Strengthening Local Governance of Schools - Evidence from Pakistan

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Background/Context

Localization of authority is considered an effective way of catering to the diverse preferences for local public goods and services (Bardhan, 2002). Evidence on the effectiveness of local committees in improving school management and performance is, however, mixed at best. For example, some studies highlight that giving autonomy to school-level actors has a positive impact on process outcomes, like improved community involvement in schools, but no impact on student achievement (Blimpo, Evans, & Lahiri, 2011; Beasly & Huillery 2016). Other studies show positive effects of engagement with school committees on test scores (Duflo et al., 2015), while some studies show no effect on intermediate or longer-term outcomes (Banerjee et al., 2010; Leer, 2016). These differences in results can be explained by the degree of devolution of authority to school committees, the level of engagement and targeted information disseminated to school actors, local human capital and administrative capacity constraints, collective action problems, and the institutional structure of the education system that influences reform and participation of local actors (Banerjee et al., 2010; Bold, Molina, & Safir, 2017; Duflo et al., 2015; Mansuri & Rao, 2012; Pardhan et al., 2014).

Purpose/Objective/Research Questions

My proposed project combines themes focused on community participation in education and the role of technology to engage school actors to improve monitoring and governance of schools. I study a unique program in Pakistan, the School Council Mobilization Program (SCMP), in which the government informed and encouraged school councils, comprising of teachers, parents and community members, in select schools via sustained and targeted phone calls through a hired call center, to spend participate in school governance and improve school and student-level outcomes. Specifically, I ask the following research questions,

1. What is the impact of information dissemination and engagement with school councils on student outcomes, such as enrollment and test scores?

2. What are the mechanisms through which school councils can influence school and student outcomes?
    a. Does the program improve council members' participation in the school, as measured by increased council meetings and higher spending of non-salary budgets provided?
    b. Does the program improve school management, as measured by improved teacher and student attendance and school facilities?
3. Do treatment effects in outcomes differ by gender composition of the school, composition of school council, length of program engagement, and non-salary budget given to the school?

Setting/Program

The Government of Punjab[1] established school councils (SCs) in 1994 in both primary and middle schools as part of province-wide decentralization reforms. These SCs consist of a head-teacher (or principal) who serves as the chairperson and 7-15 elected members, including parents (at least 50% of the SC membership), and notable individuals from the community, such as shopkeepers. The members were reached out as part of SCMP through regular calls from May 2015 to December 2015. The calls encouraged discussion of utilization of funds given to SC members and on the development of school improvement plans to improve student outcomes.

Data

First, I use school-level administrative data collected monthly by the Education Department in Punjab, which includes administrative information on total enrollment in schools, teacher and student attendance. The second source of data is the school census collected annually that has school council participation measures, such as expenditure from the budget and number of council meetings, and council member demographics, such as their sex and their membership category. The census also has information on functionality of school facilities including

[1] Punjab, Pakistan's most populous province contains, approximately, 54,000 functional, primary, middle (lower secondary), high (upper secondary) and religious[1] public schools spread across a total of thirty-six districts

boundary walls, water, toilets, etc. The third source of data is the student-level Punjab Examination Commission annual board examination results for grades 5 and 8 for Math, Urdu, and English. Finally, I have access to program data collected by the call center that identifies schools and members who were reached out, and call logs between calling agents and council members.

Methods

Data from call logs of council members contacted from the call center allowed me to determine a treated sample, a binary indicator equal to one for all the schools that were ever reached via calls. Overall, 12,928 schools were reached out as part of the program out of 26,947 primary and middle schools in the province. I use a difference-in-differences (DD) quasi-experimental approach to identify the impact of the program on school and student outcomes. The impact estimate based on this DD approach controls for time-invariant traits unique to each school and time-varying determinants shared by all schools, thereby effectively comparing the change observed among treated schools to the contemporaneous change observed among non-treated schools. As such, DD is a credible estimation strategy to measure the causal impact of information dissemination and mobilization on student and school outcomes.

Preliminary Analysis

Table A1 in the appendix presents descriptive statistics for all measures used in the analysis. Across all outcomes, schools in the treated group in both primary and middle schools have higher averages than schools in the control group in the pre-intervention periods. Figures A1-3, present trends in selected outcome measures for treated and non-treated schools. The trends show that in the absence of treatment, both the treated and non-treated schools would have followed a similar trajectory, and any changes in treated schools post-intervention can be attributed to the program.

I find that student outcomes, such as enrollment and test scores did not improve as part of the program (Table A2), however, measures of school council participation show

improvements as a result of the program (Table A3). In the full paper, I unpack reasons for why improved participation did not translate into improved outcomes for students.

Conclusion/Significance

My study contributes to the literature in several ways: The design features of SCMP (i.e., a one-to-one, low-cost, and sustained engagement mechanism between the government and councils) have not been tested in developing country contexts. Moreover, my study unpacks mechanisms as to why mobile-based information dissemination and engagement may or may not be effective at improving outcomes for schools and students in local governance settings in education.

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Appendix

Table A1: Descriptive Statistics from Pre-Intervention Sample.

		Primary		Middle		N
		Treatment	Control	Treatment	Control	
School Council Participation	SC Meetings	8.47	7.91	10.15	9.68	24,472
		(3.26)	(3.23)	(3.79)	(3.91)	
	Expenditure per Pupil	380.87	493.55	330.92	419.06	25,471
		(670.53)	(801.68)	(451.24)	(503.48)	
	Total Expenditure	42748.33	33814.24	94461.67	83349.78	25,787
		(70296.75)	(54195.79)	(116435.72)	(100635.98)	
School Management	Water	0.98	0.97	1.00	0.99	25,630
		(0.13)	(0.16)	(0.07)	(0.10)	
	Electricity	0.85	0.79	0.96	0.94	25,395
		(0.35)	(0.40)	(0.19)	(0.23)	
	Boundary Wall	0.94	0.91	0.98	0.96	25,435
		(0.24)	(0.28)	(0.14)	(0.19)	
	Main Gate	0.93	0.90	0.98	0.96	25,435
		(0.26)	(0.31)	(0.15)	(0.20)	
	Sewerage	0.87	0.84	0.89	0.86	25,416
		(0.34)	(0.37)	(0.31)	(0.34)	
	Toilets	0.10	0.11	0.09	0.11	25,787
		(0.30)	(0.31)	(0.29)	(0.31)	
	Playgrounds	0.59	0.56	0.62	0.70	25,391
		(0.49)	(0.50)	(0.49)	(0.46)	
	Facilities Factor	-0.216	-0.406	0.0849	-0.0176	25,296
		(1.14)	(1.38)	(0.63)	(0.87)	
	Teacher Attendance	88.30	86.85	87.43	84.96	177,489
		(19.57)	(22.05)	(14.61)	(16.79)	
	Student Attendance	86.38	84.66	87.68	87.31	88,697
		(15.20)	(16.32)	(15.22)	(15.07)	
Student Outcomes	Student Enrollment	134.34	90.58	333.27	238.51	182,613
		(83.76)	(65.67)	(177.77)	(140.88)	
	Math	-0.18	-0.22	0.10	0.01	422,771
		(0.99)	(0.97)	(1.04)	(1.02)	
	Urdu	0.01	-0.03	-0.06	-0.13	422,771
		(0.98)	(0.99)	(0.98)	(1.00)	
	English	-0.11	-0.15	0.07	-0.03	422,772
		(1.02)	(1.01)	(1.05)	(1.05)	
	Test Scores Factor	-0.11	-0.16	0.05	-0.06	422,771
		(0.99)	(0.98)	(1.01)	(1.01)	
Other School Characteristics	Male Schools	0.53	0.46	0.48	0.36	25,787
		(0.50)	(0.50)	(0.50)	(0.48)	
	Bottom quartile of balance	0.26	0.32	0.10	0.11	7,627
		(0.44)	(0.47)	(0.29)	(0.31)	
	All male council members	0.48	0.40	0.47	0.34	25,787
		(0.50)	(0.49)	(0.50)	(0.48)	

Notes: Standard deviation in parenthesis; School Participation variables, measures of facilities and other school characteristics are taken from the school census conducted in 2014; Teacher attendance and student enrollment are taken from 8 months of pre-intervention monthly monitoring data, student attendance is only available for 4 of those 8 months; Test scores data are taken from Punjab examination commission data from 2014.

Table A2: Impact of SCMP on student outcomes

		Primary	Middle
Student Outcomes	Student Enrollment	-2.074***	-3.308**
		(0.317)	(1.034)
		361398	83815
	Math	-0.093***	-0.177***
		(0.013)	(0.031)
		631090	206983
	Urdu	-0.095***	-0.047*
		(0.011)	(0.022)
		631090	206983
	English	-0.092***	-0.129***
		(0.015)	(0.028)
		631090	206983

Notes: Standard errors in parentheses; ~p<0.1, * p<0.05, **p<0.01, *** p<0.001
Each cell is a separate regression; Estimations include district fixed effects
All estimations control for enrollment at baseline

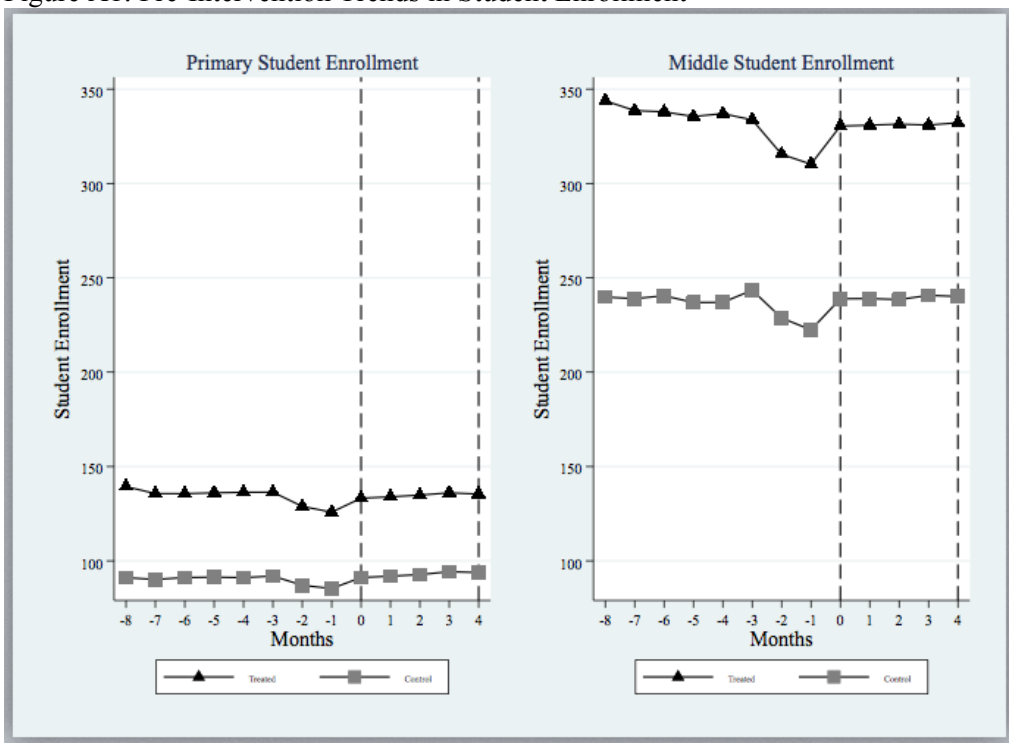
Table A3: Impact of SCMP on school council participation

		Primary	Middle
School Council Participation	SC Meetings	0.244***	0.249*
		(0.050)	(0.119)
		59110	13947
	Expenditure per Pupil	14.665	16.317
		(13.490)	(20.720)
		59655	14025
	Total Expenditure	24089.976***	63524.054***
		(1329.395)	(5493.687)
		60303	14042

Notes: Standard errors in parentheses; ~p<0.1, * p<0.05, **p<0.01, *** p<0.001
Each cell is a separate regression; Estimations include district fixed effects
All estimations control for enrollment at baseline

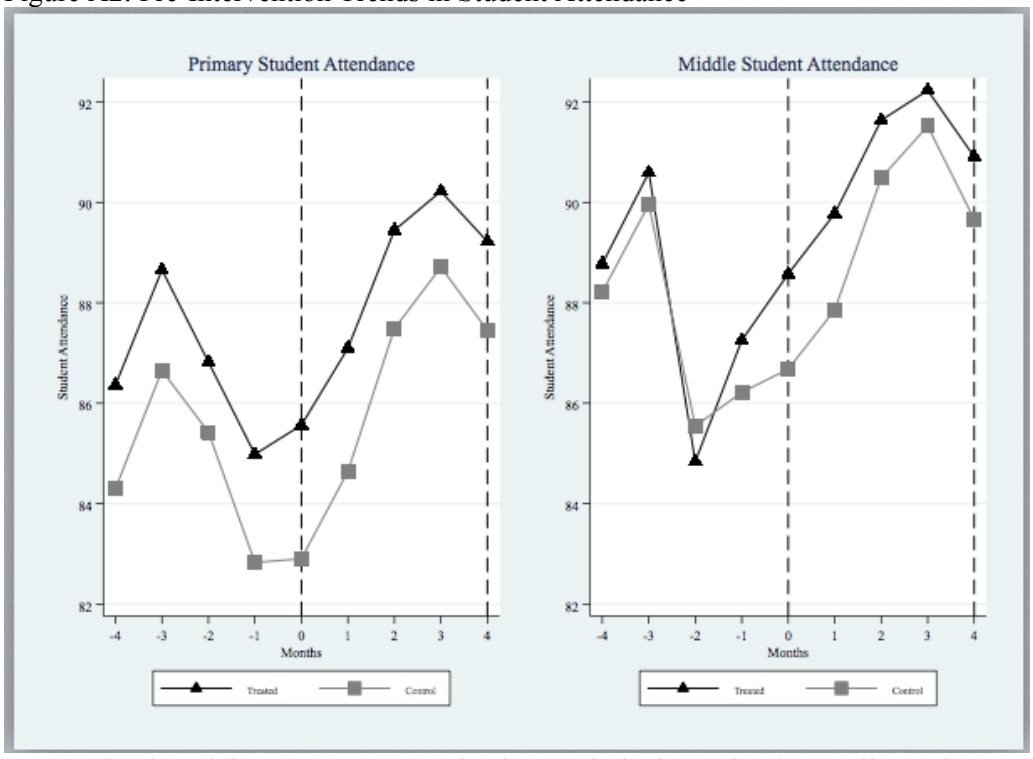
Figures

Figure A1: Pre-Intervention Trends in Student Enrollment



Notes: The dotted line at 0 represents the time period when school council members started receiving the phone calls. -1 to -8 represents pre-intervention months. 0 to 4 represents the 4 months in which data was collected while the school council members were receiving calls. The figure does not show post-intervention trends.

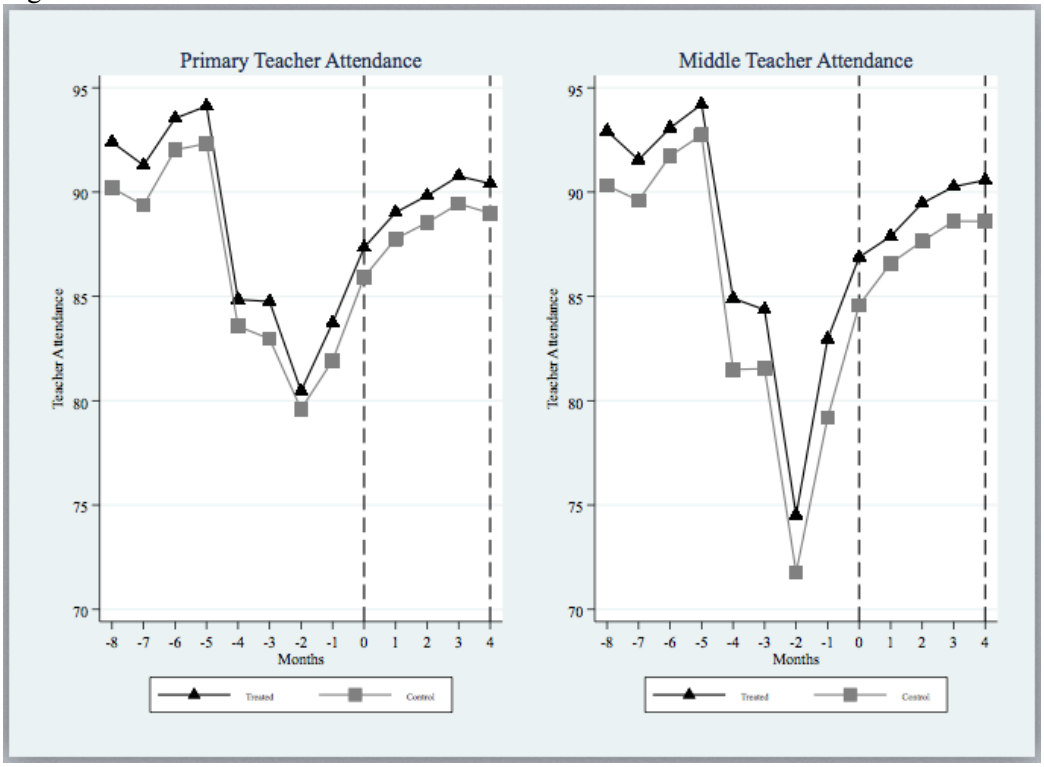
Figure A2: Pre-Intervention Trends in Student Attendance



Notes: The dotted line at 0 represents the time period when school council members started receiving the phone calls. -1 to -4 represents pre-intervention months. 0 to 4 represents the 4

months in which data was collected while the school council members were receiving calls. The figure does not show post-intervention trends.

Figure A3: Pre-Intervention Trends in Teacher Attendance



Notes: The dotted line at 0 represents the time period when school council members started receiving the phone calls. -1 to -8 represents pre-intervention months. 0 to 4 represents the 4 months in which data was collected while the school council members were receiving calls. The figure does not show post-intervention trends.