

Why Are Teachers Absent?

Probing Service Delivery in Peruvian Primary Schools

Lorena Alcázar (GRADE)

F. Halsey Rogers (World Bank)

Nazmul Chaudhury (World Bank)

Jeffrey Hammer (World Bank)

Michael Kremer (Harvard University)

Karthik Muralidharan (Harvard University)

February 2006

Abstract

A high rate of absence of teachers from their posts is a serious obstacle to delivery of education in many developing countries, but hard evidence on the problem has been scarce. This study, carried out as part of a new multi-country survey project, is the first systematic investigation in Peru into the extent and causes of teachers' absence from schools. Data from our nationally representative survey of public primary schools, based on unannounced visits and direct observation of teachers, reveals that teachers in Peru are absent from their posts 11 percent of the time. While this overall absence rate is low compared with those of other survey countries, the absence rates in Peru's poorest and remotest communities are much higher—16 and 21 percent, respectively. In our multivariate analysis of the causes of teacher absence, we identify several important variables that are associated with increased absence: poor working conditions, such as poorer communities and infrastructure; teachers with fewer ties to the school's community; contract teaching; and an absence of private competition. By contrast, proxies for more vigorous formal monitoring and discipline are not associated with lower absence. These results, together with the relatively high overall teacher attendance rates in an environment where financial incentives for performance are weak, suggest that non-pecuniary incentives are important determinants of teacher performance.

1. Introduction

In education, the quantity and quality of public service depends crucially on the motivation of front-line employees. Education, it has been remarked, has changed little in the past century: it still usually requires a teacher leading a classroom full of students, meaning that the physical presence of both is required. In a developing-country setting, where substitute teachers are uncommon, absence of a primary-school teacher may have various consequences—doubling up of classes, idle time for students, and even student dropouts if absence becomes frequent enough. But learning is not likely to be one of them.

This paper probes the extent and correlates of teacher absence in Peru. First, it provides the first representative national estimates of primary-teacher absence rates, based on direct observation during unannounced visits to a random sample of schools. Second, it explores the potential institutional, individual, and school-level explanatory factors that are most correlated with absence. It closes with some tentative policy implications of these findings.

2. Literature Review: What Do We Know about Teacher Absence?¹

Until recently, the problem of high levels of absence among teachers has not been the subject of much detailed empirical analysis. In the case of developing countries, a handful of recent studies have looked into the extent of teacher absence using direct observation, but they have generally used samples that are either non-representative or are representative of particular subnational areas (Glewwe, Kremer, and Moulin 1999; PROBE Team 1999). Major exceptions include the other papers from this project (mentioned below), as well as two recent studies based on surveys from Papua New Guinea (World Bank 2004) and Zambia (Das, Dercon, Habyarimana, and Krishnan 2005) that are roughly nationally representative. These latter studies found national absence rates of

¹ The term “absenteeism” is sometimes used to refer to the problem of high levels of absence among teachers. We use the term “absence” instead, because absenteeism typically implies that providers are irresponsible or derelict in their duties. While this implication is sometimes correct, we recognize that absence is sometimes caused by circumstances beyond the control of the teacher, such as illness or official duties. What we are interested in investigating is the extent and causes of excessive absence, at least some of which seem likely to involve incentive structures.

15 percent and 17 percent, respectively, among primary-school teachers. Even in developed countries, the empirical literature on teacher absence is sparse (Ehrenberg, Rees, and Ehrenberg 1991; Norton 1998), and there are no studies using nationally representative samples based on direct observation of teachers.

Within Peru, the same is true: there has been no such nationally representative study, although some research has begun to examine the extent of provider absence. One recent study examined a non-random sample of 16 rural schools and found that only 59 percent of the scheduled time is actually used, in part because of a teacher absence rate that reached 21 percent (Montero, Oliart, Ames, Cabrera, and Ucelli 2001). Additional evidence comes from a recent pilot program rewarding teachers for attendance; a baseline survey of 1123 teachers in 450 schools found absence rates ranging from 5 percent to 16 percent (Cueto and Alcázar 2004).

In short, there are few systematic studies based on nationally representative data that give insight even into the extent of teacher absence, let alone its possible determinants. If ensuring that teachers are present on the job is at least necessary for making progress in the sector—even if it is not sufficient—then gaining a better understanding of why so many are absent seems essential to meeting education goals. This study aims to help fill these gaps in the case of Peru.

3. Study Approach and Methodology

The surveys that provide the data for this study were carried out as part of a multi-country World Bank study of absence among service providers in education and health, initiated in 2002 by five of the authors of this study. The project encompassed six countries: Peru, Bangladesh, Ecuador, India, Indonesia, and Uganda. Its goal was to measure teacher and medical provider absence using a common facility survey instrument and methodology. (For more details on the global study, see Chaudhury and others, Forthcoming).

Following the methodology used in the multi-country project, data for this study were gathered primarily through direct physical observation of provider attendance, followed by interviews with school directors and individual teachers, carried out during unannounced visits to a random sample

of 100 public primary schools distributed in seven regions representative of the coast, *sierra* (or mountain region), and jungle of Peru.² Using a teacher roster and schedule obtained from the director, the enumerator drew up the list of teachers to be observed and interviewed.³ The enumerator then worked his or her way around the school twice, first to check on whether each teacher was present, then to carry out detailed teacher interviews.⁴ The calculations of absence later in this paper were based on the observations. To allow more than one observation of the attendance of each teacher, and to ensure that enumerators could interview many teachers who were absent during the first visit, each school in the sample was visited twice.

To complement the data collected through questionnaires at the school and individual level, we carried out a parallel effort to gather institutional information (described in section 4) about both the formal educational institutions and how these institutions work in practice. We collected this information by drawing on existing sources and by surveying a non-random sample of key informants—higher-level education officials, non-government experts, and a sub-sample of head teachers.⁵

4. Institutional Context: A Lack of Incentives for Performance

Absence rates depend on the incentives and constraints faced by primary-school teachers, so it is important first to understand the institutional context in which they work. Peru's public education sector includes two types of teachers: regular ("*nombrados*") and non-regular ("*contratados*"). While regular teachers enjoy very high job stability, non-regular teachers are hired for a specific period (normally a school year), and their contracts may or may not be renewed for the next period. In

² Details on the sampling procedures are available from the authors.

³ The list included all of the teachers normally scheduled to be on duty, unless the school had more than 15 teachers, in which case a random sample of 15 was selected.

⁴ If instead the enumerator had stopped in each room long enough to interview the teacher before verifying the presence of the other teachers on the list, it is possible that the director would have had time to get word to absent teachers that they should return to the school in time to be recorded as present. Note that the visits were staggered throughout the school day, to ensure that the survey was not simply counting late arrivals as absent teachers.

⁵ Six experts (government officials, ex government officials and non-government experts) and ten school directors filled an institutional questionnaire.

addition, regular teachers enjoy various benefits—including vacations, leaves of absence, and pensions—that non-regular teachers do not receive. In 2002, approximately 17.5 percent of all public-school teachers (preschool, primary, and secondary) were non-regular. The number of non-regular teachers had decreased substantially in previous years, as large national “competitions” were held to cover existing teachers’ posts with new regular teachers.⁶

The legal framework that governs the teacher’s career can fairly be described as a hierarchical system in which teachers move up by fulfilling formal requirements after a given number of years of experience.⁷ By law, regular teachers enjoy a very high degree of security in their posts, so that they face virtually no risk of being dismissed for excessive absenteeism. Moreover, interviews with informed respondents indicate that in practice, there is very little incentive to perform well and few penalties for performing badly.

Hiring and Assignment

According to the law, teachers enter the public system as regular teachers (*nombrados*) after evaluation by the regional intermediate education units. For many years, because of budgetary restrictions, intermediate units were not allowed to hire new teachers as regular teachers, and so most hirings were non-regular. In 2001, the government implemented new procedures to regularize teachers and hire new ones. The hiring of regular teachers is now based on large national competitions, which include written examinations organized by the Ministry of Education. Applicants who obtain better grades in the evaluation are rewarded with more desirable posts. By law and in practice, once an assignment is made, a teacher is not re-assigned to another post without his or her explicit consent, except in very rare cases.

⁶ By “competitions” we mean the selection process designed to evaluate teachers. Within this process, teachers receive points through an exam and evaluation of professional experience.

⁷ The framework is set out in the *Ley del Profesorado* and the general *Law of Public Servant Careers*.

According to our non-random survey of a small but well-informed group of ministry officials and sector experts, in practice the most important factors affecting the hiring decision are the exam results and the academic level of the candidates. However, these same sector experts also cite illegal payments and political connections as very important factors affecting hiring.

Salaries and bonuses

According to salary data from soon before the survey, the average teacher salary is S/ 728.26 (US\$ 211) per month. Teachers that hold an education title (*titulados*) earn on average a larger salary than those that do not—S/ 787.88 (US\$ 228) y S/ 668.64 (US\$ 194), respectively⁸. In general, the differences in salary among the different career levels are quite small⁹, and the salary structure does not discriminate among specializations. Notably, there are no salary incentives related to performance.

These are the broad outlines of the salary system. It is important to note, however, that the system changes frequently in ways that are not coherent, rendering it very complex. In fact, the largest part of the total remuneration comes from special bonuses, including a bonus for rural postings.

Disciplinary Mechanisms

Disciplinary sanctions are determined by each decentralized implementing unit. In rare cases, pressure from individual schools principals and parent organizations can lead to the imposition of sanctions. Sanctions usually take the form of verbal or written warnings. Only in exceptional cases are teachers suspended or dismissed, and in these cases, the decentralized unit must follow a complex procedure to apply the sanction. According to our interviews, in recent years the primary reasons for the dismissal of teachers have been physical and sexual abuse of students, alcoholism, and other major misconduct. By contrast, milder sanctions are most often applied in response to

⁸ This information corresponds to year 1999 and is provided by Ministry of Education Staff Unit. Since then teachers have received flat salary increments of 50 soles in 2002, 100 soles in 2003, and 115 soles in 2004.

problems of absenteeism and other illegal behavior. According to the directors and sectors experts that we interviewed, it can take many months (if it is possible at all) to dismiss a teacher who has been absent for long and repeated periods.¹⁰

Summary: Effects on teacher incentives

Thus teachers appear to have few incentives to avoid absenteeism or minor misconduct, at least in practice. Hiring decisions are ostensibly made on merit but, according to informed observers, are substantially influenced by connections and bribery. Transfers to desirable locations appear also to be mediated by these non-meritocratic factors, reducing the incentive to perform well. Salary is set primarily based on tenure and characteristics of the job or location, rather than on performance in a given position. And serious disciplinary sanctions are sufficiently difficult to implement, in practice, that they appear unlikely to restrain teacher behavior.

We should note that the lack of formal incentives related to salary or tenure does not necessarily mean that teachers will perform poorly. First, it is possible that there are other non-salary-based pecuniary rewards, such as recognition or freedom from community displeasure. Second, and perhaps most importantly, teachers may be intrinsically motivated. This will depend on whether teacher selection procedures can effectively identify those who enter the profession for intrinsic reasons, and whether directors are able to create an environment that nurtures those motivations. We return to this discussion in Section 7 below.

⁹ Diaz and Saavedra (2000) analyzed salary structure and found that the difference between one level and the next fluctuates around 1.5 percent and 3 percent.

¹⁰ In the 100 schools in our sample, only four headmasters reported ever having fired a teacher for excessive absence, late arrival, or early departure. Although this is a much higher rate than found by a companion survey in India—where only 1 in 3000 public-school head teachers had ever done so (Kremer and others 2005)—it is most likely that those fired in Peru were contract teachers, not regular teachers. Only two head teachers reported ever having transferred a teacher for excessive absence, even though it should be easier to transfer a regular teacher than to fire one.

5. Descriptive Results: What is the Extent of Absence and Who is Absent?

In calculating teacher absence rates, we have taken what we believe to be a conservative approach, by excluding various categories of teachers who might artificially inflate the absence rate. First, we exclude an observation when the teacher is reported by the head teacher to have retired or been transferred, or is not supposed to work on the current shift. Because there is no way of verifying these claims using the facility-visit approach, this choice will make the overall absence estimates more conservative. Second, we further restrict the analysis to only those teachers who were reported to be working full time. Because we have already omitted teachers reported as being “on another shift,” this step should be superfluous. Nevertheless, it should remove any doubt about whether shift workers are counted as absent when they are not supposed to be on duty.

In calculating absence rates, we code as absent any teacher who could not be found *anywhere in the school* at the time of the random visit. Restricting the sample as described above gives us a database of 1643 absence observations, with each observation consisting of a teacher/round pair. In total the sample includes 834 fulltime teachers, of which most were observed twice each.¹¹

Within this sample, the overall teacher absence rate for the two rounds is 10.6 percent. There is substantial variation between the two rounds: 12.5 percent of teachers were absent during the first round of visits, compared with only 8.7 percent in the second round.¹² To place these figures in a comparative context, Table 1 gives the primary-teacher absence rates for six countries in the global teacher absence project and two other countries for which we have parallel surveys.

[INSERT TABLE 1 ABOUT HERE]

¹¹ The exact number varies by round, since a teacher may be excluded from one round but not the other, if her employment status or shift schedule has changed between the two rounds.

¹² This reduction is large enough to raise speculation that a “prior warning” effect (or “observation effect”) could have reduced absence during the second visit, especially given that a second-visit dummy is significant in several of the regressions in Section 7. Although the enumerators reported no evidence of such an effect, it is therefore conceivable that Peru’s actual absence rate is somewhat higher than reported here.

Peru has the lowest rate in this sample of countries, but that ranking does not necessarily imply that teacher absence is not a problem. First, it does not indicate whether Peru would be performing well on teacher absence once we controlled for other characteristics. In fact, on the simple regression line relating income to absence, Peru does not appear to be an outlier (Chaudhury, Hammer, Kremer, Muralidharan, and Rogers Forthcoming) . Second, as we will see below, teacher absence in Peru is concentrated in precisely the areas—notably poor and rural communities—that are most disadvantaged in terms of educational attainment.

What reported reasons are given for these teachers' absence? Table 2 shows that of the teachers who were recorded as absent by our survey enumerators, only about 21 percent were reported to be out of school for reasons that would generate a leave record of some kind—that is, authorized leave and sickness. Another 13 percent were reported as being away from the school on some official duty. Thus even if we take the “official duties” and leave reports at face value, we are left with two-thirds of the absent teachers who are out of school for other reasons. A quarter of the absent (26 percent) were missing for reasons that were neither connected with official duties nor with the authorized leave. And the plurality (41.8 percent) consists of teachers for whom the head teacher provided no reason—typically because the head teacher had reported the teacher as present, even though the enumerators were unable to find the teacher in the school.

[INSERT TABLE 2 ABOUT HERE]

A final question concerns the distribution of absences: do a small number of teachers account for the bulk of the absences, or is the problem widespread? Analysis in the multi-country paper shows that in Peru, unlike neighboring Ecuador, the distribution is consistent with a widely shared absence problem (Chaudhury, Hammer, Kremer, Muralidharan, and Rogers Forthcoming).

6. Absence summary statistics: Some simple correlations

Before turning to multivariate analysis of the absence data, it is worth seeing how absence correlates with certain geographic, individual, school, and institutional variables. Table 3 provides evidence for the view that teacher absence is concentrated in poor and more remote areas. Teachers at schools in

higher-poverty districts are absent 15.6 percent of the time, or twice as often as other teachers. For teachers at remote schools (measured by distance to a paved road), absence rates are 21.4 percent, or two and a half times those of other teachers; and rates are nearly double for schools with multigrade teaching, which is common in low-density rural areas.

If we turn to look at the individual characteristics in Table 3, we see that women are considerably (and significantly) less likely to be absent than are men, and parents have slightly lower absence rates than non-parents, which casts some doubt on the possibility that competing domestic responsibilities are a major cause of absence. Two measures of attachment to the teaching force—whether the teacher holds an education degree and whether he or she is employed as a civil servant—are associated with lower absence rates. By contrast, a measure of attachment to the local community, a dummy indicating whether the teacher was born in the district where the school is located, is not associated with significantly lower absence rates (although the multivariate results below tell a different story). Table 3 also shows that non-tenured teachers were absent at significantly higher rates than tenured ones. This is despite the fact that those without tenure can more easily be sanctioned for poor performance (including absenteeism), through non-renewal of their contracts. Their higher absence rate may reflect their low attachment to the post or lower expectations of staying in the job; it could also reflect selection, if the better-performing contract teachers were selected in competitions to become regular teachers.

Table 3 also includes three indicators of institutional characteristics that might be expected to provide incentives for better attendance. Proximity to a Ministry of Education office may proxy for intensity of inspections and monitoring by the education bureaucracy. As noted above, active oversight and involvement of the local community may improve performance through better monitoring; one admittedly imperfect measure of active involvement, which we use below, is how recently the local school parents' committee (APAFa) has met. Similarly, implementation of programs to recognize good teachers could be expected to improve teacher attendance. As Table 3 shows, however, none of these indicators is associated with significantly lower teacher absence, perhaps because of problems of reverse causation.

[INSERT TABLE 3 ABOUT HERE]

7. Why Are Teachers Absent?

This section uses multivariate analysis to isolate correlations with various factors that may affect absence. As an econometric specification in this section, we use primarily a random-effects ordinary least squares for what is in effect a two-visit panel, with each individual teacher serving as the i variable.¹³ The dependent variable is an absence dummy variable: 1 if the teacher was absent during that visit, 0 if he or she was present.

Community characteristics: Poverty and remoteness

We focus first on community-level variables—that is, the regressors that are most exogenous to the attendance decision of the teacher.

Poverty: Across countries and across Indian states, national and per-capita income is a strong predictor of teacher absence rates (Chaudhury, Hammer, Kremer, Muralidharan, and Rogers Forthcoming). In our regressions (Table 4), the district-level poverty rate proxies for income level. Column 1 shows that higher poverty strongly predicts higher absence rates: increasing the district poverty rate from 0 to 100 percent increases the predicted teacher absence rate by 15.3 percentage points. Even when other variables are included, the poverty coefficient remains large and significant, with one major exception discussed below.

[INSERT TABLE 4 ABOUT HERE]

Remoteness: The remoteness of a school may also predict higher absence, for two reasons. The first is logistical: transportation difficulties in remote areas may make it harder for a teacher to arrive

¹³ One alternative would be to use ordered probit; under this alternative, the dependent variable would be the number of times a teacher had been absent over the two visits (0, 1, or 2). Our specification has the advantage of making use of the information for teachers who are in the dataset for only one of the two visits—for example, those who were on staff at the time of the first visit, but had been transferred before the second visit. A second alternative would be random-effects probit. While that alternative makes sense, given that the dependent variable (whether the provider is absent) is a 0,1 variable, the random-effects OLS has the advantage that coefficients are immediately interpretable as the marginal effects of a one-unit change in the regressor. And significance results are highly robust to the approach used: the probit results closely track the OLS estimates, with only a few variables showing weaker statistical significance in some specifications.

at school on time. Second, from the perspective of teacher motivation, teachers may find remote posts less attractive. Teachers in these remote locations may spend more time away from their postings, for example heading to urban areas for weekends. A previous study on incentives for teachers working on rural and remote areas in Peru found that one of the main reasons for teacher dissatisfaction with their assigned post was that the teachers have to live separated from their immediate relatives (Alcázar and Pollarolo 2000).¹⁴ The finding on distribution of absences through the week (not shown) is consistent with this story. Compared with Tuesday, the lowest-absence day, the coefficients for the Monday, Thursday, and Friday dummies are large (always between 2 and 6.5 percentage points) and often statistically significant, suggesting that staff were often absent on what could be long weekends.

Being located 15 or more kilometers away from a paved road raises the predicted probability of absence by some 8 to 12 percentage points, a very large effect (Column 2).¹⁵ Note that this strong association survives in almost all specifications, despite the inclusion of the highly correlated poverty variable; the distant-road variable loses significance only when a large number of correlated school variables are included.

Interestingly, once the distance-to-paved-road and poverty variables are included, the coefficient on the district-level “Rural area” variable turns negative. Why might we see this surprising result? One possibility is that the negative coefficient on *Rural area* reflects the effect of rural-area incentives and bonuses given to teachers posted in officially designated rural areas, if these bonuses induce better performance in a way that largely offsets the increases absence associated with remote areas. This possibility is intriguing, but would require further evidence. For one thing, the bonus is relatively small, at less than 10 percent of base salary; for another, some urban teachers who were formerly designated as “rural teachers” still receive the bonus.

¹⁴ Consistent with this story, in our sample the absence rate for teachers with school-age children who lived apart from them was 18 percent, compared with 9 percent for other teachers.

¹⁵ Where this variable was missing, we substituted a time measure of distance, which we had also collected. In these cases, the paved road was coded as “distant” if it was at least 2 hours away from the school.

Note that by contrast to the poverty and remoteness measures, none of the department dummies (not shown) are statistically significant. (Departments in Peru are the highest level of sub-national jurisdictions, and are analogous to states in many other countries.)

Parental education levels: Education levels in the community may affect absence through a variety of channels, including the greater ability of literate parents to judge the quality of students' education. We collected data on parents' education: for a random sample of 4th-graders, teachers were asked whether each selected student's mother and father were literate (with input from the student if necessary).

Although poverty and literacy are highly collinear, Column 5 of Table 4 shows that when both variables are included, teachers at schools with more literate mothers remain significantly less likely to be absent. With a coefficient of around -0.09, increasing the literacy rate by one standard deviation reduces predicted absence by about 2 percentage points.

Teacher demographic characteristics

Beyond the community characteristics, the characteristics of the individual teacher—training, age, gender, marital status, rank—may affect attendance. First we look at the individual demographic characteristics of the teachers. Columns 3, 4, 5, and 6 of Table 4 suggest that in the case of Peru, there are no significant gender differences. The same is true for other obvious demographic characteristics, such as marital status, age, and parental status.

Financial incentives

Salary: The survey did not collect salary information directly, because confidentiality could not be assured during teacher interviews and because teachers are generally paid according to a standardized grid that translates variables such as experience, education, and rank into pay levels. When we examine these variables directly, we see no negative correlation with absence. Experience is uncorrelated with absence (not shown here), while teachers who are more educated (those with a college degree) and hence paid more are actually absent at higher rates than less educated teachers.

Similarly, a dummy for teachers who have received training within the previous 12 months (not shown here) was not significant either.

As for rank, head teachers also earn higher salaries than other teachers but are more absent. Research on other countries has found that, after other factors are controlled for, head teachers and doctors are absent from primary facilities more often than other personnel (Chaudhury, Hammer, Kremer, Muralidharan, and Rogers Forthcoming). This may be because they have more administrative duties outside the facility, but may also represent their greater power and ability to get away with frequent absence. Table 4 finds the same pattern in Peru: head teachers are absent at rates 5 to 13 percentage points higher than other civil-servant teachers, with the effect generally significant.

Contract status: As we have seen from the summary of the institutions of the educational system, regular (civil-service) teachers in Peru have few obvious pecuniary incentives for good performance. In such a setting, a naïve incentive model would predict that contract teachers might exert more effort on the job, at least if performance affects the probability of a contract renewal.

In fact, Table 4 shows the opposite: contract teachers are 12 to 13 percentage points more likely to be absent than civil-service teachers. What might account for this perverse effect of contract status? One possibility is that contract teachers are paid less, and lower pay is likely to be associated with various characteristics that could increase absence—poorer living conditions and less support at home. But it is also possible that the teacher’s contract status itself contributes to absence. If a contract teacher is uncertain about her continued employment, the optimal allocation of her time may include some income-earning efforts outside of school, as well as some time spent looking for more permanent employment opportunities. The data are at least consistent with this possibility: 57 percent of contract teachers report outside employment or income-earning activities, compared with just 42 percent of regular teachers.

Furthermore, a contract teacher may have fewer non-pecuniary incentives for effort. Since the school has not made a long-term commitment to the teacher, the teacher may feel less attachment to the school, and less responsibility for the welfare of students. As large national competitions have allowed many contract teachers to convert to regular-teacher status, those that remain as contract

teachers may feel disappointed and less motivated. It is also possible that those who remained as contract teachers after the exercise were particularly weak teachers.

Monitoring and discipline

Top-down monitoring: One possible mechanism for inducing greater teacher effort is frequent unannounced inspections by local or Ministry of Education officials. In Table 4, we include a dummy variable indicating whether the school has been visited by an inspector either this month or last month. The coefficient on that variable, contrary to the monitoring-based prediction, is neither large nor significant.

One problem with this test is the possibility of reverse causation: serious attendance problems at a school may induce inspectors to visit the school more often, which would dampen or even reverse the expected relationship between inspections and absence.¹⁶ But alternative proxies for top-down monitoring intensity—the share of schools within the province that have had recent inspections (excluding the school itself), and the distance to the nearest Ministry of Education office—show no more evidence of correlation with absence than does the variable reported here. In short, there is little evidence for the inspections story, perhaps because inspections are believed by teachers to have no consequences.

School-level discipline: Attendance may depend on the management style of the school director, including his or her willingness to use disciplinary measures when necessary. In the school survey, head teachers were presented with a list of disciplinary measures, and asked in turn whether they had ever used each of the measures to discipline teachers. From this survey data, we have constructed a weighted index of the disciplinary intensity of the school director (from six points given for dismissal of a teacher to one point for an oral warning). Column 5 of Table 4 shows that this

¹⁶ While this reverse causality is a theoretical possibility, and we attempt to account for it in the analysis below, our institutional survey suggests that it is unlikely. Inspections are not viewed as a serious deterrent to absence, nor as even a serious attempt to monitor and improve performance.

measure is insignificant; and so are an unweighted index and a provincial-level mean discipline index (not shown here).¹⁷

Parental monitoring: An emerging strain of the education service-delivery literature emphasizes the positive role that community involvement can play in school management. The study from Nicaragua cited earlier, for example, suggests that giving greater discretion to parents and communities can reduce teacher absence. The most obvious vehicle for parental involvement in the management of Peruvian primary schools is the parents' association (APAFA). Yet in our data, measures of the activity level of the APAFA (such as whether it had met in the past two months) do not predict lower absence; this result does not change if we switch to a province-level measure of parental involvement.

This measure may not fully capture the effects of parental monitoring, however. What may be most important is having informed parents who have the knowledge and connections necessary to discipline poorly performing school directors or teachers. The significant effect of parental literacy rates, mentioned above, could reflect parental monitoring.

Non-pecuniary incentives: Community ties and working conditions

In environments where monitoring and discipline are infrequent and ineffective, pecuniary incentives for performance may have limited effects. We might expect to find greater effects from non-pecuniary incentives that do not depend on monitoring—incentives such as the opportunity to help the community and attractive working conditions.

Ties to the local area and school: If social pressure on teachers and intrinsic orientation toward service to the community are important, then teachers who come from the area near the school might have lower absence rates. In our data, this effect comes through strongly. A teacher who is

¹⁷ Of course, it is also possible that disciplinary action does make a difference, but that actions are more likely to be taken in schools with a greater absence problem, so that the net effect in the data is near zero. Using the provincial-level mean may not entirely eliminate this problem.

born in the district where the school is located has a much lower absence rate—typically some 6 percentage points lower—and the effect is generally highly significant.

By contrast, another plausible measure of ties to the community—the teacher’s tenure at the school—does not enter significantly. It might be hypothesized that a teacher with longer tenure will feel a greater connection to the community, increasing her non-pecuniary motivation. But in our regressions (not shown here), tenure has no effect at all, even with a quadratic term included.

School size could also affect the degree of responsibility the teacher feels to his or her students. Table 4 shows that teachers in larger schools are more likely to be absent than those in smaller schools: increasing the number of teachers in a school by one standard deviation (9.2 teachers), for example, would be associated with roughly a 2-percentage-point increase in the probability of absence. One possible interpretation of this result is that some teachers take advantage of the more diffuse responsibility that comes with a larger school.

Working conditions—School infrastructure and equipment: Another factor that may influence teacher absence is the quality of the school’s infrastructure and facilities. Like other employees, teachers are likely to prefer a workplace that has more comforts, as well as better school supplies. For this regression, we use as a summary measure a dummy variable indicating whether the school has bathroom facilities. This variable is highly significant (at 1 percent level) and very large, at about 21 percentage points.

Since that result is driven by a small number of schools, we look also at other types of school infrastructure and equipment. We include as regressor an infrastructure index, ranging from 0 to 6, that gives equal weight to availability of potable water, electricity, lighting, library facilities, computers, and staffroom. Table 4 shows that this measure is also significant, with a one-standard-deviation increase in the index (about 1.7 points) corresponding to a 2-percentage-point decrease in absence. All this is consistent with the working-conditions story of motivation.

Competition from private schooling

Another possible source of performance pressure on school directors and teachers is competition from private schools in the local area. If some students have a credible exit option, or if the private school serves to benchmark performance, the public schools may feel pressured to improve (Hoxby 1994).¹⁸ The last column of Table 4 includes a dummy variable indicating whether the head teacher reports the existence of any private schools in the town or city where the school is located.¹⁹ The results show that the private competition is associated with sharply lower absence rates (about 5 percentage points lower). Since this variable comes from the head teacher rather than official records, it could be a noisy measure of whether any private schools actually exist. Nevertheless, it should be quite a good measure of whether the head teacher is *aware* of competing private schools.

Note that if absenteeism of public school teachers makes parents seek out private alternatives for education of their children reverse causality would lead to the opposite correlation. However, both variables may reflect an omitted third factor: strong community demand for education may increase parental pressure on the public schools, while at the same time making parents more willing to pay for private schooling.

8. Summary and Conclusions

Primary-school teachers in Peru are absent from their schools 11 percent of the time when they would ordinarily be scheduled to work. While this overall absence rate is low compared with those of other survey countries, the absence rates in Peru's poorest and remotest communities are much higher—16 percent and 21 percent, respectively.

¹⁸ A positive correlation seems less likely; however, one could imagine a situation in which the private school cream-skims the best students, reducing the motivation and attendance rates of public-school teachers.

¹⁹ The question was actually “how many” private schools there were in the town. The question was not asked in Lima/Callao, the capital area, where the difficulty of specifying the relevant area seemed too great, and where we knew *ex ante* that there would be a private school. In coding the private-competition dummy variable, we have set it equal to 1 for all teachers in Lima/Callao.

What factors might explain high absence rates? Using random-effects OLS estimation, we found first that fundamental community characteristics matter.²⁰ A community's remoteness and poverty level are strong predictors of higher absence among teachers in its primary school, as is lower literacy among the parents of students. These factors could affect teacher absence through various channels, including by worsening the work environment for teachers and by reducing the ability of communities to induce good teacher performance.

Even after controlling for these community variables, certain teachers have consistently higher absence rates: contract teachers (those who are not civil servants), head teachers, and those who are born outside the district where they work. By contrast, teacher demographic characteristics such as gender, age, and marital status are not significant predictors of absence

Our results provide some support for the idea that non-pecuniary motivations spur better performance in Peru, at least in terms of teacher attendance. First, working conditions seem to be important. Absence is higher not only in communities that are poorer and more remote—and hence less desirable to teachers—but also in schools with poorer infrastructure. Second, teachers born within the school's district are much less likely to be absent, suggesting that local ties may restrain potentially opportunistic behavior.

By contrast, we did not find strong evidence supporting models of pecuniary incentives for performance. Our proxies for salaries, labor-market exposure, formal inspections, discipline, and local monitoring generally failed to correlate with lower absence. However, the variables included in the analysis may not be good proxies for pecuniary/formal incentives, especially when our review of the institutional context suggested that Peru has no effective discipline or monitoring mechanisms for teachers. In such a context, the salary level may not provide an incentive for attendance at all.

²⁰ Although we summarize the OLS random-effects results here, most of the significant results discussed here retained their significance in an alternative random-effects probit specification. There were three main exceptions: the general infrastructure index and the maternal literacy rate retain their signs but lose their significance, while the head-teacher dummy loses significance in two specifications.

In fact, the results could prompt the question of why absence rates are not higher, given the lack of formal incentives for performance.²¹

Our finding that contract teachers are absent at much higher rates than are civil servants might seem surprising; contract teachers should face better incentives for performance, since they can be easily penalized by not having their contracts renewed. However, these teachers may have fewer non-pecuniary incentives for effort, since the school or system in general has not made a long-term commitment to them. Since contract teachers are viewed as an attractive low-cost option for expanding schools in many countries, the question of their motivation levels clearly warrants further study.

²¹ One possibility is that teachers are affected by persistent behavioral norms that support better performance—the flip side of the poor-performance Indian norms discussed by Basu (2006). It is not obvious how we would test this hypothesis with our data, however.

Acknowledgements

This survey research was carried out as part of the World Development Report 2004's "Provider Absence in Education and Health" research project. Generous financial support from the Global Development Network and the Partnership for Educational Revitalization in the Americas (PREAL) made the survey possible, while the UK Department for International Development generously supported the overall project and the data analysis. We thank the government of Peru for authorizing us to carry out the survey and for providing further information on the institutional features of the educational system. We are also grateful to the field survey team at Instituto Apoyo—especially Erik Wachtenheim, Regina Cortez, Cesar Cancho, and Arturo Rubio—for their contributions and dedication. For guidance and support on the multicountry project, we thank Shantayanan Devarajan and Ritva Reinikka. For their comments, we thank Santiago Cueto, the participants at the Global Development Network's New Delhi workshop on Provider Absence, and Peter Dolton and the participants of the Prague GDN Education Conference. We are grateful to Rodrigo Lovatón, Jorge Noriega, Mona Steffen, and Konstantin Styrin for their excellent assistance in cleaning and analyzing the data. Finally, we are deeply thankful to the many primary-school teachers and directors who consented to be interviewed; we hope that this paper will contribute to improving the educational system to which they have dedicated their careers. This paper represents the views of the authors and does not necessarily reflect the views of the World Bank, its Executive Directors, or the governments they represent.

References

- Alcázar, L., & Pollarolo, P. (2000). *Alternativas para Mejorar el Sistema de Bonificaciones a Plazas Docentes de Zonas Rurales y Otras Condiciones Especiales*. Lima, Peru: Ministry of Education, MECEP Working Paper No.5.
- Basu, K. (2006). Teacher Truancy in India: The Role of Culture, Norms and Economic Incentives. BREAD Working Paper No. 112.
- Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K., & Rogers, H. (Forthcoming). Missing in Action: Teacher and Health Workers Absence in Developing Countries. *Journal of Economic Perspectives*.
- Cueto, S., & Alcázar, L. (2004). Informe Final de Análisis de Datos de Línea Base. Plan Piloto de Bonificaciones Especiales a Docentes en Zonas Rurales. Lima, Peru: GRADE.
- Das, J., Dercon, S., Habyarimana, J., & Krishnan, P. (2005). Teacher Shocks and Student Learning: Evidence from Zambia. Washington, DC. World Bank Policy Research Paper.
- Diaz, H., & Saavedra, J. (2002). Peru: Sobran regulaciones, faltan estímulos. In C. Navarro (Ed.), *¿Quiénes son los maestros? Carreras e incentivos docentes en América Latina* (pp. 143-211). Washington, DC: Interamerican Development Bank.
- Ehrenberg, R., Rees, D., & Ehrenberg, E. (1991). School District Leave Policies, Teacher Absenteeism and Student Achievement. *Journal of Human Resources*, 26(1), pp. 72-105.
- Glewe, P., Kremer, M., & Moulin, S. (1999). Textbooks and Test Scores: Evidence from a Prospective Evaluation in Kenya. Working Paper. Harvard University.
- Hoxby, C. (1994). Do Private Schools Provide Competition For Public Schools? *National Bureau of Economic Research Working Paper*: 34.
- King, E., & Ozler, B. (2001). What's Decentralization Got To Do With Learning? Endogenous School Quality and Student Performance in Nicaragua. Washington DC: The World Bank.
- Montero, C., Oliart, P., Ames, P., Cabrera, Z., & Ucelli, F. (2001). *La Escuela Rural: Modalidades y Prioridades de Intervención*. Lima, Peru: MECEP Working Paper No. 2.
- Norton, M. S. (1998). Teacher Absenteeism: A Growing Dilemma in Education. *Contemporary Education*, 69(2), pp. 95-99.
- PROBE Team. (1999). *Public Report on Basic Education in India*. New Delhi: Oxford University Press.

Rogers, H., Lopez-Calix, J.R., Cordoba, N., Chaudhury, N., Hammer, J., Kremer, M., & Muralidharan, K. (2004). Teacher Absence, Incentives, and Service Delivery in Ecuadorian Primary Education: Results from a New National Survey. Washington, DC: The World Bank.

World Bank. (2004). Papua New Guinea: Public Expenditure Service Delivery. Discussion Draft. Washington, DC: World Bank.

Table 1
Primary School Teachers Absence:
Evidence from the Multicountry Study

	Absence rate (%)
Bangladesh	16
Ecuador	14
India	25
Indonesia	19
Peru	11
Uganda	27

Note: Providers were counted as absent if they could not be found in the facility for any reason at the time of a random unannounced spot check (see text for further detail).

Source: Chaudhury and others (Forthcoming)

Table 2
Reasons given by school directors
for the absence of full-time teachers

	Number of teachers	Percentage of those absent
Official teaching-related duty	14	8.1
Leave for administrative tasks	8	4.6
Sick	16	9.3
Authorized leave	24	13.9
Expected to arrive later	4	2.3
Went to pick up salary	4	2.3
Unauthorized absence	17	9.9
Suspended	5	2.9
Other	9	5.2
No reason given	72	41.8
Total absent	173	100

Source: Authors' calculations

Table 3: Teacher absence rates by correlates of interest

	Mean absence rate (%)		Mean absence rate (%)	Difference
<i>Teacher characteristics</i>				
Female	9.3	Male	13.3	-4.0*
Born this district	8.0	Not born in this district	9.8	-1.8
Contract teacher	19.7	Civil service teacher	9.6	10.1*
Head teacher	22.8	Other teacher	10.0	12.8*
Requested assignment to this school	8.2	Did not request assignment to this school	11.4	-3.2*
Bachelor's degree	11.2	No bachelor's degree	9.0	2.2
Post-graduate degree	14.0	No post-graduate degree	9.8	4.2
Professional degree (titulado)	9.6	No professional degree	14.5	-4.9
Parent	9.5	Not a parent	11.1	-1.6
<i>School characteristics</i>				
Distance to paved road <15km	8.6	Distance to paved road >15km	20.2	-11.6*
Distance to Ministry of Education <15km	10.4	Distance to Ministry of Education >15km	11.4	-1.0
Rural area	15.6	Urban area	9.2	6.4*
Infrastructure: School has toilet facilities	9.9	Infrastructure: School has no toilet	37.5	-27.6*
Infrastructure index (excl. toilet) < median	11.1	Infrastructure index (excl. toilet) > median	8.5	2.6
Discipline index below median	10.5	Discipline index above median	10.5	0.0
School recently inspected	9.5	School not recently inspected	11.8	-2.3
School size below median	11.7	School size above median	9.1	2.6
Recent parent meeting	12.1	No recent parent meeting	8.4	3.7*
Teacher recognition program	12.6	No teacher recognition program	9.3	3.3*
Multigrade teaching	19.1	No multigrade teaching	9.9	9.2*
<i>Community characteristics</i>				
Maternal literacy rate below 85%	14.2	Maternal literacy rate above 85%	8.3	5.9*
Poverty rate below 60%	7.9	Poverty rate above 60%	15.4	-7.5*
Private school exists in town	7.7	No private school in town	16.7	-9.0*
<i>Day of observation</i>				
Monday	13.0	Other days	9.6	3.4*
Tuesday	5.6	Other days	11.7	-6.1*
Wednesday	9.0	Other days	11.0	-2.0
Thursday	13.2	Other days	9.9	3.3
Friday	12.8	Other days	10.2	2.6
<i>Department:</i>				
Amazonas	14.4	Other departments	10.2	4.2
Ancash	17.8	Other departments	10.1	7.7*
Ayacucho	13.3	Other departments	10.2	3.1
Callao	11.9	Other departments	10.4	1.5
Huancavelica	17.6	Other departments	10.1	7.5*
Ica	9.4	Other departments	10.6	-1.2
Piura	10.4	Other departments	10.5	-0.1
San Martin	14.3	Other departments	10.1	4.2
Lima	7.0	Other departments	13.0	-6.0*
First round of survey	12.1	Second round of survey	8.8	3.3*

Note: * significant at 5% level.

Table 4
Correlates of teacher absence (Random-effects OLS)

	(1)	(2)	(3)	(4)	(5)	(6)
Poverty rate (district, %)	0.153** [0.056]	0.160* [0.066]	0.139* [0.062]	0.026 [0.074]	0.146* [0.066]	0.105 [0.065]
Remote school: Nearest paved road >15 km away		0.110** [0.030]	0.105** [0.029]	0.052 [0.034]	0.097** [0.029]	0.089** [0.029]
Rural area		-0.068* [0.034]	-0.079* [0.032]	-0.054 [0.035]	-0.077* [0.033]	-0.087** [0.033]
Male			0.018 [0.017]	0.023 [0.018]	0.007 [0.018]	0.016 [0.017]
Local origins: Teacher born in this district			-0.066** [0.022]	-0.049* [0.023]	-0.066** [0.023]	-0.063** [0.023]
Contract teacher			0.125** [0.036]	0.123** [0.038]	0.128** [0.037]	0.127** [0.037]
Head teacher			0.076+ [0.041]	0.129** [0.047]	0.048 [0.042]	0.071+ [0.041]
Infrastructure: School has some toilet facilities				-0.208** [0.071]		
Infrastructure: Index (excl. bathrooms), range 0-6				-0.013+ [0.008]		
Discipline: Weighted index (range, 0-19)				-0.002 [0.003]		
Inspections: School inspected this month or last month				0.006 [0.018]		
Maternal literacy rate (known)				-0.096+ [0.058]		
School size: Total number of teachers on staff				0.002+ [0.001]		
Teacher requested assignment here					-0.042* [0.016]	
Teacher completed bachelor's degree					0.043* [0.017]	
Teacher completed postgraduate degree					0.067 [0.047]	
Private competition: Private school exists in town						-0.055* [0.026]
Survey: Second round of observations	-0.024 [0.015]	-0.027+ [0.015]	-0.030* [0.015]	-0.026 [0.016]	-0.033* [0.016]	-0.030* [0.015]
Constant	0.031 [0.025]	0.031 [0.027]	0.028 [0.026]	0.378** [0.096]	0.029 [0.030]	0.091* [0.040]
Observations	1643	1629	1548	1330	1428	1524
Number of Unique teacher ID	882	874	828	746	764	816
Wald chi2	44.0549	59.2284	83.2318	90.0876	88.6580	88.6348

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

Notes: (1) All regressions include dummy variables for the day of the week and the department in which the school is located.

(2) Standard errors in brackets

Appendix Table 1
Summary statistics for key variables

Variable	Mean	Standard Deviation	N
Teacher was absent at time of observation	0.105	0.306	1,643
Poverty rate (district, %)	0.541	0.269	1,648
Remote school: Nearest paved road >15 km away	0.162	0.369	1,630
Rural area	0.205	0.404	1,648
Male	0.288	0.453	1,644
Local origins: Born in this district	0.156	0.363	1,599
Contract teacher (no civil-service rank)	0.045	0.207	1,584
Head teacher	0.035	0.185	1,644
Infrastructure: School has some toilet facilities	0.981	0.138	1,644
Infrastructure: Index (excl. bathrooms), range 0-6	4.202	1.701	1,640
Discipline: Weighted index (range, 0-19)	4.001	3.846	1,622
Inspections: School inspected this month or last month	0.466	0.499	1,566
Maternal literacy rate	0.859	0.229	1,481
Teacher requested assignment at this school	0.395	0.489	1,576
Completed bachelor's degree	0.387	0.487	1,518
Completed post-graduate degree	0.028	0.166	1,518
Private competition: Private school exists in town	0.689	0.463	1,620
Day of observation:			
<i>Monday</i>	0.263	0.440	1,644
<i>Tuesday</i>	0.196	0.397	1,644
<i>Wednesday</i>	0.270	0.444	1,644
<i>Thursday</i>	0.165	0.372	1,644
<i>Friday</i>	0.105	0.307	1,644
Department:			
<i>Amazonas</i>	0.056	0.231	1,648
<i>Ancash</i>	0.044	0.206	1,648
<i>Ayacucho</i>	0.101	0.301	1,648
<i>Callao</i>	0.051	0.220	1,648
<i>Huancavelica</i>	0.052	0.221	1,648
<i>Ica</i>	0.109	0.312	1,648
<i>Piura</i>	0.082	0.274	1,648
<i>San Martin</i>	0.082	0.274	1,648
<i>Lima</i>	0.423	0.494	1,648
Survey: Second round of observations	0.491	0.500	1,648
Number of teachers			883