responsibilities of SMCs. While this is an important first step, it does not by itself engender the skills required to participate effectively in school management, which may require a different approach focusing more closely on the development of concrete decision-making capabilities (Chand & Deshmukh, 2019).

Local government representation, on the other hand, is seen to play an important role in SMC effectiveness. Both male and female local government nominees are consistently associated with increased provision of school infrastructure and services. It is plausible that SMCs are playing a useful role by involving local government officials more closely in school management and familiarizing them with school conditions. It is also possible that SMCs that are successful in getting more local government representatives to be involved with their school do better because they are able to benefit from the representatives' expertise, political connections, and ability to harness public spending. This is the phenomenon described as “inverted elite capture” by Prinsen and Titeca (2008), who noted that, rather than local politicians trying to capture Ugandan school committees to advance their own interests, it was the school committees that constantly tried to capture local politicians and involve them in the affairs of the committee, in anticipation of the benefits that would follow. My results are also reminiscent of the experimental results obtained by Pradhan et al. (2014), who found that facilitating stronger links between school committees and village councils had significant positive effects on school quality. In their study, strengthening linkages led to greater engagement: collaboration between school committees and village councils improved, and village councils paid increased attention to village-level education.

My findings suggest, therefore, that building in and strengthening linkages between school committees and local government should be a core component of SBM reforms. That stronger linkages will benefit schools by increasing the visibility of school conditions and securing stronger buy-in from more powerful stakeholders is not only intuitively plausible but is also supported by previous empirical findings.

Another notable point that emerges from the analysis is that the gender composition of SMCs matters for their effectiveness. Overall, SMCs in which women constitute at least half of the members exhibit better outcomes than those with lower female representation. While the reasons for this cannot be ascertained within the scope of this study, the results are consistent with research on the positive role played by women in other collective action contexts in LMICs (Agarwal, 2009; Cook et al., 2019; Naiga, 2018; Naiga et al., 2017; Pandolfelli et al., 2008), although they are at odds with some existing qualitative evidence on the role of women in school committees in LMICs which suggests that women's effective participation is limited (Okitsu & Edwards, 2017; Rose, 2003). My analysis indicates that female local government representatives are most strongly associated with the observed positive female coefficient, but that, other things being equal, replacing male by female parents also has small but positive associations with the provision of some forms of school infrastructure and services (toilets and medical check-ups for students).

From a policy standpoint, these findings suggest that the design of SBM reforms should include mandating a certain level of female representation in school committees. Women may have higher motivation to ensure the provision of basic school facilities because they bear primary responsibility for children's care and education due to the gendered division of labour. Women's participation in community institutions has other important benefits for them, such as increasing their visibility and legitimacy in public spaces, enhancing their sense of

self-efficacy, and helping to strengthen their social networks (Das, 2014). Therefore, encouraging and strengthening mechanisms for increasing female participation in SMCs would appear to be a win-win.

It is noteworthy that SBM interventions in LMICs have rarely been subjected to social cost–benefit analyses, although it is often presumed that the benefits of implementing SBM outweigh the costs of doing so (Barrera-Osorio et al., 2009). It would be valuable for future research on this issue to attempt to quantify the costs and benefits of SBM to facilitate comparisons with other types of school-improvement policies, such as input-based policies, where the resource costs are more readily evident. Community participation is not cost-free and can be extractive; Okitsu and Edwards (2017) recorded how parents and local community members in rural Zambia experienced significant financial and time costs of participation. At the same time, other researchers have noted that community participation in SBM may have positive spill-over effects that have not been systematically investigated, such as in terms of encouraging broader civic participation (Corrales, 2006). It would be useful to also study such potentially beneficial wider societal impacts.

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DATA AVAILABILITY STATEMENT

The data used for this analysis come from the District Information System for Education (DISE) maintained by the National University of Educational Planning and Administration (NUEPA) in India. Permission to access the data should be sought from NUEPA (see http://udise.in/contactus.htm).

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APPENDIX A: SMC SUMMARY DATA BY STATE

	SMC prevalence (%)	Size	Meetings per year	Parental representation (%)	Female representation (%)
Andhra Pradesh	91.9	13.8	5.8	63.2	51.2
Arunachal Pradesh	86.0	16.6	2.0	50.9	40.4
Assam	93.6	12.8	5.2	63.4	45.4
Bihar	82.0	6.8	5.2	52.3	74.9
Chhattisgarh	97.8	15.8	6.6	75.6	49.1
Goa	66.6	11.7	2.6	68.1	58.2
Gujarat	85.3	12.2	6.6	73.3	48.0
Haryana	86.4	12.5	8.3	74.7	54.4
Himachal Pradesh	99.2	7.8	7.0	64.8	56.7
Jharkhand	83.5	15.5	4.4	73.4	47.4
Karnataka	91.1	14.3	4.9	57.2	44.4
Kerala	90.7	15.4	5.5	66.5	54.7
Madhya Pradesh	97.3	14.7	8.6	72.8	49.2
Maharashtra	98.3	13.9	6.8	69.4	48.2
Manipur	89.3	13.5	3.7	67.9	50.3
Meghalaya	91.0	10.5	2.2	36.3	27.3
Mizoram	99.5	10.3	2.8	59.1	34.8
Nagaland	79.2	8.9	3.2	34.3	27.2
Odisha	83.6	15.1	7.1	67.8	47.3
Punjab	99.7	12.2	9.0	64.9	53.6
Rajasthan	92.2	14.6	6.8	68.9	47.7
Sikkim	95.2	11.2	2.8	59.9	42.4
Tamil Nadu	99.6	19.2	9.0	57.0	57.4
Tripura	86.4	12.8	4.0	68.3	45.6
Uttar Pradesh	79.8	14.1	6.2	71.3	49.3
Uttarakhand	97.6	12.4	5.5	69.1	49.6
West Bengal	43.5	6.8	3.9	36.4	30.2

Data is for government schools (1) with elementary sections (Class 1–8); (2) managed by state departments of education, tribal/social welfare departments, or local bodies; (3) for the years 2010–2016.