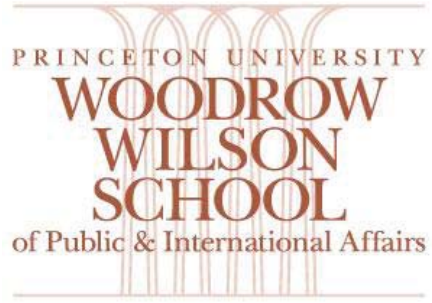
ACCOUNTABILITY IN SERVICE DELIVERY

Lessons in Learning

An Analysis of Outcomes in India's Implementation of the Right to Education Act

WOODROW WILSON SCHOOL OF INTERNATIONAL AND PUBLIC AFFAIRS



This report was produced for Accountability India, which is housed at the Centre for Policy Research in New Delhi, by a group of second-year graduate students at Princeton University's Woodrow Wilson School for Public and International Affairs as a requirement for the completion of a Masters of Public Affairs degree. The authors of this report are Ayokunle Abogan, Ayaz Achakzai, Vera Bersudskaya, Sebastian Chaskel, Megan Corrarino, Emily Garin, Betsy Hoody, Chris Johnson and Sangita Vyas, under the supervision of Professor Jeffrey Hammer.

The research included a field visit to New Delhi and Rajasthan, India from October 25-November 4, 2012, during which the authors met with a range of individuals, including headmasters, teachers, parents, public servants, policymakers, representatives of private organizations and non-governmental organizations, and academics. The authors would like to extend their sincere thanks to all those who generously shared their time, insights, and expertise. Any omissions or errors of fact are the responsibility of the authors.

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Executive Summary

India's Right to Education Act (RTE), passed in 2009, declared public primary education a human right for all Indian children aged 6-14. It established standards for school infrastructure, learning materials, teacher qualifications, and student admission; instituted private school quotas for children from disadvantaged groups; and created School Management Committees (SMCs). Financing for RTE flows through the Sarva Shiksha Abhiyan (SSA), which pools resources from central and state governments to fund public primary schools.

Using multiple datasets, this report analyzes how RTE's requirements have impacted both intermediate outcomes such as attendance of students and educators and school infrastructure, as well as the ultimate goal of student learning. It also evaluates the efficacy of current accountability mechanisms.

Key Results

Overall, learning outcomes have declined year over year since enactment of RTE. The overall decline notwithstanding, districts with higher student attendance rates have better learning outcomes. Student attendance, in turn, is highest in schools where midday meals and supplementary learning materials are available, where teachers are present, and where the schools comply with RTE-mandated student-teacher ratios. Learning outcomes are also higher in districts where private school enrollment is higher and where teachers are more educated. Areas with many children out of school have worse learning outcomes.

Teachers are motived by both supervision and the material support necessary to teach. Teacher presence – one of the key drivers of student attendance – is highest in schools where headmasters are present, display boards are visible and current, and teaching materials are available. Factors further removed from the classroom, including physical infrastructure and accountability mechanisms such as SMC meetings, do not increase teacher attendance.

Headmasters, too, appear unaffected by RTE accountability provisions. While headmasters play a key role in spending SSA grants and monitoring teacher attendance, the data are mixed on whether visits by higher-level education officials improve their attendance. Engaged headmasters – along with higher-level official visits – are, however, important in assuring that schools receive and spend their SSA grant allocations. Grant display boards in schools may also accelerate grant expenditures.

Grant expenditures, in turn, translate into better school infrastructure and the availability of learning materials. In addition to the grant expenditures, there is evidence that RTE accountability components have a direct positive effect on infrastructure. Schools with SMCs are more likely to have completed boundary walls and display boards are positively correlated with usable girls' toilets, teaching materials, and blackboards.

Reconsidering the Logic of RTE

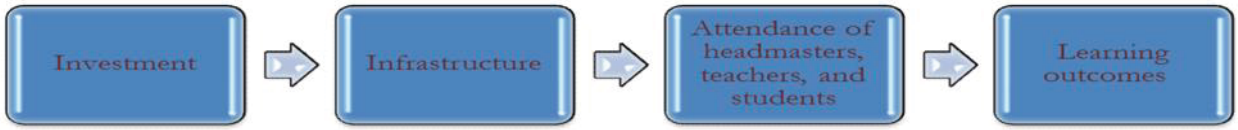
Is RTE effective at improving student learning? The short answer is no. Our empirical results suggest that grant delivery and infrastructure – the primary components of RTE – do not have strong direct impacts on student and teacher attendance, which are the key determinants of learning outcomes. If the additional funding, better infrastructure, and accountability provisions have failed to improve student learning outcomes, the primacy of these inputs in education reform efforts should be called into question. At the end of this report, we offer policy recommendations for the next iteration of RTE.

Introduction

Accountability Initiative in India asked a research team from the Woodrow Wilson School of Public and International Affairs to compile a report on accountability mechanisms and their efficacy in education since the 2009 passage of the Right to Education Act (RTE). With this goal in mind, we visited schools in Jaipur district of Rajasthan; compiled and analyzed data from national and district datasets; and engaged in comparative research on similar mechanisms from around the world. Based on this analysis, *we conclude that RTE has failed to produce meaningful changes in educational quality in India, and that existing accountability mechanisms are insufficient to create real avenues for parent or community ownership of the educational system.*

Background: RTE Act

Implemented in 2009, RTE aims to improve education in India by focusing primarily on increasing funds for schools, mandating certain infrastructure deliverables, creating student-teacher ratio and faculty attendance requirements, increasing government oversight of private education, and creating a variety of accountability mechanisms. The causal argument implicit in RTE is:



RTE further provides for the creation of a variety of accountability mechanisms, particularly school management committees (SMCs) to oversee delivery of grants, which are intended to lead to creation and maintenance of infrastructure. Our analysis suggests that there is a fundamental gap between the deliverables explicitly outlined by RTE, such as grants and infrastructure projects, and its implicit goals of increased attendance, high-quality service provision of all parties, and improved learning outcomes.

This section proceeds by describing the components of RTE (financial flows, infrastructure, personnel, students, and accountability mechanisms), as outlined by the Government of India (GOI), that can potentially contribute to student learning. It also evaluates the inferred theory of change to improve education and accountability therein. This report will discuss the potential, actual workings, and shortcomings of RTE, focusing on its accountability mechanisms and its impact on educational outcomes, both intermediate (educator and student attendance) and final (reading and mathematics ability). We conclude that these final variables of learning outcomes are a major missing piece of RTE.

Finally, a brief note on accountability. This report defines accountability as the ability of those receiving a public service to address concerns over the provision of that service to its service providers and to hold those providers responsible for addressing the inadequacies or inefficiencies they identify. In education, it is a measure of how well communities, including parents and students, can get teachers, headmasters, and administrative officials (ranging from block-level officers to ministers in the central government) to listen to and properly address concerns about schools and the quality of education. In private sector service delivery, providers are typically immediately accountable to their clients because of clients' purchasing power – if a barber is sub-par, for example, the customer simply goes elsewhere.[1] But purely market-driven solutions are likely to be insufficient in education; for example, they may exclude some students who are too poor or

[1] This definition of accountability is borrowed from World Bank, World Development Report 2004 Making Services Work for Poor People. Washington, D.C. : The World Bank, 2003. Web, p. 47.

geographically remote to be pursued by the private market, but who nevertheless have a right to basic education, in RTE's view. Thus, policymakers must create alternate accountability mechanisms that allow parents and other community members to hold service providers to account within the public bureaucracy.

Components of RTE

Financial Flows

Implementation of RTE from 2010 to 2015 requires investments worth around Rs 2.31trillion.[2] Expenditures under RTE include the following, in decreasing order of size: teacher's salaries, civil works, children's entitlements such as textbooks and meals, school facilities, age-based grade assignment regardless of achievement levels, inclusion and extra funding for disabled children, and teacher professional development. A 68:32 funding formula between the central government and states and union territory governments was agreed upon in 2010.[3] The Sarva Shiksa Abhiyan (SSA) is the primary financial vehicle for implementing RTE. This program, revised as of April 1, 2010, aims to achieve the target of universalizing elementary education in the country. We analyze three kinds of grants distributed under SSA. Although these grants make up only a small fraction of total SSA expenditure, they represent one of the only sources of funding over which the local level can exercise some control. The school maintenance grant (SMG) is used for infrastructure upkeep. The school development grant (SDG) funds day-to-day operation and administration. The teaching learning material grant (TLM) provides instructional aids other than textbooks that may be required for teaching.

As Accountability Initiative has described in many of its reports, accountability requires that all stakeholders be aware of what resources are committed to which specific goals and whether the final expenditures occur. Our empirical analysis explored how levels and timeframe of grant expenditures translate into infrastructure and availability of other educational inputs at the school.

Infrastructure

Legally, both India's central and state governments have the concurrent responsibility for providing and using funds to improve school infrastructure as prescribed by RTE. The text of the Act lays down specific criteria for school buildings:

(i) At least one classroom per teacher and an office-cum-store-cum-headmaster's room;
(ii) Barrier-free access;
(iii) Separate toilets for boys and girls;
(iv) Safe and adequate drinking water facility to all children;
(v) A kitchen where mid-day meal is cooked in the school;
(vi) A playground;
(vii) Arrangements for securing the school building by boundary wall or fencing.

We infer from its wording that the GOI believes that these specific building features are necessary for Indian children to learn. Infrastructure can play a role for providing the basic meeting place for students and teachers, but what that place looks like need not be uniform for every learning situation as long as students have the opportunity to learn. We revisit this idea in our policy recommendations.

Nevertheless, these easily-quantified infrastructural components have attracted most of the attention in discussions on education at the cost of considering other more difficult-to-measure inputs, such as

[2] Ernst and Young. Right to Education Report. March 2012. Web.
[3] Ibid.

curriculum, instructional quality, or intra-system communication between administrators at various levels of government. Our empirical results find no direct causal path between infrastructure improvements and student learning outcomes, although they do point to some effect on student attendance, and the presence of learning materials is correlated with higher levels of teacher attendance.

Teachers

RTE focuses primarily on teacher qualifications, teacher attendance, and student-teacher ratios, suggesting that lawmakers see these as the most effective levers for improving instructional quality. GOI may have chosen these metrics because of their relative measurability when compared to more qualitative goals (like student and parent satisfaction or instruction quality, which are harder to measure and more subjective, making their use as metrics prone to resistance from educators). Additionally, the availability of high-quality teachers remains a problem in the Indian education system.[4] RTE gives the central government authority to devise minimum teacher qualifications and mandates student-teacher ratios. It encourages state governments to bring teaching training facilities up to standards necessary to meet the teacher qualifications and requires local authorities to provide such teacher training facilities. However, it does not fundamentally restructure teacher training, hiring, or incentives nor does it accord flexibility for teachers to address local needs, ranging from language of instruction to innovative teaching methods.

Due to data limitations, our report addresses the effects of teacher attendance and student-teacher ratios on intermediate and final outcomes but excludes less measurable but potentially significant contributions to education. For example, RTE does not consider incentives for teachers (except to say that teachers who fail to meet basic terms and conditions of their contract may be brought before a grievance body), which some randomized control trials suggest may play a role in improving the quality of classroom instruction by contributing to better engagement with students.[5]

Students

Within RTE, children are treated as right holders rather than duty bearers. Every child between the ages of 6 and 14 is afforded the right to free and compulsory elementary education. The Act later specifies that the compulsion component is an obligation on the government – rather than on children – to ensure admission and enrollment of children in elementary education. Yet despite this ambitious goal, the mechanisms in place to ensure its realization remain incompletely developed. This report aims, in part, to identify specific points of intervention where the government might be able to turn this grand rhetoric into real educational improvements.

Additionally, RTE requires that students be assigned to a standard according to their age rather than learning achievement, with a student-teacher ratio of 40:1 in Standards I through V and 35:1 in Standards VI to VIII.

Local Participation and Accountability Mechanisms

To complement district-, cluster-, and block- level official visits to in-school educators, RTE stipulates that each school should create a School Management Committee (SMC) that will perform management and monitoring functions for the school. Article 21 of RTE states that the Committee should consist of "elected representatives of the local authorities, parents, or guardians of children admitted in such school and teachers."[6] The law further specifies that at least 75 percent of SMC members should be parents or guardians of children, 50 percent of SMC members should be women, and that proportionate representation should be

[4] See, *e.g.* Saxena, Shobhan. "Missing teachers are India's weakest link." The Times of India. Sep. 5, 2010. Web.
[5] See, *e.g.* Chowdry, Anirvan, "Carrots for Teachers," Accountability Initiative. Dec. 1, 2011. Web.
[6] Government of India, RTE, Chapter 4, Article 21, Clause 1.

given to parents of children from disadvantaged groups and weaker sections.[7] Finally, SMCs must meet monthly and must ensure the meeting minutes and decisions of the meetings are publically available.[8]

Under RTE, each SMC has monitoring and planning responsibilities for its school. SMCs "monitor the working of the school" and the school's "utilization of grants received from the Government or local authority or any other source."[9] In addition, SMCs are required to "prepare and recommend school development plan(s)", which feed into block-, district-, and state-level education plans.[10] Our interviews with a few SMC members in Rajasthan revealed that these school development plans were rarely produced.

RTE does not provide a written justification for the establishment of SMCs. However, we can infer two main purposes of SMCs under RTE. First, SMCs allow for local, citizen-run monitoring of schools' activities. This, in theory, allows for bottom-up accountability mechanisms that can encourage teachers and headmasters to perform their basic responsibilities. However, because RTE does not specify how or to whom SMCs should report the results of their monitoring activities, the effectiveness of this mechanism for grievance redressal remains uncertain. In many cases, and as evidenced by interviews conducted during our site visits, SMC members assume they should resolve management and monitoring problems directly with a school's headmaster and teachers. Second, SMCs aim to involve parents and community members in the education system. By bringing parents into leadership roles, RTE aims to empower parents and encourage them to take a more active role in their children's education. However, teachers and/or headmasters often hold a leadership role in the SMC and may even serve as the Chair or Vice-Chair of the Committee. Moreover, headmasters and teachers manage the election or nominations process, and interviewees reported that headmasters often actively recruit parents to serve as SMC members. These facts call into question the independence of SMCs and their ability to effectively monitor and enforce RTE standards vis-à-vis headmasters and teachers.

Student Learning Outcomes: The Missing Variable

RTE currently includes no provisions for evaluating student learning. And, as the subsequent analysis shows, child learning has actually *declined* over the period of RTE, even as the number of in-school children has risen. This suggests a fundamental disconnect between RTE's emphasis on grants and infrastructure, and the challenges of educational quality and student learning that the educational system currently faces. We argue that RTE's emphasis on intermediate inputs is too remote from the causal variables to have a real impact on student learning, and we argue that policymaking going forward must place student learning at its core.

This paper proceeds in four additional parts. We next identify several key descriptive statistics that portray the state of education in India. We then proceed to a summary of our empirical findings, concluding that student learning outcomes are positively correlated with a number of policy levers, including midday meal schemes and the presence of teachers and supplemental learning materials, but that these levers are remote from most of the infrastructure deliverables of RTE. We offer four main conclusions: (1) overall learning outcomes are on the decline, (2) many of the links in the RTE's implicit causal chain are weak, (3) existing accountability mechanisms are insufficient to improve learning outcomes or school performance generally, and (4) current data collection is hampered by inconsistencies and an emphasis on easy-to-measure but less meaningful intermediate deliverables. We end with three sets of policy recommendations: (1) greater attention paid to student learning, (2) strengthened accountability mechanisms, and (3) more rigorous and comprehensive data collection programs, with an eye toward useful further research.

[7] Ibid, Chapter 4, Article 21, Clause 1.
[8] Ministry of Human Resource Development, G.S.E. 301(E), Part II, Ch. 3, Article 5.
[9] Government of India, RTE, Chapter 4, Article 22, Clause 2(a) and 2(c).
[10] Ibid, Chapter 4, Article 22, Clause 2(b).

Descriptive Statistics

The findings in this report are based on national Annual Status of Education Report – Planning, Allocations and Expenditures, Institutions: Studies in Accountability (ASER-PAISA), Planning, Allocations and Expenditures, Institutions: Studies in Accountability – District Report Card (PAISA-DRC), and GOI official District Information Systems for Education (DISE) datasets.

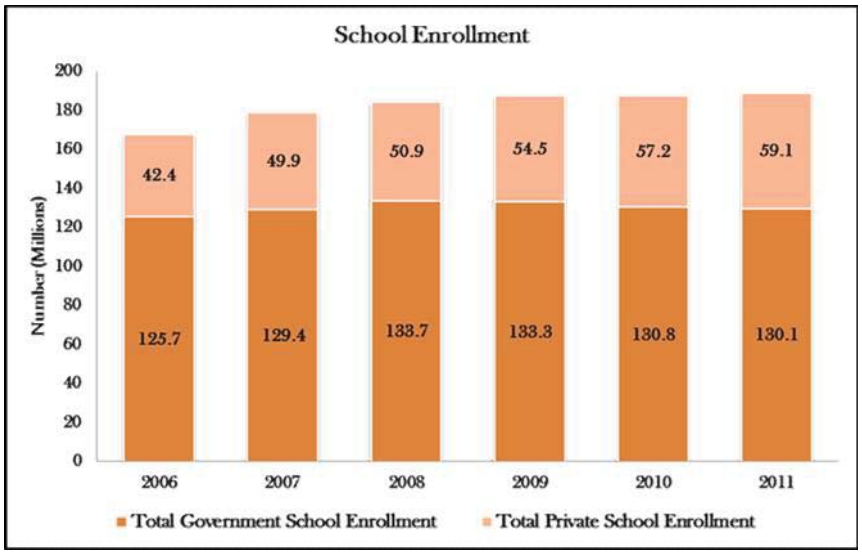


Figure 1 - Source: DISE Reports, 2005-2006 to 2010-2011

School Enrollment and Trends

According to GOI official statistics, total primary school enrollment grew from 168 to 189 million students between 2006 and 2011 (Figure 1).[11] Although the proportion of children who have never been schooled declined, contrary to RTE's intentions of bolstering public education, enrollment in government schools has *declined* from 133 in 2009 to 130 million in 2011. In fact, enrollment gains since the Act's adoption in 2009 are entirely due to growth in private school enrollment. Between 2009 and 2012, the share of overall private school enrollment increased from 29 to 31 percent, according to DISE, and from 22 to 28 percent in rural areas, according to ASER-PAISA data (Appendix C, Figure A). The figure is high compared to both developed and developing countries. For example, the Organization for Economic Co-operation and Development (OECD) members average 18 percent private school enrollment.[12]

Learning Outcomes

Since RTE's passage in 2009, learning outcomes have declined. At the national level in 2009, just less than 79 percent of children in Standards I and II could read and recognize numbers; by 2012, these proportions had dropped by 11 and 7 percentage points, respectively. The declines were even more pronounced for children in Standards III through V. The share of students who could read at least at the Standard I level and do basic subtraction declined by 10 and 16 percentage points respectively (Table 1).

Table 1 - Student Learning Outcomes

	2007	2008	2009	2010	2011	2012
% Children (Std I-II) who can READ letters, words or more	78.3	79.2	78.5	76.6	72.1	67.5
% Children (Std I-II) who CAN RECOGNIZE number (1-9) or more	78.2	79.6	78.7	76.6	73.8	71.4
% Children (Std III-V) who CAN READ Level 1 (Std 1) text or more	66.4	67.7	64.2	64.0	57.5	54.1
% Children (Std III-V) who CAN DO SUBTRACTION or more	59.4	56.7	56.3	54.9	46.5	40.7

NOTE: 2008 numbers based on authors' aggregation of unweighted district statistics
Source: 2007, 2009, 2010, 2011 and 2012 ASER Reports.

[11] For both upper and lower primary schools.
[12] OECD. Public and Private Schools: How Management and Funding Relate to their Socio-economic Profile. PISA. OECD Publishing. 2012. Web.

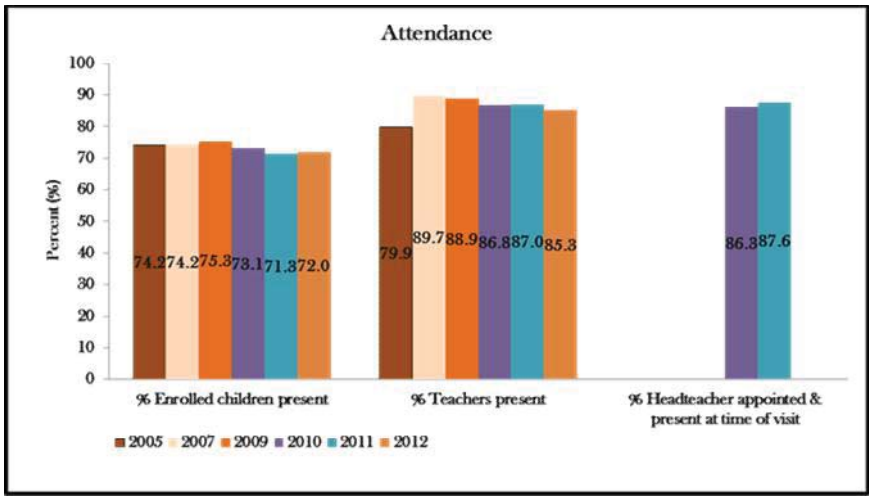


Figure 2 - Source: 2007 and 2011 and 2012 ASER Reports
Authors' calculations of average attendance in Primary Schools and Upper Primary Schools (weighted by number of schools in each category).

Attendance – Students, Teachers and Headmasters

Student and teacher attendance declined between 2009 and 2012 (Figure 3). The fraction of students present at the school on the day of the survey dropped from 75 to 72 percent. Similarly, teacher attendance declined from 89 to 85 percent. Headmaster attendance data is not available for the same time frame, but the proportion of schools where a headmaster was appointed and present on the day of the survey increased slightly from 86 percent in 2010 to 88 percent in 2011. Teacher and headmaster attendance rates should be interpreted with caution, since they are likely to be higher on days when the personnel are expecting surveyor visits.

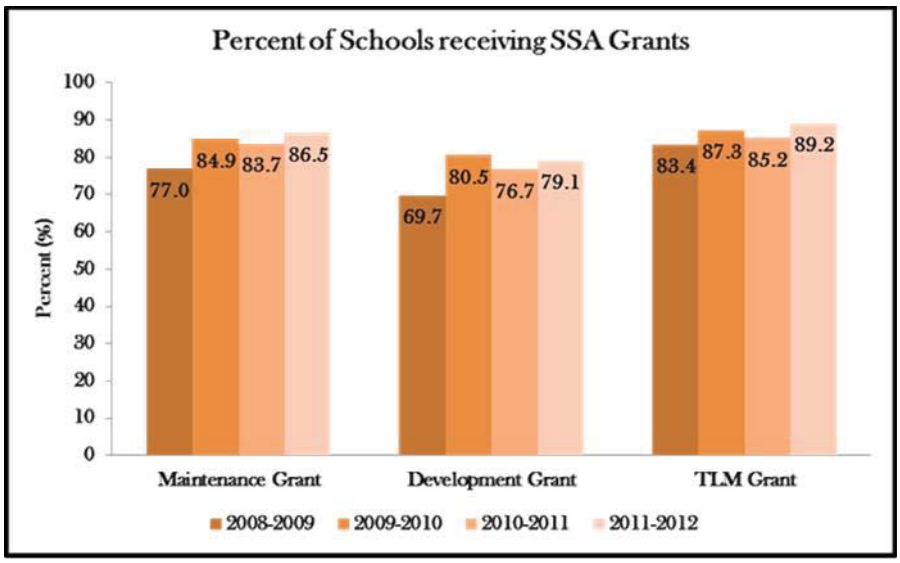


Figure 3 - Source: 2011 and 2012 ASER Report

Infrastructure, Repairs, & Learning Materials

Some of RTE aspirations were realized in wider availability of toilets, kitchens and boundary walls since the Act's adoption. However, the proportion of schools with a headmaster's office, drinking water and playgrounds remained constant, while the proportion with one classroom per teacher declined from 76 to 74 percent during this period (Appendix C, Table 1). The share of schools where repairs, painting, or purchase of school materials like chalk and dusters were carried out also remained stable.

Grants

Overall, the proportion of schools receiving SSA grants increased from 2008-2009 to 2011-2012, but experienced a small dip in 2010-2011 (Figure 3). According to ASER-PAISA data, only about 10, 14, and 20 percent of schools did not receive TLM, SMG, and SDG in 2011-2012, respectively. SMG ranges from Rs. 5,000 to Rs. 10,000 per school per year, depending on the number of classrooms in the school. SDG is Rs. 5,000 per year for primary schools and Rs. 7,000 per year for upper primary schools. TLM is transferred directly to teachers and amounts to Rs. 500 per teacher per year.

Other Observations

The proportion of schools complying with the RTE student-teacher ratio remained at about 40 percent. The proportion of schools serving midday meals increased from 84 percent in 2009 to 87 percent in 2012 (Appendix C, Table 1). Across states, we found that 18 out of the 35 states and territories had an SMC present in at least 50 percent of their schools. States like Tamil Nadu, Punjab, and Karnataka had SMCs in at least 90 percent of their schools. Other states and territories like Orissa, Goa, and Haryana had SMCs in 3 to 4 percent of their schools.

Findings

Working from the premise that student learning should be the primary goal of an education system, we have identified the complex relationship between inputs that lead to better outcomes (Figure 4). This exercise also allows us to evaluate the efficacy and logic of RTE, which begins with grants administered through SSA, continues with infrastructure deliverables, proceeds to educator and student attendance, and, implicitly, should conclude with better learning outcomes.

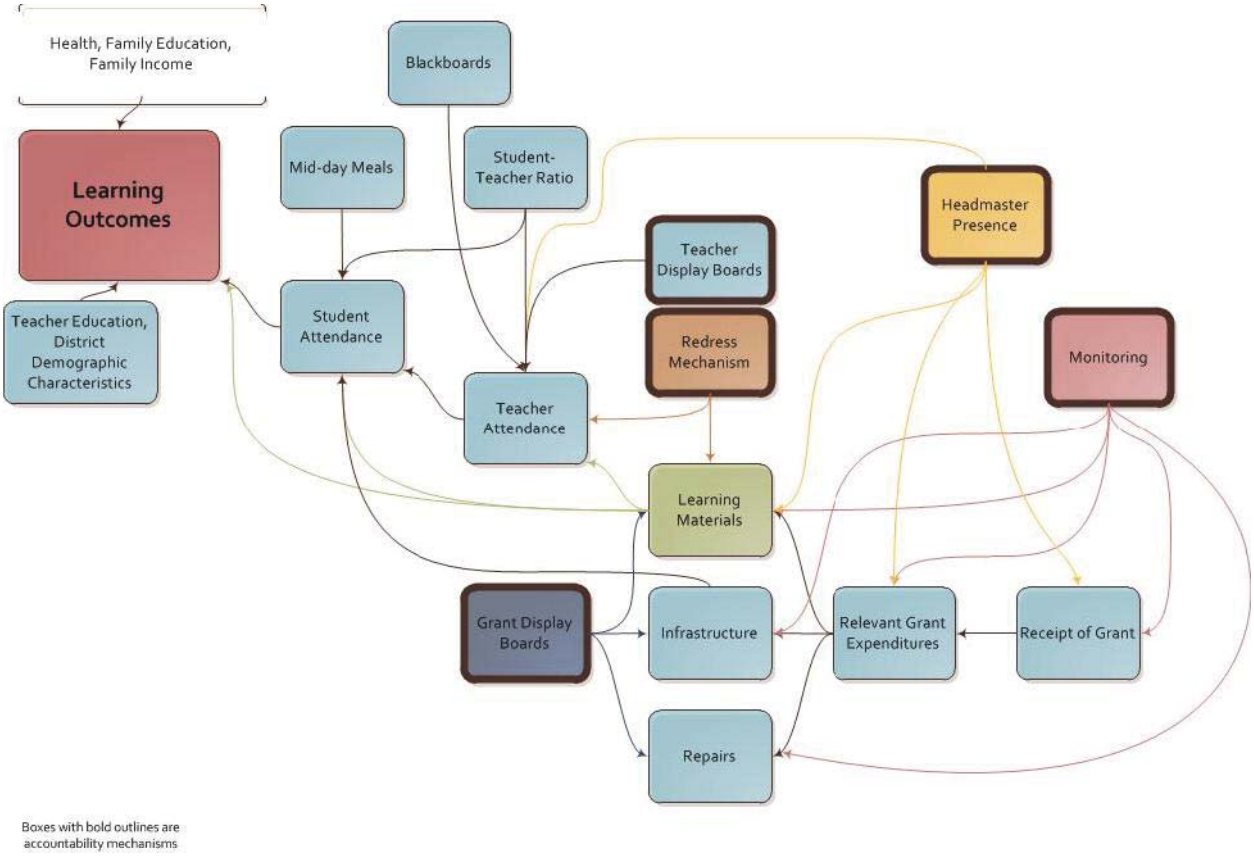


Figure 4 – Relationships between grants, material inputs, attendance, and learning outcomes. Arrows indicate some evidence of a statistically significant relationship according to authors' analysis of ASER-PAISA, PAISA-DRC, and DISE datasets.

Our analysis reveals that student learning outcomes are correlated with student attendance, teacher education, and the presence of supplemental learning materials. Student attendance, in turn, is driven by teacher attendance, midday meal provision, student-teacher ratios, and, to an extent, school infrastructure. Our evidence suggests that teacher attendance is correlated with headmaster presence, availability of supplemental learning materials, and some accountability mechanisms like teacher display boards and redressal mechanisms. Between infrastructure and supplemental learning materials, our analysis suggests that learning aids are a more effective means of achieving better learning outcomes, both directly and indirectly through inducing educator and student attendance. Considering that two of the three grants given directly to schools is intended to improve school infrastructure and upkeep and only one is intended for instructional aids, we argue that the intentions of RTE may be misguided. The effect of better infrastructure on student attendance is not

equivocal and is an order of magnitude smaller than that of learning materials. By focusing on infrastructure instead of learning materials, RTE's efforts are too remote to truly affect student learning. Our analyses further find that availability of these materials in schools is associated with headmaster presence, relevant grant expenditures, visible and updated display boards, and monitoring by higher level education officials. These conditions also lead to better school infrastructure.

One of RTE's purported breakthroughs was the inclusion of accountability mechanisms. We find that some accountability mechanisms, like display boards and redressal mechanisms, had positive effect on material inputs and teacher attendance. However, School Management Committees (SMCs), highly emphasized under RTE, are ineffective according to the empirical analysis. Our site visits suggested that existing accountability mechanisms fall short on a number of fronts. They often ask resource-strapped families to take on additional mandates of educational monitoring, and they may not provide avenues for engaged parents to complain all the way up, or to critique broader elements of educational policy, such as the quality of instruction. Throughout these findings, we therefore also aim to examine where these accountability mechanisms succeed, and where they fall short.

Our analysis uses ASER-PAISA, PAISA-DRC, and DISE datasets, described in Appendix A. Detailed variable descriptions are provided in Appendix B. Each of the following subsections starts with a discussion of theoretical reasoning for the inclusion of particular sets of explanatory variables, followed by a summary of key patterns emerging from the regressions. Full regression results are presented in Appendices D and E. Unless otherwise noted, all ASER-PAISA analyses include time, state, and district fixed effects with standard errors clustered at the district level and all PAISA-DRC analyses include district fixed effects with standard errors clustered at the district level.

What is Correlated With Improved Learning Outcomes?

At the root of our analysis lies the end goal of improvements to the education system: improved student learning outcomes. The GOI, headmasters, teachers, parents, and students themselves are all invested in the education system for its ability to convey basic skills and knowledge. This section analyzes key learning outcomes and the input variables that are correlated with them.

The learning data came exclusively from the national ASER-PAISA dataset and were only available for the district. It is important to note that aggregating data to the district level (units of over 2 million people) removed the underlying heterogeneity within the units. The data included four dependent variables. The measures are:

i. Standard I-II children who can read letters, words, or more;
ii. Standard I-II children who can recognize numbers 1-9 or more;
iii. Standard III-IV children who can read a Standard I text or more; and
iv. Standard III-V children who can do subtraction or more.

The variables reflect the percentage of children (both in public and private schools as well as those children who are out of school) who meet the basic skills test outlined in the description. In analyzing determinants of these outcomes, we looked at three categories of explanatory variables: school characteristic variables, infrastructure and material input variables, and district demographic variables.[13] School characteristic variables were included because student and teacher attendance and the ratio between these two presumably should

[13] Demographic variables controlled for include: percentage of urban population in the district, percentage of the population belonging to a scheduled caste or tribe, district-wide sex ratio, district-wide literacy rate, girls as a percentage of enrolled students in the district, OBC as a percentage of enrolled students in the district, Muslim students as a percentage of enrolled students in the district, and students repeating a Standard as a percentage of students enrolled in the district.

have an important impact on learning outcomes. Similarly, infrastructure and material inputs may lead to higher attendance and as a result improved learning, and although the connection between these variables may be less direct, it is a key part of the RTE's theory of change. Numerous studies link demographic variables with learning outcomes, leading us to incorporate district demographics available in DISE.

School Characteristics Variables:

- *Student attendance* was included because it seems to be the most likely influence on children's learning outcomes. Children who are enrolled but do not attend school are less likely to develop reading and math skills, while children who are in a classroom (even one with many flaws) have a better chance to acquire those skills. In the absence of major variation in curriculum or instructional quality, we expect this to be the primary predictor of student performance.
- *Teacher attendance.* We expect a positive relationship between teacher attendance and children's learning outcomes, since children should learn better if teachers are present at the school and teach students.
- *Log of student-teacher ratio.* Lower ratios of students to teachers can be expected to improve learning outcomes because teachers should have more time to dedicate to each child to assure that they are grasping the material.

Infrastructure and Material Input Variables**:**

- *Infrastructure.* It is possible that we will see a positive effect of infrastructure on learning outcomes, if components such as toilets and drinking water keep children healthier in the long run. While the immediate effect of improved health would be on a child's attendance, long-term impacts could also be seen in cognitive development. This, however, is unlikely to be reflected in such an early-stage analysis of RTE infrastructure investments.
- *Midday meal scheme.* Participation in the midday meal scheme is expected to raise learning outcomes because children participating in the scheme more regularly receive nutritional food, which can improve their cognitive functioning, especially at younger ages. Children are also more likely to be focused on class if they are not hungry, allowing them to absorb more of the material.
- *Learning materials* may improve the ability of children to absorb the material they are taught in the classroom by making it more interactive. They may be of particular help to children who are better visual or tactile learners, as they supplement a significant amount of oral instruction.

District Demographics Variables:

- *Percentage of students in the district that are out of school.* Because the measure of learning outcomes includes children both in and out of school, we hypothesize that higher proportions of out-of-school children will negatively correlate with learning outcomes.
- *Percentage of students in the district that are enrolled in private schools.* Because parents pay for the private schools, we expect private school attendance rates to be higher, with a consequent positive effect for learning outcomes. Additionally, numerous studies have found that children who attend private school have better learning outcomes than children who attend public school.[14] As a result, we expect that higher rates of private school enrollment correlate with improved learning outcomes.
- *Level of teacher education and training.* This variable was included because we expect higher levels of educational attainment for a teacher to correlate with better learning outcomes for students because more educated teachers are likely better prepared for the job and more capable of imparting information to a variety of students.

[14] See, *e.g.* Chudgar, Amita, and Elizabeth Quin. "Relationship between Private Schooling and Achievement: Results from Rural and Urban India." Economics of Education Review 31.4 (2012): 376-90. Print.

Table 2 summarizes the basic findings for the variables tested in relation to learning outcomes. We were able to explain at most 70 percent of the variation in learning outcomes after including time, state, and district fixed effects. However, it is important to note that other factors like education and income of a child's parents, distance from home to school, and early childhood nutrition and development have an important impact on learning outcomes. The full results of the regression analysis are included in Appendix D, Table 1. To assess the robustness of our model specification, we plotted the state fixed effects obtained from the regression analyses against raw state learning averages. The plots show that the relationship between state fixed effects and raw state learning averages do not exhibit any pattern. Thus, the explanatory variables included in the model do in fact explain some of the variation in learning outcomes across states, and this variation is not entirely contained in the state fixed effects. The scatterplots are available in Appendix F.

Table 2 - Results of variables analyzed relative to learning outcomes

Variable	ASER-PAISA Result	Notes
Student attendance	++	Strong positive relationship with somewhat stronger effect on learning outcomes for higher Standards
Teacher attendance	No significant effect	
Infrastructure	No significant effect	
Midday meal	No significant effect	
Learning materials	+	Moderately positive relationship for most outcomes
Log of student-teacher ratio	No significant effect	
% students out of school	--	Strong negative impact on all outcomes, with much worse results for higher Standard math skills
% students in private school	+	Modest positive effect for lower standards, stronger for higher Standards
Teacher education	++	Strong positive relationship for all outcomes, with more robust relationship for higher Standard outcomes
% scheduled caste in district	--	Strong negative impact on all outcomes, larger effects for higher Standards
District sex-ratio (women/men)	--	Strong negative impact on all outcomes, larger effects for lower Standards
District literacy rate	++	Strong positive impact on all outcomes, larger effects for lower Standards
Teacher training and gender	No significant effect	
% urban population in district	No significant effect	

Where effects are noted, they are significant at the 1, 5, and 10 percent level.

Student Attendance and Supplementary Learning Materials Improve Learning

Student attendance had a large positive effect on learning outcomes at the district level. A 10 percentage point increase in attendance is associated with a 3.4 percentage point increase in the share of Standard I-II children who can read letters, words or more, a 3.1 percentage point increase in the share of Standard I-II children who can recognize numbers (1-9) or more, a 4.0 percentage point increase in the share of Standard III-V children who can read a Standard I-level text or more, and a 4.4 percentage point increase in the share of

Standard III-V children who can do subtraction or more. The more pronounced correlation with outcomes at higher Standards seemed to indicate that the effects were cumulative.

After controlling for student attendance, teacher attendance, infrastructure, midday meals, and student-teacher ratios did not have an additional statistically significant impact on learning. The section that follows demonstrates that they are important determinants of student attendance though and thus are indirect drivers of learning outcomes. Non-textbook learning materials appeared to have a positive effect on learning outcomes (at the 5 percent significance level for 3 of the 4 variables). While much of the impact of these materials comes from their ability to affect student attendance, which, in turn, impacted outcomes, some direct effect on outcomes is still felt. This is likely because the materials help different learners acquire basic skills, as outlined above.

Better Educated Teachers and Private Schools May Yield Enhanced Learning

As expected, there was a strong negative relationship between the percentage of a district's children that are out of school and the learning outcomes in that district. Children who do not attend school are not likely learning basic literacy and numeracy skills elsewhere. Furthermore, the district-wide percentage of children in private schools positively correlated to higher learning outcomes. This result makes it clear that children attending private schools are more likely to learn the tested skills, and likely have overall better learning outcomes.

The data regarding teacher educational training showed that higher levels of teacher education had a strong positive correlation with student learning outcomes. This effect was more pronounced in higher standards than in lower standards, likely reflecting the fact that higher-level skills are needed to successfully teach children as they age. The overall effect was likely the result of improved mastery of the subject matter for teachers and improved capacity for teaching different types of students.

What Inputs Are Correlated With Student Attendance?

The logic behind analyzing student attendance rates is relatively straightforward: increasing the number of children who attend school and the frequency with which they attend will likely positively impact children's learning outcomes. Without concentrated time receiving formal instruction on basic skills, it is unlikely that children will acquire the skills necessary to demonstrate improved literacy and numeracy.

To get at possible drivers of student attendance, we tested the relationship between school attendance and several different explanatory variables that span two main categories: infrastructure and material input variables, and school characteristic variables. Infrastructure and material input variables were included because students that can count on playgrounds, usable toilets, and amenities like in-class learning materials and midday meals might feel more encouraged to attend school. Similarly, school characteristic variables were included because students that can count on a teacher being present, or on having more of a teacher's attention in a small class may be more likely to attend school.

Infrastructure and Material Input Variables:

- *Infrastructure.* We included this variable to test the theory that poor infrastructure is a deterrent to attendance and that better infrastructure is correlated with higher attendance rates. We expect investments in school infrastructure to make schools more attractive places for students and teachers, increasing the attendance of both.
- *Learning tools (learning materials; blackboard; library books; and textbooks).* These variables were included because, in theory, more learning materials will encourage children to attend school regularly. With these materials, students can better engage in the learning process and find more use in attending school. It is

also possible that the procurement of these materials will indicate a generally well-functioning school, which is more appealing to students and parents.

- *Midday meal scheme.* While there are many performance-based justifications for including a midday meal for students, the variable was included as part of the attendance analysis to test the idea that the meal itself might draw more students to school.
- *Uniform scheme.* School uniforms can have a positive impact on attendance if we expect them to reduce discrimination between students. They can have a negative effect if students are not able to obtain required uniforms and stay home from school as a result. At a higher level, school participation in the program could serve as another indicator of a well-functioning school, in which case we expect to see higher attendance rates.

School Characteristics Variables**:**

- *Teacher attendance.* This variable was included on the premise that students would be less likely to attend school in the absence of teachers in the classroom. Conversely, parents might be more likely to send children to school when they could expect teachers to be present. We expect a positive correlation between teacher attendance and student attendance.
- *Student-teacher ratio compliance and log of student-teacher ratio.* Student-teacher ratio compliance and the log of the student-teacher ratio were included in the analysis to test the theory that higher ratios of students to teachers result in fewer children in the classroom. This can likely result from children and parents perceiving less value to attending classes in overcrowded schools.
- *Log student enrollment.* School size (measured as log student enrollment) was included as a basic control in all regressions, as schools of different sizes may be systematically different.

Before analyzing the explanatory variables outlined above, it is important to note the oppositional trends in enrollment and attendance over the years of available data. Between 2006 and 2011, government school enrollment numbers initially rose, but started to decline from 2009 on. The rates of school attendance, which in our data are only available since 2009, also declined during this period.

What is clear is that, contrary to common wisdom, RTE's focus on ensuring all children get an education has not led to the flooding of government schools with new, presumably less advantaged, students. As government school enrollment started to decline, attendance also went down. This could be a consequence of more engaged parents pulling their children out of the public system to attend private schools, so on average, those remaining in public schools have parents who are less likely to monitor their children's school attendance.

Table 3, below, summarizes the basic findings for the variables tested in relation to student attendance. In the PAISA-DRC dataset, the data came from school years 2009-2010 and 2010-2011. For the ASER-PAISA data, most variables were available for 2009-2011. When variables were not available in some of the years, we excluded those variables to test whether the results were affected. The results remained the same and of similar magnitude when we excluded the affected variables, so we feel confident that the findings were not merely an effect of model specification. The full results are included in Appendix D, Table 2 and Appendix E, Table 13.

Table 3 - Results of variables analyzed relative to student attendance

Variable	ASER-PAISA Result	PAISA-DRC Result
Teacher attendance	+	+
Infrastructure	+	No significant effect
Learning materials	+	+
Blackboards	No data	No significant effect
Library books	+	No significant effect
Textbook scheme	No data	+
Midday meal	+	No data
Uniform scheme	No data	No significant effect
Student-teacher ratio compliance	+	No data
Log student-teacher ratio	-	No significant effect
Log student enrollment	-	No significant effect

Where effects are noted, they are significant at the 1, 5, and 10 percent level.

Supplementary Learning Materials and Meals Bring Students to the Classroom

In the ASER-PAISA dataset, infrastructure appeared to have a slight positive correlation with student attendance. There was no measurable effect in the PAISA-DRC dataset. The positive effect was likely the result of factors outlined above – students are more likely to attend schools with amenities such as water and toilets. The magnitude of this effect may have been smaller than expected here because it was already partially reflected in its correlation with teacher attendance, which in turn drove student attendance.

In both datasets, the presence of non-textbook learning materials was associated with higher student attendance. Additionally, their presence may reflect teachers' efforts to procure materials and utilize a more engaging teaching style that makes use of non-textbook materials. Of all the material-focused variables, these learning materials were most closely correlated with attendance.

Receiving textbooks from the textbook scheme had a positive effect on student attendance. The implications of this are similar to those of non-textbook learning materials. However, the receipt of uniforms from the uniform scheme did not affect attendance. This indicates that, all else equal, having a uniform in and of itself may not make children attend school. It is possible that uniforms have no effect, or that the positive (reduced discrimination) and negative (barrier to entry) effects predicted above both occur in similar magnitudes and cancel each other out.

As expected, the midday meal scheme had a strong positive effect on student attendance. This may be because the midday meal attracts students themselves, or because parents are more likely to send their children to school when the meal is served either for the meal itself or because students learn more when they are fed, making parents value attending school more.

Smaller Class Sizes and Present Teachers Attract Students to School

In both datasets, increased teacher attendance had a strong, positive effect on student attendance. This finding is consistent with our hypothesis that students are more likely to attend school when they can expect to find a teacher there. This effect might also be a measurement of a school's overall level of functionality and possibly a present and attentive headmaster.

Student-teacher ratio compliance and the log of the student teacher ratio both had significant effects on student attendance in the ASER-PAISA dataset. This is likely a result of smaller class sizes making classrooms more conducive to learning, with parents and students both seeing more value in school where learning seems to be taking place. Log student enrollment was negatively correlated with student attendance.

What Is Correlated With Increased Teacher Attendance?

Understanding mechanisms that improve teacher attendance is a key policy question for primary education. Student attendance positively correlating with teacher attendance begs the questions: What factors are positively correlated with teacher attendance? Do policy levers exist that could increase teacher attendance?

To better understand the variation in teacher attendance, we examined the relationship between teacher attendance and three broad categories of explanatory variables: monitoring variables, material input variables, and school characteristics. Effective monitoring and accountability mechanisms were included because they may encourage higher rates of teacher attendance if teachers anticipate consequences when they do not regularly attend school.[15] Material inputs were included because one of RTE's key assumptions is that in schools better equipped with resources and infrastructure, both teachers and students will attend school at higher rates. School characteristics variables were included because the RTE imposes a teacher-student ratio that is not uniformly implemented and this ratio may affect how teachers approach their job, and differences in school size may also affect teacher behavior.

Monitoring Variables:

- *Headmaster presence:* In theory, headmasters provide the most direct and consistent oversight of a teacher's work, because they can observe the teacher every day. For this reason, we might expect teacher and headmaster attendance to be positively correlated.
- *Visits by block, district, or cluster level officials*. Because block, cluster, and district level officials are responsible for ensuring proper functioning of schools, their visits might plausibly impact teacher attendance. Teachers at rarely visited schools might attend less, because they do not expect detection or repercussions for their absenteeism.[16]
- *Presence of a public and up-to-date display board.* Display boards should increase accountability to citizens. Thus, we hypothesize that teachers in schools with visible and current display boards might have higher attendance because teachers know that the surrounding community will monitor and document absenteeism.
- *SMC met in past 3 months*. RTE stipulates that SMCs should "monitor the working of the school" and ensure that teachers are not given undue non-academic responsibilities. The presence of an SMC might thus result in better local monitoring, which could in turn encourage teacher attendance. On the other hand, a functional SMC might indicate that a school is more functional overall and/or has an active parent body, both of which could also encourage higher teacher attendance.
- *Levels of Teacher Disciplinary Actions.* If more local levels of disciplinary action correlate with higher teacher attendance, this might mean teachers better respond to local accountability mechanisms. Alternatively, if teacher attendance positively correlates with block or district office accountability mechanisms, teachers might better follow directives from higher-level officials who control employment and salary.

Material Input Variables:

- *Infrastructure*. This variable tests the hypothesis that poor infrastructure deters teacher attendance. We expect school infrastructure investments to make schools more attractive places for students and teachers, increasing the attendance of both.

[15] Narayan, Krishna, and Jos Mooij. "Solutions to Teacher Absenteeism in Rural Government Primary Schools in India: A Comparison of Management Approaches." The Open Education Journal 3.1 (2010): 63-71. Print.
[16] Kremer et al. found that teachers were more likely to be at schools that had recently received visits or inspections. Kremer, Michael, et al. "Teacher Absence in India: A Snapshot." Journal of the European Economic Association3.2/3 (2005): 658-67. Print.

- *Learning tools (including learning materials; blackboard; library books).* We include these variables because, in theory, more learning materials encourage teachers to attend school, because they have more tools to effectively teach. Procurement of these materials potentially indicates a generally well-functioning school that has better teacher support.
- *Expenditure of TLM grant.* Schools spending larger portions of their TLM grant might have higher rates of teacher attendance because teachers have additional tools and resources in their classrooms and because higher TLM expenditure rates might indicate better functioning and resourced schools overall.

School Characteristics Variables:

Table 4 – Associations between teacher attendance and explanatory variables

Variable	ASER-PAISA	PAISA-DRC
Monitoring Variables		
Headmaster attendance	+	-
Visits by district, block, or cluster officials	No significant effect	No significant effect
Visible and current display boards	No data	+
SMC met in past 3 months	No data	No significant effect
Level of teacher disciplinary action	No data	Jointly significant
Infrastructure Variables		
Infrastructure index	No significant effect	No significant effect
Learning materials	+	No significant effect
Blackboard	No data	+
Library books	No significant effect	No significant effect
Expenditure of TLM grant[17]	No data	+
School Size and Ratio Variables		
Compliance with RTE student-teacher ratio	-	No data
Log of student-teacher ratio	+	No significant effect
Log of student enrollment	-	No significant effect

Where effects are noted, they are significant at the 1 or 5 percent level.

- *Student-teacher ratio compliance and log student-teacher ratio.* RTE mandates specific student-teacher ratios within every public primary school.[18] Student-teacher ratio compliance tests whether lower student-teacher ratios improve teacher attendance. Teachers might be more willing to teach to smaller class sizes because the job is more manageable.
- *Log student enrollment.* The log of student enrollment was included to test whether school size is correlated with teacher attendance. Smaller and larger schools might have systematically different rates of teacher attendance if, for example, teachers feel a different level of responsibility toward their students if they are the sole teacher in a school.

Our PAISA-DRC analysis used data from school years 2009-2010 and 2010-2011. ASER-PAISA data was from 2011. Full regression results are included in Appendix D, Table 3 and Appendix E, Table 14. Table 4 below outlines associations between the explanatory variables and teacher attendance.

[17] In the PAISA-DRC data, spending the grant earlier in the fiscal year versus later does not explain much more of the variation in teacher attendance. We therefore use proportion of grant spent.
[18] Government of India, RTE, Chapter 4, Article 25.

Bottom-Up Monitoring Correlated With Improved Teacher Attendance

Overall, we found that teacher attendance correlated with some monitoring mechanisms, but not all. While the conflicting results did not allow for conclusive findings, one pattern we see is that monitoring mechanisms more directly linked to teachers' work might be more effective at improving attendance. Mechanisms removed from teachers' daily work – such as visits by higher level officials and SMC meetings– did not have statistically significant effects on teacher attendance. This suggests that boosting teacher attendance might require improving local level monitoring and input mechanisms that directly impact teachers' daily work.

In ASER-PAISA, headmaster presence had a positive and statistically significant correlation with teacher attendance. This could confirm that the headmaster provides daily oversight over the teacher's attendance and performance. PAISA-DRC yielded the opposite results, robust to a number of sensitivity tests.[19] (See Appendix E, Tables 15 – 16 for full results.) PAISA-DRC posed new questions about how accurately it depicted the relationship between headmaster and teacher attendance. Barring problems with data collection, the headmaster and teachers may coordinate their attendance to ensure that one of them is always present but not necessarily both of them.

PAISA-DRC also offered more detailed information about monitoring mechanisms in schools. We found that the presence of public and up-to-date display boards in schools positively correlated with teacher attendance. By including district interaction terms, we found that six of the seven districts that had publicly displayed and current boards exhibited a positive and statistically significant correlation between the board and teacher attendance.[20] These results could indicate that such simple and transparent accountability mechanisms effectively get teachers to come to school or that these schools have better management and leadership overall.

In addition, there was no significant correlation between the frequency of SMC meetings and teacher attendance. In their current form, SMCs might lack the capacity to truly hold teachers and headmasters accountable.[21] After all, even in states with a longer history of functional parent-teacher bodies, the state government still retains power over firing and hiring teachers.[22] However, challenges inherent in data collection could have also partially driven the results. During our field visits, headmasters and teachers frequently responded that the SMC met monthly, but when questioned further, it was often revealed that the SMC had not met for three or six months.

The PAISA-DRC analysis also included variables about whom the school would contact if there were a problem with a teacher: the SMC, cluster officials, block officials, district officials, or Panchayat representatives. None of these variables individually showed a statistically significant correlation with teacher attendance, but an F-test revealed that they were jointly significant in explaining teacher attendance.

Most Infrastructure Is Not Correlated With Teacher Attendance

Overall, we found that infrastructure did not correlate with higher teacher attendance, while specific tools and resources that can aid teachers' work positively correlated with teacher attendance. Like with the monitoring

[19] "Acting headmasters" included appointed headmasters and prabhari. The "headmaster attendance" variable was a ratio of the number of acting headmasters present at each school to the total number of acting headmasters appointed.
[20] Jalpaiguri and Satara did not have public and up-to-date display boards. Public and up-to-date display boards in Udaipur did not exhibit a statistically significant correlation with teacher attendance.
[21] A survey of Village Education Councils in Uttar Pradesh in 2006 found that 92 percent of village households did not know that the VECs existed and that 23 percent of VEC members were not aware of their post on the VEC. Banerjee, Abhijit et al. "Can Information Campaigns Spark Local Participation and Improve Outcomes? A Study of Primary Education in Uttar Pradesh, India." World Bank Policy Research Working Paper no. 3967 (2006). Print.
[22] Narayan, Krishna, and Jos Mooij. "Solutions to Teacher Absenteeism in Rural Government Primary Schools in India: A Comparison of Management Approaches." The Open Education Journal 3.1 (2010): 63-71. Print.

variables, this implies that increasing teacher attendance might require targeted investments that improve their ability to effectively teach.

The overall level of school infrastructure, as expressed through the infrastructure index, did not exhibit any statistically significant correlation with teacher attendance in either dataset. This calls into question a central aspect of RTE's theory of change, that improving school infrastructure increases teacher attendance.[23] Teacher absenteeism might better relate to other monitoring and resource issues more directly related to their teaching tasks. In PAISA-DRC, blackboards showed a statistically significant, positive correlation with teacher attendance. This is logical: compared to inputs like boundary walls, blackboards relate more directly to teachers' everyday work. Within ASER-PAISA, availability of learning materials in Standard II or IV classrooms also had a positive and statistically significant correlation with teacher attendance. Both blackboards and the presence of learning materials could, of course, also serve as proxies for schools that are better managed, resourced, and staffed.

Teachers Are Less Likely to Attend In Smaller Classrooms

In ASER-PAISA, compliance with RTE student-teacher ratios was negatively correlated with teacher attendance. The positive correlation between the student-teacher ratio and teacher attendance confirmed this relationship.[24] This countered our hypothesis that compliance with student-teacher ratios would yield higher teacher attendance rates because teachers prefer teaching smaller, more manageable classrooms. However, the results are in line with earlier findings that changing student-teacher ratios does not improve teacher attendance.[25]

The positive correlation between the student-teacher ratio variable and teacher attendance might indicate that teachers are less motivated to regularly attend school when less students depend on them. It may also be possible that schools with low student-teacher ratios are more likely to have multiple teachers, and that teachers in these classrooms therefore believe that other teachers could cover their classes in their absence, increasing absenteeism. The negative and statistically significant correlation between teacher attendance and the log of student enrollment in the ASER-PAISA dataset further supports this hypothesis.[26] Teachers at larger schools showed lower attendance rates than teachers at smaller schools *ceteris paribus*.

What Inputs Are Correlated With Headmaster Attendance?

Between the ASER-PAISA and PAISA-DRC datasets, we found that headmaster attendance was sometimes positively correlated with teacher attendance as well as the receipt and expenditure of school grants (see below). These correlations lead us to the question: what drives headmaster attendance? Given that headmaster attendance appeared to be correlated with a chain of positive events, it is important to understand the factors that impact a headmaster's regular presence in his or her school.

To better understand variation in headmaster attendance, we tested the relationship between headmaster attendance and two groups of explanatory variables: monitoring variables and school characteristic variables. The presence of regular monitoring and accountability mechanisms might result in higher rates of headmaster attendance, because headmasters believe they will face a consequence if they shirk their responsibilities. Under RTE, headmaster monitoring occurs at many levels, from the local SMCs to visits from the district

[23] The lack of correlation between teacher attendance and infrastructure also runs counter to earlier research done on teacher attendance in India by Kremer, Michael, et al. "Teacher Absence in India: A Snapshot." Journal of the European Economic Association3.2/3 (2005): 658-67. Print.
[24] PAISA-DRC data did not show a statistically significant correlation between teacher attendance and student-teacher ratios.
[25] Kremer, M., and A. Holla. "Improving Education in the Developing World: What have we Learned from Randomized Evaluations?" ANNUAL REVIEW OF ECONOMICS 1.1 (2009): 513-42. Print.
[26] PAISA-DRC data did not show a statistically significant correlation between teacher attendance and the log of student enrollment.

education officer, and so all of these were tested. In terms of school characteristics, headmasters might be more likely to regularly attend schools that have a higher percent of students from higher socioeconomic status for a variety of reasons. For example, the parents of these students might be more involved in their children's education and more likely to hold headmasters accountable. Headmasters themselves might view schools with primarily poor and marginalized students as less deserving of education, or believe that poor parents are less likely to hold them accountable.

Monitoring Variables:

- *Visits by block, district, or cluster level officials*. Headmasters technically report to block, cluster, and district level officials, so it is plausible that regular visits might have an impact on headmaster attendance. Headmasters at rarely visited schools may be less likely to attend regularly, because they expect their superiors not to notice absenteeism.
- *Presence of a public and up-to-date display board.* Display boards intend to increase accountability to citizens by better informing them. The display boards contain information about teacher actions and do not necessarily document information about headmasters. Nevertheless, headmasters in schools with public and up-to-date teacher display boards might have higher attendance rates, because they note community monitoring and documentation of school activities.
- *SMC met in past 3 months*. RTE stipulates that SMCs should "monitor the working of the school." The presence of an SMC might thus result in higher rates of local monitoring, which could in turn encourage headmaster attendance. Additionally, a functional SMC might indicate a more functional school and/or an active parent body, both of which could also encourage higher headmaster attendance.

School Characteristics Variables:

- *Log student enrollment*. Schools of different sizes might have systematically different headmaster attendance rates. It is possible that being a headmaster at larger schools is more prestigious, resulting in higher headmaster attendance. On the other hand, headmasters at smaller schools might have teaching as well as administrative duties, inducing them to attend school more regularly, if they believe their teaching duties requires daily attendance. To better understand the relationship between headmaster attendance and school size, we included the log of student enrollment.
- *Private School Enrollment*. Districts with higher percentages of students enrolled in private schools might have lower headmaster attendance rates, because public schools may disproportionately contain children whose parents may be less interested or less able to be involved in their children's education.
- *Percent of Female Student Enrollment*. The push for enrolling girls in primary schools has boosted the percentage of females in public schools. At the same time, some families choose to send their sons to private schools, while enrolling daughters in public schools.[27] For this reason, a high percentage of females in public primary schools might follow the same trend described for the private school variable.
- *Scheduled Caste, Scheduled Tribe, and OBC Enrollment*. Headmasters might be less likely to attend schools with a higher percentage of scheduled castes for the same reasons outlined in the private school variable: the parents of these students might be less willing or able to hold the schools accountable and the headmasters themselves might view these students as less worthy of receiving an education.
- *Repeater Students*. RTE mandates mainstreaming, which requires schools to promote their students regardless of their achievement levels.[28] Repeaters represent a small proportion of the student body, however, their presence in the district might indicate that someone at the school (presumably a

[27] Woodhead, Martin, Melanie Frost, and Zoe James. "Does Growth in Private Schooling Contribute to Education for all? Evidence from a Longitudinal, Two Cohort Study in Andhra Pradesh, India." International Journal of Educational Development 33.1 (2013): 65-73. Print.
[28] Government of India, RTE, Chapter IV, Article 16.

headmaster) cares enough to hold students back. In this case, districts with higher shares of repeaters should also have higher headmaster presence based on their increased engagement. If, on the other hand, having repeaters implies that the school failed to recognize RTE promotion requirements because of headmaster negligence, higher shares of repeaters could correlate with lower headmaster attendance.

For PAISA-DRC analysis, the data covered school years 2009-2010 and 2010-2011. For school-level ASER-PAISA analysis, the data came from 2011, because that was the only year that ASER included data on monitoring visits from district, block, and cluster officials. For the district-aggregated ASER-PAISA analysis, we ran two distinct regressions. The first included the monitoring visit data and thus only included 2011. The full regression results are included in Appendix D, Table 4 – 5 and Appendix E, Table 17. Table 5 below summarizes the findings for the correlation of each variable to headmaster attendance.

Table 5 - Associations between headmaster attendance and explanatory variables

Variable	PAISA-DRC Result	ASER-PAISA School Results	ASER-PAISA District Results
Monitoring Variables			
Visits by district, block, or cluster officials	No significant effect	+	No significant effect
Visible and current display boards	No significant effect	No data	No data
SMC met in past 3 months	No significant effect	No data	No data
School Characteristics Variables			
Log of student enrollment	+	No significant effect	No significant effect
Percent private school enrollment, female student enrollment, scheduled caste enrollment, scheduled tribe enrollment, OBC enrollment, and repeater student enrollment	For all remaining demographic variables, no significant effect found in district data. No relevant data available for other administrative units.		

Where effects are noted, they are significant at the 1 percent level.

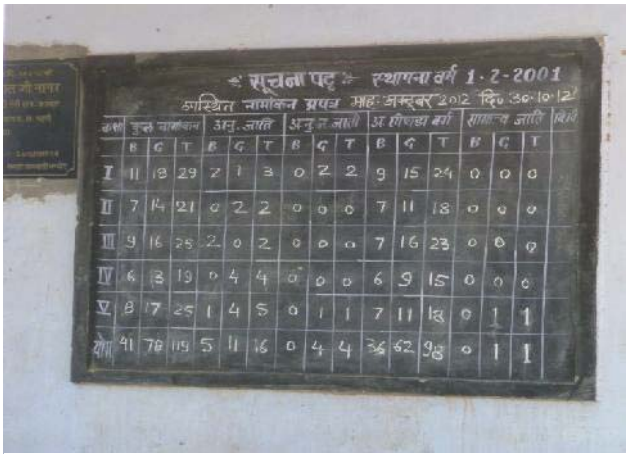
Current Monitoring Mechanisms Fail to Promote Headmaster Attendance

Overall, we found little evidence that monitoring visits correlated with headmaster attendance in any meaningful way. In fact, we only found a positive, statistically significant relationship between visits by officials and headmaster attendance in the school-level version of ASER-PAISA, which only uses log enrollment in addition to time and place fixed effects and thus omits important variables not available in the datasets. This could imply that monitoring can improve headmaster attendance, because headmasters anticipate consequences for shirking their responsibilities. It also could mean that higher-level monitoring from district officers is most effective for headmasters, because headmasters know that these officers control their salaries and job security. However, frequent visits from education officers might also be correlated with the school's distance from the district's center, which could also be correlated with headmaster attendance rates.[29] Additional analysis of school location, rates of official monitoring visits, and headmaster attendance could help better explain these relationships. The PAISA-DRC data did not show a statistically significant correlation between monitoring visits and headmaster attendance. Moreover, when the ASER-PAISA data was aggregated to the district level to allow for inclusion of a richer set of controls, the statistically significant correlation between headmaster attendance and monitoring visits disappeared.

The other two monitoring variables – display boards and SMC meetings – did not exhibit a statistically significant correlation with headmaster attendance. While SMCs hold headmasters accountable, most SMCs

[29] For example, Kremer et al. found that teachers in schools that were far from paved roads were less likely to attend school than those closer to a paved road. Kremer, Michael, et al. "Teacher Absence in India: A Snapshot." Journal of the European Economic Association3.2/3 (2005): 658-67. Print.

currently have very weak capacity to do so. In practice, headmasters themselves are usually responsible for nominating SMC members, convening meetings, and directing the SMC activities. Thus, while more competent SMCs could promote higher headmaster attendance in the future, in their current state, they appear to have little impact.[30]



A monitoring board outside a school in Jaipur.

It Remains Unclear If School Size Influences Headmaster Attendance

Our analysis showed conflicting results about the correlation between the log of student enrollment and headmaster attendance. The PAISA-DRC dataset yielded a positive and statistically significant relationship between the two variables, while the two ASER-PAISA analyses showed no statistically significant relationship. The PAISA-DRC results could confirm that headmasters are more likely to attend larger schools, which might be viewed as more prestigious jobs or could also simply carry larger amount of administrative responsibility. As with the monitoring visits variable, it is also possible that larger schools are more likely to be in peri-urban areas, while smaller schools are located in rural and remote areas. Thus, higher headmaster attendance and larger schools might correlate simply because they both correlate with more urban areas. Additional analysis that includes information about a school's relative remoteness could clarify this relationship.

Other School Characteristics Do Not Influence Headmaster Attendance

None of the other school characteristic variables (percent private school enrollment, female student enrollment, scheduled caste enrollment, scheduled tribe enrollment, OBC enrollment, and repeater student enrollment) show any statistically significant correlation with headmaster attendance. This may refute the idea that student socioeconomic status influences headmaster attendance. This result may just have been a function of aggregating data to the district level or a reflection on the quality of DISE data, which contained these demographic characteristics. It would be ideal to have school-level demographic data to explore the relationship between headmaster attendance and student demographics further.

What Factors Influence Infrastructure and Material Provision in Schools?

As mentioned earlier, many RTE critics maintain that while all schools should have some basic amenities, RTE's requirements are arbitrary and prevent schools from addressing their actual needs. Indeed, during our field visits in Rajasthan, we observed boundary walls being built for a school located in an open field and wondered whether this investment truly met the school's greatest needs. Yet the school's ability to spend funds and acquire this infrastructure is surely a sign of some engagement and efficacy at the school level. As noted above, RTE created a grant for infrastructure upkeep (SMG), one for learning materials (TLM), and one for undertaking repairs (SDG). To evaluate the impact of these grants, we asked whether receiving and spending these grants had an impact on schools' infrastructure, repairs, and presence of learning materials. In order to evaluate infrastructure and repairs, we constructed an infrastructure index that compiled the eight infrastructure-related requirements outlined in the RTE and a similar index for repairs.[31] We explored the impact of three groups of explanatory variables: grant expenditures, monitoring, and school characteristics.

[30] A 2009 summary of the Probe Report found that 96 percent of schools have SMCs or Village Education Committees (VECs) in place, but that the ability of these committees to hold teachers and headmasters accountable was lacking. The study found few signs of active parental involvement and also noted that headmasters were often in a position of power on the SMCs.
Kumar, K. Shiva et al. "'Education for all' is the policy, but what is the reality?" Frontline. 26. 6 (2009). Web.
[31] See description of index methodology in Variable Description (Appendix B).

Expenditures of grants specifically intended for RTE implementation should lead to better availability of building components and material input requirements of RTE. Monitoring of the school is supposed to lead to greater accountability for proper delivery of public education, which is why we test the effects of various monitoring mechanisms. We also control for basic school characteristics.

Grant Expenditure Variables:

- *Grant expenditure:* Since SMG, SDG, and TLM are earmarked to increase investment in infrastructure, administrative/operational expenses and learning materials, respectively, we expect their expenditure to be correlated with infrastructural improvements, repairs, and availability of learning tools in schools.
- *Timing of grant expenditure:* The PAISA-DRC data allowed us to explore whether spending the grant earlier in the year versus later in the year mattered more for infrastructure, repairs, and materials. Divided by quarters in the fiscal year, results indicated that spending the grants at the beginning versus the end of the year did not explain much more variation in infrastructure, repairs, and materials. Although the variation explained did not fluctuate much, we proceeded with using the quarter of spending that explained the most for the dependent indices.

Monitoring Variables:

- *Headmaster presence.* Headmasters are overseeing school operations on a daily basis. They are the ones aware of the most pressing infrastructure and material needs at the school. Schools with responsible and engaged headmasters are therefore likely to be in better condition. We take headmaster presence to signal at least some degree of engagement.
- *Visits by block, district, or cluster level officials.* According to interviews with some headmasters in Rajasthan, block, cluster, and district level officials may be responsible for authorizing infrastructure purchases and/or construction. Schools that recently received a visit from at least one of those officials might be in a better position for getting their requests approved, since visitors will be aware of school needs.
- *Presence of a public and up-to-date display board.* Display boards should increase accountability to citizens. Thus, we hypothesize that schools with functional display boards might have better infrastructure and learning materials because whoever is responsible for ensuring development at the school knows that the surrounding community will monitor and document such developments. Alternatively, the board being updated might just proxy in for a well-functioning school.
- *SMC met in past 3 months.* RTE stipulates that SMCs should monitor the developments at the school and create school plans. Ideally, SMC's would be actively engaged in determining school needs and involved in the decision to improve school facilities. A functional SMC might contribute to better school infrastructure through pressure on school staff and education officials, or it could be associated with better functioning schools.
- *Levels of infrastructure grievance redressal.* If more local levels of grievance redressal correlate with better infrastructure and materials, this might mean that whoever is responsible for school development responds to local accountability mechanisms. Alternatively, if school facilities positively correlate with block or district office accountability mechanisms, the person in charge of school development might better follow directives from higher-level officials who control employment and salary.

School Characteristics Variables:

- *Log student enrollment.* School size (measured as the log of student enrollment) was included as a basic control in all regressions, as schools of different sizes may be systematically different.

Full regression results for infrastructure, repairs, and learning materials are presented in Appendix D, Table 6 – 10 and Appendix E, Table 18 – 20.

Spending SSA Grants Correlated With Infrastructure and Learning Material Availability

In the ASER-PAISA data, grant expenditures were associated with more infrastructure, repairs, and the presence of learning materials in the classrooms. Spending the SMG had a positive and statistically significant effect on the infrastructure index, and all of its components individually. Spending of the three grants also positively correlated with the index of repair works, and most of its individual components. Finally, the TLM positively correlated with the presence of library books as well as supplemental learning materials in Standards II and IV.

The PAISA-DRC showed similar results for infrastructure but there were significant differences for both repairs and learning materials. Spending of the SMG in years 2009-2010 and 2010-2011 had a jointly significant and positive effect on the infrastructure index. Contrary to expectation, however, grants appeared to have a negative relationship with the repairs index, and no significant relationship with learning materials in schools.

Display Boards, Headmaster Monitoring, Official Visits Positively Correlated With Physical Inputs

		233		34	267	
1		192	41	20	14	212	55
2		135	98	32	2	167	100
3		212	21	32	2	244	23
4		10	223	16	18	26	241
5		108	125	26	8	134	133
		1183	33	366	42	1549	75

Local monitoring of key RTE implementation components.

After accounting for grant expenditures – which go up with headmaster presence – headmaster presence did not have an independent impact on the composite indices of infrastructure and repairs in either dataset. It did have an independent effect on getting learning materials and books to the school in the ASER-PAISA dataset, likely because the headmaster is the one responsible for ordering them.

Monitoring by block, cluster, or district-level officials also mattered for infrastructure, repairs and learning materials in the ASER-PAISA dataset, but not in the PAISA-DRC dataset. ASER-PAISA results make intuitive sense since these officials are responsible for approving headmaster requests. Furthermore, bureaucratic monitoring may also pressure school officials to perform their duties with regards to the procurement of materials and infrastructure repair.

Visible and updated display boards of grant information, from the PAISA-DRC dataset, was positively correlated with the infrastructure and repairs indices in most districts that had display boards.[32] The results were similar for the presence of library books, learning materials, and blackboards in schools. However, display boards did not appear to have a stable relationship with students receiving textbooks or uniforms. These schemes were presumably unrelated to the SMG, SDG, and TLM grants, and perhaps the display boards did not contain information regarding these schemes. Alternatively, this result may have reflected poor accountability mechanisms and weak community influence over officials managing textbook and uniform schemes.

SMC activity in the past three months was less consistent than display boards in explaining infrastructure, repairs, and learning materials. The PAISA-DRC data showed a significantly positive correlation between SMC activity and meeting infrastructure requirements of one classroom per teacher, a usable boys toilet, and a completed boundary wall. There did not appear to be a significant relationship with the composite infrastructure or repairs indices as a whole, though. In fact, SMC activity was associated negatively with

[32] Jalpaiguri was the only district in the PAISA-DRC dataset that did not have public and up-to-date display boards with grant information.

teacher learning material and blackboards. Display boards seemed to have a powerful effect since they allow anyone from the community to view grant information, inducing school administration to provide what these grants intend. SMCs seemed to only affect substantial "big ticket" items. Perhaps the committees focus their efforts on such large items since they are newly constituted and not yet institutionalized. During our site visits in Rajasthan, we observed that headmasters often preside over SMC meetings. Headmasters also receive directives from the cluster, block, and district officials. Some interviewees suggested that the central bureaucracy often focuses on one aspect of infrastructure and makes an effort to push all schools to improve that particular piece. If SMC members are susceptible to headmaster priorities, as defined by requests from further up the chain, this might explain lack of association with the overall infrastructure index since specific school needs in this area might remain unaddressed.

Grievance redressal mechanisms, indicated by whether complaints about infrastructure were addressed to the SMC, cluster, block, district, or Panchayat officials, did not significantly affect the infrastructure or repair indices. However, they appeared to positively correlate with library books, learning materials, and blackboards. These results might demonstrate the weakness of the grievance redressal mechanisms in that they are only correlated with small items.

Larger Schools Have Better Infrastructure and More Learning Materials

Log total enrollment also had a statistically significant effect on the infrastructure index and all of its components in both datasets. Larger schools were more likely to have performed repairs. These schools were also more likely to have supplementary learning materials and library books. By virtue of their size, larger schools were expected to have better infrastructure. It may be that larger schools are located in peri-urban areas or, if not located in the proximity to urban areas, are flagship schools serving a wide area. In either case, these schools are likely to be visible to the education bureaucracy, who will ensure that they are well supplied and maintained. The significant negative effect of the size of enrollment on the availability of one classroom per teacher at the school may be explained by the fact that larger schools students can be accommodated in verandahs, or outside courtyards and thus have more teachers than the number of available classrooms. Alternatively, schools with large enrollment may have a financial threshold beyond which they must decide between additional classrooms or teachers, and a number of factors may make the number of teachers more responsive to quick changes than infrastructure improvements – for example, it may simply be quicker to hire a new teacher than to construct a new classroom.

What Contributes to Grant Receipt and Efficient Expenditures?

How the SMG, SDG, and TLM are transferred and spent is important because they are the primary vehicles for implementing RTE,[33] and are the only funds over which SMCs have expenditure control.[34] To explore potential bottlenecks in grant delivery, we examined whether the schools received the grants, whether they were spent, and the time lag between grant receipt and expenditure.

If schools do not receive grants regardless of their characteristics, there may be a problem further up in the educational bureaucracy in delivering funding. If school-level characteristics such as personnel and parent engagement have a positive effect on receiving grants, this may point to functional accountability and pressure mechanisms that extend up the bureaucracy.

For schools that receive grants, as most of them do, it is also of interest what determines whether and how they spend these grants. If schools are not spending received grants, or if it takes them a long time, the school

[33] These grants only account for 6-8 percent of total SSA allocation. "Sarva Shiksha Abhiyan, GOI 2012-2013," Accountability Initiative. n.d. Web.
[34] "Do Schools Get Their Money? (Paisa 2011)." Accountability Initiative. 2012. Web., p. 5.

may be the bottleneck, rather than the bureaucracy. The school-level characteristics that determine whether a school spends its funds in a timely manner may tell us something about what makes a functional school, and what it takes to have local-level accountability.

In order to examine grant receipt and expenditure, we studied their relationship with two categories of explanatory variables: monitoring and school characteristics. Monitoring variables were included because these have been created with the purpose of ensuring that funding flows from the government to the schools and that the schools spend the funds properly. School characteristics were included because factors such as size, teacher engagement, and the school's physical distance to its bank account could be thought of as plausibly having an impact on the way funds are received and spent.

Due to data limitations, not all of these variables were used in all of our regressions. Specifically, monitoring data was only available for 2011 in ASER-PAISA. We only had information on SMCs and display boards in PAISA-DRC, but not in ASER-PAISA. The full regressions of our analysis of grant receipt are presented in Appendix D, Table 11, and Appendix E, Table 21. Our analysis on grant expenditure is found in Appendix D, Table 12[35] and Appendix E, Table 22.

Monitoring Variables:

The following variables are designed to allow for top-down monitoring:

- *Headmaster presence.* headmasters play an important role in all aspects of a school's performance, as they are the main administrators and channel of communication between the school's stakeholders (teachers, students, parents, SMC members) and GOI. They fill out requests for funding and file paperwork to spend grants, and may therefore play an important role in determining whether and how grants are received and spent.
- *Visits by block, district, or cluster level officials*. These officials are in charge of ensuring that schools function properly, and as part of their job duties, must periodically visit the schools. Some of these administrators help transmit funds from the state to the schools, so it is plausible that more closely monitored schools may be more likely to receive and spend the grants allotted to them in a timely manner.

Other variables are designed to assess bottom-up monitoring:

- *Presence of public and up-to-date display boards.* Display boards explicitly purport to increase accountability to citizens by giving them information that would otherwise be difficult to access. Therefore, having a public and updated grant display board will plausibly have a positive impact on grant receipt and expenditure.
- *SMC met in past 3 months.* Because of SMC monitoring duties, schools with SMCs that have met recently may be more likely to have received and used their grants that were appropriated to them.

School Characteristic Variables:

- *Teacher attendance.* Unlike the other two grants, teachers directly receive the TLM grants and have more discretion on their use. Therefore, teacher attendance may impact whether the grant is received and spent. As we had no reason to believe that teacher attendance would directly impact the other grants, we did not test for it.

[35] Additionally, and not displayed in Table 12, we divided the spending by year and re-ran the regressions, and found that the same results hold for every year when analyzed independently.

- *Close proximity to the bank.* Being close to the bank where the school has an account may play an important role in spending the grants, as this may facilitate the school authorities in checking on the account's status, having a banking relationship, and withdrawing funds when needed. Proximity to the bank may decrease the time lag between the receipt and expenditure of the grant. Without a reason to believe that this variable would impact receipt of the grant, we did not test for this.
- *Log student enrollment.* This variable was included as a basic control in all regressions, as schools of different sizes may be systematically different. For example, larger and smaller schools might use different internal administrative mechanisms; in some of the small schools we visited, the headmaster doubled as a teacher, while larger schools might require the headmaster take on a more administrative role. Larger schools might also have greater prominence in the community, leading to more oversight by the community at large – or the fact that there are more parents might mean that, even with the same percentage engaged, the absolute *number* of engaged parents is higher, creating more pressure for school administrators. In most cases, coefficients on log enrollment were positive and statistically significant, indicating that larger schools were more effective at receiving and spending their grants.

Official Visits and Headmaster Presence May Improve Grant Receipt and Expenditure

Our results partially confirmed the hypothesis that headmaster presence matters for grant receipt and expenditure. In ASER-PAISA, headmaster presence was positively correlated with the receipt of all three grants, while in PAISA-DRC it was only significantly correlated with receipt of TLM.[36] In our analysis of grant expenditure using ASER-PAISA, headmaster presence was positively and significantly correlated.

Similarly, while monitoring by block, cluster, and district level officials was a significant predictor of grant receipt in ASER-PAISA, the relationship was not statistically significant in PAISA-DRC. In our analysis of grant expenditure using ASER-PAISA, monitoring was positively correlated and significant for the SMG and SDG, although it was not statistically significant for the TLM grants.

Display Boards and SMCs May Not Improve Grant Receipt or Expenditure

The presence of public and up-to-date display boards did not significantly impact the receipt of SMG or SDG, but was positively correlated and significant (at the 10 percent level) for receipt of TLM. Display boards should better inform citizens, so that they can influence service delivery quality. But while concerned parents and community members may have mechanisms to coax teachers and headmasters to attend school, and even to complain about the lack of infrastructure, the mechanisms to pressure for timely grant receipt may not be as apparent. Some of the parents interviewed in Rajasthan were unaware to whom they should address any concerns. Moreover, having decision-makers work in far away offices at different bureaucratic levels may result in parents and community members that cannot act, do not act, or act unsuccessfully on the information revealed through display boards. This may explain why display boards had no positive correlation with the receipt of SMG or SDG grants in our data.

The PAISA-DRC dataset did not show a significant correlation between an active SMC and the receipt of grants. This may parallel what our analysis of display boards suggested: that SMCs have limited power (or believe they have limited power, and therefore do not act) to affect the actual receipt of the grant. In meetings with SMC members in Rajasthan, teachers and committee members indicated that SMCs meet infrequently, if at all. Some members were unclear of what roles SMCs play. This may reflect the incipient stage of SMCs, or may point to a more systemic problem: SMCs are not receiving the necessary support to achieve the

[36] It is worth noting that in our regressions using PAISA-DRC none of the variables were significant at impacting the receipt of SMG or SDG, and that headmaster presence was only one of two variables that were significant for the receipt of TLM. It is possible that headmaster attendance is in fact important in determining grant receipt, but that PAISA-DRC did not have a sample size large enough to detect this effect.

complicated task of coalescing a poor rural community around educational monitoring. Either way, dysfunctional SMCs may explain why the data did not show a link between their presence and receipt of grants.

Larger Schools Are More Likely to Receive SMG and SDG; Teacher Engagement May Matter for TLM Receipt But Not Expenditure

The ASER-PAISA dataset demonstrated that teacher attendance was significantly and positively correlated with the receipt of TLM. This effect disappears, however, when monitoring by officials is included in the regression. As teachers are in charge of spending the TLM, we also tested the impact of teacher attendance on TLM expenditure. Results showed that teacher attendance had only a statistically insignificant positive correlation with TLM expenditure.

The ASER-PAISA dataset also found that larger schools are more likely to receive SMG and SDG, but not the TLM grant. It is unclear why TLM displays a different pattern than the other two grants. TLM is assigned as a fixed amount per teacher per year, while the amount of the SMG grant varies by school size and the amount of SDG depends on whether the schools are primary or upper primary schools. The TLM grant is also smaller and may have less spending limitations assigned to it. It is therefore possible that larger schools have an advantage versus smaller schools at advocating for SMG and SDG, but that this advantage is not as significant for the smaller and more flexible TLM.

Bank Proximity Enables Schools to Spend Grants Faster

We also examined the lag between grant receipt and expenditure and the relationship between this lag and headmaster attendance, display boards, SMC presence, monitoring, proximity of a bank[37], and school size using PAISA-DRC. Most of the variables tested, including headmaster attendance, SMCs, display boards, and monitoring, pointed in the opposite direction than expected, implying that they increased the time lag. Most are statistically insignificant. It was unclear why this would be the case for headmaster attendance, SMCs, and display boards. Monitoring was positive and statistically significant for the SDG and TLM lags at the 5 percent level (but insignificant for SMG) when including the bank proximity. Officials may visit poorly performing schools more, but without further research it is unclear why the relationship was in this direction.

These regressions suggested inconclusive results, as most of the coefficients pointed in unexpected directions and were not statistically significant. The one variable for which our analysis suggested our hypothesis may be correct was proximity to the bank in which the school has an account, as we had expected a further distance between the school and the bank to have a negative effect on the time between receipt and expenditure of the grant. The results suggested that, all else being equal, having a bank within 5 km of the school decreased the average lag in the expenditure.

[37] We only had data on proximity of the bank in which the school has a bank account for about half of the schools. Including this variable therefore significantly decreased the number of observations.

Sidebox: An expenditure index for states

One potential explanation behind the differences in receipt and expenditure by schools may be that some states may be more efficient at using their resources than other states. In order to explore this possibility, we created an expenditure index, which was determined by the average expenditure efficiency (expenditure/budget) for each state in the year 2009-2010 of 5 centrally sponsored schemes: National Rural Employment Guarantee Act (NREGA), Total Sanitation Campaign (TSC), National Rural Health Mission (NRHM) National Social Assistance Programme (NSAP), and Sarva Shiksha Abhiyan (SSA).[1]

To test the validity of our index, we first compared the 2009-2010 index for each state with the 2008-2009 index, and found that even though there was a positive relationship between the two, the index for some states changed significantly from one year to the other, implying that the index was somewhat unstable. We also found that the index positively correlated with the monthly per capita consumer expenditure of each state and that it negatively correlated with the percentage of the population living below the poverty line. The index was not correlated with infant mortality, and negatively correlated with calories consumed per capita.

The index was also primarily driven by two schemes, SSA and NRHM, which have average expenditures of over 100 percent in 2009-2010. In fact, while the average expenditure efficiency across states of TSC, MDM, NSAP, and NREGA were .47, .71, .37, and .68 respectively, the average for SSA and NRHM were 1.03 and 1.25 respectively. Plotting SSA against an index of all other schemes yielded a negative correlation; states that spent a high percentage on other schemes spent a smaller percentage of SSA. This merits research into whether efficient expenditure in some schemes crowds out others. Bureaucratic capacity may stretch too thin with the implementation of more schemes.

Both SSA and NRHM are implemented via state societies that receive the funds from both the national and the state governments, and then transfer it onward.[1] In the case of SSA, funds are usually then transferred to district societies, which subsequently make the transfers to the block resource centers.[2] Kaushik Ganguly and Jawed Khan point out that "in the case of national missions like SSA and NRHM, it is the district level societies that are pivotal in terms of receiving the funds from the centre and their allocation and utilization."[3] As Accountability Initiative has noted, states usually count funds as spent once they are transferred down to another authority.[4] Since both SSA and NRHM are locally implemented, it is not surprising that they would register among states as the best executed schemes. The implementation of other schemes that require the state to actually incur expenses may tell us more about a state's ability to spend funds. SSA's distinct implementation modality may explain why SSA's expenditure efficiency was not closely correlated with the other schemes. Further research could expound the negative correlation.

[1] "Public Expenditure Tracking for Social Sector Programs in India-Case Study of Sarva Shiksha Abhiyan." Accountability India. n.d. Web.

[2] Aiyar,Yamini. "Tracking the Rupee: An Overview of Expenditure Tracking Work in India: Gaps, Challenges, Opportunities, and the PAISA Project." July 2009. Web.

[3] Ganguly, Kaushik and Jawed Khan. "Financing Rural Development: Some Issues Relating to the Budget and Fiscal Decentralization." in Mishra, Yamini, Gyana Ranjan Panda, and Colin Gonsalves. Human Rights and Budgets in India. Socio Legal Information Cent, 2009. Print.

[4] "PAISA District Studies: Towards a New Frontier for Governing Elementary Education Finances in India."Accountability Initiative. 2011. Web.

Conclusions

On Average, Learning Outcomes Have Declined Since Passage of the RTE

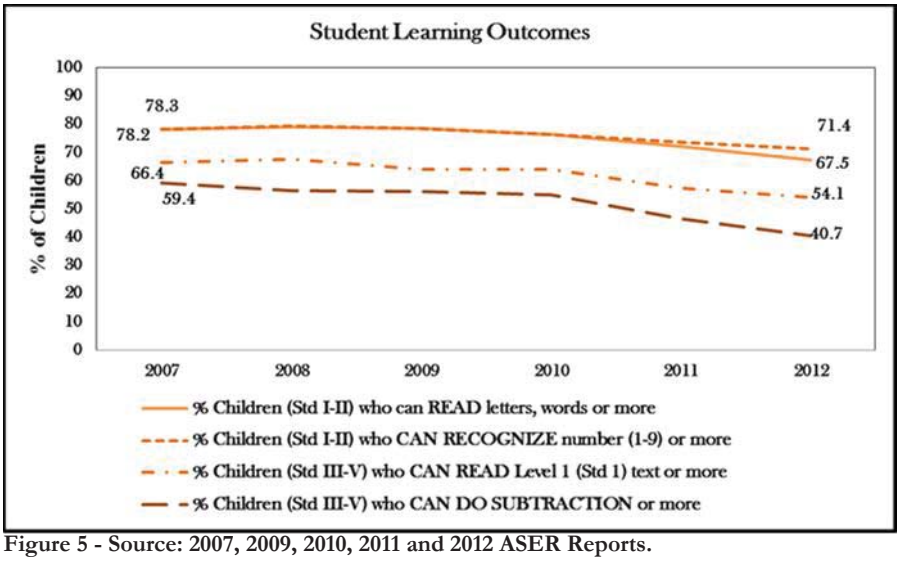


Figure 5 - Source: 2007, 2009, 2010, 2011 and 2012 ASER Reports.

In 2009, when RTE was passed, the ASER-PAISA survey found that 79 percent of children in Standards I and II could read and recognize single digit numbers. By 2012, only 68 percent of children surveyed in Standards I and II could read, and only 71 percent could recognize numbers. Declines were even more pronounced for children in Standards III-V: in 2009, 64 percent of those children could read at least at Standards I level, and 56 percent could subtract. However, only 54 percent and 41 percent of children could carry out these respective tasks in 2012. In the case of the Standards III-V children, this represented a drop not only since the 2009 passage of RTE, but also since the ASER-PAISA survey began collecting learning outcomes data in 2006 (Figure 5).

These numbers are based on surveys of all children, including those who have never been in school as well as public and private school students. Learning outcomes during this period declined in spite of rising school enrollment. Between 2006 and 2012, the percentage of children who have never attended school dropped from 6 to 4 percent, according to ASER-PAISA. Furthermore, in 2006, only 19 percent of students were enrolled in private schools, which have higher student achievement; by 2009, when the RTE Act was passed, that number was 22 percent, and in 2012, 28 percent (See Appendix C, Figure A). Both of these trends, an increase in overall school enrollment and an increase in the share of students in private schools, should have led to improved learning outcomes. The combination of these trends and the decline in learning outcomes suggest that learning within public schools deteriorated since passage of RTE.

Although declines in learning outcomes were particularly pronounced in some states, the overall effect was *not* driven by a few low-achieving states: we observed a relatively consistent downward trend across the states. Out of 28 states surveyed in both 2009 and 2012, 21 saw declines in the percentage of Standards I and II children who could recognize letters and words. During the same period, 20 of the 28 states saw declines in the percentage of Standards I and II children who could recognize numbers. Similarly, 22 states saw drops in the percentage of Standards III-V children who could read a Standard I text, and 24 states saw drops in the percentage of Standards III-V children who could subtract. Only Andhra Pradesh, Jammu & Kashmir, and Uttarakhand registered gains in all four categories of learning achievement.

Some Links in the RTE Act's Implicit Causal Chain Are Weak

These general declines between 2009 and 2011 suggest that there has been an overall drop in public school instructional quality, despite increased investments and policy changes to the national education program. This is particularly surprising given the focus on infrastructure and personnel improvements under RTE. For example, according to data from DISE, between 2006 and 2011, there was a steady increase in the percentage of teachers with a graduate education (from 28 percent to 33 percent) and teachers with post-graduate education (from 14 percent to 18 percent), and declines in teachers with only a secondary or below-secondary education. The decline in education outcomes even in the face of rising inputs into public education suggests that the causal assumptions underpinning educational reform efforts may be fundamentally flawed. This section explores some areas where we see some evidence of weaknesses in the causal chain of investment → infrastructure → attendance → learning outcomes.

We find that, although most schools receive SSA grants, the receipt itself is predicted by headmaster presence and engagement at the school as well as, to a lesser extent, functioning monitoring mechanisms. Not all schools spend their grants, but if they do, infrastructure and availability of learning materials improves. While better infrastructure may lead to increased student attendance, it does not influence teacher attendance, which is more responsive to the presence of teaching materials and headmaster engagement. Teacher attendance itself, along with learning materials and midday meals contributes to better student attendance. Student attendance, in turn, is key for improved learning outcomes. Moreover, the evidence for the effectiveness of monitoring mechanisms in bolstering headmaster, teacher, and student attendance is weak. What is evident is that RTE's focus on financial and infrastructure inputs is too far removed from what really matters for learning. The weakest link in RTE's chain is between infrastructure and attendance of students and personnel, which are the main contributors to learning. The only "infrastructure" inputs that have a clear connection with learning are teaching materials. Thus, Indian policymakers might pay more attention to providing schools, teachers, and students with the tools that are directly related to creating an environment where children can learn.

Accountability Mechanisms Are Not Correlated With Improved Learning Outcomes

Despite a push to improve monitoring and accountability mechanisms under RTE, we do not see strong or consistent correlations between the presence of these mechanisms and improved learning outcomes. Regressions using data from the ASER-PAISA survey suggested that monitoring by a block-, cluster-, or district-level official was not significantly correlated with improvements in either headmaster or teacher attendance. One hypothesis is that teachers and their union are so powerful that they do not expect an official's discovery of absenteeism to adversely affect their careers.

We also reviewed the effect of having various authority figures to whom to complain about local schools. These potential avenues for complaint included the SMC or a cluster-, block-, district-, or Panchayat-level official. While having a specific type of redressal authority was not significantly correlated with improved teacher attendance, infrastructure, or construction outcomes, an F-test of the multiple variables showed that they are jointly significant for increased teacher attendance. This suggests that the presence of some sort of avenue for complaint may be important for improving teacher attendance.

Finally, we found no consistent relationship between the presence of functioning SMCs and statewide learning outcomes. For example, in 2011, DISE data showed that only 3 percent of schools in Goa reported SMCs, but the state scored in the high 90s on all four learning outcomes. Punjab, Madhya Pradesh, and Karnakata were among the few states that reported 90 percent or more of their schools as having SMCs in 2011, and they had widely varying learning outcomes, both in terms of success rates and in directional trends.

These findings suggested that the presence of functional SMCs have little effect on learning outcomes. This is consistent with observations from field interviews with SMC members and school staff, which suggest that the goal of a highly engaged monitoring body may need more support, resources, and development to be fully realized. In interviews with SMC members in Rajasthan, some parents indicated they had been selected for SMC participation based on their homes' proximity to the schools. While some members expressed opinions about school policy and construction needs, others stated that they went to the meetings at the headmasters' request and recalled the meetings mostly for the snacks provided. While asking parents to oversee educational delivery may be useful for promoting civic engagement, parents may not have the time or resources to compensate for more systemic problems of public education, especially in areas that are already the most resource-strapped.

Data Limitations

Throughout our analysis, we observed some differences in the outcomes from the national ASER-PAISA dataset and the PAISA-DRC dataset. For example, using the PAISA-DRC dataset, we found that headmaster presence had a *negative* effect on teacher attendance. With the ASER-PAISA data, however, headmaster presence had a *positive* effect on teacher attendance. These differences could have been driven by idiosyncrasies in the particular districts. However, preliminary analysis of the ASER-PAISA data only for the same regions covered by PAISA-DRC found that some discrepancies persisted even within the same geographic areas, suggesting that some variables may have lacked robustness.

More importantly, neither of our datasets contained important variables that are usually thought to be driving learning outcomes: educational quality, socioeconomic factors, and other variables.

Educational Quality

One crucial piece of the puzzle that is missing here and in RTE is any measurement of instructional quality. Instructional quality is difficult to quantify because there is no clear consensus on how it should be measured, and as an observer of educational reform efforts in any country will note, proposals to institute measures of instructional quality often run up against opposition from teachers' unions and other interest groups. Yet there is clearly the need for some sort of metric that moves beyond the mere presence of teachers to the level of instruction being imparted, whether it is measured at the classroom or aggregate level.

Indeed, instructional quality need not be framed as a measure of individual teachers' effectiveness. Broader issues, such as the linguistic or cultural appropriateness of instruction, or the quality of the curriculum, may also play into the effectiveness of education service delivery. Some observers have noted that the current strategy of rote instruction fails to engage students as active learners,[38] a criticism that was confirmed by observations of rural schools in Rajasthan and by comparisons between the government curriculum and the more interactive materials used by educational NGOs like Pratham. One World Bank report cited a combination of the declines in learning outcomes, anecdotal observation, and mass migration of poor students to private schools as evidence of a serious quality problem with public education.[39] Even the SMC members we interviewed expressed a preference for the quality of education in local private schools. These observations suggest that further reforms in curriculum-planning and pedagogy methods are likely to be an important part of meaningful public education reform.

[38] Watkins, Kevin. "India's education malaise has all the hallmarks of a development disaster." The Guardian. Feb. 22, 2012. Web.
[39] Pritchett, Lant, and Varad Pande. "Making Primary Education Work for India's Rural Poor: A Proposal for Effective Decentralization." New Delhi: World Bank (2006). Print.

Most accountability measures have focused on local teachers' and headmasters' accountability to parents in the school, and with good reason. In our field visits, we found that the very parents asked to do the most monitoring were also most resource-tasked in other ways. Requiring them to hold high-level policymakers to account would be both unfair and unfeasible. Some coalescence on a simple measurement of instructional quality could also greatly improve the accountability of teachers to other stakeholders. If parents or other education officials at all levels could leverage these measures against poor performing teachers, greater gains in learning outcomes could be realized. A truly responsive education system must include some mechanism for holding to account the ultimate policymakers who make broad funding and curriculum decisions that drive instructional quality.

Socioeconomic Factors

A second important set of variables not fully captured in our regressions are socioeconomic variations. Using state-level learning data from the 2009-2010 ASER-PAISA data set, we found correlations between the percentage of children who can read and four socioeconomic indicators: monthly per capita expenditure, the percentage below the poverty line (negative correlation), infant mortality rate (negative correlation), and the percentage of mothers who can read.[40] The only socioeconomic indicator that was not correlated with children's reading outcomes was the number of calories consumed.

There was a particularly close correlation between the percentage of children who could read and the percentage of mothers who could read, with, for example, areas with about 70 percent maternal literacy corresponding to child literacy between 65 percent and 75 percent, and so forth. This close relationship was confirmed when we used NSS data of literacy rates for people age 15 and older. On other socioeconomic indicators, a 500 rupee increase in a state's monthly per capita consumer expenditure was associated with an increase of about 10 percentage points in the number of children who could read. Both a 10 percentage point decrease in the number of people below the poverty line and a decrease in 10 infant deaths per thousand were associated with a 3.5 percentage point rise in the proportion of children who could read.

Because district- or school-level data is not available to more closely match socioeconomic factors with more discretely measured learning outcomes, we were not able to include such granular socioeconomic indicators in our regressions. But they are likely a driving force in many of the unexplained variations observed in learning outcomes. This is consistent with numerous past studies, which have found that school achievement is correlated with a variety of socioeconomic traits of both the family and the school, past educational exposure, parental and social attitudes, the relative opportunity costs of child education versus labor, and household poverty.[41] Observations from our field visits also confirmed that poverty places many additional demands on the time and resources of public school students and their families; for example, we observed households where young children did not regularly attend school because of chores or medical problems, students in the classroom who appeared ill or undernourished, and a young female student who had brought an infant to school to care for during the day.

[40] Monthly per capita expenditure comes from the 2009-2010 National Sample Survey report "Key Indicators of Household Consumer Expenditure in India." The 2009-2010 poverty data is from a March 2012 "Press Note on Poverty Estimates" released by the Planning Commission. Data on infant mortality are collected from a Sample Registration System Bulletin released in December 2011. ASER-PAISA reports on percent of mothers who can read. Finally, calorie consumption comes from the 2009-2010 National Sample Survey report "Nutritional Intake in India."

[41] For a survey of many of these studies, see Wu, Kin Bing et al. "Girls in India: Poverty, location, and social disparities." in Lewis, Maureen, and Marlaine E. Lockheed. Exclusion, gender and education: Case studies from the developing world. Ctr for Global Development, 2007. Print.

Figure [6-10]. Statewide Percentage of Children in Standards I-II Reading as a Function of State-Level Socioeconomic Indicators, 2009-2010

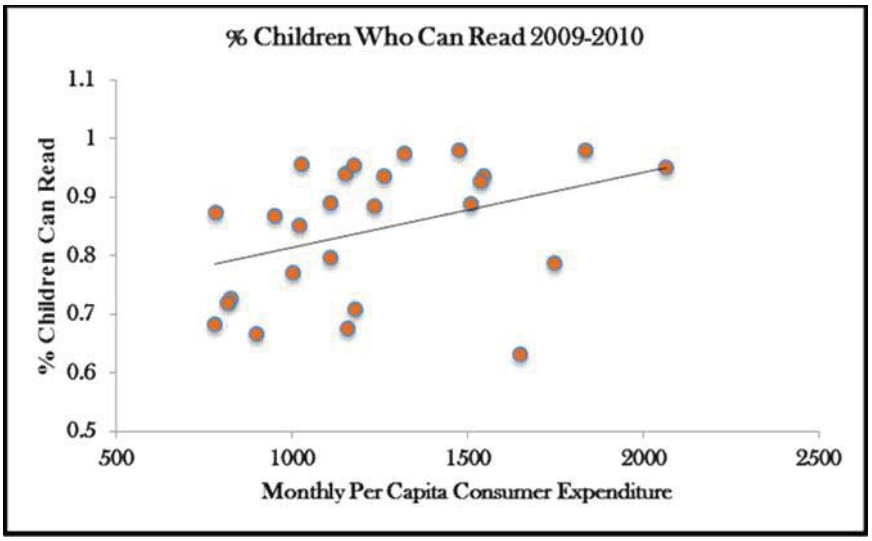


Figure 6 - State child literacy rates as a function of state monthly per capita consumer expenditure (in rupees)

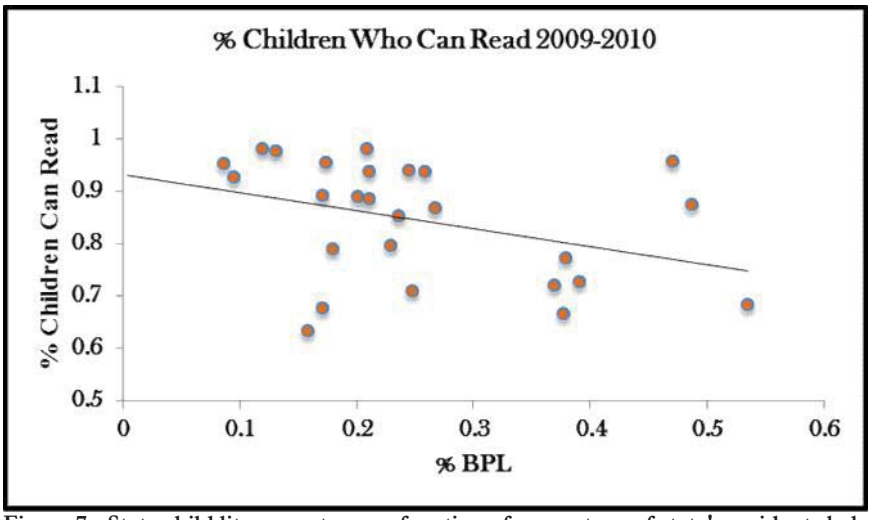


Figure 7 - State child literacy rates as a function of percentage of state's residents below the poverty

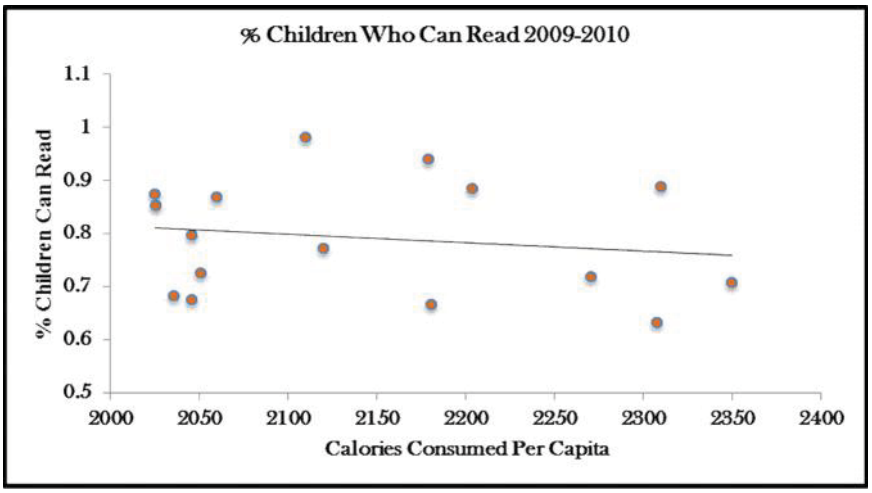


Figure 8 - State child literacy rates as a function of state infant mortality rates (deaths per thousand)

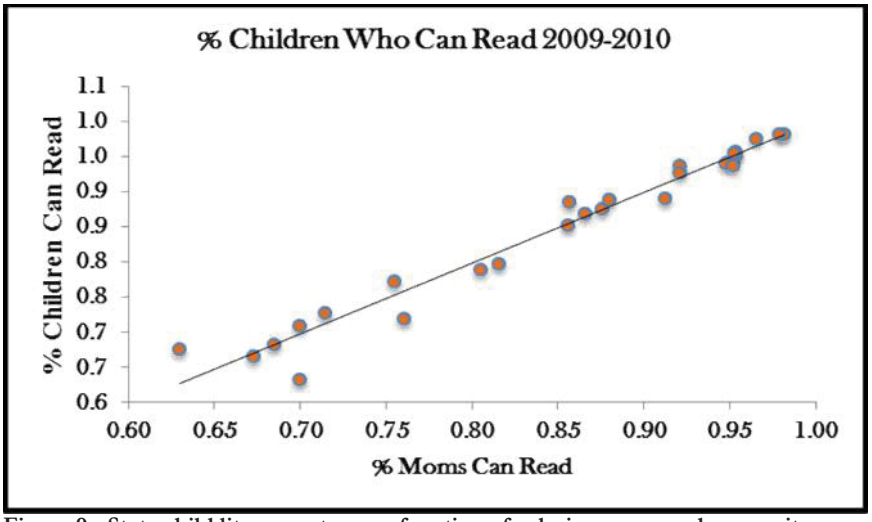


Figure 9 - State child literacy rates as a function of calories consumed per capita

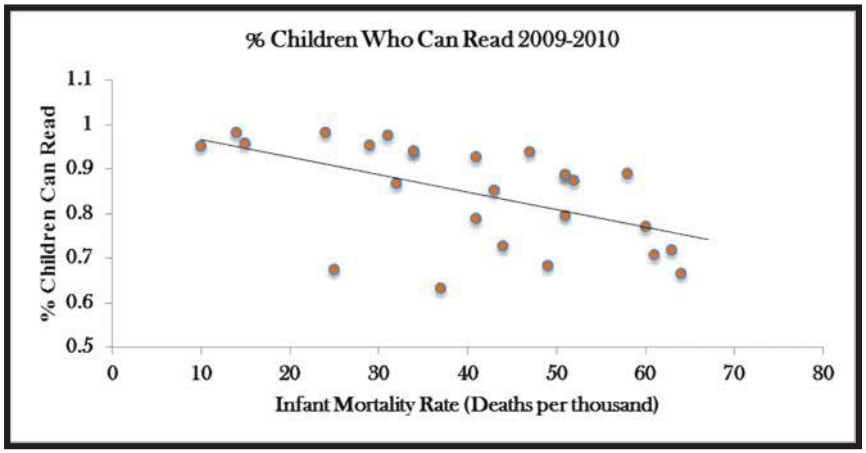


Figure 10 - State child literacy rates as a function of state maternal literacy rate

These trends point to several limitations in our data. First, socioeconomic differences between communities, districts, and states may drive much of the variation in learning between schools, perhaps because of both the financial and human capital available to locally support public schools. Given the overall rise in socioeconomic wellbeing throughout India, and the positive correlation between socioeconomic indicators and learning outcomes, the overall decline in learning outcomes in the past few years is particularly perplexing and may be an important area for further research, which would require school- and individual-level socioeconomic data.

Other Considerations

Finally, a number of other factors likely play a role in driving learning outcomes. Cross-national studies indicate that state capacity and funding are important.[42] The variation in governance capabilities in different states and districts may also play an important role in the effectiveness of service delivery. Variations between states may also explain why RTE's provisions have different effects in different regions—for example, the needs of rural and urban schools are likely significantly different. Similarly, pushing uniformity across the states may inhibit regionally-appropriate innovation. While more decentralized systems, like that in the United States, produce wide variations in public education quality, it does allow public schools in some communities to achieve high levels of excellence.[43] In an interview with us, Vimala Ramachandran, an Indian education expert with over 25 years of experience, expressed concern that national administration of education policy is pulling down states that might otherwise be high-achieving.

Non-state actors also appear to play an important role in overall learning outcomes. The percentage of private school enrollment was positively correlated with learning outcomes but also negatively correlated with headmaster attendance. However there is insufficient evidence to conclusively establish a causal relationship; private schools could be stepping in to fill a gap when public schools are of poor quality (demand-driven growth), or the presence of more private schools could be drawing human resources and capacity away from public schools (i.e., if the most-engaged parents are elsewhere, the headmaster might think that he/she can get away with less conscientious behavior).

In our field visits, we also observed the important gap-filling role played by civil society organizations. For example, teachers from the educational NGO Pratham supplemented government staff in one rural primary school we visited, provided pre-school programs and after-school enrichment programs for primary school students in a Delhi slum, and provided color, high quality, and creative learning materials for both urban and rural teachers to supplement the low-cost materials mandated by the government. While long-term reliance on civil society may not be a sustainable solution to educational delivery, a number of studies do suggest that the role of civil society actors can be important in advancing historically weak educational systems: civil society groups can act not only as service providers, but also as monitors of and advocates for a rights-based approach to education design and implementation.[44]

[42] See, *e.g.* Ross, Kenneth N. Ross and Ilona Jurgens Genevois. Cross-National Studies of the Quality of Education : Planning their Design and Managing their Impact. Paris: UNESCO, *International Institute for Educational Planning, 2006. Print.*
[43] See, *e.g.* Hanson, E. Mark. Educational decentralization: Issues and challenges. Inter-American Dialogue: Corporation for Development Research, 1997. Web.
[44] See, *e.g. Mundy, Karen. Civil Society and Its Role in Achievement and Governance of "Education for All." Paper commissioned for the EFA Global Monitoring Report 2009, Overcoming Inequality: why governance matters." 2008. Print.*

Policy Recommendations

Three years into RTE, national learning outcomes have not only failed to improve, but have declined. The learning outcome surveys, which measure a sample of in- and out-of-school students, and those attending both public and private schools, show that even as school enrollment rises, average learning outcomes have fallen.[45] And learning outcomes within public schools have fallen as well. This has occurred even as the national government has invested significant money into the public system (both grant receipt and expenditures, for example, are rising) and, to a degree, succeeded in improving public school infrastructure. Quite simply, despite the qualified achievement of many of RTE's goals, the project to fix public education has not yet produced any improvements in student learning. Against that backdrop, we turn to the findings presented in the analysis above to consider where to go from here.

1. ***The next generation of education reform must address the quality of education.*** Policymakers and educators have made significant strides in increasing student enrollment and shifting the national dialogue in ways that valorize early childhood education. But the low quality of education in public schools remains a persistent challenge, and with it the intergenerational transmission of poverty and inequality. As the analysis in this report shows, existing empirical evidence suggests that the policy interventions prescribed by RTE have so far been insufficient to address this quality gap. Learning outcomes for public school students have continued to drop, even as more money and human resources are injected into the public school system. The specifics of quality-centered reforms will need to be developed through future research and trials. But this analysis does suggest that at least two key features are necessary for a discussion of education reform that focuses on the underlying problems of educational quality.
    - First, policymakers and advocates who are genuinely committed to better public education must **prevent the conversation about education reform from becoming dominated by easy-to-measure intermediate metrics** like inputs and infrastructure, rather than student learning. The conversation at both national and local levels must be shifted to emphasize educational quality, and not simply numbers of children in seats or boundary walls completed. In our interviews with parents, we recognized that this conversation is already taking place at the community level: parents we spoke with almost universally stated that even low-cost private schools offer better educational outcomes for their children. Policymakers must face the very real problems of educational quality in public schools and participate in meaningful conversations about how to address those problems.
    - Second, **policymakers must be willing to think outside the box and explore non-traditional approaches to education reform.** Some of the most innovative solutions to the quality gap observed in site visits came from outside the public education sector. For example, the educational NGO Pratham produced learning materials that engaged students as active learners (in contrast to the more rote materials provided by the governments) and grouped students by learning levels (instead of age-based clusters mandated by the RTE) in order to more closely target instruction to students' needs. In interviews with educators and education policy experts, our informants consistently spoke about the success of tailor-made

[45] Because our dataset included both in- and out-of-school children for each time period, these drops in learning cannot be explained by the fact that more children with lower educational exposure are in school. That is, out-of-school children were measured both pre- and post-RTE, so the fact that more out-of-school children are now in school means that, all else equal, we should expect to see a *rise* in average educational outcomes (i.e., some students with no educational exposure now have at least some). However, we saw a decline in overall learning outcomes for the same period that enrollment was on the rise.

solutions that took into account local realities but were more skeptical of the impact of schemes designed and implemented by the national government.[46] By exploring solutions that empower local stakeholders, integrate civil society organizations, or are otherwise creative, policymakers may be more effective at addressing the underlying gaps in educational quality.

2. ***Accountability mechanisms must be strengthened and supported to be made meaningful.*** Our analysis found some evidence that having a redressal authority improves service delivery, and that having *any* authority to which to complain is more important than having a specific *type* of authority. We also found a positive effect of official visits on learning outcomes. However, we did not find significant evidence that establishing and convening SMCs leads to better learning outcomes. This was consistent with our field observations, where many SMCs were largely for show, convened to meet administrative requirements, and were not accorded consistent respect by school administrators. One informant also expressed concern that India lacked a "decentralization culture" that would encourage and legitimize local control of governance. In short, having a mechanism for holding school administrators to account is important – but it must be an effective and meaningful mechanism, not mere window dressing, and it must go hand-in-hand with the development of stronger local governance.

   Further research will be necessary to determine which accountability mechanisms are most effective. Our initial findings suggest that redressal mechanisms (i.e., having someone to complain to when things go wrong) are positively correlated with school officials' compliance with "hard" deliverables like infrastructure requirements. Less effective were mechanisms, like SMCs, that require parents or other stakeholders to be frequently involved in micro-level decision-making. This seems consistent with our observations about the other demands on many parents' time. School administrators may be best placed to make most allocative decisions, with parents or other stakeholders playing more of a monitoring role. And if subsequent research suggests that more engaged SMCs could contribute to better accountability, additional capacity-building and funding may be necessary to increase their efficacy.

3. ***Further research and data collection, particularly on student learning outcomes, are necessary.*** Researchers' ability to conduct analysis on what works and what fails in education is consistently hampered by incomplete data, as well as data that focus on intermediate outcomes like infrastructure rather than student learning. Richer data on school-level characteristics, including of students, teachers, and administrators would allow researchers to better identify what makes some schools and teachers more effective. Researchers should also identify strategies for collecting information on pedagogical methods and schemes for incentivizing high-quality work by teachers. One avenue for this might be to collect more data on private schools in order to better understand differences in pedagogical, administrative or funding systems that may account for some of the apparent differences in quality.

   Based on the findings of this report, other potential research questions for future study include:
   - What drives or is correlated with headmaster attendance? Our research found a positive relationship between headmaster attendance and realization of many RTE goals as well as better teacher attendance, so future research may help identify policy levers that ensure headmaster engagement and presence at the school.

[46] Examples of local solutions that our informants described included: creating parent associations whose meetings were scheduled around local harvest seasons, hiring non-traditional tutors from the community and compensating them for their teaching time with computer literacy training, and making schools more welcoming to disabled students in the community as a way to increase engagement from parents of all students.

- How could resources be allocated more efficiently to maximize outcomes? Our analysis found that, apart from the Midday Meal Scheme, existing incentive schemes are not particularly effective. The overall price per student of public education is climbing, while relatively low-cost private schools, which educate between 28 percent of rural children and 30 percent of children (according to ASER-PAISA and DISE, respectively), provide what parents perceive to be higher-quality instruction.

Additionally, existing information should be supplemented by more socioeconomic data. Collection of socioeconomic characteristics of the community, parents' background, child nutrition, and other determinants of learning would allow researchers to control for these confounding factors when trying to isolate effective school and teaching practices. They would also help determine what student populations are the primary customers of public schools, allowing policymakers to tailor reforms to better serve those populations.

Ultimately, more information-gathering at all levels, with a particular emphasis on student learning and its drivers, is necessary to improve policymaking. Ideally, it should be mandated and funded by the government as a step toward a meaningful right to education. In the absence of state support or capacity for such information-gathering, civil society organizations should expand their information-gathering activities to begin to fill these information gaps. More data on learning outcomes will support efforts to shift the national conversation to policies that could improve educational quality, which is likely to prove key to truly changing the state-sponsored education options available to India's poor.

Works Cited

"Public Expenditure Tracking for Social Sector Programs in India-Case Study of Sarva Shiksha Abhiyan." Accountability India. n.d. Web.

"Do Schools Get Their Money? (Paisa 2011)." Accountability Initiative. 2012. Web.

"PAISA District Studies: Towards a New Frontier for Governing Elementary Education Finances in India."Accountability Initiative. 2011. Web.

"Sarva Shiksha Abhiyan, GOI 2012-2013," Accountability Initiative. n.d. Web.

Aiyar,Yamini. "Tracking the Rupee: An Overview of Expenditure Tracking Work in India: Gaps, Challenges, Opportunities, and the PAISA Project." July 2009. Web.

Banerjee, Abhijit et al. "Can Information Campaigns Spark Local Participation and Improve Outcomes? A Study of Primary Education in Uttar Pradesh, India." World Bank Policy Research Working Paper no. 3967 (2006). Print.

Chowdry, Anirvan, "Carrots for Teachers," Accountability Initiative. Dec. 1, 2011. Web.

Chudgar, Amita, and Elizabeth Quin. "Relationship between Private Schooling and Achievement: Results from Rural and Urban India." Economics of Education Review 31.4 (2012): 376-90. Print.

Ernst and Young. Right to Education Report. March 2012. Web.

Ganguly, Kaushik and Jawed Khan. "Financing Rural Development: Some Issues Relating to the Budget and Fiscal Decentralization." in Mishra, Yamini, Gyana Ranjan Panda, and Colin Gonsalves. Human Rights and Budgets in India. Socio Legal Information Cent, 2009. Print.

Government of India, Right to Education Act (RTE). Web.

Hanson, E. Mark. Educational decentralization: Issues and challenges. Inter-American Dialogue: Corporation for Development Research, 1997. Web.

Kremer, Michael, et al. "Teacher Absence in India: A Snapshot." Journal of the European Economic Association3.2/3 (2005): 658-67. Print.

Kremer, M., and A. Holla. "Improving Education in the Developing World: What have we Learned from Randomized Evaluations?" *Annual Review of Economics* 1.1 (2009): 513-42. Print.

Kumar, K. Shiva et al. "'Education for all' is the policy, but what is the reality?" Frontline. 26. 6 (2009). Web.

Ministry of Human Resource Development, G.S.E. 301(E), Part II, Ch. 3, Article 5. Web.

Mundy, Karen. Civil Society and Its Role in Achievement and Governance of "Education for All." Paper commissioned for the EFA Global Monitoring Report 2009, Overcoming Inequality: why governance matters." 2008. Print.

Narayan, Krishna, and Jos Mooij. "Solutions to Teacher Absenteeism in Rural Government Primary Schools in India: A Comparison of Management Approaches." The Open Education Journal 3.1 (2010): 63-71. Print.

National Sample Survey Office. "Education in India: 2007-2008, Participation and Expenditure." NSS 64th Round. May 2010. Web.

National Sample Survey Office. "Key Indicators of Household Consumer Expenditure in India." NSS 66th Round. July 2011. Web.

National Sample Survey Office. "Nutritional Intake in India." NSS 66th Round. January 2012. Web.

OECD. *Public and Private Schools: How Management and Funding Relate to their Socio-economic Profile*. PISA. OECD Publishing. 2012. Web.

Planning Commission. "Press Note on Poverty Estimates, 2009-2010." March 2012. Web.

Pratham, A. S. E. R. "Annual Status of Education Report." (2007).

Pratham, A. S. E. R. "Annual Status of Education Report." (2008).

Pratham, A. S. E. R. "Annual Status of Education Report." (2009).

Pratham, A. S. E. R. "Annual Status of Education Report." (2010).

Pratham, A. S. E. R. "Annual Status of Education Report." (2011).

Pratham, A. S. E. R. "Annual Status of Education Report." (2012).

Pritchett, Lant, and Varad Pande. "Making Primary Education Work for India's Rural Poor: A Proposal for Effective Decentralization." New Delhi: World Bank (2006). Print.

Ross, Kenneth N. Ross and Ilona Jurgens Genevois. Cross-National Studies of the Quality of Education : Planning their Design and Managing their Impact. Paris: UNESCO, International Institute for Educational Planning, 2006. Print.

Sample Registration System. SRS Bulletin. Volume 46, No 1. December 2011.

Saxena, Shobhan. "Missing teachers are India's weakest link." The Times of India. Sep. 5, 2010. Web.

UNICEF and Asian Development Bank. Non-State Providers and Public-Private Partnerships in Education for the Poor. 2011. Web.

Watkins, Kevin. "India's education malaise has all the hallmarks of a development disaster." The Guardian. Feb. 22, 2012. Web.

Woodhead, Martin, Melanie Frost, and Zoe James. "Does Growth in Private Schooling Contribute to Education for all? Evidence from a Longitudinal, Two Cohort Study in Andhra Pradesh, India." International Journal of Educational Development 33.1 (2013): 65-73. Print.

World Bank, World Development Report 2004 Making Services Work for Poor People. Washington, D.C. : The World Bank, 2003. Web.

Wu, Kin Bing et al. "Girls in India: Poverty, location, and social disparities." in Lewis, Maureen, and Marlaine E. Lockheed. Exclusion, gender and education: Case studies from the developing world. Ctr for Global Development, 2007. Print.

Appendices

Appendix A: Description of Datasets Used

Annual Status of Education Report – Planning, Allocations and Expenditures, Institutions: Studies in Accountability (ASER-PAISA)

The product of collaboration between Accountability Initiative, the National Institute of Public Finance Policy and the ASER Centre, ASER-PAISA is an annual survey that measures children's schooling status, basic learning outcomes, conditions in local government schools, and financial flows in India's rural areas. The survey is designed to be representative at the district level.[47] Surveyors visit 30 randomly selected villages in each district and interview 20 randomly selected households within those villages. They also visit any government school in the village with Standards 1 through 8 (or a government school with the largest enrollment at the lower primary level). If no government schools are found in the village, no school is visited. More information on the ASER-PAISA instrument, methodology and limitation, as well as reports can be found at http://www.asercentre.org/.

Our analysis combines ASER-PAISA data from 2009 to 2011, with 46,971 observations. Although ASER methodology provides for a panel of the same 10 villages in each district that can be tracked over the three-year period, using all observations in our regressions allows us to obtain adequate sample size and explore variation within and across schools overtime. We believe that this approach, albeit less precise, still allows us to communicate important overall trends. These data are used for school-level analysis of grant receipt and expenditure; structural repairs; infrastructure and learning materials availability in schools; and student, teacher, and headmaster attendance. District-level learning outcomes are analyzed after aggregating all school characteristics to the district level. Many variables have missing values, as a result some observations are dropped from regressions.

Planning, Allocations and Expenditures, Institutions: Studies in Accountability – District Report Card (PAISA-DRC)

The PAISA-DRC is a survey of government schools that measures student and teacher enrolment and attendance, status of school infrastructure and repairs conducted, teacher training, and school financial flows in nine districts spread across seven States in India. Surveyed districts include Medak (Andhra Pradesh), Nalanda and Purnia (Bihar), Kangra (Himachal Pradesh), Sagar (Madhya Pradesh), Satara (Maharashtra), Jaipur and Udaipur (Rajasthan) and Jalpaiguri (West Bengal). The survey covered between 142 and 148 randomly selected schools from rural areas in each district. The sampling frame used was derived from the list of schools given in DISE 2009-10. Schools were sampled from each block of the district on the basis of the share of schools in that block as a fraction of total schools included in sampling frame in the district. The sample excluded schools without either primary (Std. 1-4/5) or upper primary sections (Std. 5/6-7/8), and private unaided schools. Data was collected between May-August 2011.

Information about teacher training, infrastructure activities carried out, and details of grants received was collected for two financial years: 2009-10 and 2010-11. Financial flows were gathered from documents such as bank passbooks, cashbooks or utilization certificates of the school. To enable surveyors to access these

[47] Survey weights are available for aggregations to the state and national level.

documents, permission letters were obtained from the State government bureaucracy. The primary respondents were the Headmasters (headmaster) or acting Headmasters (known as Prabhari in Hindi). In the event that the headmaster or Prabhari was not available, a senior teacher was the primary respondent. Many variables have missing values, as a result some observations are dropped from regressions.

District Information System for Education (DISE)

Developed by the National University of Educational Planning and Administration, DISE is an annual survey that compiles school level data in each district level using specially designed Education Management Information Systems (EMIS). Intended for planning, management, monitoring, and feedback on District Primary Education Program interventions, the survey contains rich information on district demographics, enrollment in all types of primary and upper primary schools, student characteristics, teacher assignment and qualifications, incentives, infrastructure etc. More information on the DISE instrument, methodology and limitations, as well as reports can be found at http://www.dise.in/.

Although individual school summary reports are generated and shared with the schools, giving them a chance to compare their data to cluster, block and district averages, we only had access to district aggregates. We used data from 2006-2011, with 3,742 observations, to present descriptive statistics about trends in enrollment, teacher, and student demographic characteristics. Some demographic and teacher data were included in the analysis of learning outcomes.

Appendix B: Variable Descriptions

Academic training	Total number of academic trainings that teachers in the school participated divided by the total number of teachers appointed in the school, averaged over fiscal years 2009-2010 and 2010-2011. This variable can be greater than 1 if teachers receive more than 1 training in a year. Available only in PAISA-DRC.
Average lag between receipt and spending of grant	The number of days between the receipt and spending of specified grant, averaged from fiscal years 2009-2010 and 2010-2011. Available only in PAISA-DRC.
Bank within 5km	A binary variable equal to 1 if the school has a bank account at a bank no further than 5 kilometers away. Available only in PAISA-DRC.
Blackboard	A binary variable equal to 1 if a school has blackboards in each classroom. Available only in PAISA-DRC.
Blackboard/display board painting	A binary variable equal to 1 if a school has carried out blackboard or display board painting during the year preceding the survey. Available only in ASER-PAISA.
Boy's toilet	A binary variable equal to 1 if a school has a boy's toilet in ASER-PAISA. In PAISA-DRC this variable is equal to 1 if a school has an open and usable boy's toilet.
Boundary wall	A binary variable equal to 1 if a school has a complete boundary wall. Available in ASER-PAISA and PAISA-DRC.
Boundary wall repair	A binary variable equal to 1 if a school has carried out boundary wall repair during the year preceding the survey in ASER-PAISA, and the two years preceding the survey in PAISA-DRC.
BRC or CRC has visited in past 3 months	A binary variable equal to 1 if the either the BRC or CRC has visited the school at least once in the past 3 months. Available only in PAISA-DRC.
Building repair	A binary variable equal to 1 if a school has carried out building repair during the year preceding the survey. Available only in ASER-PAISA.
Chalk, dusters, register etc. bought	A binary variable equal to 1 if a school has purchased chalk, dusters, register, or other materials during the year preceding the survey. Available only in ASER-PAISA.

Charts, globes, other learning materials bought	A binary variable equal to 1 if a school has purchased charts, globes or other learning materials during the year preceding the survey. Available only in ASER-PAISA.
Compliance with RTE student-teacher ratio	A binary variable equal to 1 if a school complies with RTE standards: at most 40 students per teacher in lower primary; and at most 35 student per teacher in upper primary level. Available only in ASER-PAISA.
District-wide literacy	Percentage of district population who are literate. Available only in DISE.
District-wide sex ratio (women/men)	Ratio of women to men for every district. Available only in DISE.
Door & window painting	A binary variable equal to 1 if a school has carried out door and/or window during the year preceding the survey. Available only in ASER-PAISA.
Door & window repair	A binary variable equal to 1 if a school has carried out door and/or window repair during the year preceding the survey. Available only in ASER-PAISA.
Water facility repair	A binary variable equal to 1 if a school has carried out drinking water source repair during the year preceding the survey in ASER-PAISA, and the two years preceding the survey in PAISA-DRC.
Electrical fitting purchase	A binary variable equal to 1 if a school has purchased electrical fitting during the year preceding the survey. Available only in ASER-PAISA.
% female students	The percentage of students enrolled in the district that are female. Available only in DISE.
Furniture purchase	A binary variable equal to 1 if a school has purchased furniture during the year preceding the survey. Available only in ASER-PAISA.
Girl's toilet	A binary variable equal to 1 if a school has a girl's toilet in ASER-PAISA. In PAISA-DRC this variable is equal to 1 if a school has an open and usable girl's toilet.
Grant display board	A binary variable equal to 1 if the school has a display board that is located in a public place and updated with current grant information. Available only in PAISA-DRC.
(Grant) spent by (quarter) in (fiscal year)	A binary variable equal to 1 if the indicated grant was spent by the end of the indicated quarter in the indicated fiscal year.

Headmaster presence	A binary variable equal to 1 if headmaster (or acting headmaster) is present on the day of the survey and 0 if the headmaster is absent or not appointed. Available only in ASER-PAISA.
Headmaster attendance	The ratio of headmasters present on the day of the survey relative to the total number of headmasters appointed. Available only in ASER-PAISA.
Headmaster/Prabhari appointed	The number of headmasters and prabharis appointed at the school. Available only in PAISA-DRC.
Headmaster/Prabhari attendance	The ratio of the headmasters and prabharis present on the day of the survey relative to the total number of headmasters and prabharis appointed. Available only in PAISA-DRC.
Infrastructure index	The first principal component of eight infrastructure-related requirements outlined in RTE, namely whether the school has one classroom per teacher, a headmaster's office that also serves as an office and store, girl's and boy's toilet, usable drinking water facility, kitchen to cook midday meal (only in ASER-PAISA), a playground and a boundary wall as well as eight binary missing data indicators. Principal components analysis explains the variance-covariance structure of this set of variables based on several of their linear combinations. The variable used in the regression is a linear combination of the eight variables weighted according to how well each of them explains the total variance. Available in ASER-PAISA and PAISA-DRC.
Infra complaints directed to X	A binary variable equal to 1 if infrastructure complaints are directed to the indicated source. Available only in PAISA-DRC.
Kitchen	A binary variable equal to 1 if the school has a kitchen where mid-day meal is cooked. Available only in ASER-PAISA.
Learning materials	A binary variable equal to 1 if a school has additional materials like charts on the wall, board games etc. in addition to textbooks in Standard II and IV. Available in ASER-PAISA and PAISA-DRC.
Library books	A binary variable equal to 1 if the school has library books. Available in ASER-PAISA and PAISA-DRC.
Log of student-teacher ratio	The logarithm of the student teacher ratio, calculated as the number of students enrolled divided by the number of teachers assigned to the school. Available in both ASER-PAISA and PAISA-DRC.
Log student enrollment	The logarithm of total student enrollment. Available in both ASER-PAISA and PAISA-DRC.

Major repairs	A binary variable equal to 1 if a school has carried out major repairs during the two years preceding the survey. Available only in PAISA-DRC.
Midday meal scheme	A binary variable equal to 1 if a school served a midday meal the day of the survey. Available only in ASER-PAISA.
Monitoring	A binary variable equal to 1 if the school received a visit form the block resource center, the cluster resource center, or a district officer in the past 3 months. Available only in ASER-PAISA.
% Muslim students	Percentage of students enrolled in the district that are Muslim. Available only in DISE.
New classroom activity	A binary variable equal to 1 if a school has carried out new classroom activity during the year preceding the survey in ASER-PAISA, and the two years preceding the survey in PAISA-DRC.
% OBC students	Percentage of students enrolled in the district that are from Other Backward Castes. Available only in DISE.
Office	A binary variable equal to 1 if a school has a headmaster's office that can be used as a store. Available in ASER-PAISA and PAISA-DRC.
Out of school children	Percentage of school-age children who have never been enrolled in school (or preschool). Available only in ASER-PAISA.
Playground	A binary variable equal to 1 if a school has a playground. Available in ASER-PAISA and PAISA-DRC.
% students enrolled in private schools	Percentage of students in each district that are enrolled in private school. Available in ASER-PAISA and DISE.
Proportion (grant) spent in (fiscal year)	The proportion of the indicated grant spent in the indicated fiscal year. Available only in PAISA-DRC.
Repairs index	In ASER-PAISA, the first principal component of 13 works that were conducted at the school in the year before the survey, namely new classroom activity, furniture purchase, electrical fitting purchase, building repair, door and window repair, boundary wall repair, drinking water source repair, toilet repair, white washing, blackboard/display board painting, door and window painting, chalk dusters and other paraphernalia, sitting mats and charts/globes etc. as well as thirteen binary missing data indicators. In PAISA-DRC, the first principal component of 6 works that were conducted at the school in fiscal years

	2009-2010 and 2010-2011, namely new classroom activity, boundary wall repair, water facility repair, toilet repair, white washing, an major repairs as well as six binary missing data indicators. Principal components analysis explains the variance-covariance structure of this set of variables based on several of their linear combinations. The variable used in the regression is a linear combination of the thirteen variables weighted according to how well each of them explains the total variance.
% repeater students	Percentage of students in each district that are repeating a grade. Available only in DISE.
Water facility	A binary variable equal to 1 if a school has a safe and usable drinking water facility for the children. Available in ASER-PAISA and PAISA-DRC.
% Scheduled Caste population in the district	Percentage of district population that belongs to scheduled castes. Available only in DISE.
% Scheduled Caste students	Percentage of students enrolled in the district that are from scheduled castes. Available only in DISE.
% Scheduled Tribe population in the district	Percentage of district population that belongs to scheduled tribes. Available only in DISE.
% Scheduled Tribe students	Percentage of students enrolled in the district that are from scheduled tribes. Available only in DISE.
SDG received	A binary variable equal to 1 if the school received the school development grant either the year the survey was conducted or the year before. The PAISA instrument asks about grant receipt this or last year, as a result every survey year contains information about two years of grant receipt. This variable collapses grant receipt information into one variable. Available in ASER-PAISA and PAISA-DRC.
SDG spent if received	A binary variable equal to 1 if the school spent the school development grant in full either the year the survey was conducted or the year before, given that the school received the grant during this two-year period. Available only in ASER-PAISA.
SMG received	A binary variable equal to 1 if the school received the school maintenance grant either the year the survey was conducted or the year before. The PAISA instrument asks about grant receipt this or last year, as a result every survey year contains information about two years of grant receipt. This variable collapses grant receipt information into one variable. Available in ASER-PAISA and PAISA-DRC.

SMG spent if received	A binary variable equal to 1 if the school spent the school maintenance grant in full either the year the survey was conducted or the year before, given that the school received the grant during this two-year period. Available only in ASER-PAISA.
1 classroom per teacher	A binary variable equal to 1 if the ratio of classrooms to assigned teachers is greater or equal to 1. Available in ASER-PAISA and PAISA-DRC.
Sitting mats/ tat patti bought	A binary variable equal to 1 if a school has purchased sitting mats or tat patti during the year preceding the survey. Available only in ASER-PAISA.
SMC has visited in past 3 months	A binary variable equal to 1 if the SMC has visited the school at least once in the past 3 months. Available only in PAISA-DRC.
Std I-II children who can read letters, words or more	A binary variable equal to 1 if a child who is in Standard I or II can read letters, words, or passages. Available only in ASER-PAISA.
Std I-II children who can recognize numbers (1-9) or more	A binary variable equal to 1 if a child who is in Standard I or II recognizes single digit numbers. Available only in ASER-PAISA.
Std. III-V children who can read a Std. I-level text or more	A binary variable equal to 1 if a child who is in Standard III through V can read at least a standard I level text. Available only in ASER-PAISA.
Std. III-V children who can do subtraction or more	A binary variable equal to 1 if a child who is in Standard III through V can do basic subtraction. Available only in ASER-PAISA.
Student attendance	Percentage of students enrolled at the school present on the day of the survey. Available in ASER-PAISA and PAISA-DRC.
Teacher attendance	Percentage of teachers assigned to the school present on the day of the survey. Available in ASER-PAISA and PAISA-DRC.
Teacher display board	A binary variable equal to 1 if the school has a display board that is located in a public place and updated with current teacher information. Available only in PAISA-DRC.
TLM grant received	A binary variable equal to 1 if the school received the teaching learning materials grant either the year the survey was conducted or the year before. The PAISA instrument asks about grant receipt this or last year, as a result every survey year contains information about two years of grant receipt. This variable collapses grant receipt information into one variable. Available in ASER-PAISA and PAISA-DRC.

TLM grant spent if received	A binary variable equal to 1 if the school spent the teaching learning materials grant in full either the year the survey was conducted or the year before, given that the school received the grant during this two-year period. Available only in ASER-PAISA.
Teacher complaints directed to X	A binary variable equal to 1 if complaints about the teachers are directed to the indicated source. Available only in PAISA-DRC.
Teacher qualifications	Percentage of teachers in the district with a higher secondary degree or below, graduate degree, a post-graduate degree or MPhil, or unknown qualifications. Available only in DISE.
Textbook scheme	A binary variable equal to 1 if all beneficiaries in the school received the textbook in 2010-2011. Available only in PAISA-DRC.
Teacher training	Percentage of teachers in the district that received in-service training. Available only in DISE.
Toilet repair	A binary variable equal to 1 if a school has carried out toilet repair during the year preceding the survey in ASER-PAISA, and the two years preceding the survey in PAISA-DRC.
Uniform scheme	A binary variable equal to 1 if all beneficiaries in the school received uniforms in 2010-2011. Available only in PAISA-DRC.
% urban population in the district	Percentage of the district population living in urban areas. Available only in DISE.
White washing	A binary variable equal to 1 if a school has carried out white washing during the year preceding the survey in ASER-PAISA, and the two years preceding the survey in PAISA-DRC.

Appendix C: Tables and Figures

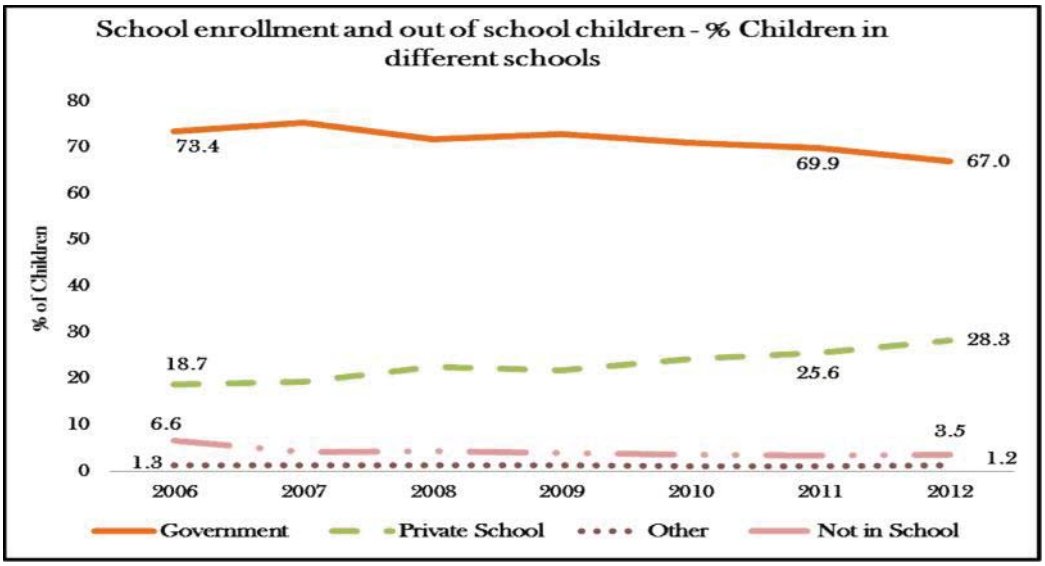


Figure A - Source: 2007, 2009, 2010, 2011 and 2012 ASER Reports

Table 1 - % Schools meeting selected RTE norms on facilities

% of schools with		2005	2007	2009	2010	2011	2012
Building	Office/Store/Office cum store	-	-	-	74.1	74.1	73.5
	Playground	-	-	-	62.0	62.8	61.1
	Boundary Wall	-	-	-	51.0	53.9	54.7
	Pupil-teacher ratio				38.9	40.8	42.8
	Classrom-teacher ratio				76.2	74.2	74.2
Drinking Water	No facility for drinking water	19.4	14.7	14.0	17.0	16.7	16.6
	Facility but no drinking water available	11.6	8.2	8.9	10.3	9.9	10.4
	Drinking water available	69.0	76.9	77.0	72.7	73.5	73.0
Toilet	No toilet facility	32.2	19.4	14.2	11.0	12.2	8.4
	Facility but toilet not useable	19.5	17.3	33.0	41.8	38.9	35.1
	Toilet useable	48.2	63.2	52.9	47.2	49.0	56.5
Girls Toilet	% Schools with no separate provisions for girls	-	-	34.2	31.2	22.7	21.3
	Of schools with separate girls toilets, % schools where						
	Toilet locked	-	-	13.1	18.7	15.0	14.1
	Toilet not useable	-	-	18.0	17.2	18.7	16.4
	Toilet useable	-	-	34.8	32.9	43.7	48.2
TLM	Teaching learning material in Std 2	-	-	-	80.7	82.1	-
	Teaching learning material in Std 4	-	-	-	76.4	78.2	-
Library	No library	-	-	-	37.4	28.7	23.9
	Library but no books being used by children on	-	-	-	24.7	29.1	32.2
	Library being used by children on day of visit	-	-	-	37.9	42.2	43.9
MDM	Kitchen shed for cooking midday meal	-	-	-	82.1	83.7	84.4
	Midday meal served in school on the day of visit	72.2	92.2	84.2	84.4	87.5	87.1

Source: 2009 and 2012 ASER reports.

Appendix D: Regression Tables – ASER

Table 1. District-Level Learning Outcomes

	(1) Std I-II children who can read letters, words or more	(2) Std I-II children who can recognize numbers (1-9) or more	(3) Std. III-V children who can read a Std. I-level text or more	(4) Std. III-V children who can do subtraction or more
Student attendance	0.343***	0.313***	0.398***	0.441***
	(0.067)	(0.067)	(0.089)	(0.095)
Teacher attendance	0.044	0.030	0.043	0.052
	(0.033)	(0.033)	(0.049)	(0.051)
Infrastructure index	0.003	0.006	0.003	0.006
	(0.006)	(0.006)	(0.008)	(0.008)
Learning materials	0.069**	0.070**	0.062	0.088**
	(0.031)	(0.032)	(0.043)	(0.040)
Log student-teacher ratio	-0.026	-0.016	-0.000	-0.011
	(0.018)	(0.018)	(0.024)	(0.026)
Midday meal	-0.002	0.006	-0.001	0.019
	(0.027)	(0.027)	(0.033)	(0.038)
% students in the district out of school	-0.496***	-0.320*	-0.462**	-0.862***
	(0.186)	(0.183)	(0.205)	(0.275)
% students in the district enrolled in private schools	0.093*	0.128**	0.214***	0.203**
	(0.056)	(0.057)	(0.077)	(0.086)
% urban population in district	-0.071	-0.042	0.212*	0.153
	(0.097)	(0.095)	(0.121)	(0.135)
% scheduled caste population in district	-0.761**	-0.625*	-0.977**	-1.080*
	(0.338)	(0.344)	(0.452)	(0.575)
% scheduled tribe population in district	0.110	0.171**	0.047	-0.015
	(0.083)	(0.087)	(0.106)	(0.132)
District-wide sex ratio (women/men)	-0.864***	-0.998***	-0.769***	-0.793***
	(0.133)	(0.142)	(0.174)	(0.205)
District-wide literacy	0.603***	0.709***	0.414***	0.443***
	(0.098)	(0.104)	(0.138)	(0.152)
% female students of enrolled students in the district	-0.223	-0.186	-0.195	-0.487*
	(0.205)	(0.196)	(0.259)	(0.295)
% OBC students	0.102	0.101	0.247*	0.332**
	(0.103)	(0.103)	(0.145)	(0.160)
% Muslim students	0.068	0.086*	0.021	-0.037

	(0.043)	(0.045)	(0.060)	(0.085)
% repeater students	0.068	0.093	0.439**	0.499**
	(0.161)	(0.160)	(0.187)	(0.210)
% teachers with graduate degree	-0.041	-0.023	-0.275*	-0.258
	(0.124)	(0.121)	(0.157)	(0.179)
% teachers with post-graduate degree or MPhil	0.531***	0.724***	0.833***	1.021***
	(0.192)	(0.216)	(0.291)	(0.323)
% teacher with unknown qualifications	-0.235	-0.361**	-0.034	0.200
	(0.213)	(0.170)	(0.221)	(0.305)
% teachers who received in-service training	-0.023	-0.052	-0.060	-0.030
	(0.032)	(0.033)	(0.039)	(0.045)
% female teachers	-0.098	-0.192	-0.069	-0.110
	(0.131)	(0.128)	(0.179)	(0.189)
Log student enrollment	-0.004	0.003	-0.013	-0.034
	(0.025)	(0.025)	(0.035)	(0.037)
2009	0.079***	0.082***	0.090***	0.136***
	(0.023)	(0.023)	(0.029)	(0.029)
2010	0.051***	0.042***	0.078***	0.102***
	(0.007)	(0.008)	(0.010)	(0.011)
Andhra Pradesh	0.422***	0.449***	0.364***	0.529***
	(0.054)	(0.057)	(0.076)	(0.083)
Arunachal Pradesh	0.268***	0.313***	0.115	0.198**
	(0.063)	(0.064)	(0.084)	(0.090)
Assam	0.284***	0.381***	0.524***	0.700***
	(0.054)	(0.058)	(0.077)	(0.083)
Bihar	0.436***	0.451***	0.466***	0.715***
	(0.100)	(0.103)	(0.141)	(0.156)
Chhattisgarh	0.427***	0.405***	0.357***	0.481***
	(0.071)	(0.072)	(0.096)	(0.109)
Goa	0.252***	0.320***	0.369***	0.416***
	(0.058)	(0.063)	(0.078)	(0.094)
Gujarat	0.139***	0.226***	-0.258***	-0.334***
	(0.051)	(0.054)	(0.066)	(0.069)
Haryana	-0.272***	-0.315***	-0.127	-0.050
	(0.099)	(0.105)	(0.134)	(0.154)
Himachal Pradesh	0.439***	0.500***	0.710***	0.873***
	(0.106)	(0.108)	(0.149)	(0.167)
Jammu & Kashmir	0.244***	0.275***	0.148*	0.242**
	(0.059)	(0.061)	(0.084)	(0.095)
Jharkhand	-0.026	-0.066	0.618***	0.769***
	(0.074)	(0.075)	(0.093)	(0.109)
Karnataka	0.374***	0.490***	0.583***	0.494***
	(0.099)	(0.102)	(0.134)	(0.152)
Kerala	0.319***	0.403***	0.423***	0.444***

	(0.072)	(0.076)	(0.099)	(0.117)
Madhya Pradesh	0.376***	0.352***	0.450***	0.568***
	(0.046)	(0.046)	(0.058)	(0.066)
Maharashtra	0.384***	0.422***	0.356***	0.452***
	(0.085)	(0.091)	(0.124)	(0.136)
Manipur	0.541***	0.586***	0.583***	0.764***
	(0.085)	(0.085)	(0.072)	(0.079)
Meghalaya	0.381***	0.446***	0.542***	0.615***
	(0.064)	(0.068)	(0.094)	(0.102)
Mizoram	0.183***	0.218***	0.617***	0.822***
	(0.058)	(0.058)	(0.071)	(0.077)
Nagaland	0.146***	0.176***	0.508***	0.635***
	(0.048)	(0.049)	(0.063)	(0.068)
Orissa	0.536***	0.567***	0.709***	0.867***
	(0.080)	(0.086)	(0.113)	(0.126)
Punjab	0.400***	0.367***	0.458***	0.647***
	(0.122)	(0.120)	(0.156)	(0.188)
Rajasthan	0.216***	0.163***	0.252***	0.360***
	(0.053)	(0.054)	(0.072)	(0.081)
Sikkim	0.150***	0.199***	0.482***	0.628***
	(0.034)	(0.035)	(0.085)	(0.097)
Tamil Nadu	0.146**	0.232***	0.015	0.028
	(0.067)	(0.068)	(0.095)	(0.112)
Tripura	0.465***	0.545***	0.642***	0.815***
	(0.072)	(0.075)	(0.098)	(0.109)
Uttar Pradesh	0.311***	0.280***	0.392***	0.533***
	(0.079)	(0.083)	(0.112)	(0.133)
Uttarakhand	0.108***	0.067*	0.499***	0.462***
	(0.034)	(0.035)	(0.085)	(0.092)
West Bengal	0.682***	0.741***	1.040***	1.122***
	(0.156)	(0.159)	(0.214)	(0.260)
Constant	0.767***	0.695***	0.285*	0.316*
	(0.134)	(0.129)	(0.166)	(0.189)
Observations	1,599	1,599	1,601	1,601
Adjusted R-squared	0.697	0.667	0.634	0.653

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Observations are aggregated to the district level. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 2. Student Attendance on the Day of the Survey

	(1) Student attendance	(2) Student attendance	(3) Student attendance	(4) Student attendance
Teacher attendance	0.065***	0.068***	0.067***	0.071***
	(0.005)	(0.005)	(0.005)	(0.005)
Infrastructure index	0.007***	0.006***	0.008***	0.008***
	(0.002)	(0.002)	(0.001)	(0.001)
Learning materials	0.030***	0.030***		
	(0.004)	(0.004)		
Library books	0.009***	0.009***		
	(0.003)	(0.003)		
Midday meal	0.037***	0.037***	0.039***	0.039***
	(0.005)	(0.005)	(0.004)	(0.004)
Compliance with RTE student-teacher ratio requirements	0.012***		0.011***	
	(0.003)		(0.002)	
Log student-teacher ratio		-0.017***		-0.018***
		(0.003)		(0.002)
Log student enrollment	-0.020***	-0.013***	-0.019***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.002)
2009			0.065***	0.063***
			(0.006)	(0.006)
2010	0.020***	0.019***	0.022***	0.021***
	(0.005)	(0.004)	(0.004)	(0.004)
Andhra Pradesh	-0.213***	-0.114***	-0.066***	0.010***
	(0.003)	(0.002)	(0.002)	(0.002)
Arunachal Pradesh	0.014***	0.131***	0.032***	0.036***
	(0.005)	(0.005)	(0.002)	(0.002)
Assam	-0.096***	-0.047***	0.024***	-0.120***
	(0.007)	(0.005)	(0.005)	(0.002)
Bihar	-0.487***	-0.259***	-0.308***	-0.290***
	(0.005)	(0.007)	(0.004)	(0.005)
Chhattisgarh	-0.357***	-0.149***	-0.212***	-0.214***
	(0.003)	(0.003)	(0.003)	(0.002)
Daman & Nagar Haveli			0.103***	
			(0.002)	
Goa	0.017***	0.108***	0.135***	0.141***
	(0.004)	(0.002)	(0.002)	(0.002)
Gujarat	-0.016***	0.106***	0.060***	0.058***
	(0.002)	(0.002)	(0.001)	(0.001)
Haryana	-0.206***	0.089***	0.021***	0.024***
	(0.001)	(0.003)	(0.002)	(0.002)
Himachal Pradesh	-0.170***	0.027***	-0.034***	-0.046***
	(0.005)	(0.005)	(0.004)	(0.004)
Jammu & Kashmir	-0.119***	0.030***	0.061***	-0.008***
	(0.005)	(0.005)	(0.002)	(0.003)
Jharkhand	-0.315***	-0.212***	-0.174***	-0.161***

	(0.003)	(0.004)	(0.003)	(0.003)
Karnataka	-0.145***	0.134***	0.093***	0.093***
	(0.001)	(0.002)	(0.001)	(0.001)
Kerala	-0.026***	0.147***	0.138***	0.130***
	(0.003)	(0.002)	(0.002)	(0.002)
Madhya Pradesh	-0.313***	-0.101***	-0.143***	-0.136***
	(0.003)	(0.002)	(0.002)	(0.002)
Maharashtra	-0.156***	0.053***	-0.007***	-0.009***
	(0.003)	(0.003)	(0.002)	(0.002)
Manipur	-0.286***	0.128***	-0.169***	-0.164***
	(0.006)	(0.007)	(0.004)	(0.004)
Meghalaya	-0.093***	0.056***	-0.049***	-0.048***
	(0.005)	(0.004)	(0.003)	(0.003)
Mizoram	-0.167***	0.068***	-0.029***	0.039***
	(0.005)	(0.003)	(0.001)	(0.002)
Nagaland	-0.235***	-0.083***	-0.121***	-0.121***
	(0.006)	(0.006)	(0.004)	(0.004)
Orissa	-0.218***	-0.091***	-0.084***	-0.079***
	(0.003)	(0.003)	(0.002)	(0.002)
Puducherry	-0.023***	0.121***	0.133***	0.129***
	(0.003)	(0.002)	(0.001)	(0.001)
Punjab	-0.079***	0.058***	0.066***	0.047***
	(0.003)	(0.002)	(0.002)	(0.002)
Rajasthan	-0.253***	-0.042***	-0.066***	-0.063***
	(0.003)	(0.003)	(0.002)	(0.002)
Sikkim	-0.062***	0.079***	0.059***	0.007***
	(0.004)	(0.003)	(0.002)	(0.002)
Tamil Nadu	-0.012***	0.123***	0.104***	0.105***
	(0.003)	(0.002)	(0.002)	(0.002)
Tripura	-0.303***	-0.102***	-0.165***	-0.110***
	(0.004)	(0.003)	(0.002)	(0.002)
Uttar Pradesh	-0.496***	-0.289***	-0.369***	-0.371***
	(0.003)	(0.004)	(0.003)	(0.003)
Uttarakhand	-0.047***	0.108***	0.099***	0.072***
	(0.004)	(0.003)	(0.003)	(0.002)
West Bengal	-0.118***	-0.105***	-0.114***	-0.115***
	(0.003)	(0.004)	(0.003)	(0.003)
Constant	0.854***	0.735***	0.751***	0.779***
	(0.015)	(0.014)	(0.012)	(0.011)
Observations	19,981	20,464	31,403	32,150
Adjusted R-squared	0.493	0.495	0.474	0.475
F-test learning materials	0	0	-	-

Source: ASER-PAISA, 2009-2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 3. Teacher Attendance on the Day of the Survey

VARIABLES	(1) Attendance	(2) Attendance	(3) Attendance	(4) Attendance
Headmaster presence	0.120***	0.120***	0.093***	0.093***
	(0.009)	(0.009)	(0.012)	(0.012)
Infrastructure index	-0.001	0.000	-0.002	-0.001
	(0.002)	(0.002)	(0.003)	(0.003)
Learning materials	0.031***	0.031***	0.036***	0.035***
	(0.006)	(0.006)	(0.011)	(0.010)
Monitoring			0.009	0.008
			(0.009)	(0.009)
Log student-teacher ratio		0.057***		0.046***
		(0.004)		(0.007)
Compliance with RTE student-teacher ratio requirement	-0.042***		-0.033***	
	(0.004)		(0.007)	
Log enrollment	-0.016***	-0.039***	-0.018***	-0.037***
	(0.003)	(0.003)	(0.004)	(0.005)
2009	0.013	0.016**		
	(0.008)	(0.008)		
2010	-0.007	-0.006		
	(0.005)	(0.005)		
Andhra Pradesh	-0.199***	-0.213***	-0.210***	-0.141***
	(0.002)	(0.002)	(0.004)	(0.007)
Arunachal Pradesh	-0.074***	-0.299***	-0.012	-0.049***
	(0.003)	(0.005)	(0.010)	(0.010)
Assam	-0.073***	-0.027***	-0.192***	-0.202***
	(0.003)	(0.008)	(0.004)	(0.005)
Bihar	-0.134***	-0.201***	0.043***	-0.541***
	(0.004)	(0.006)	(0.010)	(0.017)
Chhattisgarh	-0.177***	-0.177***	-0.147***	-0.678***
	(0.004)	(0.004)	(0.009)	(0.011)
Daman & Nagar Haveli			-0.018***	
			(0.004)	
Daman & Diu		0.005		
		(0.003)		
Goa	-0.007	-0.018***	-0.016**	0.010
	(0.005)	(0.004)	(0.008)	(0.009)
Gujarat	0.032***	-0.008***	0.011**	-0.035***
	(0.002)	(0.002)	(0.004)	(0.005)
Haryana	-0.081***	-0.147***	-0.392***	-0.044***
	(0.002)	(0.002)	(0.009)	(0.006)
Himachal Pradesh	0.017**	0.049***	0.315***	-0.191***
	(0.008)	(0.009)	(0.014)	(0.015)
Jammu & Kashmir	-0.143***	-0.023***	-0.215***	-0.183***
	(0.005)	(0.004)	(0.008)	(0.009)
Jharkhand	-0.364***	-0.432***	0.124***	0.117***
	(0.004)	(0.007)	(0.013)	(0.013)

Karnataka	-0.022***	-0.105***	-0.154***	-0.138***
	(0.002)	(0.003)	(0.006)	(0.007)
Kerala	-0.023***	-0.056***	-0.013*	0.022***
	(0.004)	(0.003)	(0.007)	(0.008)
Madhya Pradesh	-0.070***	-0.108***	-0.306***	-0.295***
	(0.003)	(0.003)	(0.007)	(0.006)
Maharashtra	-0.008**	-0.015***	0.304***	-0.223***
	(0.004)	(0.004)	(0.008)	(0.014)
Manipur	-0.286***	-0.225***	0.041***	0.114***
	(0.006)	(0.006)	(0.015)	(0.019)
Meghalaya	-0.092***	-0.107***	0.015	0.025**
	(0.005)	(0.004)	(0.011)	(0.011)
Mizoram	-0.019***	-0.096***	-0.086***	-0.080***
	(0.005)	(0.005)	(0.007)	(0.009)
Nagaland	-0.049***	-0.054***	-0.105***	-0.080***
	(0.005)	(0.005)	(0.011)	(0.011)
Orissa	-0.122***	-0.217***	-0.328***	-0.016**
	(0.003)	(0.003)	(0.006)	(0.008)
Puducherry	-0.034***	0.034***	-0.068***	-0.027***
	(0.004)	(0.003)	(0.008)	(0.009)
Punjab	-0.108***	-0.116***	-0.163***	-0.206***
	(0.003)	(0.003)	(0.004)	(0.003)
Rajasthan	-0.061***	-0.077***	-0.192***	-0.194***
	(0.003)	(0.003)	(0.004)	(0.004)
Sikkim	-0.086***	0.034***		
	(0.004)	(0.006)		
Tamil Nadu	-0.119***	-0.089***	-0.144***	-0.130***
	(0.002)	(0.004)	(0.004)	(0.006)
Tripura	-0.114***	-0.162***	-0.155***	-0.128***
	(0.005)	(0.003)	(0.012)	(0.012)
Uttar Pradesh	-0.049***	-0.051***	0.138***	-0.395***
	(0.007)	(0.007)	(0.015)	(0.012)
Uttarakhand	-0.043***	-0.035***	-0.183***	-0.181***
	(0.005)	(0.005)	(0.005)	(0.008)
West Bengal	-0.110***	-0.070***	-0.440***	-0.419***
	(0.003)	(0.003)	(0.014)	(0.013)
Constant	0.925***	0.819***	0.957***	0.849***
	(0.018)	(0.019)	(0.028)	(0.033)
Observations	23,363	23,960	7,952	8,147
Adjusted R-squared	0.105	0.115	0.113	0.120

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data. Rerunning these regressions with library books (available in 2010 and 2011) does not change the results and the coefficient on library books in not significant.

Table 4. Headmaster Attendance on the Day of the Survey

	Headmaster attendance
Monitoring	0.040***
	(0.011)
Log student enrollment	0.003
	(0.004)
Andhra Pradesh	-0.106***
	(0.004)
Arunachal Pradesh	0.037***
	(0.011)
Assam	0.009**
	(0.004)
Bihar	-0.156***
	(0.004)
Chhattisgarh	-0.062***
	(0.003)
Goa	0.007
	(0.008)
Gujarat	0.008***
	(0.002)
Haryana	0.009***
	(0.003)
Himachal Pradesh	-0.056***
	(0.006)
Jammu & Kashmir	-0.242***
	(0.004)
Jharkhand	-0.001
	(0.001)
Karnataka	-0.008***
	(0.002)
Kerala	0.001
	(0.005)
Madhya Pradesh	-0.106***
	(0.005)
Maharashtra	-0.036***
	(0.003)
Manipur	-0.310***
	(0.007)
Meghalaya	0.034***
	(0.009)
Mizoram	0.013*
	(0.007)
Nagaland	0.035***
	(0.009)
Orissa	-0.188***
	(0.006)
Puducherry	-0.114***
	(0.001)

Punjab	0.014**
	(0.006)
Rajasthan	-0.131***
	(0.003)
Tamil Nadu	0.020***
	(0.005)
Tripura	-0.031***
	(0.010)
Uttar Pradesh	-0.385***
	(0.003)
Uttarakhand	-0.114***
	(0.008)
West Bengal	0.034***
	(0.009)
Constant	0.950***
	(0.024)
Observations	10,342
Adjusted R-squared	0.059

Source: ASER-PAISA, 2009-2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 5. District-level Headmaster Attendance on the Day of the Survey

	(1) District level Headmaster attendance	(2) District level Headmaster attendance
Monitoring	0.034	
	(0.034)	
% students enrolled in private schools in the district	0.013	0.020
	(0.037)	(0.026)
% scheduled caste students	-0.039	-0.052
	(0.066)	(0.046)
% scheduled tribe students	-0.021	-0.013
	(0.034)	(0.022)
% of female students	0.108	0.101
	(0.131)	(0.093)
% OBC students	0.004	-0.007
	(0.030)	(0.021)
% repeater students	-0.100	-0.054
	(0.185)	(0.091)
Log student enrollment	-0.002	0.005
	(0.011)	(0.007)
2009		0.046***
		(0.005)
2010		-0.011*
		(0.007)
Andhra Pradesh	-0.099***	-0.110***
	(0.019)	(0.015)
Arunachal Pradesh	-0.098*	-0.095***
	(0.059)	(0.028)
Assam	-0.048**	-0.077***
	(0.020)	(0.014)
Bihar	-0.091***	-0.093***
	(0.029)	(0.017)
Chhattisgarh	-0.090***	-0.085***
	(0.033)	(0.016)
Daman & Nagar Haveli		0.011
		(0.013)
Goa	0.005	-0.021**
	(0.023)	(0.010)
Gujarat	-0.030	-0.051***
	(0.021)	(0.015)
Haryana	-0.113***	-0.098***
	(0.033)	(0.015)
Himachal Pradesh	-0.085**	-0.066***
	(0.038)	(0.021)
Jammu & Kashmir	-0.091***	-0.076***
	(0.028)	(0.015)

Jharkhand	-0.104***	-0.085***
	(0.037)	(0.017)
Karnataka	-0.021	-0.031**
	(0.019)	(0.012)
Kerala	-0.037**	-0.044***
	(0.019)	(0.012)
Madhya Pradesh	-0.073***	-0.074***
	(0.020)	(0.012)
Maharashtra	-0.059***	-0.065***
	(0.015)	(0.009)
Manipur	-0.125***	-0.178***
	(0.045)	(0.045)
Meghalaya	0.012	-0.035**
	(0.042)	(0.017)
Mizoram	-0.030	-0.056***
	(0.038)	(0.018)
Nagaland	0.025	-0.055***
	(0.040)	(0.021)
Orissa	-0.073***	-0.075***
	(0.025)	(0.016)
Puducherry	-0.059	-0.025
	(0.045)	(0.023)
Punjab	-0.028	-0.042**
	(0.038)	(0.020)
Rajasthan	-0.088***	-0.086***
	(0.029)	(0.013)
Sikkim		-0.175***
		(0.049)
Tamil Nadu	-0.043*	-0.061***
	(0.022)	(0.017)
Tripura	-0.086	-0.108***
	(0.055)	(0.020)
Uttar Pradesh	-0.193***	-0.187***
	(0.021)	(0.015)
Uttarakhand	-0.073***	-0.086***
	(0.026)	(0.019)
West Bengal	0.008	-0.038**
	(0.040)	(0.015)
Constant	0.931***	0.939***
	(0.089)	(0.057)
Observations	541	1,606
Adjusted R-squared	0.237	0.211
F-test demographic characteristics	0.886	0.727

Source: ASER-PAISA, 2009-2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 6. Presence of Infrastructure Mandated by RTE at the School

	(1) Infrastructure index	(2) 1 classroom per teacher	(3) Office	(4) Girl's toilet	(5) Boy's toilet	(6) Water facility	(7) Kitchen	(8) Playground	(9) Boundary wall
Headmaster presence	-0.034	0.021**	-0.024**	0.009	0.020**	0.013	0.003	0.001	0.033***
	(0.022)	(0.010)	(0.010)	(0.009)	(0.010)	(0.009)	(0.008)	(0.012)	(0.010)
SMG spent	0.211***	0.026***	0.011*	0.045***	0.039***	0.026***	0.048***	0.017**	0.026***
	(0.016)	(0.007)	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)	(0.008)	(0.007)
Log student enrollment	0.229***	-0.097***	0.090***	0.066***	0.058***	0.051***	0.050***	0.075***	0.083***
	(0.010)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)	(0.005)	(0.006)	(0.005)
2009	-3.202***	0.042***		-0.105***	-0.087***	0.009			-0.001
	(0.024)	(0.009)		(0.009)	(0.010)	(0.008)			(0.010)
2010	-0.040*	0.014*	0.002	-0.084***	-0.074***	-0.005	-0.021***	-0.020**	-0.043***
	(0.023)	(0.007)	(0.007)	(0.009)	(0.009)	(0.008)	(0.006)	(0.009)	(0.008)
Andhra Pradesh	-1.075***	-0.292***	-0.062***	-0.422***	-0.507***	-0.413***	-0.292***	-0.102***	-0.097***
	(0.008)	(0.005)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.008)	(0.004)
Arunachal Pradesh	-1.827***	0.082***	-0.091***	-0.373***	-0.390***	-0.222***	-0.876***	-0.242***	-0.668***
	(0.016)	(0.007)	(0.004)	(0.004)	(0.005)	(0.005)	(0.002)	(0.006)	(0.006)
Assam	-2.322***	0.097***	-0.309***	-0.461***	-0.560***	-0.582***	-0.728***	-0.148***	-0.486***
	(0.015)	(0.007)	(0.008)	(0.004)	(0.005)	(0.006)	(0.007)	(0.012)	(0.006)
Bihar	-1.499***	0.491***	-0.449***	-0.489***	-0.588***	-0.241***	-1.024***	-0.403***	-0.600***
	(0.020)	(0.004)	(0.007)	(0.008)	(0.008)	(0.005)	(0.006)	(0.002)	(0.006)
Chhattisgarh	-0.778***	0.230***	-0.313***	-0.662***	-0.865***	-0.227***	-0.372***	-0.156***	-0.782***
	(0.018)	(0.005)	(0.005)	(0.005)	(0.009)	(0.006)	(0.004)	(0.005)	(0.005)
Daman & Nagar Haveli				-0.116***	-0.140***		-0.252***		
				(0.004)	(0.004)		(0.004)		
Daman & Diu						-0.116***		-0.304***	
						(0.003)		(0.004)	
Goa	-0.508***	0.158***	-0.404***	-0.034***	-0.094***	-0.084***	-0.560***	0.096***	0.089***
	(0.010)	(0.007)	(0.005)	(0.005)	(0.005)	(0.006)	(0.004)	(0.008)	(0.008)
Gujarat	-0.707***	0.150***	-0.433***	-0.276***	-0.184***	-0.458***	-0.026***	-0.174***	0.232***
	(0.010)	(0.003)	(0.001)	(0.004)	(0.004)	(0.002)	(0.002)	(0.004)	(0.003)
Haryana	-0.276***	0.116***	-0.017***	-0.091***	-0.119***	-0.082***	-0.487***	-0.079***	0.119***
	(0.006)	(0.001)	(0.005)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
Himachal Pradesh	0.205***	0.099***	-0.113***	-0.100***	-0.462***	0.033***	-0.079***	0.180***	-0.699***
	(0.023)	(0.012)	(0.004)	(0.005)	(0.011)	(0.010)	(0.004)	(0.010)	(0.007)
Jammu & Kashmir	-0.922***	-0.427***	-0.069***	-0.229***	-0.271***	-0.358***	-0.102***	-0.143***	-0.363***
	(0.015)	(0.006)	(0.007)	(0.007)	(0.007)	(0.009)	(0.006)	(0.008)	(0.008)
Jharkhand	-1.818***	0.366***	0.046***	-0.429***	-0.206***	-0.369***	-0.186***	-0.387***	-0.533***
	(0.008)	(0.003)	(0.006)	(0.003)	(0.009)	(0.003)	(0.003)	(0.003)	(0.004)
Karnataka	-0.823***	-0.150***	-0.164***	-0.210***	-0.136***	-0.092***	-0.010**	-0.180***	0.059***
	(0.011)	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.004)
Kerala	-0.332***	0.221***	0.165***	-0.031***	-0.162***	-0.119***	-0.014***	-0.043***	0.270***
	(0.012)	(0.004)	(0.002)	(0.002)	(0.005)	(0.003)	(0.002)	(0.004)	(0.002)
Madhya Pradesh	-1.292***	0.054***	-0.062***	-0.593***	-0.601***	-0.348***	-0.098***	-0.318***	-0.509***
	(0.007)	(0.006)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.006)	(0.004)
Maharashtra	-0.593***	0.362***	-0.732***	-0.352***	-0.482***	-0.196***	-0.743***	0.316***	-0.510***

	(0.016)	(0.004)	(0.004)	(0.005)	(0.007)	(0.005)	(0.004)	(0.004)	(0.005)
Manipur	-1.776***	-0.426***	-0.128***	-0.773***	-0.821***	-0.861***	-0.229***	-0.244***	-0.691***
	(0.015)	(0.005)	(0.004)	(0.007)	(0.005)	(0.007)	(0.002)	(0.011)	(0.007)
Meghalaya	-1.797***	-0.062***	-0.135***	-0.419***	-0.422***	-0.706***	-0.658***	-0.276***	-0.434***
	(0.008)	(0.004)	(0.002)	(0.003)	(0.003)	(0.006)	(0.001)	(0.006)	(0.005)
Mizoram	-0.687***	-0.067***	0.252***	-0.883***	-0.194***	-0.456***	-0.366***	-0.234***	-0.463***
	(0.013)	(0.009)	(0.006)	(0.006)	(0.006)	(0.007)	(0.003)	(0.010)	(0.008)
Nagaland	-1.095***	-0.182***	0.001	-0.586***	-0.594***	-0.891***	0.030***	-0.439***	-0.181***
	(0.011)	(0.009)	(0.006)	(0.005)	(0.005)	(0.007)	(0.004)	(0.009)	(0.008)
Orissa	-1.531***	0.251***	-0.214***	-0.330***	-0.314***	-0.092***	-0.369***	-0.476***	-0.281***
	(0.008)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.005)	(0.004)
Puducherry	-0.789***	-0.129***	0.121***				-0.511***	0.058***	
	(0.007)	(0.003)	(0.003)				(0.003)	(0.001)	
Punjab	-0.076***	0.140***	-0.094***	-0.070***	-0.093***	-0.222***	-0.063***	-0.078***	0.200***
	(0.006)	(0.004)	(0.003)	(0.003)	(0.005)	(0.006)	(0.002)	(0.004)	(0.003)
Rajasthan	0.045***	0.187***	0.048***	-0.163***	-0.077***	-0.698***	-0.076***	-0.122***	0.058***
	(0.011)	(0.004)	(0.002)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
Sikkim	-0.801***	-0.156***	0.072***	-0.141***	-0.277***	-0.157***	-0.079***	-0.078***	-0.517***
	(0.006)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.002)	(0.007)	(0.004)
Tamil Nadu	-1.754***	0.119***	-0.339***	-0.205***	-0.471***	-0.183***	-0.077***	0.060***	-0.158***
	(0.012)	(0.009)	(0.004)	(0.003)	(0.007)	(0.004)	(0.003)	(0.006)	(0.004)
Tripura	-1.486***	-0.188***	0.061***	-0.553***	-0.538***	-0.627***	-0.166***	-0.045***	-0.357***
	(0.010)	(0.005)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Uttar Pradesh	0.314***	0.269***	-0.042***	-0.123***	-0.442***	-0.073***	-0.109***	0.204***	-0.418***
	(0.023)	(0.008)	(0.004)	(0.004)	(0.010)	(0.008)	(0.003)	(0.007)	(0.004)
Uttarakhand	-0.626***	0.083***	0.189***	-0.522***	-0.505***	-0.234***	0.014***	0.015	0.009*
	(0.011)	(0.012)	(0.006)	(0.008)	(0.006)	(0.007)	(0.005)	(0.012)	(0.005)
West Bengal	-0.960***	0.044***	-0.075***	-0.466***	-0.525***	-0.339***	-0.114***	-0.132***	-0.191***
	(0.010)	(0.005)	(0.004)	(0.005)	(0.002)	(0.003)	(0.003)	(0.008)	(0.004)
Constant	1.378***	1.146***	0.415***	0.719***	0.740***	0.700***	0.740***	0.446***	0.297***
	(0.057)	(0.032)	(0.029)	(0.027)	(0.028)	(0.025)	(0.025)	(0.034)	(0.029)
Observations	30,540	19,684	20,454	26,094	25,657	30,043	20,547	20,693	29,796
Adjusted R-squared	0.735	0.147	0.190	0.210	0.208	0.133	0.181	0.133	0.202

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 7. Presence of Infrastructure Mandated by RTE at the School (Monitoring)

	(1) Infrastructure index	(2) 1 classroom per teacher	(3) Office	(4) Girl's toilet	(5) Boy's toilet	(6) Water facility	(7) Kitchen	(8) Playground	(9) Boundary wall
Headmaster presence	-0.033	-0.000	-0.034**	0.007	0.013	0.011	0.002	-0.013	0.047***
	(0.034)	(0.015)	(0.014)	(0.014)	(0.015)	(0.014)	(0.012)	(0.016)	(0.017)
SMG spent	0.170***	0.038***	0.009	0.040***	0.044***	0.027***	0.045***	0.008	0.019
	(0.027)	(0.013)	(0.010)	(0.010)	(0.011)	(0.010)	(0.009)	(0.011)	(0.012)
Monitoring	0.288***	-0.015	0.008	0.005	0.003	0.011	0.001	0.018	-0.012
	(0.045)	(0.016)	(0.013)	(0.014)	(0.016)	(0.014)	(0.012)	(0.014)	(0.015)
Log student enrollment	0.253***	-0.094***	0.086***	0.043***	0.039***	0.045***	0.052***	0.064***	0.076***
	(0.017)	(0.009)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)	(0.008)
Andhra Pradesh	-0.354***	-0.007	-0.393***	-0.424***	-0.329***	-0.336***	-0.147***	-0.099***	-0.723***
	(0.018)	(0.009)	(0.004)	(0.005)	(0.009)	(0.007)	(0.004)	(0.011)	(0.002)
Arunachal Pradesh	-0.039	0.229***	-0.019	-0.385***	-0.587***	-0.165***	0.241***	-0.026	-0.272***
	(0.046)	(0.018)	(0.013)	(0.014)	(0.016)	(0.014)	(0.011)	(0.017)	(0.016)
Assam	-0.856***	0.320***	-0.453***	-0.188***	-0.538***	-0.224***	0.079***	0.263***	-0.967***
	(0.020)	(0.017)	(0.001)	(0.006)	(0.005)	(0.001)	(0.004)	(0.008)	(0.006)
Bihar	-1.743***	-0.025	-0.428***	-0.333***	-0.014	0.016**	-0.417***	-0.245***	-0.788***
	(0.015)	(0.022)	(0.005)	(0.012)	(0.013)	(0.007)	(0.003)	(0.007)	(0.008)
Chhattisgarh	-0.706***	-0.231***	-0.323***	-0.413***	-0.396***	0.015***	0.205***	0.065***	-0.631***
	(0.012)	(0.014)	(0.005)	(0.009)	(0.009)	(0.005)	(0.002)	(0.008)	(0.006)
Daman & Nagar Haveli	-0.561***	0.118***	-0.441***		-0.003	-0.209***	-0.415***		-0.435***
	(0.021)	(0.019)	(0.007)		(0.009)	(0.007)	(0.007)		(0.008)
Daman & Diu								0.191***	-0.772***
								(0.004)	(0.008)
Goa	-0.765***			-0.230***	-0.343***	-0.113***	-0.535***		
	(0.027)			(0.010)	(0.011)	(0.010)	(0.008)		
Gujarat	-0.618***	0.274***	0.023***	0.020	0.027**	0.011	0.013	0.214***	-0.223***
	(0.014)	(0.013)	(0.005)	(0.013)	(0.013)	(0.011)	(0.010)	(0.006)	(0.006)
Haryana	-0.426***	-0.709***	-0.020***	-0.010**	-0.021***	-0.024***	-0.555***	-0.284***	-0.548***
	(0.014)	(0.015)	(0.004)	(0.004)	(0.006)	(0.005)	(0.007)	(0.006)	(0.006)
Himachal Pradesh	0.588***	-0.519***	-0.083***	0.098***	-0.033***	0.222***	0.593***	0.358***	-0.675***
	(0.027)	(0.019)	(0.012)	(0.009)	(0.007)	(0.011)	(0.008)	(0.014)	(0.013)
Jammu & Kashmir	-1.178***	-0.343***	-0.148***	-0.622***	-0.572***	-0.312***	-0.024***	-0.084***	-0.803***
	(0.019)	(0.006)	(0.006)	(0.006)	(0.010)	(0.006)	(0.005)	(0.009)	(0.006)
Jharkhand	-1.071***	0.143***	-0.268***	-0.459***	-0.145***	-0.043***	-0.364***	-0.347***	-1.077***
	(0.020)	(0.021)	(0.008)	(0.006)	(0.007)	(0.010)	(0.008)	(0.012)	(0.021)
Karnataka	-0.147***	-0.226***	-0.316***	-0.320***	-0.319***	-0.072***	-0.398***	0.046***	-0.206***
	(0.010)	(0.015)	(0.005)	(0.002)	(0.007)	(0.002)	(0.006)	(0.004)	(0.006)
Kerala	0.299***	-0.079***	0.035***	0.020***	0.019***	-0.117***	0.209***	-0.116***	-0.023***
	(0.011)	(0.015)	(0.005)	(0.003)	(0.005)	(0.005)	(0.004)	(0.008)	(0.006)
Madhya Pradesh	-1.937***	-0.041***	-0.408***	-0.294***	-0.293***	-0.250***	0.204***	-0.604***	-0.640***
	(0.037)	(0.014)	(0.010)	(0.008)	(0.008)	(0.010)	(0.003)	(0.008)	(0.012)
Maharashtra	-0.811***	-0.275***	-0.737***	-0.075***	0.175***	0.004	-0.329***	0.455***	-0.552***

	(0.015)	(0.013)	(0.006)	(0.008)	(0.008)	(0.006)	(0.003)	(0.007)	(0.007)
Manipur	-1.015***	-0.821***	-0.603***	-0.951***	-0.434***	-0.928***	-0.740***	-0.182***	-0.921***
	(0.051)	(0.010)	(0.012)	(0.010)	(0.018)	(0.016)	(0.008)	(0.016)	(0.016)
Meghalaya	-1.098***	-0.732***	-0.497***	0.036**	0.031*	-0.648***	0.120***	0.243***	-1.063***
	(0.050)	(0.019)	(0.014)	(0.015)	(0.017)	(0.015)	(0.012)	(0.012)	(0.019)
Mizoram	-0.620***	0.210***	0.093***	-0.211***	0.054***	-0.055***	0.233***	0.158***	-0.559***
	(0.025)	(0.017)	(0.008)	(0.010)	(0.009)	(0.008)	(0.006)	(0.012)	(0.009)
Nagaland	-1.701***	-0.092***	-0.102***	0.024*	0.016	-0.685***	0.070***	-0.013	-0.697***
	(0.044)	(0.018)	(0.013)	(0.015)	(0.016)	(0.014)	(0.011)	(0.015)	(0.015)
Orissa	-0.502***	0.157***	-0.339***	-0.480***	-0.470***	-0.360***	0.230***	-0.319***	-0.318***
	(0.021)	(0.007)	(0.008)	(0.005)	(0.010)	(0.008)	(0.005)	(0.012)	(0.005)
Puducherry	-0.592***	-0.231***	-0.431***	-0.011*	-0.085***	-0.257***	-0.573***	-0.044***	-0.278***
	(0.014)	(0.012)	(0.003)	(0.006)	(0.007)	(0.006)	(0.004)	(0.010)	(0.003)
Punjab	0.097***	0.358***	-0.312***	0.027***	0.041***	-0.344***	0.167***	-0.067***	-0.179***
	(0.012)	(0.018)	(0.007)	(0.005)	(0.009)	(0.005)	(0.007)	(0.002)	(0.008)
Rajasthan	-0.254***	-0.055***	-0.237***	-0.187***	-0.071***	-0.749***	-0.038***	-0.320***	-0.349***
	(0.016)	(0.015)	(0.004)	(0.005)	(0.004)	(0.006)	(0.002)	(0.007)	(0.005)
Tamil Nadu	0.273***	-0.002	-0.361***	0.006	-0.660***	-0.305***	0.223***	-0.138***	-0.021**
	(0.034)	(0.009)	(0.003)	(0.010)	(0.011)	(0.004)	(0.005)	(0.010)	(0.010)
Tripura	-0.308***	-0.220***	-0.069***	-0.659***	0.019	-0.564***	0.210***	0.191***	-0.836***
	(0.049)	(0.016)	(0.015)	(0.017)	(0.016)	(0.014)	(0.011)	(0.012)	(0.016)
Uttar Pradesh	-0.290***	-0.000	-0.167***	-0.032***	-0.197***	0.176***	0.556***	0.225***	-0.709***
	(0.025)	(0.017)	(0.010)	(0.008)	(0.007)	(0.010)	(0.005)	(0.011)	(0.012)
Uttarakhand	-0.228***	-0.383***	-0.064***	0.057***	-0.101***	-0.598***	0.267***	0.069***	-0.150***
	(0.026)	(0.010)	(0.012)	(0.010)	(0.011)	(0.010)	(0.007)	(0.014)	(0.012)
West Bengal	-0.370***	-0.199***	-0.170***	-0.463***	-0.469***	-0.469***	0.250***	-0.251***	-0.414***
	(0.049)	(0.016)	(0.014)	(0.015)	(0.017)	(0.015)	(0.011)	(0.012)	(0.015)
Constant	0.499***	1.166***	0.597***	0.737***	0.750***	0.730***	0.507***	0.443***	0.571***
	(0.098)	(0.037)	(0.039)	(0.039)	(0.041)	(0.038)	(0.031)	(0.043)	(0.042)
Observations	10,653	6,264	10,420	8,965	8,692	10,475	10,431	10,499	10,389
Adjusted R-squared	0.278	0.183	0.171	0.204	0.224	0.161	0.181	0.144	0.197

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 8. Works and Repairs at the School

	(1) Repair index	(2) New classroom activity	(3) Furniture purchase	(4) Electrical Fitting purchase	(5) Building repair	(6) Door & window repair	(7) Boundary wall repair	(8) Water facility repair	(9) Toilet repair	(10) White washing
Headmaster presence	-0.016	0.016	0.041**	0.014	0.030**	0.047***	0.019**	0.007	-0.003	0.031***
	(0.032)	(0.012)	(0.018)	(0.016)	(0.012)	(0.017)	(0.009)	(0.012)	(0.012)	(0.010)
SMG spent	0.393***	0.021**	0.089***	0.057***	0.107***	0.130***	0.027***	0.037***	0.049***	0.112***
	(0.025)	(0.010)	(0.016)	(0.015)	(0.012)	(0.016)	(0.008)	(0.011)	(0.012)	(0.008)
SDG spent	0.237***	0.018**	0.093***	0.032**	0.099***	0.084***	0.035***	0.043***	0.063***	0.040***
	(0.021)	(0.009)	(0.016)	(0.014)	(0.011)	(0.015)	(0.008)	(0.010)	(0.011)	(0.008)
TLM grant spent	0.305***	-0.012	0.029*	0.038***	0.002	0.028	-0.011	0.012	0.006	0.034***
	(0.027)	(0.010)	(0.015)	(0.014)	(0.010)	(0.017)	(0.008)	(0.011)	(0.011)	(0.009)
Log student enrollment	0.071***	0.061***	0.009	0.051***	0.029***	0.036***	0.033***	0.045***	0.047***	0.023***
	(0.015)	(0.005)	(0.008)	(0.007)	(0.006)	(0.008)	(0.004)	(0.006)	(0.006)	(0.004)
2009	-7.123***	-0.008					-0.026**			0.056***
	(0.058)	(0.010)					(0.011)			(0.010)
2010	-4.141***				0.029***		0.012	-0.081***	0.015	-0.003
	(0.052)				(0.009)		(0.010)	(0.012)	(0.010)	(0.010)
Andhra Pradesh	-0.407***	0.162***	0.452***	0.275***	-0.185***	-0.089***	-0.347***	-0.229***	-0.473***	0.066***
	(0.016)	(0.006)	(0.012)	(0.010)	(0.004)	(0.008)	(0.004)	(0.008)	(0.005)	(0.003)
Arunachal Pradesh	-3.982***	0.799***	0.589***	0.654***	-0.100***	0.138***	-0.253***	-0.536***	-0.667***	-0.462***
	(0.037)	(0.010)	(0.011)	(0.022)	(0.016)	(0.011)	(0.011)	(0.008)	(0.006)	(0.011)
Assam	-0.987***	0.003	-0.105***	-0.410***	-0.202***	-0.102***	-0.517***	-0.485***	-0.355***	-0.061***
	(0.023)	(0.003)	(0.011)	(0.007)	(0.008)	(0.004)	(0.010)	(0.015)	(0.004)	(0.005)
Bihar	-0.311***	0.619***	-0.242***	-0.609***	0.163***	-1.292***	-0.244***	0.789***	-0.456***	0.028***
	(0.046)	(0.009)	(0.016)	(0.007)	(0.009)	(0.013)	(0.007)	(0.009)	(0.006)	(0.007)
Chhattisgarh	-0.013	0.149***	0.111***	-0.404***	0.179***	-0.958***	-0.510***	0.243***	-0.698***	0.155***
	(0.043)	(0.007)	(0.015)	(0.007)	(0.010)	(0.009)	(0.006)	(0.010)	(0.005)	(0.008)
Daman & Nagar Haveli						-0.116***	-0.243***		-0.203***	
						(0.009)	(0.003)		(0.005)	
Daman & Diu			0.586***	0.403***	-0.034***					
			(0.009)	(0.008)	(0.005)					
Goa	-0.363***	-0.012		0.032**	-0.017*		-0.166***	-0.281***	-0.285***	-0.067***
	(0.016)	(0.010)		(0.013)	(0.009)		(0.007)	(0.009)	(0.007)	(0.007)
Gujarat	-0.535***	-0.106***	0.230***	0.458***	0.090***	-0.122***	-0.207***	-0.218***	-0.477***	0.132***
	(0.015)	(0.004)	(0.009)	(0.007)	(0.003)	(0.008)	(0.004)	(0.006)	(0.003)	(0.005)
Haryana	-0.054***	0.148***	0.138***	-0.593***	-0.029***	-0.259***	-0.416***	0.225***	-0.533***	-0.164***
	(0.012)	(0.005)	(0.009)	(0.011)	(0.004)	(0.002)	(0.004)	(0.005)	(0.005)	(0.004)
Himachal Pradesh	-0.023	0.004	-0.259***	-0.297***	0.111***	-1.088***	-0.570***	0.038***	-0.473***	0.121***
	(0.047)	(0.010)	(0.022)	(0.012)	(0.010)	(0.017)	(0.008)	(0.010)	(0.008)	(0.011)
Jammu & Kashmir	-0.390***	-0.058***	0.208***	-0.483***	-0.337***	-0.534***	-0.622***	-0.420***	-0.766***	0.105***
	(0.019)	(0.006)	(0.011)	(0.010)	(0.011)	(0.005)	(0.007)	(0.013)	(0.009)	(0.007)

Jharkhand	-0.555***	0.059***	-0.250***	-0.487***	0.160***	-1.015***	-0.573***	0.048***	-0.637***	0.104***
	(0.014)	(0.005)	(0.006)	(0.007)	(0.004)	(0.012)	(0.004)	(0.006)	(0.004)	(0.005)
Karnataka	-0.162***	-0.033***	-0.121***	-0.137***	-0.189***	-0.257***	-0.422***	-0.251***	-0.463***	0.006
	(0.015)	(0.003)	(0.012)	(0.008)	(0.004)	(0.003)	(0.004)	(0.010)	(0.005)	(0.003)
Kerala	-0.020	-0.032***	0.124***	-0.439***	-0.026***	-0.575***	-0.170***	-0.091***	-0.179***	0.250***
	(0.028)	(0.007)	(0.011)	(0.010)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.003)
Madhya Pradesh	-0.187***	-0.112***	0.065***	-0.522***	-0.454***	-0.864***	-0.590***	-0.329***	-0.667***	0.110***
	(0.012)	(0.007)	(0.007)	(0.011)	(0.006)	(0.009)	(0.007)	(0.007)	(0.004)	(0.006)
Maharashtra	0.081**	0.284***	-0.572***	-0.151***	0.288***	-0.880***	-0.130***	0.549***	-0.200***	0.107***
	(0.039)	(0.009)	(0.018)	(0.008)	(0.011)	(0.014)	(0.007)	(0.011)	(0.003)	(0.006)
Manipur	-0.699***	0.193***	0.143***	0.576***	0.486***	0.273***	-0.424***	0.450***	0.297***	-0.503***
	(0.017)	(0.008)	(0.018)	(0.012)	(0.013)	(0.017)	(0.009)	(0.016)	(0.012)	(0.008)
Meghalaya	-1.639***	0.100***	0.760***	0.444***	-0.258***	0.178***	-0.486***	-0.521***	-0.333***	-0.062***
	(0.011)	(0.009)	(0.017)	(0.015)	(0.012)	(0.026)	(0.006)	(0.011)	(0.006)	(0.006)
Mizoram	-0.477***	0.097***	0.278***	0.156***	0.221***	0.066***	-0.247***	-0.357***	-0.329***	-0.224***
	(0.019)	(0.009)	(0.015)	(0.014)	(0.011)	(0.008)	(0.008)	(0.011)	(0.008)	(0.005)
Nagaland	-0.622***	0.663***	0.589***	0.432***	0.195***	0.028***	0.086***	-0.318***	-0.372***	-0.470***
	(0.017)	(0.010)	(0.011)	(0.011)	(0.010)	(0.006)	(0.008)	(0.010)	(0.009)	(0.007)
Orissa	0.051**	0.302***	-0.144***	-0.520***	0.292***	-0.713***	-0.212***	-0.239***	-0.635***	0.156***
	(0.022)	(0.004)	(0.014)	(0.013)	(0.006)	(0.012)	(0.004)	(0.006)	(0.005)	(0.003)
Puducherry	-0.223***	-0.129***	-0.094***	0.160***	-0.430***	-0.495***		0.369***	0.096***	
	(0.013)	(0.007)	(0.011)	(0.011)	(0.005)	(0.003)		(0.003)	(0.004)	
Punjab	-0.612***	-0.061***	0.172***	-0.025***	-0.256***	-0.634***	-0.460***	-0.086***	-0.559***	-0.226***
	(0.013)	(0.006)	(0.011)	(0.006)	(0.004)	(0.008)	(0.004)	(0.005)	(0.004)	(0.006)
Rajasthan	-0.577***	-0.001	0.206***	-0.324***	-0.132***	-0.413***	-0.441***	-0.028***	-0.346***	-0.147***
	(0.022)	(0.004)	(0.009)	(0.010)	(0.006)	(0.006)	(0.004)	(0.007)	(0.008)	(0.005)
Sikkim	-0.323***	0.232***			-0.152***		-0.551***	-0.369***	-0.420***	-0.042***
	(0.012)	(0.005)			(0.008)		(0.005)	(0.008)	(0.005)	(0.006)
Tamil Nadu	-1.141***	-0.216***	0.664***	0.431***	-0.059***	-0.253***	-0.174***	-0.137***	-0.214***	0.297***
	(0.029)	(0.009)	(0.004)	(0.009)	(0.009)	(0.009)	(0.007)	(0.009)	(0.010)	(0.009)
Tripura	-1.845***	0.408***	0.737***	0.468***	-0.077***	0.050***	-0.573***	0.010	-0.282***	-0.015***
	(0.021)	(0.005)	(0.012)	(0.009)	(0.009)	(0.012)	(0.007)	(0.006)	(0.006)	(0.004)
Uttar Pradesh	0.531***	0.117***	0.142***	-0.200***	-0.335***	-1.142***	-0.535***	-0.072***	-0.555***	0.191***
	(0.054)	(0.004)	(0.020)	(0.012)	(0.008)	(0.017)	(0.005)	(0.009)	(0.008)	(0.010)
Uttarakhand	-0.593***	0.019**	0.146***	-0.412***	-0.042***	-0.446***	-0.488***	-0.375***	-0.535***	0.144***
	(0.018)	(0.009)	(0.017)	(0.014)	(0.012)	(0.011)	(0.004)	(0.014)	(0.007)	(0.007)
West Bengal	-1.045***	0.457***	0.701***	0.445***	0.045***	0.135***	-0.473***	-0.100***	0.014***	0.034***
	(0.015)	(0.005)	(0.006)	(0.010)	(0.011)	(0.019)	(0.005)	(0.012)	(0.005)	(0.004)
Constant	3.652***	-0.064**	0.117**	0.204***	0.368***	0.534***	0.462***	0.362***	0.520***	0.369***
	(0.097)	(0.029)	(0.046)	(0.041)	(0.034)	(0.044)	(0.026)	(0.036)	(0.031)	(0.026)
Observations	30,540	17,989	9,623	9,433	19,453	9,613	27,698	19,057	19,195	28,426
Adjusted R-squared	0.826	0.098	0.128	0.230	0.100	0.130	0.060	0.079	0.091	0.113

Table 8 continued.....

	(11) Blackboard /display board painting	(12) Door & window painting	(13) Chalk, dusters, register etc. bought	(14) Sitting mats/ tat patti bought	(15) Charts, globes, other learning materials bought
Headmaster presence	0.050***	0.038**	0.004	0.024**	0.038**
	(0.016)	(0.016)	(0.008)	(0.010)	(0.015)
SMG spent	0.143***	0.152***	0.047***	0.072***	0.077***
	(0.017)	(0.017)	(0.008)	(0.011)	(0.016)
SDG spent	0.058***	0.061***	0.030***	0.046***	0.068***
	(0.014)	(0.016)	(0.007)	(0.009)	(0.013)
TLM grant spent	0.074***	0.036**	0.047***	0.017	0.086***
	(0.015)	(0.017)	(0.007)	(0.010)	(0.015)
Log student enrollment	0.034***	0.022***	0.010***	0.010*	0.017**
	(0.007)	(0.007)	(0.004)	(0.005)	(0.007)
2009					
2010			0.013**	0.064***	
			(0.006)	(0.010)	
Andhra Pradesh	0.153***	0.969***	-0.134***	0.582***	-0.059***
	(0.006)	(0.007)	(0.003)	(0.006)	(0.009)
Arunachal Pradesh	0.413***	1.256***	0.047***	0.566***	0.297***
	(0.017)	(0.016)	(0.005)	(0.011)	(0.021)
Assam	-0.258***	0.663***	-0.121***	0.535***	-0.253***
	(0.008)	(0.003)	(0.004)	(0.004)	(0.007)
Bihar	-0.074***	0.555***	-0.280***	0.456***	0.395***
	(0.006)	(0.011)	(0.006)	(0.008)	(0.014)
Chhattisgarh	0.102***	1.018***	-0.277***	0.683***	0.053***
	(0.006)	(0.006)	(0.005)	(0.007)	(0.013)
Daman & Nagar Haveli	-0.016	0.671***	-0.295***		
	(0.010)	(0.009)	(0.003)		
Daman & Diu	0.076***				0.025***
	(0.007)				(0.008)
Goa	-0.121***	0.333***	-0.119***	0.517***	
	(0.011)	(0.012)	(0.005)	(0.007)	
Gujarat	0.261***	0.684***	-0.030***	0.187***	-0.106***
	(0.012)	(0.015)	(0.002)	(0.003)	(0.005)
Haryana	-0.310***	0.761***	-0.070***	0.305***	0.021***
	(0.012)	(0.009)	(0.002)	(0.004)	(0.007)
Himachal Pradesh	-0.193***	0.916***	-0.345***	0.371***	-0.192***
	(0.011)	(0.014)	(0.003)	(0.005)	(0.019)
Jammu & Kashmir	-0.404***	0.629***	-0.090***	0.725***	-0.269***
	(0.006)	(0.009)	(0.006)	(0.009)	(0.009)
Jharkhand	-0.297***	0.510***	0.007	0.532***	0.026**
	(0.011)	(0.008)	(0.005)	(0.008)	(0.011)
Karnataka	-0.099***	0.946***	-0.088***	0.307***	-0.165***
	(0.007)	(0.003)	(0.004)	(0.007)	(0.007)
Kerala	-0.165***	0.762***	-0.001	0.230***	0.117***
	(0.006)	(0.006)	(0.003)	(0.005)	(0.012)

Madhya Pradesh	-0.213***	0.790***	-0.148***	0.732***	-0.283***
	(0.007)	(0.009)	(0.003)	(0.004)	(0.004)
Maharashtra	0.049***	0.806***	-0.248***	0.637***	0.096***
	(0.005)	(0.011)	(0.005)	(0.008)	(0.016)
Manipur	0.369***	1.268***	0.020***	1.154***	0.271***
	(0.021)	(0.017)	(0.006)	(0.013)	(0.012)
Meghalaya	0.171***	1.104***	-0.077***	0.243***	0.154***
	(0.016)	(0.009)	(0.003)	(0.004)	(0.014)
Mizoram	-0.212***	0.913***	-0.575***	0.231***	0.065***
	(0.009)	(0.007)	(0.003)	(0.007)	(0.013)
Nagaland	0.090***	1.109***	-0.318***	0.018***	0.065***
	(0.007)	(0.010)	(0.003)	(0.005)	(0.018)
Orissa	0.001	0.579***	0.019***	0.942***	-0.076***
	(0.006)	(0.014)	(0.003)	(0.005)	(0.012)
Puducherry	0.007	0.392***	-0.232***	0.720***	-0.092***
	(0.008)	(0.007)	(0.002)	(0.004)	(0.008)
Punjab	-0.297***	0.483***	-0.163***	0.574***	-0.370***
	(0.008)	(0.008)	(0.004)	(0.004)	(0.005)
Rajasthan	-0.355***	0.544***	-0.020***	0.620***	-0.248***
	(0.007)	(0.006)	(0.003)	(0.008)	(0.009)
Sikkim			-0.107***	0.249***	
			(0.003)	(0.005)	
Tamil Nadu	0.073***	0.637***	0.045***	0.849***	0.065***
	(0.011)	(0.011)	(0.006)	(0.009)	(0.007)
Tripura	0.203***	1.179***	-0.037***	0.292***	0.098***
	(0.003)	(0.011)	(0.004)	(0.004)	(0.006)
Uttar Pradesh	-0.148***	1.059***	-0.140***	0.863***	-0.144***
	(0.012)	(0.013)	(0.004)	(0.005)	(0.017)
Uttarakhand	-0.516***	0.830***	-0.368***	0.585***	-0.153***
	(0.009)	(0.010)	(0.004)	(0.006)	(0.014)
West Bengal	0.288***	1.047***	0.026***	0.580***	0.072***
	(0.011)	(0.010)	(0.003)	(0.005)	(0.012)
Constant	0.432***	-0.394***	0.845***	-0.217***	0.622***
	(0.033)	(0.040)	(0.020)	(0.029)	(0.039)
Observations	9,641	9,404	19,890	18,872	9,733
Adjusted R-squared	0.138	0.165	0.067	0.207	0.107

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 9. Works and Repairs at the School (Monitoring)

	(1) Repair index
Headmaster presence	0.011
	(0.064)
Monitoring	0.787***
	(0.085)
SMG spent	0.695***
	(0.064)
SDG spent	0.452***
	(0.059)
TLM grant spent	0.564***
	(0.067)
Log student enrollment	0.097***
	(0.031)
Andhra Pradesh	-0.510***
	(0.035)
Arunachal Pradesh	0.926***
	(0.088)
Assam	-1.796***
	(0.051)
Bihar	-3.594***
	(0.040)
Chhattisgarh	-2.405***
	(0.022)
Daman & Nagar Haveli	-0.883***
	(0.048)
Gujarat	0.458***
	(0.038)
Haryana	-1.916***
	(0.035)
Himachal Pradesh	-3.328***
	(0.049)
Jammu & Kashmir	-0.873***
	(0.043)
Jharkhand	-2.519***
	(0.042)
Karnataka	-0.433***
	(0.021)
Kerala	-0.631***
	(0.026)
Madhya Pradesh	-5.067***
	(0.085)
Maharashtra	-3.052***
	(0.040)
Manipur	-2.342***
	(0.101)
Meghalaya	-5.267***

	(0.094)
Mizoram	-2.468***
	(0.049)
Nagaland	-5.058***
	(0.085)
Orissa	-1.242***
	(0.061)
Puducherry	-0.126***
	(0.028)
Punjab	-1.056***
	(0.032)
Rajasthan	-1.875***
	(0.029)
Tamil Nadu	0.271***
	(0.079)
Tripura	-3.420***
	(0.093)
Uttar Pradesh	-3.047***
	(0.047)
Uttarakhand	-0.544***
	(0.050)
West Bengal	-2.574***
	(0.097)
Constant	3.023***
	(0.188)
Observations	10,653
Adjusted R-squared	0.360

Source: ASER-PAISA, 2009-2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 10. Presence of Learning Materials and Books Mandated by RTE

	(1) Learning materials	(2) Library books	(3) Learning materials	(4) Library books
Headmaster presence	0.039***	0.026**	0.028**	0.045***
	(0.009)	(0.012)	(0.014)	(0.016)
TLM grant spent	0.020***	0.042***	0.031***	0.056***
	(0.006)	(0.009)	(0.010)	(0.013)
Monitoring			0.025*	0.035**
			(0.013)	(0.016)
Log student-teacher ratio	-0.008*	-0.035***	-0.004	-0.039***
	(0.005)	(0.008)	(0.008)	(0.010)
Log enrollment	0.008*	0.065***	-0.006	0.052***
	(0.004)	(0.006)	(0.006)	(0.008)
2009	-0.001			
	(0.008)			
2010	-0.015**	-0.095***		
	(0.007)	(0.010)		
Andhra Pradesh	-0.075***	0.213***	-0.017*	0.238***
	(0.003)	(0.006)	(0.010)	(0.010)
Arunachal Pradesh	-0.493***	-0.519***	0.015	-0.193***
	(0.006)	(0.010)	(0.013)	(0.018)
Assam	-0.577***	-0.279***	-0.258***	-0.238***
	(0.009)	(0.013)	(0.006)	(0.011)
Bihar	-0.022***	0.179***	-0.408***	0.208***
	(0.008)	(0.018)	(0.020)	(0.023)
Chhattisgarh	-0.020***	0.332***	-0.019*	0.264***
	(0.006)	(0.010)	(0.010)	(0.013)
Daman & Diu	0.077***			
	(0.004)			
Goa	0.080***	0.266***	-0.011	0.146***
	(0.006)	(0.009)	(0.012)	(0.016)
Gujarat	0.074***	0.169***	0.007	0.010
	(0.003)	(0.005)	(0.007)	(0.008)
Haryana	-0.279***	-0.228***	-0.439***	0.207***
	(0.001)	(0.004)	(0.004)	(0.009)
Himachal Pradesh	0.336***	0.680***	0.242***	0.248***
	(0.012)	(0.016)	(0.015)	(0.021)
Jammu & Kashmir	0.029***	-0.448***	-0.280***	-0.396***
	(0.006)	(0.011)	(0.010)	(0.013)
Jharkhand	-0.358***	-0.500***	0.020	0.065***
	(0.008)	(0.007)	(0.016)	(0.009)
Karnataka	0.053***	0.143***	-0.021**	0.120***
	(0.004)	(0.004)	(0.008)	(0.011)
Kerala	0.066***	0.182***	-0.090***	0.229***
	(0.005)	(0.007)	(0.010)	(0.016)
Madhya Pradesh	0.048***	-0.067***	-0.227***	-0.100***
	(0.005)	(0.008)	(0.007)	(0.010)
Maharashtra	0.186***	0.499***	-0.042***	0.577***

	(0.005)	(0.010)	(0.012)	(0.014)
Manipur	-0.671***	-0.657***	-1.038***	-0.395***
	(0.006)	(0.012)	(0.020)	(0.020)
Meghalaya	-0.542***	-0.287***	-0.487***	-0.515***
	(0.003)	(0.008)	(0.013)	(0.019)
Mizoram	-0.341***	-0.535***	-0.157***	-0.632***
	(0.007)	(0.011)	(0.010)	(0.018)
Nagaland	-0.702***	-0.584***	-0.336***	-0.598***
	(0.005)	(0.012)	(0.014)	(0.019)
Orissa	-0.033***	0.150***	0.002	-0.222***
	(0.004)	(0.006)	(0.010)	(0.010)
Puducherry	0.073***	0.233***	-0.093***	0.190***
	(0.004)	(0.008)	(0.012)	(0.014)
Punjab	0.036***	0.342***	-0.001	0.078***
	(0.005)	(0.008)	(0.004)	(0.012)
Rajasthan	-0.199***	-0.150***	0.003	0.122***
	(0.004)	(0.006)	(0.006)	(0.007)
Sikkim	-0.215***	-0.189***		
	(0.007)	(0.012)		
Tamil Nadu	0.102***	-0.138***	-0.002	0.316***
	(0.008)	(0.009)	(0.009)	(0.018)
Tripura	-0.416***	-0.545***	-0.320***	-0.492***
	(0.003)	(0.007)	(0.013)	(0.018)
Uttar Pradesh	0.361***	0.619***	0.269***	0.234***
	(0.010)	(0.014)	(0.016)	(0.020)
Uttarakhand	-0.019**	-0.116***	-0.020*	0.098***
	(0.008)	(0.012)	(0.011)	(0.017)
West Bengal	-0.240***	-0.151***	-0.662***	-0.340***
	(0.004)	(0.007)	(0.014)	(0.016)
Constant	0.868***	0.517***	0.981***	0.538***
	(0.025)	(0.036)	(0.039)	(0.049)
Observations	23,960	17,089	8,147	8,465
Adjusted R-squared	0.164	0.253	0.176	0.251

Source: ASER-PAISA, 2009-2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. Library book information was not available in 2009. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 11. Receipt of Teaching Learning Materials, School Maintenance, and School Development Grants.

	(1) TLM grant received	(2) SMG received	(3) SDG received	(4) TLM grant received	(5) SMG received	(6) SDG received
Headmaster presence	0.120***	0.196***	0.184***	0.094***	0.157***	0.161***
	(0.011)	(0.011)	(0.011)	(0.015)	(0.015)	(0.016)
Teacher attendance	0.032***			0.011		
	(0.012)			(0.017)		
Log student enrollment	0.004	0.014***	0.013***	0.004	0.011**	0.017***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.006)
Monitoring				0.126***	0.135***	0.134***
				(0.017)	(0.015)	(0.015)
2009	-0.064***	-0.098***	-0.114***			
	(0.011)	(0.009)	(0.009)			
2010	-0.052***	-0.015**	-0.010			
	(0.010)	(0.008)	(0.009)			
Andhra Pradesh	0.041***	0.033***	-0.091***	0.358***	-0.013**	0.048***
	(0.005)	(0.002)	(0.003)	(0.009)	(0.005)	(0.006)
Arunachal Pradesh	0.066***	-0.516***	-0.721***	0.450***	0.145***	0.150***
	(0.004)	(0.005)	(0.006)	(0.015)	(0.015)	(0.016)
Assam	-0.024***	-0.048***	-0.453***	-0.003	-0.090***	-0.445***
	(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(0.006)
Bihar	-0.192***	-0.059***	-0.152***	0.741***	0.181***	0.381***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)
Chhattisgarh	-0.354***	-0.131***	-0.474***	0.327***	0.055***	0.058***
	(0.008)	(0.006)	(0.007)	(0.012)	(0.005)	(0.005)
Daman & Nagar Haveli	-0.039***				-0.379***	-0.082***
	(0.003)				(0.004)	(0.004)
Daman & Diu				0.322***		
				(0.005)		
Goa	-0.209***	0.066***	-0.183***	0.152***	-0.072***	-0.241***
	(0.006)	(0.004)	(0.004)	(0.011)	(0.007)	(0.009)
Gujarat	0.043***	0.076***	0.112***	0.073***	-0.248***	-0.246***
	(0.005)	(0.004)	(0.004)	(0.006)	(0.001)	(0.001)
Haryana	-0.060***	-0.004*	-0.098***	0.257***	0.010***	-0.494***
	(0.004)	(0.002)	(0.002)	(0.006)	(0.004)	(0.004)
Himachal Pradesh	-0.266***	0.049***	-0.324***	0.274***	0.199***	0.275***
	(0.013)	(0.008)	(0.010)	(0.023)	(0.009)	(0.010)
Jammu & Kashmir	-0.025***	0.102***	0.042***	0.171***	-0.212***	-0.480***
	(0.007)	(0.006)	(0.006)	(0.009)	(0.005)	(0.006)
Jharkhand	-0.192***	-0.105***	-0.100***	-0.056***	-0.182***	-0.187***
	(0.004)	(0.003)	(0.004)	(0.002)	(0.005)	(0.006)
Karnataka	0.016***	0.120***	0.069***	0.262***	-0.004**	-0.007***
	(0.006)	(0.004)	(0.005)	(0.005)	(0.002)	(0.002)
Kerala	0.046***	0.045***	-0.028***	0.379***	0.032***	-0.253***
	(0.002)	(0.004)	(0.005)	(0.009)	(0.002)	(0.003)
Madhya Pradesh	-0.061***	0.077***	-0.052***	0.213***	-0.644***	-0.768***
	(0.005)	(0.003)	(0.003)	(0.008)	(0.009)	(0.010)
Maharashtra	-0.199***	-0.112***	-0.436***	0.782***	0.157***	0.134***
	(0.007)	(0.005)	(0.006)	(0.013)	(0.006)	(0.006)
Manipur	-0.237***	-0.213***	-0.365***	-0.048***	-0.354***	-0.348***
	(0.007)	(0.006)	(0.007)	(0.017)	(0.016)	(0.017)
Meghalaya	-0.044***	-0.211***	-0.207***	0.455***	-0.416***	-0.411***

	(0.005)	(0.003)	(0.003)	(0.017)	(0.015)	(0.016)
Mizoram	-0.125***	-0.046***	-0.164***	0.357***	0.115***	-0.005
	(0.007)	(0.005)	(0.005)	(0.010)	(0.009)	(0.010)
Nagaland	-0.034***	0.134***	0.136***	0.451***	0.139***	0.141***
	(0.007)	(0.004)	(0.004)	(0.016)	(0.015)	(0.015)
Orissa	-0.105***	-0.071***	-0.215***	0.379***	0.094***	0.099***
	(0.005)	(0.003)	(0.003)	(0.006)	(0.007)	(0.008)
Puducherry		0.082***	0.080***	0.354***	0.067***	0.067***
		(0.003)	(0.003)	(0.005)	(0.006)	(0.006)
Punjab	-0.123***	0.052***	0.085***	0.032***	0.028***	-0.085***
	(0.005)	(0.002)	(0.002)	(0.005)	(0.003)	(0.004)
Rajasthan	-0.140***	-0.074***	-0.029***	0.143***	-0.062***	-0.473***
	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
Sikkim	-0.076***	-0.043***	-0.385***			
	(0.005)	(0.002)	(0.003)			
Tamil Nadu	-0.860***	-0.087***	-0.161***	-0.423***	-0.246***	-0.248***
	(0.006)	(0.004)	(0.005)	(0.010)	(0.010)	(0.010)
Tripura	-0.200***	-0.429***	-0.468***	0.004	-0.190***	-0.246***
	(0.004)	(0.003)	(0.004)	(0.016)	(0.015)	(0.015)
Uttar Pradesh	-0.367***	0.032***	-0.337***	0.019	0.116***	0.218***
	(0.012)	(0.008)	(0.009)	(0.019)	(0.010)	(0.010)
Uttarakhand	-0.081***	-0.320***	-0.319***	0.137***	-0.004	0.004
	(0.008)	(0.005)	(0.005)	(0.013)	(0.009)	(0.010)
West Bengal	-0.435***	0.037***	-0.122***	0.185***	-0.102***	-0.269***
	(0.006)	(0.004)	(0.005)	(0.015)	(0.015)	(0.015)
Constant	0.818***	0.619***	0.633***	0.428***	0.655***	0.622***
	(0.027)	(0.021)	(0.024)	(0.038)	(0.033)	(0.037)
Observations	25,152	30,540	30,540	8,596	10,653	10,653
Adjusted R-squared	0.189	0.103	0.116	0.140	0.132	0.144

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 12. Expenditure of Teaching Learning Materials, School Maintenance, and School Development Grants.

	(1)	(2)	(3)	(4)	(5)	(6)
	TLM grant spent if received	SMG spent if received	SDG spent if received	TLM grant spent if received	SMG spent if received	SDG spent if received
Headmaster presence	0.051***	0.070***	0.080***	0.060***	0.074***	0.079***
	(0.009)	(0.010)	(0.011)	(0.014)	(0.015)	(0.016)
Monitoring				0.009	0.030**	0.030**
				(0.012)	(0.014)	(0.015)
Log student enrollment	0.012***	0.027***	0.028***	0.015***	0.025***	0.027***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.006)
2009	-0.110***	-0.075***	-0.085***			
	(0.008)	(0.009)	(0.009)			
2010	-0.045***	0.030***	0.024***			
	(0.006)	(0.007)	(0.007)			
Andhra Pradesh	-0.165***	-0.006	0.041***	-0.147***	-0.164***	0.175***
	(0.003)	(0.005)	(0.003)	(0.006)	(0.002)	(0.003)
Arunachal Pradesh	0.063***	-0.064***	-0.199***	-0.590***	-0.292***	-0.709***
	(0.007)	(0.002)	(0.006)	(0.018)	(0.015)	(0.015)
Assam	-0.116***	0.110***	-0.067***	-0.120***	-0.002***	0.228***
	(0.004)	(0.005)	(0.006)	(0.003)	(0.000)	(0.005)
Bihar	0.072***	-0.089***	-0.114***	0.012	-0.603***	0.230***
	(0.006)	(0.004)	(0.008)	(0.010)	(0.007)	(0.006)
Chhattisgarh	-0.019***	-0.005**	0.011**	-0.015*	-0.186***	0.648***
	(0.004)	(0.002)	(0.005)	(0.008)	(0.004)	(0.004)
Daman & Nagar Haveli			-0.001		-0.173***	
			(0.004)		(0.006)	
Daman & Diu		-0.007*				0.229***
		(0.004)				(0.005)
Goa	-0.183***	0.166***	0.017***	-0.444***	-0.360***	-0.066***
	(0.005)	(0.006)	(0.003)	(0.006)	(0.008)	(0.011)
Gujarat	-0.124***	0.025***	0.119***	-0.334***	-0.334***	0.217***
	(0.003)	(0.001)	(0.004)	(0.000)	(0.000)	(0.003)
Haryana	-0.131***	0.041***	-0.049***	-0.002	0.001	0.229***
	(0.004)	(0.002)	(0.003)	(0.003)	(0.004)	(0.001)
Himachal Pradesh	-0.039***	0.034***	-0.011**	0.008	-0.126***	0.709***
	(0.004)	(0.005)	(0.005)	(0.009)	(0.007)	(0.011)
Jammu & Kashmir	-0.015***	0.027***	0.205***	-0.085***	-0.223***	0.047***
	(0.004)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Jharkhand	0.011***	0.153***	-0.026***	-0.382***	0.010	-0.185***
	(0.004)	(0.001)	(0.004)	(0.003)	(0.009)	(0.006)
Karnataka	-0.026***	0.154***	0.141***	-0.004***	-0.074***	0.015*
	(0.003)	(0.006)	(0.003)	(0.001)	(0.002)	(0.009)
Kerala	-0.119***	0.099***	0.005***	-0.228***	-0.056***	0.239***
	(0.004)	(0.004)	(0.002)	(0.001)	(0.004)	(0.004)
Madhya Pradesh	-0.233***	-0.021***	-0.061***	0.036***	0.048***	0.305***
	(0.004)	(0.003)	(0.004)	(0.007)	(0.008)	(0.016)
Maharashtra	0.075***	-0.036***	-0.155***	0.060***	-0.456***	0.195***
	(0.004)	(0.003)	(0.005)	(0.008)	(0.004)	(0.005)

Manipur	-0.203***	-0.467***	-0.365***	0.018***	0.031***	0.292***
	(0.005)	(0.006)	(0.005)	(0.007)	(0.007)	(0.016)
Meghalaya	-0.229***	-0.104***	0.086***	-0.313***	0.065***	0.279***
	(0.002)	(0.003)	(0.004)	(0.013)	(0.016)	(0.014)
Mizoram	-0.280***	-0.196***	-0.070***	-0.181***	-0.072***	0.119***
	(0.005)	(0.006)	(0.002)	(0.008)	(0.009)	(0.010)
Nagaland	-0.248***	-0.024***	0.051***	0.014	0.040***	0.271***
	(0.004)	(0.007)	(0.004)	(0.012)	(0.014)	(0.013)
Orissa	-0.198***	-0.075***	-0.054***	-0.185***	-0.177***	-0.123***
	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.009)
Puducherry	-0.041***	-0.018***	-0.013***	0.019***	-0.128***	0.101***
	(0.002)	(0.003)	(0.003)	(0.006)	(0.003)	(0.004)
Punjab	-0.153***	-0.053***	-0.110***	-0.144***	0.030***	0.257***
	(0.003)	(0.001)	(0.004)	(0.002)	(0.007)	(0.007)
Rajasthan	-0.261***	-0.107***	0.092***	-0.074***	-0.162***	-0.142***
	(0.003)	(0.004)	(0.003)	(0.002)	(0.002)	(0.004)
Sikkim	0.031***	0.191***	0.039***			
	(0.002)	(0.004)	(0.003)			
Tamil Nadu	-0.041***	0.048***	-0.328***	0.013***	0.010	0.239***
	(0.005)	(0.007)	(0.003)	(0.005)	(0.007)	(0.005)
Tripura	-0.378***	-0.042***	-0.237***	-0.113***	-0.132***	0.081***
	(0.003)	(0.004)	(0.004)	(0.012)	(0.014)	(0.012)
Uttar Pradesh	-0.135***	-0.058***	-0.098***	0.011	-0.070***	0.691***
	(0.004)	(0.002)	(0.004)	(0.008)	(0.005)	(0.009)
Uttarakhand	-0.127***	0.133***	0.115***	0.024***	-0.293***	-0.043***
	(0.004)	(0.008)	(0.003)	(0.008)	(0.003)	(0.003)
West Bengal	-0.312***	-0.092***	-0.434***	0.020	0.049***	0.261***
	(0.003)	(0.005)	(0.003)	(0.013)	(0.015)	(0.012)
Constant	0.942***	0.636***	0.623***	0.859***	0.772***	0.528***
	(0.020)	(0.024)	(0.022)	(0.032)	(0.035)	(0.040)
Observations	25,196	24,888	22,533	9,150	9,034	8,288
Adjusted R-squared	0.061	0.055	0.061	0.066	0.071	0.067

Source: ASER-PAISA, 2009-2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Monitoring information was not available in 2009 and 2010. All regressions use state and district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Appendix E: Regression Tables – DRC

Table 13. Student Attendance on the Day of the Survey

	Student attendance
Teacher attendance	0.0567**
	(0.0231)
Infrastructure index	0.00628
	(0.00753)
Learning materials	0.0520***
	(0.0125)
Library books	-0.000443
	(0.0197)
Blackboard	0.0288
	(0.0157)
Uniform scheme	0.00741
	(0.00934)
Textbook scheme	0.0299*
	(0.0136)
Log of student-teacher ratio	-0.00703
	(0.0149)
Log student enrollment	-0.00519
	(0.00815)
Constant	0.559***
	(0.0818)
Observations	1,207
Number of districts	9
Adjusted R-squared	0.022

Source: PAISA-DRC, 2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 14. Teacher Attendance on the Day of the Survey

	(1) Teacher attendance	(2) Teacher attendance	(3) Teacher attendance	(4) Teacher attendance	(5) Teacher attendance
Headmaster/Prabhari Attendance	-0.0891***	-0.0910***	-0.0902***	-0.0904***	-0.0903***
	(0.0240)	(0.0242)	(0.0238)	(0.0238)	(0.0235)
Infrastructure index	0.000154	0.000897	0.000903	0.000983	0.000557
	(0.00785)	(0.00749)	(0.00773)	(0.00749)	(0.00780)
Learning materials	-0.0223	-0.0134	-0.0132	-0.0132	-0.0135
	(0.0148)	(0.0186)	(0.0188)	(0.0196)	(0.0191)
Library books	-0.0103	-0.0179	-0.0167	-0.0167	-0.0161
	(0.0187)	(0.0203)	(0.0198)	(0.0203)	(0.0200)
Blackboard	0.0537**	0.0517**	0.0524**	0.0522**	0.0514**
	(0.0185)	(0.0178)	(0.0191)	(0.0172)	(0.0174)
Academic training	0.00626	0.00558	0.00532	0.00628	0.00576
	(0.0109)	(0.0111)	(0.0114)	(0.0115)	(0.0113)
Teacher display board	0.0513**	0.0515**	0.0511**	0.0505**	0.0515**
	(0.0162)	(0.0170)	(0.0167)	(0.0169)	(0.0168)
SMC has visited in past 3 months	-0.0271	-0.0229	-0.0224	-0.0228	-0.0256
	(0.0345)	(0.0315)	(0.0316)	(0.0320)	(0.0315)
BRC or CRC has visited in past 3 months	0.0125	0.0210	0.0222	0.0215	0.0211
	(0.0450)	(0.0491)	(0.0507)	(0.0500)	(0.0515)
Teacher complaints directed to SMC	0.00538	0.00626	0.00708	0.00242	0.00412
	(0.0187)	(0.0205)	(0.0196)	(0.0180)	(0.0181)
Teacher complaints directed to cluster	-0.00938	-0.00387	-0.00339	-0.00469	-0.00585
	(0.0269)	(0.0240)	(0.0246)	(0.0237)	(0.0237)
Teacher complaints directed to block	-0.0475	-0.0506	-0.0494	-0.0537*	-0.0527*
	(0.0304)	(0.0273)	(0.0268)	(0.0266)	(0.0265)
Teacher complaints directed to district	0.0211	0.0306	0.0320	0.0285	0.0269
	(0.0370)	(0.0365)	(0.0362)	(0.0360)	(0.0363)
Teacher complaints directed to panchayat	0.0779	0.0738	0.0776	0.0751	0.0761
	(0.0534)	(0.0545)	(0.0563)	(0.0548)	(0.0547)
Log student enrollment	0.0206	0.0181	0.0177	0.0193	0.0183
	(0.0133)	(0.0129)	(0.0124)	(0.0130)	(0.0129)
Log of student-teacher ratio	0.0144	0.0156	0.0160	0.0156	0.0161
	(0.0197)	(0.0202)	(0.0202)	(0.0203)	(0.0209)
Proportion TLM spent in 2009-2010	0.00677				
	(0.0197)				
Proportion TLM spent in 2010-2011	0.00117***				
	(0.000172)				
TLM spent by Q1 in 2009-2010		-0.0401			
		(0.0563)			
TLM spent by Q1 in 2010-2011		0.0280			
		(0.0735)			

TLM spent by Q2 in 2009-2010			-0.0155		
			(0.0251)		
TLM spent by Q2 in 2010-2011			0.0309		
			(0.0240)		
TLM spent by Q3 in 2009-2010				-0.0208	
				(0.0186)	
TLM spent by Q3 in 2010-2011				0.00230	
				(0.0176)	
TLM spent by Q4 in 2009-2010					-0.0207
					(0.0175)
TLM spent by Q4 in 2010-2011					0.0198
					(0.0208)
Constant	0.718***	0.719***	0.713***	0.720***	0.720***
	(0.0407)	(0.0514)	(0.0497)	(0.0510)	(0.0551)
Observations	1,117	1,154	1,154	1,154	1,154
Number of districts	9	9	9	9	9
Adjusted R-squared	0.022	0.023	0.023	0.023	0.024
P-value of Joint Test of TLM Variables	0.000472	0.781	0.469	0.554	0.252
P-value of Joint Test of Teacher Complaints Variables	0.00623	0.00229	0.00326	0.00266	0.00232

Source: PAISA-DRC, 2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 15. Teacher Attendance on the Day of the Survey

VARIABLES	(1) Teacher attendance	(2) Teacher attendance
Headmaster/Prabhari Attendance col1: in Jaipur, col2: aggregate	-0.185***	-0.0875***
	(0.00812)	(0.0242)
Infrastructure index	-0.000924	0.000828
	(0.00821)	(0.00814)
Learning materials	-0.0224	-0.0205
	(0.0164)	(0.0143)
Library books	-0.0127	-0.0117
	(0.0186)	(0.0188)
Blackboard	0.0540**	0.0470**
	(0.0197)	(0.0196)
Academic training	0.00630	0.00606
	(0.0107)	(0.0112)
Teacher display board col1: aggregate, col2: in Jaipur	0.0558***	-0.00744
	(0.0165)	(0.0108)
SMC has visited in past 3 months	-0.0261	-0.0317
	(0.0349)	(0.0366)
BRC or CRC has visited in past 3 months	0.0113	0.00938
	(0.0432)	(0.0455)
Teacher complaints directed to SMC	0.00684	0.00573
	(0.0192)	(0.0182)
Teacher complaints directed to cluster	-0.00705	-0.0118
	(0.0281)	(0.0265)
Teacher complaints directed to block	-0.0413	-0.0450
	(0.0335)	(0.0307)
Teacher complaints directed to district	0.0237	0.0169
	(0.0361)	(0.0374)
Teacher complaints directed to panchayat	0.0882	0.0755
	(0.0567)	(0.0522)
Log student enrollment	0.0233	0.0193
	(0.0141)	(0.0132)
Log of student-teacher ratio	0.0116	0.0168
	(0.0195)	(0.0200)
Proportion TLM spent in 2009-2010	0.00969	0.00635
	(0.0191)	(0.0198)
Proportion TLM spent in 2010-2011	0.000979***	0.00126***
	(0.000118)	(0.000163)
Headmaster/Prabhari Attendance*Jalpaiguri	0.113***	
	(0.0159)	
Headmaster/Prabhari Attendance*Kangra	0.136***	
	(0.00617)	
Headmaster/Prabhari Attendance*Medak	-0.00779	
	(0.0112)	
Headmaster/Prabhari Attendance*Nalanda	0.123***	

	(0.0162)	
Headmaster/Prabhari Attendance*Purnea	0.0460***	
	(0.0127)	
Headmaster/Prabhari Attendance*Sagar	0.145***	
	(0.00746)	
Headmaster/Prabhari Attendance* Satara	0.172***	
	(0.00713)	
Headmaster/Prabhari Attendance*Udaipur	0.101***	
	(0.0106)	
Teacher display board*Kangra		0.162***
		(0.0135)
Teacher display board*Medak		0.0448***
		(0.00985)
Teacher display board*Nalanda		0.0268**
		(0.00906)
Teacher display board*Purnea		0.106***
		(0.0102)
Teacher display board*Sagar		0.0619***
		(0.0146)
Teacher display board*Udaipur		0.0206***
		(0.00562)
Constant	0.716***	0.727***
	(0.0392)	(0.0407)
Observations	1,117	1,117
Number of districts	9	9
Adjusted R-squared	0.023	0.020
P-value of Joint Test of TLM Variables	3.65e-05	0.000186
P-value of Joint Test of Teacher Complaints Variables	0.00134	0.00623
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Jalpaiguri	-0.0724	
T-stat	-8.047	
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Kangra	-0.0494	0.155
T-stat	-10.00	40.02
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Medak	-0.193	0.0373
T-stat	-18.04	5.254
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Nalanda	-0.0627	0.0194
T-stat	-5.439	5.240
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Purnea	-0.139	0.0988
T-stat	-8.210	13.16
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Sagar	-0.0403	0.0544
T-stat	-5.584	9.673
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Satara	-0.0133	
T-stat	-1.636	
col1: Headmaster/Prabhari Attendance, col2: Teacher display board in Udaipur	-0.0843	0.0132
T-stat	-8.612	1.496

Source: PAISA-DRC, 2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. The regressions in this table work off of the regression in column 1 of Table 14, using proportion of TLM spent, and are meant to both test the

robustness of the negative effect of headmaster presence and the robustness of the display board effect. The first columns looks at district-specific Headmaster/Prabhari Attendance while the second column looks at district-specific Teacher display board effects. District-specific coefficients of Headmaster/Prabhari Attendance and Teacher display boards have been calculated by adding the interacted term to the un-interacted term in each respective column. The total district-specific effects are presented in the bottom half of the table. T-statistics are below the coefficients. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 16. Teacher Attendance on the Day of the Survey

	(1) Teacher attendance	(2) Teacher attendance	(3) Teacher attendance
Headmaster/Prabhari Appointed		-0.0446	
		(0.0244)	
Headmaster/Prabhari Attendance			-0.0891***
			(0.0240)
Infrastructure index	-0.00114	-0.00137	0.000154
	(0.00873)	(0.00851)	(0.00785)
Learning materials	-0.0266*	-0.0271*	-0.0223
	(0.0141)	(0.0141)	(0.0148)
Library books	-0.0100	-0.00913	-0.0103
	(0.0189)	(0.0194)	(0.0187)
Blackboard	0.0569**	0.0582**	0.0537**
	(0.0194)	(0.0183)	(0.0185)
Academic training	-0.00115	0.00255	0.00626
	(0.0102)	(0.0103)	(0.0109)
Teacher display board	0.0505**	0.0486**	0.0513**
	(0.0173)	(0.0172)	(0.0162)
SMC has visited in past 3 months	-0.0285	-0.0251	-0.0271
	(0.0320)	(0.0330)	(0.0345)
BRC or CRC has visited in past 3 months	0.0115	0.0106	0.0125
	(0.0469)	(0.0465)	(0.0450)
Teacher complaints directed to SMC	0.0182	0.0119	0.00538
	(0.0194)	(0.0203)	(0.0187)
Teacher complaints directed to cluster	0.00363	-0.00423	-0.00938
	(0.0284)	(0.0260)	(0.0269)
Teacher complaints directed to block	-0.0342	-0.0424	-0.0475
	(0.0340)	(0.0336)	(0.0304)
Teacher complaints directed to district	0.0256	0.0266	0.0211
	(0.0388)	(0.0381)	(0.0370)
Teacher complaints directed to panchayat	0.109*	0.101*	0.0779
	(0.0511)	(0.0524)	(0.0534)
Log student enrollment	0.00857	0.0172	0.0206
	(0.0117)	(0.0120)	(0.0133)
Log of student-teacher ratio	0.0184	0.0158	0.0144
	(0.0184)	(0.0180)	(0.0197)
Proportion TLM spent in 2009-2010	0.00274	0.00463	0.00677
	(0.0206)	(0.0193)	(0.0197)
Proportion TLM spent in 2010-2011	0.00147***	0.00131***	0.00117***
	(0.000116)	(0.000165)	(0.000172)
Constant	0.693***	0.702***	0.718***
	(0.0352)	(0.0363)	(0.0407)
Observations	1,117	1,117	1,117
Number of districts	9	9	9

Adjusted R-squared	0.005	0.007	0.022
P-value of Joint Test of TLM Variables	0.00000	0.000109	0.000472
P-value of Joint Test of Teacher Complaints Variables	0.00145	0.00327	0.00623

Source: PAISA-DRC, 2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. The regressions in this table work off of the regression in column 1 of Table 14, using proportion of TLM spent, and are meant to both test the robustness of the negative effect of headmaster presence by using different measures of headmaster engagement in the school. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 17. Headmaster Attendance on the Day of the Survey

	Headmaster/Prabhari Attendance
Teacher display board	0.00797
	(0.0282)
SMC has visited in past 3 months	0.0202
	(0.0378)
BRC or CRC has visited in past 3 months	0.0122
	(0.0353)
Log student enrollment	0.119***
	(0.0203)
Constant	0.130
	(0.104)
Observations	1,224
Number of districts	9
Adjusted R-squared	0.038

Source: PAISA-DRC, 2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 18: Presence of Infrastructure Mandated by RTE at the School

	(1) Infrastructure Index	(2) 1 Classroom Per Teacher	(3) Office	(4) Girl's toilet	(5) Boy's toilet	(6) Water facility	(7) Playground	(8) Boundary wall
Headmaster/Prabhari Attendance	0.0666	0.0400	0.0339	0.0174	-0.0271	0.0261	0.0761*	-0.00665
	(0.117)	(0.0691)	(0.0398)	(0.0494)	(0.0469)	(0.0227)	(0.0344)	(0.0369)
Grant display board (in Jaipur)	0.813***	-0.0316	-0.275***	0.103***	0.0878**	0.0138	-0.0168	0.326***
	(0.0750)	(0.0287)	(0.0355)	(0.0296)	(0.0377)	(0.0175)	(0.0202)	(0.0284)
SMC has visited in past 3 months	0.103	0.0971**	-0.0376	0.0680	0.0824**	0.0571	0.0194	0.108***
	(0.112)	(0.0359)	(0.0349)	(0.0578)	(0.0336)	(0.0675)	(0.0433)	(0.0259)
BRC or CRC has visited in past 3 months	-0.00837	0.0190	0.0191	0.00978	-0.0592	-0.0324	-0.0232	-0.0455
	(0.0485)	(0.0594)	(0.0502)	(0.0439)	(0.0452)	(0.0676)	(0.0508)	(0.0355)
Infra complaints directed to SMC	0.221*	-0.0473	-0.0686	-0.0446	0.00441	0.0301	0.0159	0.0446
	(0.112)	(0.0560)	(0.0446)	(0.0430)	(0.0499)	(0.0567)	(0.0403)	(0.0457)
Infra complaints directed to cluster	0.0244	-0.0416	-0.0570	-0.0680**	-0.0194	0.0376	-0.0645	0.0172
	(0.0369)	(0.0642)	(0.0495)	(0.0219)	(0.0325)	(0.0572)	(0.0545)	(0.0417)
Infra complaints directed to block	0.104	-0.0222	-0.129**	-0.0586	0.0305	0.0480	-0.0504	0.0256
	(0.149)	(0.0546)	(0.0454)	(0.0637)	(0.0450)	(0.0740)	(0.0621)	(0.0545)
Infra complaints directed to district	0.252	-0.158	0.0129	-0.146*	0.0427	0.0871	-0.0498	0.0935
	(0.193)	(0.117)	(0.0499)	(0.0729)	(0.0704)	(0.0968)	(0.122)	(0.0546)
Infra complaints directed to panchayat	0.134*	-0.101*	-0.0712	-0.0412	-0.0576	0.0300	-0.0291	0.0505
	(0.0681)	(0.0504)	(0.0466)	(0.0404)	(0.0490)	(0.0665)	(0.0532)	(0.0378)
Log student enrollment	0.393***	-0.169***	0.178***	0.0785***	0.0737***	0.0672**	0.123***	0.129***
	(0.111)	(0.0216)	(0.0297)	(0.0203)	(0.0214)	(0.0199)	(0.0207)	(0.0269)
SMG spent by Q4 in 2009-2010	0.00481	0.0250	-0.0544**	0.0490	0.0609	0.0182	-0.00704	-0.00320
	(0.0831)	(0.0356)	(0.0164)	(0.0276)	(0.0462)	(0.0318)	(0.0297)	(0.0305)
SMG spent by Q4 in 2010-2011	0.205***	0.0358	0.0288	0.0400	0.0433*	0.0221	0.0822*	0.0564*
	(0.0530)	(0.0494)	(0.0379)	(0.0236)	(0.0212)	(0.0139)	(0.0397)	(0.0269)
Grant display board*Kangra	-0.761***	-0.163***	0.291***	-0.0526	-0.0355	0.0266	0.139***	-0.242***
	(0.0916)	(0.0324)	(0.0411)	(0.0369)	(0.0503)	(0.0185)	(0.0259)	(0.0324)
Grant display board*Medak	-0.789***	0.173***	0.273***	0.0394*	-0.00679	-0.00578	0.0903***	-0.395***
	(0.0369)	(0.0205)	(0.0224)	(0.0209)	(0.0305)	(0.0124)	(0.0113)	(0.0158)
Grant display board*Nalanda	-0.578***	0.179***	0.480***	0.0618**	0.0858***	-0.115***	-0.0550*	-0.417***
	(0.0403)	(0.0235)	(0.0245)	(0.0186)	(0.0251)	(0.0178)	(0.0242)	(0.0180)
Grant display board*Purnea	-0.0314	0.142***	0.285***	0.152***	0.182***	0.0843***	0.0405**	-0.0789***
	(0.0568)	(0.0219)	(0.0297)	(0.0282)	(0.0334)	(0.0155)	(0.0165)	(0.0193)
Grant display board*Sagar	-0.737***	-0.0884***	0.219***	-0.0482	-0.123**	0.229***	0.0599**	-0.203***
	(0.0809)	(0.0263)	(0.0423)	(0.0396)	(0.0456)	(0.0131)	(0.0192)	(0.0344)

Grant display board*Satara	-0.396***	0.251***	0.123**	0.0364	0.0562	0.125***	0.202***	-0.178***
	(0.0794)	(0.0315)	(0.0473)	(0.0455)	(0.0523)	(0.0148)	(0.0231)	(0.0356)
Grant display board*Udaipur	-0.657***	0.0625**	0.190***	0.0257	-0.0170	0.0597***	-0.0174	-0.325***
	(0.0688)	(0.0249)	(0.0292)	(0.0241)	(0.0332)	(0.00921)	(0.0109)	(0.0245)
Constant	-2.097***	1.271***	-0.243*	-0.0139	0.000385	0.386**	-0.0703	-0.417**
	(0.562)	(0.149)	(0.107)	(0.129)	(0.121)	(0.150)	(0.123)	(0.147)
Observations	1,182	1,161	1,159	1,066	1,015	1,036	1,178	1,164
Number of districts	9	9	9	9	9	8	9	9
Adjusted R-squared	0.086	0.078	0.090	0.040	0.038	0.016	0.049	0.066
P-value of Joint Test of SMG Variables	0.0146	0.596	0.0279	0.218	0.106	0.167	0.150	0.173
P-value of Joint Test of Infra Complaints Variables	0.203	0.0227	0.101	0.0259	0.366	0.927	0.428	0.322
Grant display board in Kangra	0.0516	-0.194	0.0151	0.0506	0.0523	0.0404	0.122	0.0838
T-stat	1.102	-18.24	1.198	5.339	3.280	7.679	12.18	9.616
Grant display board in Medak	0.0237	0.141	-0.00205	0.143	0.0810	0.00802	0.0735	-0.0691
T-stat	0.342	9.147	-0.102	7.281	3.705	0.421	3.861	-3.116
Grant display board in Nalanda	0.235	0.148	0.205	0.165	0.174	-0.101	-0.0719	-0.0909
T-stat	5.570	14.23	14.24	9.849	12.18	-9.575	-5.451	-6.257
Grant display board in Purnea	0.782	0.111	0.00921	0.255	0.270	0.0981	0.0237	0.247
T-stat	17.34	10.89	0.945	24.12	26.42	24.55	2.647	21.96
Grant display board in Sagar	0.0760	-0.120	-0.0563	0.0550	-0.0357	0.243	0.0430	0.123
T-stat	3.633	-11.40	-5.964	3.953	-3.067	24.32	4.159	10.67
Grant display board in Satara	0.417	0.219	-0.153	0.140	0.144	0.139	0.185	0.147
T-stat	11.04	12.58	-9.416	6.418	7.044	8.182	14.71	7.621
Grant display board in Udaipur	0.156	0.0308	-0.0853	0.129	0.0708	0.0735	-0.0342	0.000668
T-stat	7.361	3.686	-8.762	13.83	12.65	5.973	-2.990	0.0911

Source: PAISA-DRC, 2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Results of tests of the effect of the timing of grant spending are not shown. The results of that analysis indicated that spending the grants at the beginning versus the end of the year did not explain much more variation in infrastructure, repairs, and materials. Although the variation explained did not fluctuate much, we proceeded with using the fourth quarter of spending because that explained the most for the infrastructure index. We also test the robustness of the display board effect by interacting it with districts. District-specific coefficients of Grant display boards have been calculated by adding the interacted term to the un-interacted term in each respective column. The total district-specific effects are presented in the bottom half of the table. T-statistics are below the coefficients. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 19. Works and Repairs at the School

	(1) Repairs Index	(2) White Washing	(3) Boundary Wall Repair	(4) New Classroom Activity	(5) Major Repairs	(6) Toilet Repair	(7) Water Facility Repair
headmaster/Prabhari Attendance	0.0943	0.0585	0.00924	0.0340	0.0699	0.0497	0.0305
	(0.0749)	(0.0317)	(0.0255)	(0.0411)	(0.0414)	(0.0376)	(0.0311)
Grant display board (in Jaipur)	0.0858	-0.0101	0.0273*	-0.0719**	0.278***	0.0610***	-0.168***
	(0.0621)	(0.0191)	(0.0125)	(0.0256)	(0.0105)	(0.0170)	(0.0157)
SMC has visited in past 3 months	-0.0465	-0.0229	0.0327	-0.0395	0.0392	-0.0707	-0.0781**
	(0.0951)	(0.0478)	(0.0427)	(0.0757)	(0.0445)	(0.0493)	(0.0333)
BRC or CRC has visited in past 3 months	0.0419	0.121	-0.00301	-0.00784	-0.0201	-0.00437	0.0557
	(0.0904)	(0.0751)	(0.0346)	(0.0300)	(0.0416)	(0.0231)	(0.0475)
Infra complaints directed to SMC	0.0458	0.00148	0.0114	-0.0231	0.0586	-0.0412	0.0774
	(0.0661)	(0.0814)	(0.0310)	(0.0285)	(0.0380)	(0.0358)	(0.0495)
Infra complaints directed to cluster	0.0972	-0.00389	-0.00316	0.00649	0.0500	-0.0257	0.0323
	(0.0573)	(0.0685)	(0.0247)	(0.0313)	(0.0453)	(0.0321)	(0.0352)
Infra complaints directed to block	0.120	-0.0203	0.0405	0.0598	-0.0313	-0.0228	0.0281
	(0.0729)	(0.0874)	(0.0426)	(0.0353)	(0.0550)	(0.0612)	(0.0426)
Infra complaints directed to district	0.00715	-0.0276	0.0558	0.133	0.0816	-0.0112	-0.0548
	(0.137)	(0.119)	(0.0636)	(0.0916)	(0.0535)	(0.0419)	(0.0702)
Infra complaints directed to panchayat	0.0849	-0.0319	-0.0242	-0.0670**	0.00521	-0.00470	0.0423
	(0.0762)	(0.0451)	(0.0317)	(0.0211)	(0.0387)	(0.0319)	(0.0238)
Log student enrollment	0.0643	0.0291	0.0593***	0.130***	0.0322**	-0.000940	0.0456***
	(0.0393)	(0.0236)	(0.0165)	(0.0263)	(0.00961)	(0.0326)	(0.0124)
SMG spent by Q4 in 2009-2010	0.199	0.0834***	0.00755	-0.00875	0.0210	-0.00236	-0.0467
	(0.149)	(0.0230)	(0.0229)	(0.0270)	(0.0283)	(0.0286)	(0.0256)
SMG spent by Q4 in 2010-2011	-0.122**	0.0704	0.0189	0.0297	0.0497	0.0123	0.0144
	(0.0492)	(0.0458)	(0.0264)	(0.0427)	(0.0324)	(0.0290)	(0.0305)
SDG spent by Q4 in 2009-2010	-0.0873	-0.0573	-0.0151	-0.0106	0.00499	-0.000298	0.0416
	(0.126)	(0.0403)	(0.0116)	(0.0286)	(0.0242)	(0.0362)	(0.0333)
SDG spent by Q4 in 2010-2011	0.0434	0.0495	-0.0327	-0.0228	-0.0228	0.0277	0.00205
	(0.0820)	(0.0619)	(0.0302)	(0.0557)	(0.0366)	(0.0356)	(0.0297)
Grant display board*Kangra	-0.347***	-0.0211	-0.162***	0.216***	-0.276***	0.0736***	0.317***
	(0.0613)	(0.0192)	(0.0163)	(0.0275)	(0.0156)	(0.0167)	(0.0159)
Grant display board*Medak	-0.0729	-0.0103	-0.0686***	0.0852***	-0.510***	-0.0408*	0.211***
	(0.0582)	(0.0143)	(0.0143)	(0.0155)	(0.0120)	(0.0178)	(0.0291)
Grant display board*Nalanda	0.213***	0.0140	0.147***	0.227***	-0.250***	-0.00207	0.312***
	(0.0596)	(0.0190)	(0.0111)	(0.0277)	(0.00713)	(0.0126)	(0.0105)
Grant display board*Purnea	0.320***	0.255***	0.0773***	0.194***	-0.348***	0.00169	0.241***
	(0.0460)	(0.0186)	(0.0122)	(0.0178)	(0.00938)	(0.0124)	(0.0141)
Grant display board*Sagar	-0.0108	0.00401	0.00677	0.139***	-0.296***	-0.0357**	0.0946***
	(0.0465)	(0.0240)	(0.0179)	(0.0234)	(0.0128)	(0.0153)	(0.0187)
Grant display board*Satara	-0.00896	-0.0745**	-0.132***	0.0782***	-0.297***	-0.396***	0.0777**
	(0.0473)	(0.0268)	(0.0221)	(0.0214)	(0.0239)	(0.0134)	(0.0320)
Grant display board*Udaipur	0.107	0.0993***	0.0845***	0.167***	-0.279***	0.0370	0.240***

	(0.0578)	(0.0138)	(0.0100)	(0.0223)	(0.0105)	(0.0203)	(0.0144)
Constant	-0.270	0.421***	-0.164*	-0.306	-0.0656	0.301	-0.0752
	(0.200)	(0.118)	(0.0850)	(0.174)	(0.0674)	(0.199)	(0.0691)
Observations	1,182	1,179	1,176	1,171	1,173	1,173	1,177
Number of districts	9	9	9	9	9	9	9
Adjusted R-squared	0.002	0.039	0.018	0.061	0.019	-0.003	0.015
P-value of Joint Test of SMG Variables	0.0898	0.00277	0.502	0.780	0.333	0.906	0.155
P-value of Joint Test of SDG Variables	0.568	0.396	0.0720	0.677	0.824	0.734	0.485
P-value of Joint Test of Infra Complaints Variables	0.432	0.736	0.398	0.000729	0.134	0.786	0.365
Grant display board in Kangra	-0.261	-0.0311	-0.134	0.144	0.00221	0.135	0.148
T-stat	-13.87	-4.164	-15.11	13.66	0.293	7.537	44.66
Grant display board in Medak	0.0129	-0.0204	-0.0413	0.0133	-0.232	0.0201	0.0424
T-stat	0.732	-0.901	-4.729	0.662	-20.44	0.761	1.743
Grant display board in Nalanda	0.299	0.00396	0.174	0.156	0.0278	0.0589	0.144
T-stat	18.83	0.548	44.26	8.797	2.252	3.976	18.56
Grant display board in Purnea	0.406	0.245	0.105	0.122	-0.0706	0.0626	0.0725
T-stat	19.17	21.60	13.56	11.28	-8.346	3.726	9.391
Grant display board in Sagar	0.0750	-0.00608	0.0341	0.0666	-0.0179	0.0253	-0.0736
T-stat	3.001	-0.541	5.201	9.374	-2.022	6.478	-12.49
Grant display board in Satara	0.0769	-0.0845	-0.105	0.00633	-0.0191	-0.335	-0.0906
T-stat	2.762	-6.057	-9.087	0.866	-1.054	-24.54	-4.244
Grant display board in Udaipur	0.193	0.0892	0.112	0.0952	-0.00107	0.0979	0.0717
T-stat	11.19	8.111	15.65	13.69	-0.155	12.47	12.83

Source: PAISA-DRC, 2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Results of tests of the effect of the timing of grant spending are not shown. The results of that analysis indicated that spending the grants at the beginning versus the end of the year did not explain much more variation in infrastructure, repairs, and materials. Although the variation explained did not fluctuate much, we proceeded with using the fourth quarter of spending because that explained the most for the repairs index. We also test the robustness of the display board effect by interacting it with districts. District-specific coefficients of Grant display boards have been calculated by adding the interacted term to the un-interacted term in each respective column. The total district-specific effects are presented in the bottom half of the table. T-statistics are below the coefficients. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 20. Learning Materials, Books, Incentives Present at the School

	(1) Uniform Scheme	(2) Textbook Scheme	(3) Library books	(4) Learning Materials	(5) Blackboard
Headmaster/Prabhari Attendance	0.0271	0.0192	0.0323	0.0364	0.000197
	(0.0204)	(0.0142)	(0.0507)	(0.0320)	(0.0161)
Grant display board (in Jaipur)	0.106***	0.0137	0.149***	0.0943***	0.0902***
	(0.0200)	(0.00750)	(0.0220)	(0.0131)	(0.0139)
SMC has visited in past 3 months	0.0794	0.0364***	0.0625	-0.0789*	-0.0585*
	(0.0515)	(0.0106)	(0.0382)	(0.0365)	(0.0305)
BRC or CRC has visited in past 3 months	0.0355	0.0154	-0.00920	0.0440	-0.0437**
	(0.0431)	(0.00954)	(0.0322)	(0.0383)	(0.0156)
Infra complaints directed to SMC	0.0162	-0.0197	0.0596	0.134***	-0.0369
	(0.0521)	(0.0144)	(0.0484)	(0.0286)	(0.0287)
Infra complaints directed to cluster	0.0568	0.0275	0.0130	0.0163	-0.00920
	(0.0541)	(0.0246)	(0.0434)	(0.0364)	(0.0262)
Infra complaints directed to block	0.0410	0.00415	-0.0214	0.0609	-0.0734***
	(0.0484)	(0.0175)	(0.0617)	(0.0386)	(0.0162)
Infra complaints directed to district	-0.169**	-0.0397	0.179***	0.0518	-0.0447
	(0.0639)	(0.0222)	(0.0469)	(0.0824)	(0.0687)
Infra complaints directed to panchayat	0.0487**	-0.0408	-0.00133	0.0356	-0.0420
	(0.0211)	(0.0265)	(0.0552)	(0.0506)	(0.0326)
Log student enrollment	0.00608	0.00392	0.0563*	0.0107	0.0152
	(0.0152)	(0.00563)	(0.0302)	(0.0174)	(0.0177)
TLM spent by Q2 in 2009-2010			-0.0113	-0.0398	-0.00987
			(0.0340)	(0.0254)	(0.0146)
TLM spent by Q2 in 2010-2011			0.0122	-0.0328	0.0203
			(0.0384)	(0.0253)	(0.0228)
Grant display board*Kangra	-0.381***	0.00301	-0.0644*	-0.0108	-0.0129
	(0.0233)	(0.00750)	(0.0295)	(0.0202)	(0.0147)
Grant display board*Medak	-0.0836***	-0.0337***	0.00660	0.0954***	-0.0606***
	(0.0175)	(0.00843)	(0.0131)	(0.0167)	(0.0143)
Grant display board*Nalanda	0.104***	0.102***	-0.171***	0.0190	0.00148
	(0.0222)	(0.00843)	(0.0139)	(0.0162)	(0.0134)
Grant display board*Purnea	-0.0744***	-0.126***	0.00309	-0.0519***	0.205***
	(0.0191)	(0.00791)	(0.0178)	(0.0114)	(0.00890)
Grant display board*Sagar	-0.0316	-0.0143*	0.0770***	0.0742***	-0.0667***
	(0.0215)	(0.00757)	(0.0214)	(0.0158)	(0.0162)
Grant display board*Satara	-0.0342	-0.0126	0.0733**	-0.333***	-0.0546**
	(0.0249)	(0.00953)	(0.0254)	(0.0179)	(0.0212)
Grant display board*Udaipur	-0.125***	-0.0141	0.0343	-0.0604***	-0.0405**
	(0.0169)	(0.00772)	(0.0224)	(0.0137)	(0.0126)
Constant	0.204*	0.884***	0.239	0.667***	0.961***
	(0.0892)	(0.0430)	(0.179)	(0.0950)	(0.0716)

Observations	1,208	1,217	1,177	1,172	1,171
Number of districtid	9	9	9	9	9
Adjusted R-squared	0.019	0.017	0.022	0.024	0.032
P-value of Joint Test of TLM Variables			0.750	0.248	0.501
P-value of Joint Test of Infra Complaints Variables	0.0331	0.395	0.0413	0.00192	2.61e-05
Grant display board in Kangra	-0.275	0.0168	0.0844	0.0835	0.0772
T-stat	-66.62	13.15	6.624	8.136	16.58
Grant display board in Medak	0.0223	-0.0200	0.155	0.190	0.0296
T-stat	1.760	-5.424	11.07	15.74	2.860
Grant display board in Nalanda	0.210	0.116	-0.0222	0.113	0.0917
T-stat	41.40	28.00	-1.485	9.430	20.13
Grant display board in Purnea	0.0315	-0.112	0.152	0.0424	0.295
T-stat	6.707	-33.47	11.60	8.069	48.20
Grant display board in Sagar	0.0743	-0.000513	0.226	0.169	0.0235
T-stat	8.959	-0.311	36.52	22.95	7.734
Grant display board in Satara	0.0717	0.00112	0.222	-0.239	0.0355
T-stat	5.730	0.325	24.33	-32.08	3.675
Grant display board in Udaipur	-0.0193	-0.000322	0.183	0.0339	0.0497
T-stat	-2.842	-0.247	29.05	5.982	13.07

Source: PAISA-DRC, 2011.

*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Results of tests of the effect of the timing of grant spending are not shown. The results of that analysis indicated that spending the grants at the beginning versus the end of the year did not explain much more variation in infrastructure, repairs, and materials. Although the variation explained did not fluctuate much, we proceeded with using the second quarter of spending because that explained the most for the learning materials. We also test the robustness of the display board effect by interacting it with districts. District-specific coefficients of Grant display boards have been calculated by adding the interacted term to the un-interacted term in each respective column. The total district-specific effects are presented in the bottom half of the table. T-statistics are below the coefficients. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 21. Receipt of SMG, SDG, and TLM Grant

	(1) SMG Received	(2) SDG Received	(3) TLM Received
Headmaster/Prabhari attendance	0.0975	0.0903	0.0485**
	(0.0864)	(0.0753)	(0.0178)
Grant display board	0.0829	0.00115	0.0436*
	(0.0495)	(0.0239)	(0.0204)
SMC has visited in past 3 months	0.128	0.0268	-0.0397
	(0.0782)	(0.0153)	(0.0233)
BRC or CRC has visited in past 3 months	0.0769	0.0131	-0.0113
	(0.0442)	(0.0386)	(0.0408)
Log student enrollment	-0.00536	0.00205	-0.00180
	(0.0322)	(0.0155)	(0.00818)
Constant	0.602***	0.774***	0.953***
	(0.166)	(0.0733)	(0.0698)
Observations	1,182	1,182	1,182
Number of districts	9	9	9
Adjusted R-squared	0.037	0.015	0.011

Source: PAISA-DRC, 2011.
*** p<0.01, ** p<0.05, * p<0.1
NOTE: See detailed descriptions of each variable in Appendix B. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

Table 22. Average Lag between Grant Receipt and Expenditure

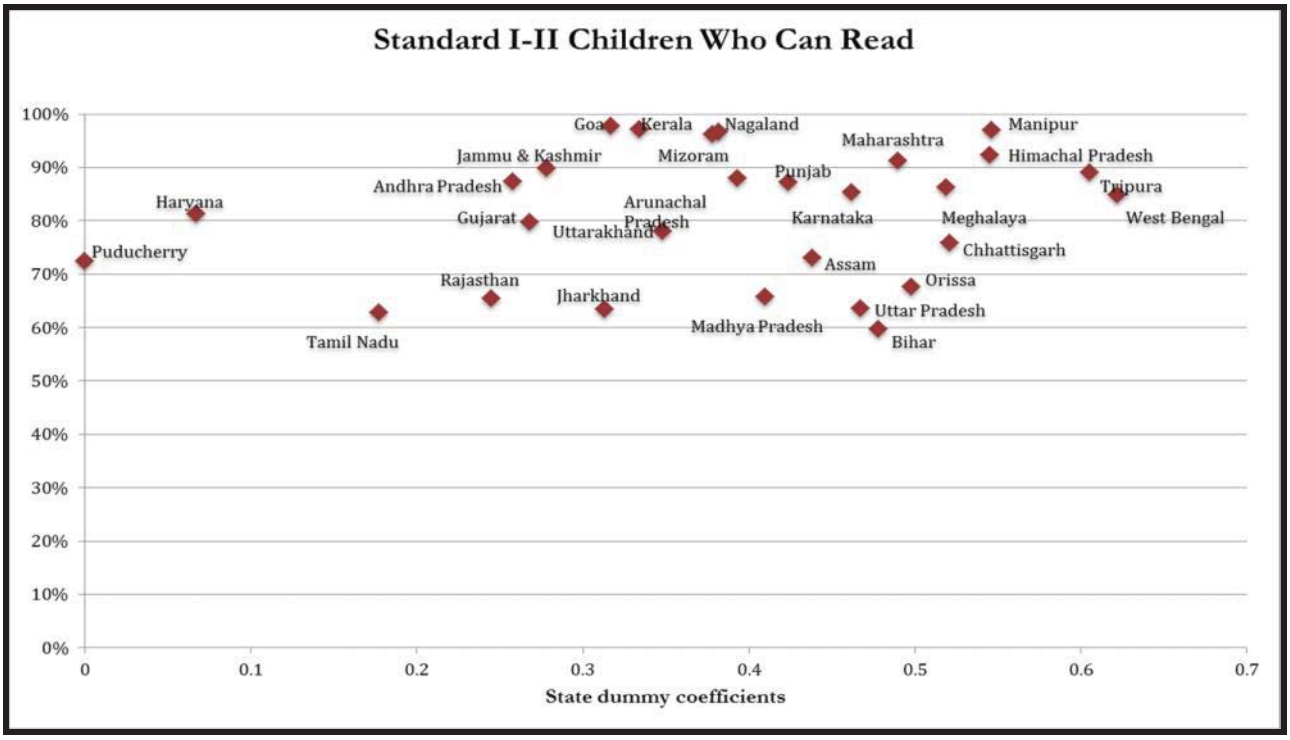
	(1)	(2)	(3)	(4)	(5)	(6)
	Average lag between receipt and spending of					
	SMG	SDG	TLM	SMG	SDG	TLM
Headmaster/Prabhari attendance	-5.839	-2.988	5.296	4.159	5.711	6.546
	(4.179)	(6.080)	(6.511)	(7.915)	(8.431)	(11.40)
Grant display board	13.01	13.08	26.15**	23.85	13.44	31.40
	(10.07)	(10.30)	(8.633)	(15.50)	(12.69)	(19.05)
SMC has visited in past 3 months	-18.25	6.366	4.981	-0.149	25.33	19.92
	(17.79)	(12.00)	(9.537)	(32.62)	(17.74)	(14.10)
BRC or CRC has visited in past 3 months	4.708	20.10	27.99	22.49	44.07**	41.39**
	(17.11)	(18.74)	(15.70)	(23.67)	(13.18)	(14.08)
Bank within 5 km				-7.980	-11.10**	-17.34**
				(7.133)	(4.323)	(5.751)
Log student enrollment	-2.893	-3.658	-5.891	-2.714	-0.432	-6.033*
	(4.870)	(4.756)	(3.708)	(4.847)	(3.331)	(2.828)
Constant	130.1***	90.47**	77.78**	97.95*	39.11	62.33***
	(38.46)	(28.77)	(23.64)	(48.64)	(23.04)	(18.37)
Observations	940	990	1,059	507	545	565
Number of districts	9	9	9	9	9	9
Adjusted R-squared	-0.001	0.001	0.010	-0.001	0.011	0.026

Source: PAISA-DRC, 2011.

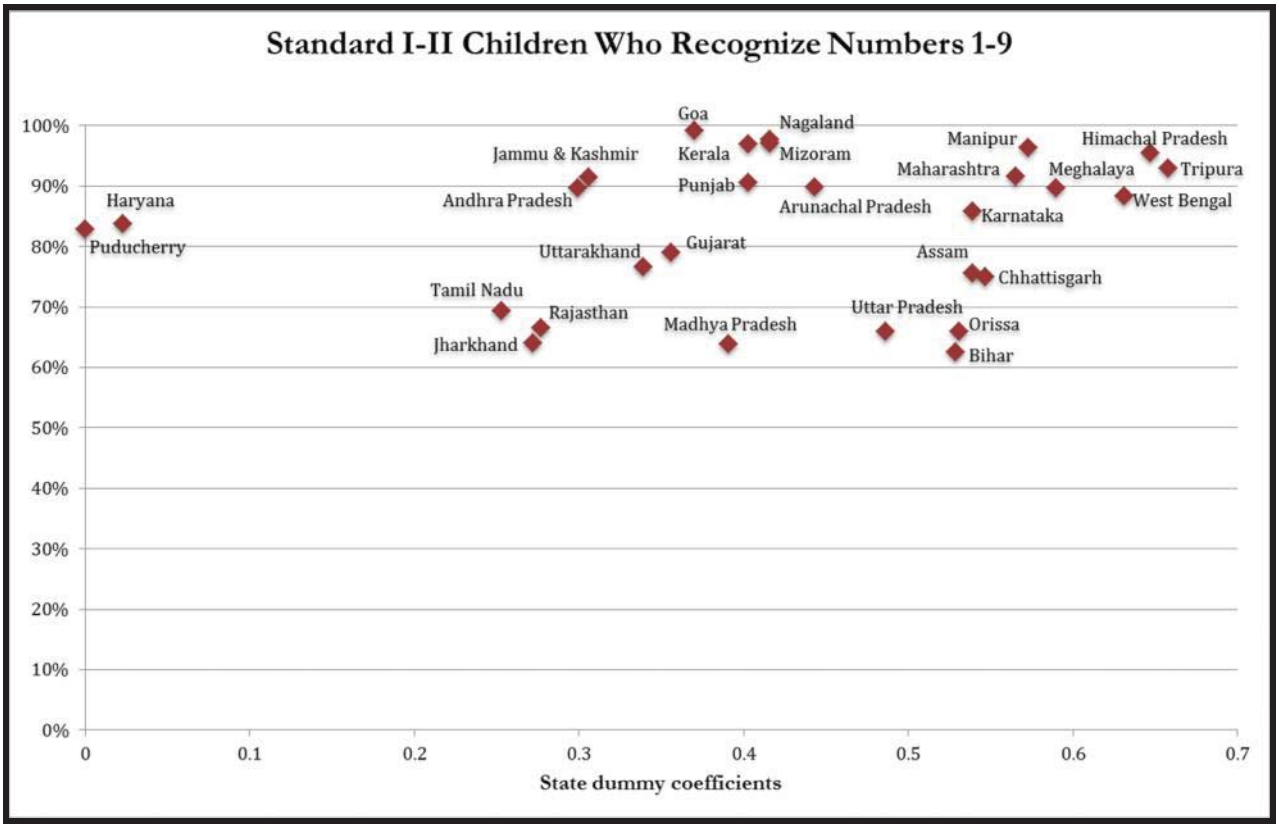
*** p<0.01, ** p<0.05, * p<0.1

NOTE: See detailed descriptions of each variable in Appendix B. Information on bank location was only available for a subset of observations. All regressions use district fixed effects. Standard errors are heteroskedasticity-robust and clustered at the district level. Some observations were dropped due to missing data.

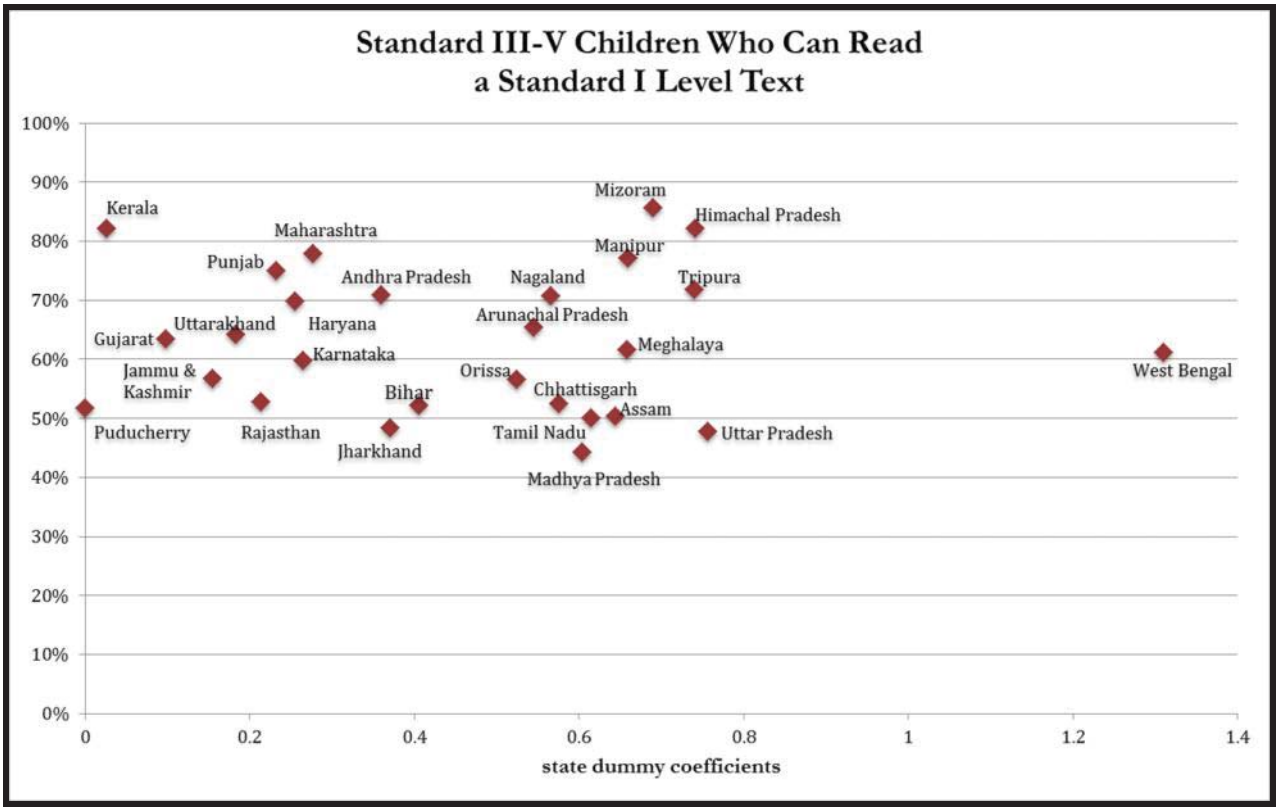
Appendix F: Scatter plots



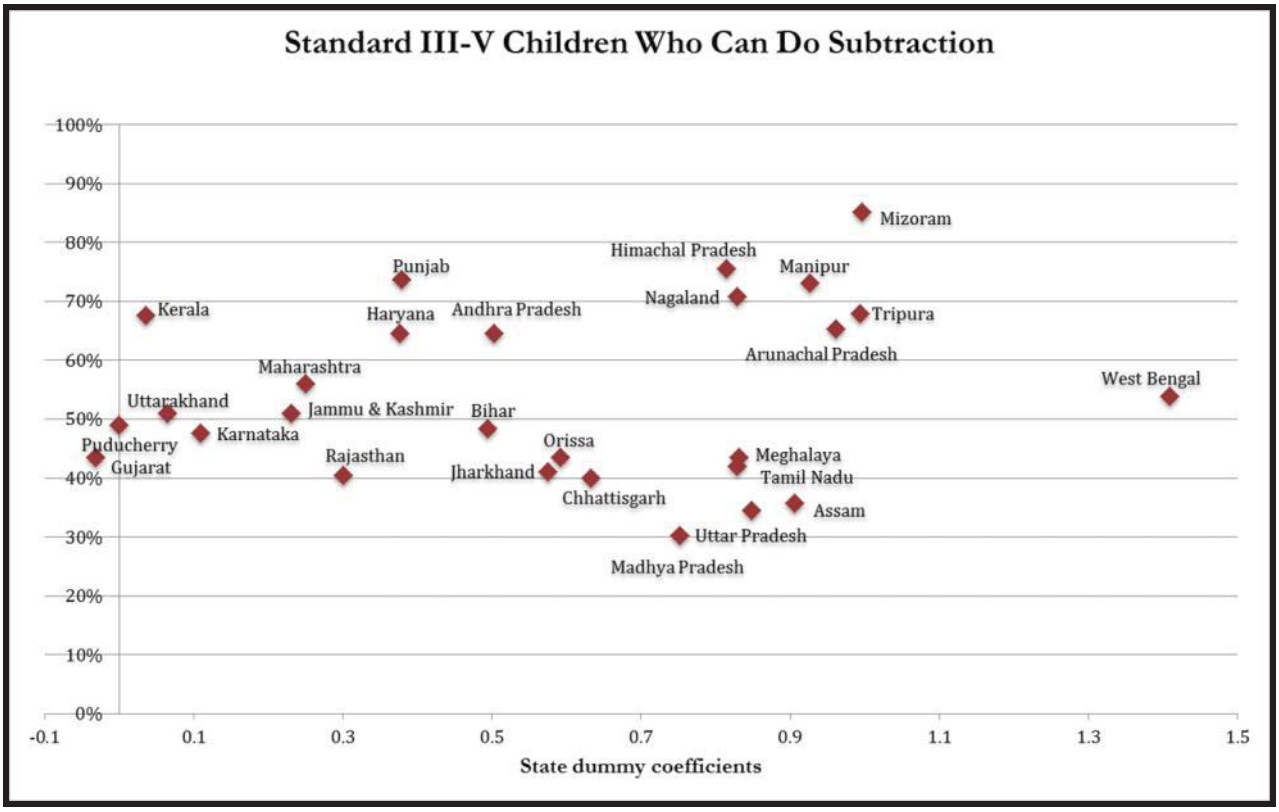
Source: ASER-PAISA, 2009-2011.
NOTE: Daman & Diu and D&N Haveli excluded from this analysis. Unless otherwise noted, all state dummy coefficients are statistically significant at the 1% level. Goa coefficient is statistically significant at the 5% level. Haryana coefficient is statistically insignificant.



Source: ASER-PAISA, 2009-2011.
NOTE: Daman & Diu and D&N Haveli excluded from this analysis. Unless otherwise noted, all state dummy coefficients are statistically significant at the 1% level. Haryana coefficient is statistically insignificant.



Source: ASER-PAISA, 2009-2011.
NOTE: Daman & Diu and D&N Haveli excluded from this analysis. Goa does not have sufficient observations. Unless otherwise noted, all state dummy coefficients are statistically significant at the 1% level. Uttarakhand coefficient is statistically significant at the 5% level. Punjab and Jammu & Kashmir coefficients are statistically significant at the 10% level. Gujarat and Kerala coefficients are statistically insignificant.



Source: ASER-PAISA, 2009-2011.
NOTE: Daman & Diu and D&N Haveli excluded from this analysis. Goa does not have sufficient observations. Unless otherwise noted, all state dummy coefficients are statistically significant at the 1% level. Haryana coefficient is statistically significant at the 5% level. Gujarat, Karnataka, Kerala, and Uttarakhand coefficients are statistically insignificant.