

TEACHER ABSENCE IN INDIA: A SNAPSHOT

Michael Kremer
Harvard University and NBER

Karthik Muralidharan
Harvard University

Nazmul Chaudhury
World Bank

Jeffrey Hammer
World Bank

F. Halsey Rogers
World Bank

Abstract

25% of teachers were absent from school, and only about half were teaching, during unannounced visits to a nationally representative sample of government primary schools in India. Absence rates varied from 15% in Maharashtra to 42% in Jharkhand, with higher rates concentrated in the poorer states. We do not find that higher pay is associated with lower absence. Older teachers, more educated teachers, and head teachers are all paid more but are also more frequently absent; contract teachers are paid much less than regular teachers but have similar absence rates; and although relative teacher salaries are higher in poorer states, absence rates are also higher. Teacher absence is more correlated with daily incentives to attend work: teachers are less likely to be absent at schools that have been inspected recently, that have better infrastructure, and that are closer to a paved road. We find little evidence that attempting to strengthen local community ties will reduce absence. Teachers from the local area have similar absence rates as teachers from outside the community. Locally controlled non-formal schools have higher absence rates than schools run by the state government. The existence of a PTA is not correlated with lower absence. Private-school teachers are only slightly less likely to be absent than public-school teachers in general, but are 8 percentage points less likely to be absent than public-school teachers in the same village. (JEL: O15, I21, H41, H52)

Acknowledgments: We thank Abhijit Banerjee, Jishnu Das, Jean Dreze, Esther Duflo, Asim Khwaja, Ben Olken, Lant Pritchett, Mark Rosenzweig, and seminar participants at various institutions for their comments. For excellent fieldwork, we thank the staff of the Social and Rural Research Institute (New Delhi), and especially Chhavi Bhargava, Navendu Shekhar, A V Surya, and Aditi Varma. Anjali Oza and Sandra Sequeira provided excellent research assistance. We gratefully acknowledge financial support from the UK Department for International Development. Muralidharan thanks the Rai family in Delhi for their hospitality and the Fellowship in Justice, Welfare, and Economics at Harvard University for financial support.

E-mail addresses: Kremer (mkremer@fas.harvard.edu); Muralidharan (muralidh@fas.harvard.edu); Chaudhury (nchaudhury@worldbank.org); Hammer (jhammer@worldbank.org); Rogers (hrogers@worldbank.org)

1. Introduction

This paper presents new nationally representative data on teacher absence from unannounced visits to Indian primary schools.¹ The study covered 20 Indian states, representing 98 percent of the population, or roughly one billion people. Three unannounced visits were made to each of 3700 schools. The survey focused on government-run primary schools, but it also covered rural private schools and private-aided schools located in villages where government schools were surveyed.

Our absence data is from *direct physical verification* of the teacher's presence, rather than attendance logbooks or interviews with the head teacher. We consider a teacher to be absent if the investigator could not find the teacher in the school during regular working hours.²

2. Level of Absence

With one in four teachers absent at a typical government-run primary school, India has the second-highest average absence rate among the eight countries for which absence calculations based on a similar methodology are available (Table 1).³ Only 45 percent of teachers were actively engaged in teaching at the time of the visit.⁴

Within India, the absence rate ranged from 15% in Maharashtra to 42% in Jharkand (Table 2). Absence rates are generally higher in low-income states: doubling per capita income is associated with a 7.2 percentage point lower predicted absence. The rates of teaching activity among the teachers who are

¹ Previous studies that have examined teacher or head teacher absence in India include the PROBE Report (1999) and the Pratiche Trust Report (2002). Other studies of teacher absence in developing countries include Glewwe, Kremer, and Moulin (1999) in Kenya and World Bank (2001) in Honduras. This study differs in examining data that is as close as possible to being nationally representative and in exploring how absence correlates with a wide range of potential determinants at the individual, school, and policy levels.

² The measured absence rates exclude part-time and volunteer teachers; those who are reported by the respondent to have transferred, worked in a different shift, retired/resigned, or died; and teachers at schools reportedly closed due to a scheduled holiday, extreme weather (such as rain or heat waves), school building construction or repair, and official school functions (such as exams and picnics). For details on survey methodology and absence definitions, see the full paper (Kremer and others 2004).

³ Most of these estimates come from other countries covered by the same research project on provider absence in education and health, carried out by the authors of this study and using standardized methodology (Chaudhury and others 2004).

⁴ Even with a generous allowance for the possibility that enumerators' visits diverted some teachers from teaching, it is unlikely that more than half of teachers would have been teaching at the time of the visit. See Kremer and others (2004).

present are lower in higher-absence states and schools. In some states, only 20 to 25 percent of teachers were engaged in teaching at the time of the visit.

TABLE 1: Teacher absence rates by country

	Teacher absence (%)
Peru	11
Ecuador	14
Papua New Guinea	15
Bangladesh	16
Zambia	17
Indonesia	19
India	25
Uganda	27

Source: Chaudhury, Hammer, Kremer, Muralidharan, and Rogers (2004) for most countries; Habyarimana and others (2004) for Zambia; World Bank (2004) for Papua New Guinea.

TABLE 2: Teacher absence in public schools by state

State	Absence (%)	State	Absence (%)
Maharashtra	14.6	West Bengal	24.7
Gujarat	17.0	Andhra Pradesh	25.3
Madhya Pradesh	17.6	Uttar Pradesh	26.3
Kerala	21.2	Chhatisgarh	30.6
Himachal Pradesh	21.2	Uttaranchal	32.8
Tamil Nadu	21.3	Assam	33.8
Haryana	21.7	Punjab	34.4
Karnataka	21.7	Bihar	37.8
Orissa	23.4	Jharkhand	41.9
Rajasthan	23.7	Weighted Average	24.8

Absence rates are considerably higher than could be accounted for by non-official teaching duties, such as staffing polling stations during elections or conducting immunization campaigns, which are sometimes cited as important causes of absence. Based on the responses of each school's head teacher or primary respondent, official non-teaching duties account for only about 4 percent of total absences. In other words, on any given day, only about 1 percent of primary teachers are absent because they are carrying out official non-teaching-related duties.⁵ Preliminary calculations by the authors suggest

that 8-10 percentage points of absence could potentially be attributed to annual leave, medical leave and other officially sanctioned reasons. This implies that variation across states in excess absence may be considerably greater than variation in raw absence rates.

3. Correlates of Teacher Absence

Below we discuss how teacher absence varies with pay and daily incentives to attend work. We then discuss how absence rates vary with institutional structure, including ties between teachers and the local community, contract form, and type of school (public, private, and private-aided). The discussion below will occasionally refer to the simple differences in means shown in Tables 3-5, but focuses on the multivariate OLS regressions reported in Table 6 (very similar results are obtained from a probit specification).

TABLE 3. Absence by type of school

	Public schools	Non-formal schools	Private aided schools	Private schools
Weighted teacher absence	24.8%	28.0%	20.1%	22.8%
Rate of teaching activity	44.8%	42.9%	58.8%	48.5%
Number of observations	34525	393	3371	9098

TABLE 4. Absence rates by type of teacher (public schools only)

	Head	Deputy head	Permanent/ regular	Contract/ informal
Absence rate	30.2%	22.2%	23.1%	24.0%
Number of observations	7177	1979	23333	2037

Higher teacher salaries do not seem to be associated with lower teacher absence. We did not directly collect data on individual teacher salaries, but in every Indian state, salaries increase with education, experience, and rank. Teachers with a college degree are 2-2.5 percentage points more likely to be absent. Being 10 years older increases the probability of absence by around

⁵ While stated reasons for absence should be taken with a grain of salt, there does not appear to be any reason for head teachers to understate this cause of absence.

1.0-1.5 percentage points (though this effect becomes weaker after controlling for state fixed effects). Head teachers are 4-5 percentage points more likely to be absent than regular teachers (even after controlling for age and education). Since absence increases with all three of these variables, it is likely that better-paid teachers are more absent. Similarly, although regular teachers are typically paid much higher salaries than contract teachers, there is no significant difference in absence between the two groups. Finally, since nominal teacher salaries are very similar across states, relative teacher salaries are higher in poorer states and yet poorer states have higher absence rates.

TABLE 5. Absence rates by various individual and school-level characteristics (in percent; public schools only)

Category	Yes	No
Rich state (96-97 per capita income > \$275)?	21.7	28.0
Female?	21.9	27.2
Older than 40 years?	27.1	21.4
Completed bachelors degree?	21.7	24.2
School has a toilet for teachers?	21.6	27.1
School has electricity connection?	19.2	28.2
Commute < 30 minutes?	21.4	25.2
Rural school?	25.2	22.9
Headteacher is absent?	22.2	18.5
School inspected in the past 3 months?	21.0	27.0
Belongs to this town/village?	21.6	23.3
PTA has met in the past 3 months?	21.0	26.5

Notes: The weighted average absence across these categories will often be lower than the total absence rate, because of missing individual-level correlates on teachers who were repeatedly absent. All differences are significant at the 5 percent level.

One reason why higher pay is not associated with lower absence may be that teachers feel little risk of being fired for absence. Only 1 head teacher in nearly 3000 public schools reported ever dismissing a teacher for repeated absence. While few teachers are subject to much risk of being fired, the costs and benefits of attending school on a given day could vary among teachers depending on working conditions, as well as on their vulnerability to sanctions (such as receiving undesirable postings). The vulnerability of teachers to these sanctions presumably depends both on the monitoring regime and on the teacher's level of power. (Power differentials may explain the higher absence rates of older, more educated, and more experienced teachers, as well as the finding that males are significantly more absent than females.) Non-pecuniary

factors other than working conditions could also affect teachers' costs and benefits of attending school.⁶

Teacher absence is considerably lower in schools with better infrastructure, a potentially important element of working conditions. The infrastructure index in Table 6 assigns one point each for the existence of toilets for the teachers, an electricity connection, a library, covered classrooms, and non-mud floors. Under this specification, each point on the index is associated with a 1.0 to 1.5 percentage point reduction in the probability of absence—so that moving from 0 to 5 on the index reduces the predicted absence rate by 5.0 to 7.5 points. Since one of the ways in which better teachers might be rewarded is through better postings (to schools with superior infrastructure), we also test this relationship using only the teachers who are on their first posting; we find that better infrastructure is still significantly associated with lower teacher absence.

Other working conditions that might be expected to affect teacher motivation are the remoteness of the school and the teaching conditions. Anecdotal evidence shows that many teachers prefer less remote schools. In our data, teachers in schools that are far from a paved road are nearly 4 percentage points less likely to be in school than those closest to a road. Teachers in schools that practice multi-grade teaching—which can be taxing for teachers—have a slightly higher rate of absence in the Column 1 regression, although the effect is not significant when state fixed effects are included.

Although inspections in India are often considered toothless, teachers in schools that had been inspected in the 3 months prior to the visit were about 2 percentage points less likely to be absent. Because school inspections may not be allocated randomly⁷, we also test an alternative measure of inspection intensity: the fraction of the schools in a district that have been inspected recently (since inspections are determined at the district level). Moving from a district with no inspections in the past 3 months to one where every school has been inspected in the past 3 months is associated with a seven percentage point lower level of teacher absence (equivalent to nearly 30 percent of the level of absence observed in the data).⁸ The addition of state fixed effects makes this result insignificant, however, raising the possibility that the average inspection variable may be picking up the general quality of educational administration in the state.

⁶ Teacher training, for example, is aimed in part at reinforcing teachers' professional motivation, and therefore might be hoped to improve attendance. In our data, however, having attended a training program in the past six months is not associated with lower absence in any of the specifications. Similarly, belonging to a district that has a recognition scheme for teachers is not associated with lower teacher absence.

⁷ However, if we believe that schools with problems may be inspected more often, then our coefficients would understate the relation between inspections and reduced absence

⁸ See the full paper for these tables.

TABLE 6: OLS estimates of teacher absence

	Dependent variable (visit-level observation): 0 = Present, 100 = Absent		
	[1]	[2]	[3]
	No state or village fixed effects	With state fixed effects	With village/town fixed effects
Gender (1 = Male)	1.34 (0.54)**	2.09 (0.53)***	2.06 (0.53)***
Age	0.12 (0.03)***	0.05 (0.03)	0.08 (0.03)**
Has a college degree	2.31 (0.51)***	1.89 (0.51)***	1.86 (0.51)***
Attended training in last 6 months	0.26 (0.59)	0.17 (0.60)	-0.58 (0.65)
Head teacher	4.19 (0.64)***	4.54 (0.62)***	4.61 (0.64)***
Contract teacher	-0.6 (1.32)	0.06 (1.25)	1.49 (1.28)
Belongs to a teachers union	-0.31 (0.64)	0.56 (0.64)	-0.07 (0.73)
Paid regularly (1=Yes)	0.5 (0.79)	0.18 (0.78)	1.86 (0.96)*
Recognition/award scheme exists in district	-0.87 (0.68)	-0.9 (0.65)	-0.08 (0.85)
School infrastructure index (1 to 5)	-1.5 (0.32)***	-1.49 (0.32)***	-0.93 (0.39)**
Rural school	0.77 (0.84)	-0.09 (0.79)	
Distance to nearest paved road (1 to 5)	0.84 (0.37)**	0.95 (0.37)**	1.08 (0.64)*
Multigrade teaching	1.17 (0.70)*	0.67 (0.67)	0.9 (0.82)
Pupil-teacher ratio	-0.05 (0.02)***	-0.04 (0.02)**	-0.08 (0.02)***
School has been inspected in past 3 months	-2.28 (0.66)***	-1.94 (0.64)***	-2.45 (0.85)***
Mean parental education of 4th-grade children (1-7 scale)	-1.42 (0.36)***	-1.15 (0.38)***	-0.74 (0.46)
Duration of current posting (years)	-0.04 (0.04)	0 (0.04)	0.02 (0.04)
Belongs to same village/town as school	-0.37 (0.54)	-0.96 (0.53)*	-0.86 (0.56)
PTA exists	-0.79 (0.96)	0.44 (0.92)	-1.83 (1.21)
PTA met at least once in last 3 months	-1.7 (0.72)**	-1.36 (0.68)**	0.16 (0.87)
Government public school	2.34 (1.23)*	3.58 (1.21)***	7.88 (1.37)***
Private aided school	0.01 (1.41)	1.65 (1.41)	7.54 (1.64)***
Log state per-capita GDP	-6.73 (2.49)***		
Constant	51.14 (9.80)***	22.81 (2.45)***	15.59 (2.82)***
Observations	41725	43130	43142
R-squared	0.09	0.09	0.18

Notes: Robust standard errors in parentheses

Regressions include a full set of controls (see full paper for details), including the day of week of the visit, for the round of the visit, and for the time of day of the visit relative to the school day.

* significant at 10%; ** significant at 5%; *** significant at 1%

Local communities could potentially provide an alternative source of monitoring. One way to interpret the lower absence rates in schools with more educated parents and high pupil-teacher ratios is that local monitoring is more effective when parents are more educated and more parents could potentially complain about absence. (Of course, alternative explanations, including reverse causality, are possible in each case.) Similarly schools with PTAs that have met in the past three months have lower absence. This could reflect either the importance of local community monitoring or a tendency for more conscientious teachers and headmasters to organize PTA meetings.

While a priori reasoning suggests local monitoring could potentially affect teacher behavior, the regressions do not provide much guidance about how policies could reduce absence by strengthening ties between schools and local communities. Teachers from the local community do not have lower absence rates than teachers from outside the community after including the controls in Table 6. The duration of a teacher's posting at the school has no significant relationship with absence. Absence rates in non-formal schools, which are staffed by teachers from the community, are higher than in regular government schools (Table 3). Schools with and without parent-teacher associations have similar absence rates.

It is worth considering the implications of alternative forms of contractual arrangement. Contract teachers in the public system have much lower wages (typically less than a third of the wages of regular teachers), are presumably easier to dismiss, and have similar level of absence (Table 6).

Private schools similarly have much lower wages than public-school teachers (regular teachers in rural government schools typically get paid about 3 to 8 times more than their counterparts in the rural private schools), but also a greater chance of dismissal for absence (35 out of 600 private schools reported a case of the head teacher dismissing a teacher for repeated absence or tardiness, compared with the 1 in 3000 in government schools noted earlier).

Private-school teachers are only slightly less likely to be absent than public-school teachers in general (Table 3), but are 8 percentage points less likely to be absent than public-school teachers in the same village⁹ (Table 6, Column 3). Mechanically, this is because private schools are disproportionately located in villages with particularly high absence rates in government schools. Advocates of private schools may interpret the correlation between the presence of private schools and weakness of public schools as suggesting that private schools spring up in areas where government schools are performing particularly badly,

⁹ While teachers in private aided schools have lower absence rates than those in private schools in the entire sample, they also have a much higher absence rate (7.5 percentage points more) than private-school teachers in the same village.

while opponents may argue that the entry of private schools leads to exit of politically influential families from the public school system, and further weakens pressure on public-school teachers to attend school.

4. Teacher Absence and Student Outcomes

A 10% increase in teacher absence is associated with 1.8% lower student attendance, as well as with a 0.02 standard deviation reduction in test scores on a simple 14-question test given to a sample of 4th-grade children. These coefficients are robust to controls but small in magnitude. They may underestimate the impact of teacher absence for two reasons, however. First, measurement error in estimating absence rates for the relevant teachers will attenuate the coefficients downward. Second, if marginal students drop out of school in response to high teacher absence rates, those students who remain in school may have different background characteristics than students in schools with lower teacher absence. (On the other hand, to the extent that high teacher absence spurs strong students to move to private schools, these coefficients may be biased upward.)

5. Conclusion

With one in four government primary school teachers absent on a given day, and only one in two actually teaching, India is wasting a considerable share of its education budget, and missing an opportunity to educate its children.

While our results show that the system is broken, they can provide only tentative guidance as to how it may be fixed. One way of interpreting our findings is that overall teacher compensation has little effect on absence, since teachers cannot be fired and attendance rates do not affect compensation. On the other hand, factors that influence the daily costs and benefits of attending school have a much larger influence on absence rates. For example, better infrastructure provides a stronger incentive to attend school on a particular day. Similarly, improving monitoring increases the marginal cost of teacher absence. While we find that inspections are associated with lower absence in some specifications, we find little evidence to suggest that greater local ties are associated with lower absence. Teachers in private schools and contract teachers, who face very different incentives, have similar or lower absence rates while being paid a fraction of government teachers' salaries.

The study suggests it may be worth exploring a variety of potential reforms. These range in political difficulty from improving school infrastructure; to increasing the frequency of inspections; to experimenting with new, potentially more effective forms of local control or contracting with teachers; to such fundamental reforms as increased use of private schools. However, in order to

assess the impact of any of these reforms, rigorous randomized evaluations should be put in place. Such evaluations should monitor a range of educational outcomes to ensure that these reforms not only increase the educational input of teacher attendance, but also the fundamental objective of student learning.

References

- Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F. Halsey Rogers. 2004. "Teacher and Health Care Provider Absenteeism: A Multi-Country Study." World Bank.
- Glewwe, Paul, Michael Kremer, and Sylvie Moulin. 1999. "Textbooks and Test Scores: Evidence from a Prospective Evaluation in Kenya."
- Habyarimana, James, Jishnu Das, Stefan Dercon, and Pramila Krishnan. 2004. "Sense and Absence: Absenteeism and Learning in Zambian Schools." World Bank.
- Kremer, Michael, Karthik Muralidharan, Nazmul Chaudhury, Jeffrey Hammer, and F. Halsey Rogers. 2004. "Teacher Absence in India." World Bank.
- Pratiche Trust. 2002. *Pratiche Education Report*.
- PROBE Team. 1999. *Public Report on Basic Education in India*. Oxford University Press.
- World Bank. 2001. *Honduras: Public Expenditure Management for Poverty Reduction and Fiscal Sustainability*. World Bank.
- World Bank. 2004. *Papua New Guinea: Public Expenditure and Service Delivery (Discussion Draft)*. World Bank.