

Can social recognition for teachers and principals improve student performance?  
Evidence from India

Abstract

Empirical evidence on the effectiveness of performance-based rewards for teachers is largely based on evaluation of monetary reward schemes. We present results from a randomized evaluation of a teacher and principal incentive program in India that offered a non-pecuniary recognition reward based on students' test scores on standardized assessments. We find that student performance on standardized tests improves when both teachers and principals are incentivized, but the estimates are statistically insignificant at conventional levels and only suggestive. In schools where only teachers were incentivized, the estimates remain statistically insignificant but are also smaller in magnitude. Our findings provide suggestive evidence that recognition rewards may have potential as a low-cost tool to improve student achievement, when both teachers and principals are incentivized. Further research is required to substantiate the findings and investigate the mechanisms at play.

Keywords: Student achievement, Teachers, Principals, Non-Monetary Incentives, RCT, India  
JEL classifications: I21, O15, D91, C93

## 1. Introduction

Teachers and principals are essential inputs in the education production function. While teacher effectiveness receives a lot of attention, the role of principals is relatively understudied (Grissom et al. 2021). Performance incentive schemes often target teachers but are rarely designed in ways that align incentives of principals and teachers. Moreover, most teacher incentive schemes use monetary pay-for-performance incentives (de Ree et al. 2017; Barrera-Osorio & Raju 2017; Duflo, Hanna & Ryan 2012; Muralidharan & Sundaram 2011; Glewwe, Ilias & Kremer 2008). In this study, drawing on the literature on social recognition, we consider the potential for a low-cost recognition reward to improve teacher and principal performance.

We partner with the Palwal school district in India and test whether a non-pecuniary reward offered to teachers and principals leads to improvement in student performance, framing the incentive as a recognition award for performance as opposed to accountability. We find that student performance on standardized tests improves when both teachers and principals are incentivized, but the estimates are statistically insignificant at conventional levels and only suggestive. In schools where only teachers were incentivized, the estimates remain statistically insignificant but are also smaller in magnitude. This study adds to the literature on individual and group level incentives for schools in developing countries. Our work is novel in two respects; (1) we use non-monetary incentives with low out of pocket costs and, (2) we use two treatment arms that allow us to differentiate the impacts of incentivizing both teachers and principals (group-level incentives) versus only incentivizing teachers (teacher-only incentives).

## 2. Experimental design and implementation

We conducted our experiment within the Palwal block of the Palwal school district of Haryana, India (See Figure A1 for the geographical layout of the district). The Palwal block is comprised of 84 schools that offer 7<sup>th</sup> grade across 74 villages.<sup>1</sup> Each month the state of Haryana's education department conducts standardized Monthly Assessment Tests (MAT) for all subjects.<sup>2</sup> These tests are marked by an employee of a different school to remove any potential teacher bias in grading.

Our sample consists of seventh grade teachers (and principals) in 65 schools in 60 villages of the Palwal block, randomly assigned into three groups (i) Treatment 1: both teachers and principals are incentivized, (ii) Treatment 2: only teachers are incentivized and (iii) Control, through stratified randomization.<sup>3</sup> The duration of the experiment was 3 months (July to September 2018). The randomization was done at the village level to reduce concerns about interactions between principals and teachers across the three intervention conditions and minimize spillover effects.

Teachers and principals in the treatment groups were provided information about a competition (called “Sampoorna” or Complete/Thorough) they would participate in, ending in an award ceremony where recognition certificates would be distributed to winners by local dignitaries. This was implemented through two information sessions for teachers and principals (held in July 2018). The information sessions included (1) details of the award ceremony to be held later in the year, (2) the judgement criteria for the awards and (3) the number of awards of each kind. This information was communicated in the presence of

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<sup>1</sup> The Palwal school district in Haryana overall has 251 public schools spread over 4 blocks (Hassanpur, Hathin, Hodal and Palwal). We partnered with the Palwal *block* within the larger Palwal *school district* for our experiment. Palwal block houses 101 public schools across 119 villages. 84 of these 101 schools offer Grade 7.

<sup>2</sup> The State of Haryana conducts standardized tests for all students enrolled in public schools. These tests are now known as “Student Assessment Tests” and are currently conducted four times in a year.

<sup>3</sup> The 74 villages in the Palwal block are further divided into 20 clusters for administration purposes. We randomized assignment to treatment with stratification by cluster. A cluster on average has 6 villages. Our unit of treatment is village. However, only four of the villages in our sample have more than one secondary school. We therefore refer to school as our unit of treatment in our discussion of results.

the Block Education Officer for each school. An email was later sent to all participating teachers and principals with the program details. The school district reinforced the information through another email in August 2018. Teachers (and principals) in the control schools continued receiving only the business as usual communication from the school district.

The four types of awards were as follows: (i) 5 Best Teacher Awards (for each subject) awarded to the teachers with the highest average student score in the endline MAT in September, (ii) 5 Highest Growth Teacher Awards (for each subject) awarded to the teachers whose students show highest growth between the baseline (May) and endline (September) tests. In addition, for treatment 1, principals were informed about (i) 5 Best Principal Awards awarded to the principals of the school where students show highest average score in endline, and (ii) 5 Highest Growth Principal Awards awarded to the principals of schools where students show highest growth between endline and baseline. In this treatment teachers were aware that principals were also part of the competition and may also receive awards. It is possible for a teacher and/or principal to get two awards if they qualify on both average and growth criterions.

### 3. Results

Table A1 shows descriptive statistics for the full sample and by treatment and control schools. On average, students scored 14.46 points out of 40, across all subjects, on the baseline MAT conducted in May. The sample is balanced in terms of the baseline May MAT score, with no statistically significant difference between the average score for treatment and control schools. The only baseline demographic characteristic made available to us for students is gender. Table A1 shows control schools have a much higher proportion of female students (58%) on average compared to treatment schools (48%). Our sample consists of co-educational, all boys and all girls schools. We randomized assignment to treatment, stratified by cluster because schools within a cluster are similar in terms of school characteristics, student demographics and other cultural characteristics. Further, the district administration overseeing schools is also common between all schools in a cluster. However, we did not stratify our intervention on gender, resulting in a lower proportion of girls in treatment than control schools. We control for student gender in our estimations.

Students in our sample scored 18.33 (out of a maximum of 40 points) on average in the endline MAT conducted in September. There is no statistically significant difference between the endline scores on average across the treatment and control schools. However, these raw differences in the average scores do not account for differences across clusters, subjects and/or gender. We account for these factors and the correlation in standard error in our estimation of the treatment effects. We estimate the impact of the treatment on the endline standardized test scores through OLS regression, controlling for baseline test scores, student gender and cluster fixed effects.

Table 1 shows the results of our estimations. Averaging across all subjects, students in schools that incentivized both teachers and principals scored 0.16 standard deviations (SD) higher than those in control schools, but the estimate is imprecisely estimated. In comparison, the effect of incentivizing teachers only is much smaller in magnitude (0.012 SD).

Next, we look at the impact for each subject in Columns 2-5. We find a positive coefficient on the indicator for incentivizing both teachers and principals, across all subjects. The effect is marginally significant for Science (0.2 SD) and is imprecisely estimated for all other subjects. In contrast, the effect of the teacher only treatment is smaller in magnitude for all subjects and close to zero for Social Studies and English. Combined, these results provide suggestive evidence that recognition incentives may potentially be effective at improving student performance where *both* teachers and principals are incentivized compared to teacher only incentives. Coordination between principals and teachers maybe at play here and should be considered when designing such incentives.

Table 1: Effect of Treatment on Student Test Scores

	(1) All Subjects	(2) Math	(3) English	(4) Science	(5) Social Studies
T1: Teacher and Principal	0.160 (0.107) [0.266] {0.260}	0.227 (0.183) [0.349] {0.318}	0.227 (0.162) [0.301] {0.282}	0.198* (0.099) [0.151] {0.131}	0.064 (0.105) [0.603] {0.591}
T2: Teacher Only	0.012 (0.085) [0.899] {0.902}	0.191 (0.180) [0.411] {0.409}	-0.051 (0.133) [0.772] {0.759}	-0.118 (0.102) [0.404] {0.367}	-0.002 (0.091) [0.986] {0.988}
Observations	8,405	2,165	1,910	2,161	2,169
R-squared	0.423	0.377	0.496	0.524	0.529

Notes: Outcome variable in all columns is the standardized test score for endline MAT. Scores are standardized using subject specific mean and standard deviation. All regressions control for student's standardized baseline test score, student gender and cluster fixed effects. Additionally, Column 1 also controls for subject fixed effects. Standard errors are clustered by village. The randomization inference p-values (with 1000 repetitions; Young, 2019) and the wild bootstrapped p-values (with 999 repetitions; Cameron, Gelbach & Miller 2008) are given in square and curly parentheses below each estimate, respectively. Standard errors are clustered by village. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

#### 4. Conclusion

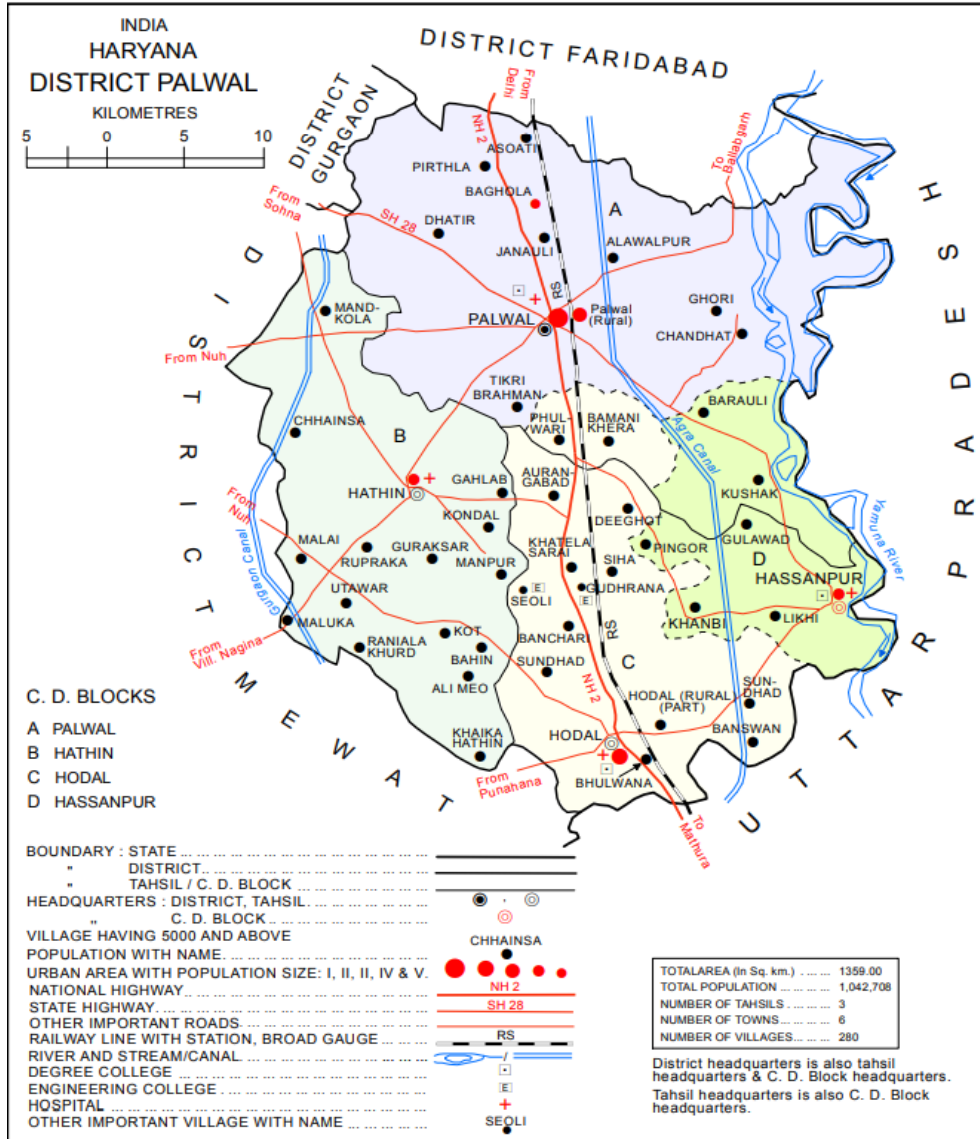
In this study we present findings from offering recognition rewards to teachers and principals in a public school district in India. Our findings indicate that low-cost, non-monetary social recognition rewards for teachers and principals show potential in being effective in improving student performance on standardized tests. However, in our study magnitude of the impact is much smaller when only teachers are offered the incentive, suggesting that the alignment of incentives for teachers and principals may improve the efficacy of such incentives. Our study adds to the literature on teacher incentives by providing new evidence on recognition rewards, which are understudied in the literature. Moreover, the literature on principals and teacher incentives often ignores the possible synergies that may exist in incentivizing both, as opposed to only teachers or principals. Further research may improve on the limitations of this preliminary evidence on several fronts by exploring a larger sample, adding a principal only treatment and looking at the long term effect of repeated incentives as opposed to the one shot experiment.

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## Appendix

Figure A1: Map of Palwal District, Haryana, India.



Notes: The figure shows the map of the Palwal district comprising of four blocks: Palwal, Hassanpur, Hathin and Hodal. Our intervention was with schools in the Palwal block.  
Source: District Census Handbook Palwal, Census of India 2011

Table A1: Descriptive Statistics, by Treatment and Control Schools

	Full Sample	Control	T1 or T2	T1	T2
Baseline Score (Raw)	14.46 (8.74)	15.20 (10.07)	14.13 (8.08)	14.22 (6.96)	14.06 (8.93)
Baseline Score (Standardized)	0 (1)	0.09 (1.16)	-0.04 (0.92)	-0.03 (0.80)	-0.05 (1.02)
Female	0.51 (0.50)	0.58 (0.49)	0.48** (0.50)	0.47** (0.50)	0.48** (0.50)
Endline Score (Raw)	18.33 (7.48)	18.14 (7.96)	18.41 (7.26)	18.04 (7.28)	18.77 (7.23)
Endline Score (Standardized)	0 (1)	-0.02 (1.07)	0.01 (0.97)	-0.04 (0.97)	0.06 (0.96)
Observations	8,405	2,594	5,811	2,670	3,141
No. of schools	65	20	45	20	25

Notes: Baseline score is the average score across all subjects for the May MAT. Endline score is the average score across all subjects for the September MAT. Both May and September MAT for all subjects were marked out of a total of 40 points. Baseline Score (Standardized) and Endline Score (Standardized) are the respective standardized scores with respect to subject specific mean and standard deviation. Female is a binary variable equal to one if the student is female and zero otherwise. Average scores by subject are show in Table A1.

Table A2: Students Baseline and Endline Test Scores by Subject

	Full Sample	Control	T1 or T2	T1	T2
Baseline Math	14.14 (8.64)	15.87 (10.22)	13.38 (7.72)	13.31 (6.37)	13.44 (8.76)
Endline Math	18.43 (7.80)	17.50 (7.85)	18.84 (7.74)	17.98 (7.48)	19.60 (7.90)
Baseline English	13.86 (8.90)	14.35 (9.93)	13.61 (8.31)	14.35 (7.64)	13.05 (8.75)
Endline English	17.66 (7.26)	18.05 (8.19)	17.46 (6.72)	17.46 (6.72)	17.76 (6.66)
Baseline Science	15.35 (8.76)	14.90 (9.93)	15.53 (8.22)	15.37 (6.59)	15.67 (9.44)
Endline Science	19.43 (7.38)	18.89 (7.66)	19.66 (7.25)	19.43 (7.83)	19.86 (6.69)
Baseline Social Stud.	14.42 (8.60)	15.64 (9.91)	13.90 (7.92)	13.84 (7.19)	13.94 (8.51)
Endline Social Stud.	17.72 (7.33)	18.14 (7.99)	17.54 (7.02)	17.27 (6.69)	17.77 (7.29)

Notes: Baseline score is the average score for the May MAT. Endline score is the average score for the September MAT. Both May and September MAT for all subjects were marked out of a total of 40 points. T1 is set of students from schools where both teachers and principals were incentivized. T2 is set of students from schools where only teachers were incentivized.