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Missing in Action: Teacher and Health Worker Absence in Developing Countries

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In this paper, we report results from surveys in which enumerators made unannounced visits to primary schools and health clinics in Bangladesh, Ecuador, India, Indonesia, Peru and Uganda and recorded whether they found teachers and health workers in the facilities.[1] Averaging across the countries, about 19 percent of teachers and 35 percent of health workers were absent, as shown in Table 1. The survey focused on whether providers were present in their facilities, but since many providers who were at their facilities were not working, even these figures may present too favorable a picture. For example, in India, one-quarter of government primary school teachers were absent from school, but only about one-half of the teachers were actually teaching when enumerators arrived at the schools.

We find that absence rates are generally higher in poorer regions. Absence is typically fairly widespread, rather than being concentrated on a small number of

[1] A number of researchers have examined the problem of absence among education and health providers in recent years (Alcázar and Andrade, 2001; Banerjee, Deaton and Duflo, 2004; Begum and Sen, 1997; Chaudhury and Hammer, 2003; Das, Dercon, Habyarimana and Krishnan, 2005; Glewwe, Kremer and Moulin, 1999; King, Orazem and Paterno, 1999; Kingdon and Muzammil, 2001; Pandey, 2005; Pratichi Education Team, 2002; PROBE Team, 1999; Sen, 1997; World Bank 2003; 2004). This paper measures teacher and health worker absence in nearly nationally representative samples in several countries using a common methodology based on direct observations during unannounced visits.

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Table 1
Provider Absence Rates by Country and Sector

	Absence rates (%) in	
	Primary schools	*Primary health centers*
Bangladesh	16	35
Ecuador	14	—
India	25	40
Indonesia	19	40
Peru	11	25
Uganda	27	37
Unweighted average	**19**	**35**

Notes: 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). In Uganda, the sampled districts were divided into subcounties, and schools in subcounties with level III health centers comprise the school sampling frame. This sampling strategy may have had the effect of understated slightly the national absence rate there, given that schools in more rural areas appear to have higher absence rates.

"ghost" workers. Higher-ranking and more powerful providers, such as headmasters and doctors, are absent more often than lower-ranking ones; for example, averaging across countries, 39 percent of doctors were absent, while only 31 percent of other health workers were absent. Men are absent more often than women. Teachers from the local area are absent less often. There is little evidence that pay strongly affects absence (at least in the range of pay where we have data); by contrast, we do find evidence suggesting a role for the quality of infrastructure at the facility. This finding is consistent with the idea that teachers and health workers are extremely unlikely to be fired for absence, but that their decisions about whether to go to work are influenced by the working conditions they face. Contract teachers, who are not subject to civil service protection and earn a fraction of what civil service teachers earn, do not have lower absence rates. In India, we also examine absence rates among teachers in rural private schools and in locally managed nonformal education centers. Absence rates are high among these teachers as well, although private school teachers have lower absence than public teachers in the same village.

Much recent discussion of economic development revolves around the role of institutions. Much of this discussion focuses on property rights institutions, but it also seems possible that weak institutions for supplying public goods—education and health in particular—are a significant barrier to economic development in many countries.

Background on Education and Health Care Systems in Developing Countries

In many developing countries, including those in our survey, education and health systems are bifurcated, with a highly centralized and formalized government

system coexisting with a range of less formal arrangements. Hiring and financing decisions in the formal systems are made by the national government or, in India, by state governments responsible to millions of people. Teachers and health workers are typically unionized, and their unions are strong and politically influential. Teachers in low-income countries earn about four times GDP per capita, while their counterparts in rich countries earn only about two times per capita GDP (Bruns, Mingat and Rakotomalala, 2005). This is in part because teachers are more educated relative to the typical member of the labor force in poor countries, but the long queues of qualified people waiting to be hired as teachers in many developing countries suggest teachers also receive greater premia over market wages. The vast bulk of education budgets, and a large share of health budgets, go to pay salaries, and expenditure on nonsalary inputs is widely seen as inefficiently low (Pritchett and Filmer, 1999).

Hiring, salaries and promotion are determined largely by educational qualifications and seniority, with less scope for performance-based pay than in developed countries. General practitioners, for example, are typically paid a straight salary in developing countries—unlike in developed ones like the United Kingdom, where general practitioners in the National Health Service are typically paid based on the number of patients who sign up for their practice. Whereas many teachers in developed countries could aspire to become head teachers and education administrators, these promotion opportunities are cut off for many developing country teachers because they lack the necessary educational qualifications.

Wages under national civil-service systems are typically not fully responsive to local labor market conditions nor to individual characteristics and are often compressed relative to those in the private sector. Many teachers receive substantial rents in the form of wages that are higher than their outside options (as evidenced by the long queues of applicants for government teaching positions). However, it is likely that skilled medical personnel—doctors in particular—earn much smaller rents, and it is possible that if they were present in their clinics as frequently as stipulated as their official contracts, they would be much worse off than under alternative market opportunities and would quit the public system entirely.

While official rules provide for the possibility of punitive action in the case of repeated absence, disciplinary action for absences are rare. Teachers and health workers are almost never fired. Despite India's 25 percent teacher-absence rate, only one head teacher in our sample of nearly 3,000 Indian government-run schools reported a case in which a teacher was fired for repeated absence. The main form of sanctions for teachers would be a transfer to an undesirable location, but less than 1 percent of head teachers (18 out of nearly 3,000) report having gotten teachers transferred for repeated absence.

Given the rarity of disciplinary action for repeated absence, the mystery for economists may not be why absence from work is so high, but why anyone shows up at all. For many providers, the answer must be that important intrinsic and nonpecuniary motivations—such as professional pride or concern for the regard of peers—affect attendance decisions. In Peru, for example, an average of 89 percent

of teachers show up each day, despite an apparent lack of significant rewards or punishments related to teacher performance (Alcázar et al., 2005).

Against the background of these highly formalized and bureaucratized systems, a plethora of informal systems have grown up virtually outside the ambit of regulation. These include private schools and clinics that are not recognized by the government; publicly supported community-managed schools, such as nonformal education centers in India; and systems for hiring contract teachers at public schools outside of normal civil service rules. Teachers in these informal systems often have lower educational qualifications than their civil service counterparts, earn much less (often only a third as much or lower) and have little or no job security. Hiring and salary decisions are subject to more discretion, with less emphasis on formal educational qualifications. There are also a range of health providers outside of formal government systems, including many nonlicensed providers without medical education as well as government providers operating private practices on the side.

We conducted a survey focused on the presence of teachers and health workers at public primary schools and primary health centers to assess what would seem to constitute a minimal prima facie condition for efficacy of these systems. Surveys were typically close to nationally representative, but excluded some areas from the sampling frame for security or logistical reasons.[2] In rural India, enumerators also collected data from private schools and nonformal education centers located in the same village as public schools, and in Indonesia they also collected data from private schools. As we discuss below, absence rates are high in the informal sector as well as the formal sector.

Our absence data are based on direct physical verification of the provider's presence, rather than attendance logbooks or interviews with the facility head. In Bangladesh, Ecuador, Indonesia, Peru and Uganda, enumerators made two visits—typically several months apart—to each of about ten randomly chosen health care centers and ten randomly chosen public schools in each of ten randomly chosen districts. On average, we visited 100 schools and 100 health care centers in each country. With around eight providers in the average facility and two observations on each of these providers, we had an average of over 1,500 observations on teacher attendance in each country and an average of over 1,350 observations for health worker attendance in each country. In India, the survey was designed to be representative in each of 20 states, which together account for 98 percent of India's population. Three unannounced visits were made to each of about 3,000 public schools, over a span of three to four months. Since the average school in our sample has around four teachers, we have nearly 35,000 observations on teacher attendance. Similarly, enumerators made three unannounced visits to over 1,350 public clinics, and since these had an average of eight or nine health workers each, we have approximately 32,500 observations on health worker presence. The majority

[2] In Indonesia, the excluded provinces account for only about 8 percent of the country's population; in other countries, even less.

of the field work in all countries was carried out between October 2002 and April 2003.

A worker was counted as absent if, at the time of a random visit during facility hours, he or she was not in the school or health center. The enumerators for the survey took several measures to ensure that the rate of absence would not be overestimated. The list of employees used for checking attendance was created at the facility itself, based on staff lists and schedule information provided by the facility director or other principal respondent. Enumerators then checked the attendance only of those who were ordinarily supposed to be on duty at the time of the visit.[3] We omitted from the absence calculations all employees who were reported by the director as being on another shift, whether or not this could be verified. Only full-time employees were included in our analysis, to minimize the risk that shift workers would be counted as absent when they were not supposed to be on duty. Measured absences in education were slightly lower in later survey rounds, consistent with the hypothesis that awareness of the first round of the survey created a bit of a "warning effect" regarding the presence of the survey teams. Adjusting for survey round and time-of-day effects would increase the estimated teacher absence by 1–2 percentage points (Kremer et al., 2004). No similar effect was found in health.

We do not think that the absence rate is overstated because health workers were working outside the facility. At the beginning of the facility interview, the enumerator asked to see the schedule of all health workers. Only those assigned to work at the clinic on the day of the interview (as opposed, for example, to being assigned to a subclinic for that day) were included in the sample. Moreover, we did not find that health workers whose schedules include outreach or field work are absent more than those who are always supposed to be in the clinic, such as pharmacists. A recent detailed study in Rajasthan, which found absence rates similar to those we report, made efforts to track down nurses who were absent from health subcenters and found that only in 12 percent of cases of absence was the nurse in one of the villages served by her subcenter (Banerjee, Deaton and Duflo, 2004).

High Absence Rates

At 19 percent and 35 percent, respectively, absence rates among teachers and health care workers in developing countries are high relative to those of both their counterparts in developed countries and other workers in developing countries. Strictly comparable numbers are not available for the United States, but administrative data from a large sample of school districts in New York state in the mid-1980s revealed a mean absence rate of 5 percent (Ehrenberg, Rees and

[3] This included employees who might have been on authorized leave that day, although as we argue below, reports of leave were often not credible.

Ehrenberg, 1991). Even among Indian factory workers, who enjoy a high degree of job security due to rigid labor laws, reported absence rates are only around 10.5 percent (Ministry of Labor Industry Survey 2000–2001), much lower than the 25 and 40 percent rates of absence among Indian teachers and medical personnel, respectively.

The welfare consequence of teacher and health worker absence may be even greater in the countries that we surveyed than they would be in developed countries. In low-income countries, substitutes rarely replace absent teachers, and so students simply mill around, go home or join another class, often of a different grade. Small schools and clinics are common in rural areas of developing countries, and these may be closed entirely as a result of provider absence. In nearly 12 percent of the visits, enumerators in India encountered schools that were closed because no teacher was present. An estimate of the effect of teacher absence on student outcomes is provided by Duflo and Hanna (2005), who show that a randomized intervention that reduced teacher absence from 36 to 18 percent led to a 0.17 standard deviation improvement in student test scores.

As noted in the introduction, many teachers and health workers who are in their facilities are not working. Across Indian government-run schools, we find that only 45 percent of teachers assigned to a school are engaged in teaching activity at any given point in time—even though teaching activity was defined very broadly to include even cases where the teacher was simply keeping class in order and no actual teaching was taking place. According to the official schedules, teachers should be teaching most of the time when school is in session. Fewer than 30 percent of schools in the sample had more teachers than classes, and the school schedule is therefore typically designed so that teachers and students have breaks at the same time, rather than with teachers having certain periods off to prepare, as in most schools in developed countries. Assuming that the number of teachers who should officially be teaching is equal to the minimum of the number of classes and the number of teachers,[4] only 50 percent of teachers in Indian public schools who should be teaching at a given point are in fact doing so.

In assessing these activity numbers, it's worth bearing in mind that they could potentially have been affected by the presence of the surveyor. On the one hand, enumerators report that teachers sometimes started teaching when the surveyor arrived. On the other hand, although the enumerators were instructed to look for a respondent who was not teaching to ask questions regarding the school (and typically they found the headmaster or other teacher in the office), the survey itself may have diverted teachers from teaching in some cases. But even if we exclude those teachers from the calculation whose activity was recorded as "talking to the enumerator," only 55 percent of those teachers who should have been teaching were doing so.

[4] So if a school had four classes and three teachers, we would expect three teachers to be teaching, whereas if it had five teachers and four classes, we would only expect four teachers to be teaching.

Absence Across Sectors and Countries

Two clear generalizations emerge from the cross-country, cross-sector data on absence and from the variation across Indian states. First, health care providers are much more likely to be absent than teachers. As Table 1 shows, averaging across countries for which we have data on absence for both types of providers, health care workers are 15 percentage points more likely to be absent than are teachers. This difference may arise because health care workers have more opportunities to moonlight at other jobs, or because health care workers receive smaller rents relative to what they would earn in the private sector, or because health care workers are harder to monitor. If a teacher does not show up regularly, a class full of pupils, and potentially their parents, will know about it. On the other hand, it is much harder for patients, who presumably come to health care centers irregularly, to know if a particular health care worker is absent frequently.

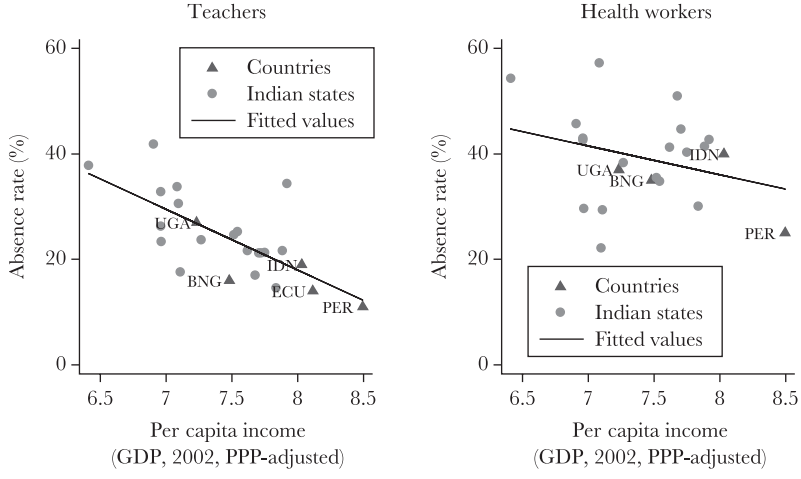
Second, higher-income areas have lower absence rates. Figure 1 shows the absence-income relationship for the sample countries other than India (represented by triangles and labeled) and for the Indian states in our sample (represented by circles). The left-hand panel shows the relationship among teachers, the right-hand panel among health-care workers. Combining the two sectors across countries and Indian states, an ordinary least squares regression of absence on log of per capita GDP (measured in purchasing power parity terms) and a dummy for sector (health or education) suggests that doubling of per capita income is associated with 6.0 percentage points lower absence. The coefficient on per capita income is significant at the 1 percent level, and the income and sector variables together account for more than half of the variation in sector-country and sector-state absence rates. When we run two separate regressions, one for the countries and one for the Indian states, we obtain very similar coefficients on log income. In the cross-country regression, doubling income is associated with a 5.8 percentage-point decline in absence; and in the Indian cross-state regression, a 4.8 percentage-point drop.

However, the relationship between a country's per capita income and absence is stronger in education than in health. Among teachers, doubling income is associated with an 8.0 percentage-point absence decline (significant at the 0.1 percent level), compared with only a 3.8 percentage point decline in health worker absence (falling short of significance at even the 10 percent level).[5] Again, a very similar pattern holds in the cross-country and the Indian cross-state regressions.

One possible explanation for the correlation between income and absence is that exogenous variation in institutional quality in service provision drives human

[5] The absence-income relationship in the health sector appears to hold more strongly for doctors than for other medical personnel. Within India, regressing doctor absence on state per capita income yields a much larger coefficient (in absolute value), significant at the 10 percent level, whereas the coefficient is small and insignificant for health workers as a group.

Figure 1
Absence Rate versus National/State Per Capita Income



Source: Authors' calculations.
Note: BNG = Bangladesh; ECU = Ecuador; IDN = Indonesia; PER = Peru; UGA = Uganda. India's national averages are excluded, due to the inclusion of the Indian states. For Indian states, incomes are the official per capita net state domestic products.

capital acquisition and thus income. Another is that the overall level of development drives the quality of education and health delivery. While it is impossible to disentangle these stories completely, to the extent that the overall level of development influences provider absence, one might expect low income levels to lead to high absence rates in both education and health. On the other hand, if education is particularly important for human capital acquisition, and thus income, while medical clinics have a larger consumption component, then exogenous variation in quality of education systems will lead to variation in income, while the quality of health care systems will be less correlated with income. This pattern matches what we see in the data.

It is intriguing that the relationship between income and absence is so similar across countries and across Indian states, and that it is so tight in each case. While salaries typically rise with GDP (although not proportionally), teacher salaries across Indian states are relatively flat.[6] Thus, across the states of India, salaries for teachers and health workers in poor states are considerably higher relative to the cost of living and relative to workers' outside opportunities than are salaries in rich states. Nonetheless, absence rates are higher in poor states. The similarity between the absence-income regression line across countries and the comparable line across Indian states, despite the difference in the relationship between income and salaries in the two samples, suggests a limited role for salaries in influencing

[6] Ministry of Human Resource Development, India.

absence over the existing salary range. Of course, it is important to bear in mind that the samples of countries and states are very small, and other factors could influence these slopes.

Teacher and health worker absence are correlated across countries and states, even after controlling for per capita income. The residuals from the two regressions depicted in Figure 1 (with an additional dummy added for Indian states) are highly correlated with each other, with a correlation coefficient of 0.44 (significant at the 5 percent level). This correlation could potentially be due to mismeasurement of income, but it could also reflect spillover effects in social norms across sectors, or omitted variables such as the quality of governance.

Concentration of Absence

To understand and potentially design policies to counter high absence rates, it is useful to know whether absences are spread out among providers or concentrated among a small number of "ghost workers" who are on the books but never show up. Since our survey included only two or three observations per worker, we would observe some dispersion in absence rates even if all workers had identical underlying probabilities of being absent. The left panel of Table 2 shows the distribution of absence observed in the data. For comparison, the right panel shows the distribution that would be observed if the probability of absence in each visit were equal to the estimated absence rate in the specific country-sector combination, so all workers had the same probability of being absent. For example, if all teachers in Indonesia had a 0.19 chance of being absent (which is the average teacher absence rate there), then on any two independent visits, we would expect 3.6 percent (0.19×0.19) to be absent both times, 65.6 percent (0.81×0.81) to be present both times and the remaining 30.8 percent to be absent once. On the other hand, if absence were completely concentrated in certain providers, we would observe that 19 percent of the teachers are always absent, 81 percent are always present and none are absent only once.

Clearly the data match neither the extreme of all workers having identical underlying probabilities of absence nor of all absence being due to ghost workers, but an eyeball test suggests that absence appears to be fairly widespread, with the empirical distribution surprisingly close to that predicted by a model with identical absence probabilities. Teachers in Ecuador are an exception and appear to be the leading candidates for a "ghost worker" explanation, with a very high percentage of teachers being present in both visits and more teachers absent in both visits than in one of the two visits.

The exercise above, while suggestive, can technically only be used to test the extreme hypotheses of complete concentration of absence and perfectly identical absence rates among workers. Glewwe, Ilias and Kremer (2004) assume providers' underlying probability of absence follows a beta distribution and estimate this distribution in two districts of Kenya using a maximum likelihood approach. They

Table 2
Distribution of Absences Among Providers

	Percentage of providers who were absent this many times in 2 visits (3 visits in India)				*For comparison: expected distribution if all providers had equal absence probability*			
	0	*1*	*2*	*3*	*0*	*1*	*2*	*3*
Teachers								
Bangladesh	73.4	23.5	3.2	—	70.6	26.9	2.6	
Ecuador	82.8	6.9	10.4	—	74.0	24.1	2.0	
India	49.1	32.7	13.5	4.8	42.2	42.2	14.1	1.6
Indonesia	67.7	27.5	4.8	—	65.6	30.8	3.6	
Peru	81.0	17.3	1.7	—	79.2	19.6	1.2	
Uganda	63.0	29.6	7.4	—	53.3	39.4	7.3	
Medical workers								
India	35.7	31.9	20.8	11.6	21.6	43.2	28.8	6.4
Indonesia	46.1	41.0	12.9	—	36.0	48.0	16.0	
Peru	56.4	33.5	10.1	—	56.3	37.5	6.3	
Uganda	52.0	38.0	10.0	—	39.7	46.6	13.7	

Notes: The left side of this table gives the distribution of absences observed for each type of provider in each country. For example, it shows that during two survey visits, 73.4 percent of teachers in Bangladesh primary schools were never absent; 23.5 percent were absent once; and 3.2 percent were absent during both visits. The right side of the table provides, for comparison, the distribution that would be expected if all providers in a country had an identical underlying absence rate equal to the average rate observed for that country. Bangladesh health workers are excluded, because the first-round survey was carried out for a different study, making it impossible to match workers across rounds and show the empirical distribution.

find that although a few teachers are rarely present, the majority of absences appear to be due to those who attend between 50 percent and 80 percent of the time, and the median teacher is absent 14 to 19 percent of the time. The results of a similar calibration using the multicountry data in this paper also suggest that other than in Ecuador, absence is typically fairly widespread, rather than being concentrated in a minority of "ghost" workers. Banerjee, Deaton and Duflo (2004) conducted an intensive study in Rajasthan, India, in which health workers were visited weekly for a year, and they also find that absences are fairly widely distributed there.

How Much of Absence is Authorized?

It is difficult to assess the extent to which absence is authorized. Enumerators asked the facility-survey respondent—generally the school head teacher or primary health care center director—the reason for each absence, but facility directors may not always answer truthfully. Thus, for example, in India the fraction of staff reported to be on authorized leave greatly exceeded that which would be predicted given statutory leave allocations (Kremer et al., 2004). However, even taking facility

directors' responses at face value, it seems clear that two categories of sanctioned absence—illness and official duties outside of health and education—do not account for the bulk of absence.

Across countries, illness is the stated cause of absence in 2 percent of teacher observations and 1.4 percent for health worker observations (in other words, it accounts for around 10 percent of teacher absence and 4 percent of health worker absence). Two countries of particular interest here are Uganda and Zambia, where HIV infection is prevalent. However, preliminary analysis by Habyarimana (2004) suggests that neither the demographic nor the geographic distribution of teacher absences in Uganda correlates very well with what is known about patterns of HIV prevalence. Uganda does not appear to be an outlier—that is, it does not appear to have much more absence than would be expected given its income levels. In the case of Zambia, where HIV prevalence is high, Das, Dercon, Habyarimana and Krishnan (2005) suggest that the disease may explain a large share of teacher absence and attrition. Interestingly, however, the absence rate they estimate for Zambia is 17 percent—which is much less than predicted by the absence-income relationship we estimate across countries.[7]

Some argue that teacher absence is high in South Asia because governments pull teachers out of school to carry out duties such as voter registration, election oversight and public health campaigns. But head teachers should have little reason to underreport such absences, and in India, only about 1 percent of observations (4 percent of absences) are attributed to non-education-related official duties (Kremer et al., 2004).

Correlates of Teacher Absence

What factors are correlated with teacher absence? Although our sample includes both low- and middle-income countries on three continents, certain common patterns emerge, as shown in Table 3. The dependent variable is absence, coded as 100 if the provider was absent on a particular visit and 0 if he or she was present. All regressions include district fixed effects. To obtain estimates of average coefficients for the sample as a whole, we use hierarchical linear model estimation, in which a combined coefficient is estimated by averaging the coefficients from ordinary least squares regressions of absence in each of the countries, weighted in accordance with the precision with which they are estimated.[8] (By contrast, a pooled ordinary least squares regression with interaction terms for country-specific

[7] Although the Zambia study follows a methodology similar to those reported in this article, it was carried out by a different team using a different survey instrument, so the results may not be strictly comparable.

[8] The error terms are clustered at the school level throughout this analysis. Results using probits are similar. A good reference for hierarchical linear model estimation and inference is Raudenbusch and Bryk (2002).

Table 3
Correlates of Teacher Absence (HLM, with District-Level Fixed Effects)
(dependent variable = visit level absence of a given teacher: 0 = present, 100 = absent)

	Estimates for the multicountry sample		
	Coefficient	*Standard error*	*Countries where coefficient has same sign as multicountry coefficient*
Male	1.942**	0.509	BNG, ECU, IND***, IDN, PER
Ever received training	2.141	4.354	BNG, ECU***, PER
Union member	2.538*	1.258	ECU**, IND, IDN, PER
Born in district of school	−2.715**	0.833	BNG, ECU, IND***, IDN*, PER, UG
Received recent training	−0.740	2.070	BNG, ECU***, UGA
Tenure at school (years)	0.033	0.044	BNG, IDN, PER
Age (years)	0.021	0.046	ECU, IND, UGA*
Married	0.742	0.972	BNG, IDN, PER, UGA**
Has university degree	−1.055	1.162	ECU, IDN
Has degree in education	1.806	2.071	ECU**, IND*
Head teacher	3.771***	0.888	BNG, ECU, IND***, IDN**, PER, UGA
School infrastructure index (0–5)	−2.234***	0.438	BNG, ECU*, IND***, IDN, PER
School inspected in last 2 mos.	−0.142	1.194	BNG, ECU, IND***, UGA
School is near Min. Education office	−4.944	2.642	BNG, ECU***, IND**, IDN*
School had recent PTA meeting	2.308	1.576	BNG, ECU, PER*
School's pupil-teacher ratio	−0.095	0.080	BNG, ECU*, IDN, PER
School's number of teachers	0.015	0.113	ECU, PER, UGA
School has teacher recognition program	0.168	3.525	ECU, PER
Students' parents' literacy rate (0–1)	−9.361***	1.604	BNG, ECU, IND***, IDN, PER**
School is in urban area	2.039	1.441	ECU, IND, PER
School is near paved road	0.040	1.106	BNG, ECU, IDN, UGA
Teacher is contract teacher	5.722	2.906	ECU, IDN**, PER (*no contract teachers in BNG/UGA*)
Dummy for 1st survey round	2.938	1.874	BNG, ECU***, IND***, PER*, UGA
Constant	32.959***	1.963	BNG***, ECU, IND***, IDN**, PER**, UGA
Observations	34880		

Notes: * Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Regressions also included dummies for the days of the week (not reported here).

effects would be swamped by India, since we have so many more observations there.) At the risk of oversimplifying the heterogeneity across countries, we will focus primarily here on the results for the sample as a whole. However, the final column indicates the heterogeneity across countries by indicating which of the country-specific regressions yielded a coefficient with the same sign, and whether it was statistically significant. (Tables showing the regression results for each country

using the same specification are available appended to this article at the ⟨http://www.e-jep.org⟩ website.)

Teacher Characteristics

In most countries, salaries are highly correlated with the teacher's age, experience, educational background (such as whether the teacher has a university degree or a degree in education) and rank (such as head teacher status). Table 3 provides little evidence to suggest that higher salaries, proxied by any of these factors, are significantly associated with lower absence. Head teachers are significantly more likely to be absent, and point estimates suggest better-educated and older teachers are on average absent more often. Of course, it is possible that other factors confound the effect of teacher salary in the data; for example, if the outside opportunities for teachers increase faster than their pay within the government pay structure, the regression results presented here could be misleading.

However, the earlier discussion on cross-state variation in relative teacher wages in India provides another source of data on the impact of teacher salaries that is not subject to this difficulty. If higher salaries relative to outside opportunities or prices led to much lower absence, then one might expect absence to rise with state income in India (because salaries relative to outside opportunities are lower in richer states) or at least not to fall as quickly as in the cross-country data. In fact, they fall at the same rate as in cross-country data.

The coefficients on teacher characteristics suggest that along a number of dimensions, more powerful teachers are absent more. Men are absent more often than women, and head teachers are absent more often than regular teachers. In a number of cases, better-educated teachers appear to be absent more. These teachers may be less subject to monitoring.

A degree in education is strongly negatively associated with absence in Bangladesh and Uganda, but the association is positive in Ecuador. In-service training is negatively associated with absence in three countries, but not in the global analysis. Moreover, recent training is not associated with reduced absence, other than in Ecuador. The negative coefficient in Ecuador could be due to "ghost teachers" who attend neither schools nor training sessions.

Theoretically, teachers from the local area might be expected to be absent less because they care more about their students or are easier to monitor, or absent more because they have more outside opportunities in the local economy and are harder to discipline with sanctions. Empirically, we find that teachers who were born in the district of the school are more likely to show up for work. Local teachers are less likely to be absent in all six countries (two of them at statistically significant levels), and the coefficient for the combined sample is also significantly negative.

This result is robust to including school dummies, suggesting that we are observing a local-teacher effect, rather than just perhaps something related to the characteristics of schools located in areas that produce many teachers. While teachers born in the area are absent less, there is no significant correlation between

another possible measure of the teacher's local ties—the duration of a teacher's posting at the school—and teacher presence (except in Uganda).

School Characteristics

Working conditions can affect incentives to attend school, even where receipt of salary is independent of attendance and hence provides no such incentive. We constructed an index measuring the quality of the school's infrastructure—a sum of the five dummies measuring the availability of a toilet (or teachers' toilet, in India), covered classrooms, nondirt floors, electricity and a school library. The analysis for the sample as a whole suggests that moving from a school with the lowest infrastructure index score to one with the highest (that is, from a score of zero to five) is associated with a 10 percentage point reduction in absence. A one standard-deviation increase in the infrastructure index is associated with a 2.7 percentage-point reduction in absence. If frequently absent teachers can be punished by assigning them to schools with poorer facilities, then the interpretation of the coefficient on poor infrastructure becomes unclear. To address this possibility, we also examine Indian teachers on their first posting, because in India, an algorithm typically matches new hires to vacancies. Even in this sample, there is a strong negative relationship between infrastructure quality and absence.

Monitoring

The lower teacher absence rate in the second survey round provides support for the idea that monitoring could affect absence. If even the presence of survey enumerators with no power over individual teachers had an impact on absence, it is plausible that formal inspections would also have such an impact.

We examine two measures of the intensity of administrative oversight by Ministry of Education officials: a dummy representing inspection of the school within the previous two months; and a dummy representing proximity to the nearest office of the ministry, while controlling for other measures of remoteness like whether the school is near a paved road.[9] If "bad" schools are more likely to get inspected, the coefficient on inspections will be biased upwards. On the other hand, if factors other than those we control for make schools more attractive both to teachers and to inspectors, the coefficient could be biased downward. Having a recent inspection is significantly associated with lower teacher absence in India, but not in the other countries nor for the sample as a whole. However, the coefficient on proximity to the ministry office is somewhat more robust. In three of the six countries, schools that are closer to a Ministry of Education office have significantly lower absence, even after controlling for proximity to a paved road; in no country are they significantly more often absent. Of course, proximity to the ministry could

[9] The proximity variables in these regressions—proximity to roads and to ministry offices—are defined slightly differently in each country. Because of the great differences in population density, in some countries a road or office may be counted as "close" if it is within five kilometers, whereas in other countries the cutoff is 15 kilometers.

proxy for other types of contract with the ministry or for closeness to other desirable features of district headquarters.

Past studies have suggested that local control of schools may be associated with better performance by teachers (King and Ozler, 2001). One measure of the degree of community involvement in the schools in our dataset is the activity level of the Parent Teacher Association (PTA). As Table 3 shows, there is not a significant correlation between absence and whether the PTA has met in the previous two months.

Community Characteristics

Teachers are less frequently absent in schools where the parental literacy rate is higher. The coefficient on school-level parental literacy is highly significantly negative for the sample as a whole: as Table 3 shows, each 10-percentage-point increase in the parental literacy rate reduces predicted absence by more than one percentage point. The correlation may be due to greater demand for education, monitoring ability or political influence by educated parents; more pleasant working conditions for teachers (if children of literate parents are better prepared or more motivated); selection effects, with educated parents abandoning schools with high absence; or favorable community fixed characteristics contributing to both greater parental literacy and lower teacher absence.

The location of the community might also be thought to play a role in absence, and in India, Indonesia and Peru, schools in rural communities do in fact have significantly higher mean absence rates than do urban schools, by an average of almost 4 percentage points. (In the other countries, the difference is not significant.) But the dummies for whether a school is in an urban area and is near a paved road are both insignificant in all countries after controlling for other characteristics of rural schools, such as poor infrastructure. These variables might have offsetting effects on teacher absence, because being in an urban area or near a road might make the school a more desirable posting, but these factors could also make it easier for providers to live far from the school or pursue alternative activities (Chaudhury and Hammer, 2003).

Alternative Institutional Forms

A number of alternative institutional forms have appeared in reaction to dissatisfaction with the cost and quality of existing education institutions. These include hiring contract teachers in regular government schools, establishing community-run, nonformal education centers and using low-cost private schools. Advocates argue that such systems not only are much cheaper, but also deliver better results. We discuss evidence on absence below.

Four of the six countries we examine make some use of contract teachers in their primary school systems. It has been hypothesized that these contract teachers, whose tenure in the teaching corps is not guaranteed, may feel a stronger incentive to perform well than do civil-servant teachers. On the other hand, contract teachers often earn much less than civil servants: in India, for example, public-school

contract teachers typically earn less than a third of the wages of regular teachers, and in Indonesia, nonregular teachers under different types of contracts earn between a tenth and a half as much as regular teachers. In Ecuador, by contrast, contract teachers appear to earn compensation similar to that of regular teachers, but without the same job security (Rogers et al., 2004). Moreover, the lack of tenure for contract teachers could increase incentives to divert effort to searching for other jobs. Empirically, we find that contract teachers are much more likely to be absent than other teachers in Indonesia, and that in two other countries and in the combined sample the coefficient is positive but is not statistically significant. Vegas and De Laat (2003) find that in Togo, contract teachers are absent at about the same rate as civil-service teachers.

Many argue that local control will bring greater accountability to teachers and health workers. Nonformal education centers have been created by state governments in India in areas with low population density that have too few students to justify a full school, with the aim of ensuring a school exists within a one-kilometer radius of every habitation. These schools typically have a teacher or two from the local community who are not civil-service employees and are paid through grants made by the government to locally elected community bodies. The teachers are employed on fixed-term contracts that are subject to renewal by these bodies. Our sample in India has 87 such schools and 393 observations on teachers in these nonformal education centers. We find that absence rates in the nonformal education centers are higher (28 percent) than in regular government-run schools (25 percent), though this difference is not significant at the 10 percent level. The difference remains statistically insignificant even after including village fixed effects and other controls (as shown in Table 4).

Finally, we examine private schools and private aided schools in Indian villages with government schools. Opposing forces are also likely at work in determining whether private-school teachers have higher or lower attendance rates than public-school teachers. On the one hand, private-school teachers often earn much lower wages than do public-school teachers; in India, for example, regular teachers in rural government schools typically get paid over three times more than their counterparts in the rural private schools.[10] On the other hand, private-school teachers face a greater chance of dismissal for absence. In India, 35 out of 600 private schools reported a case of the head teacher dismissing a teacher for repeated absence or tardiness, compared to (as noted earlier) one in 3,000 in government schools in India.

Empirically, we find the absence rate of Indian private-school teachers is only slightly lower than that of public-school teachers. However, private-school teachers are 4 percentage points less likely to be absent than public-school teachers working

[10] We calculate the total revenue of each private school based on total fees collected and find that even if all the revenue was used for teacher salaries, the average teacher salary in private schools would be around 1,600 rupees per month, whereas the average public school teacher's salary is around Rs. 5,000 per month.

Table 4
Absence Rate by School Type (India Only)

			Difference relative to government-run schools		
	Teacher absence (unweighted)	*Number of observations*	*Sample means*	*Regression with village/town fixed effects*	*Regression with village/town fixed effects + controls**
Government-run schools	24.5%	34,525	—	—	—
Nonformal schools	28.0%	393	3.5%	−2.7%	−2.4%
Private aided schools	19.1%	3,371	−5.4%***	−1.3%	−0.4%
Private schools	25.2%	9,098	0.7%	−3.8%***	−7.8%***

Notes: Controls include a full set of visit-level, teacher-level, and school-level controls. Significant differences are indicated by ***, ** and * for significances at 1, 5 and 10 percent.

in the same village and 8 percentage points less likely to be absent after controlling for school and teacher variables, as shown in Table 4. This pattern arises because private schools are disproportionately located in villages that have government schools with particularly high absence rates. 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; opponents could counter that the entry of private schools leads to exit of politically influential families from the public school system, further weakening pressure on public-school teachers to attend school.

Private aided schools in India are privately managed, but the government pays the teacher salaries directly. These teachers are government employees and enjoy full civil service protection. They thus represent an alternative institutional form with private management, but public regulation. Raw absence rates in these schools are significantly lower than those in government-run public schools, but there is no significant difference controlling for village fixed effects, as shown in Table 4. Overall, our results suggest that while the alternative institutional forms are often much cheaper than government schools staffed by teachers with civil service protection, teacher absence is no lower in any of the publicly funded models. In India, private-school teachers do have lower absence than public school teachers in the same village.

Correlates of Absence among Health Workers

One important difference between absence in health and education is that health workers who are absent from public clinics seem more likely to be providing private medical care than absent teachers are to be offering private tuition. In the

Table 5
Correlates of Health Worker Absence (HLM, with District-Level Fixed Effects)
(dependent variable = visit-level absence of a given HC staff member: 0 = present, 100 = absent)

	Estimates from the multicountry sample (excl. Bangladesh)		
	Coefficient	*Standard error*	*Countries where coefficient has same sign as multicountry coefficient*
Male	−0.628	1.475	IND***
Tenure at facility (years)	0.081	0.382	IDN, PER
Tenure at facility squared	−0.008	0.011	IDN, PER
Born in PHC's district	−1.404	0.873	BNG***, IDN
Doctor	3.380**	0.754	BNG**, IND***, IDN, PER, UGA***
Works night shift	−4.267*	1.066	BNG, IND***, IDN, PER, UGA
Conducts outreach	6.617***	0.620	IND***, IDN, PER
Lives in PHC-provided housing	−0.583	1.507	BNG**, IDN, PER, UGA*
PHC was inspected in last 2 mos.	−1.975*	0.624	BNG, IND, IDN, PER, UGA
PHC is close to MOH office	0.768	1.999	BNG, IND*
PHC has potable water	−3.352*	0.844	BNG, IND***, IDN*
PHC is close to paved road	−6.076	3.042	IND, IDN***, PER
Dummy for 1st survey round	−12.457	11.180	IDN***, PER*, UGA**
Constant	38.014***	1.538	BNG, IND***, IDN***, PER**, UGA***
Observations	27894		

Notes: * Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.
Regressions and HLM estimation also included dummies for days of the week (not reported here). Where applicable, regressions also included dummies for urban area (Peru) and for type of clinic (Bangladesh, India). Bangladesh is excluded from HLM because matching across the two survey rounds was not possible, as first-round data are drawn from a separate survey.

sample countries for which we have data on this question (India is excluded), an (unweighted) average of 41 percent of health workers say they have a private practice. Actual numbers may be even higher, since moonlighting is technically illegal in some countries. By contrast, while private tutoring is common in some countries and among middle class urban pupils particularly at the secondary levels, it does not appear to be a major activity for the primary school teachers in our sample, in which only about 10 percent of our sample teachers report holding any outside teaching or tutoring job.

Table 5 shows correlates of absence among health workers. Again, the dependent variable is absence, coded as 100 if the provider was absent on a particular visit and 0 if he or she was present. As in the education sector, the estimation incorporates district fixed effects and uses hierarchical linear modeling.

Health Worker Characteristics

Of the individual health worker characteristics in our regressions, the only one that significantly and robustly predicts absence is the type of medical worker. In

every country, doctors are more often absent than other health care workers, and the difference is significant in three countries and in the multicountry regression. Doctors have a marketable skill and lucrative outside earning capabilities at private clinics. In Peru, for example, 48 percent of doctors reported outside income from private practice, much higher than the 30 percent of nondoctor medical workers.

Facility-Level Variables

Health providers are less likely to be absent where the public health clinic was inspected within the past two months in every country, and the relationship is significant at the 10 percent level in the combined sample. Being close to a Ministry of Health office is (insignificantly) positively correlated with absence in the combined sample, although it is correlated with lower absence in Indonesia.

In India, we find that for medical providers other than doctors, attendance at larger classes of facilities (community health centers) is much higher than in smaller subcenters, where no doctor (and therefore no one of higher status) is assigned. One interpretation is that doctors play a role in monitoring other health care workers. Another interpretation is that primary health centers are in more remote, less attractive localities.

In terms of working conditions, the availability of potable water predicts lower absence at a statistically significant level in the combined sample, as well as in India, Indonesia and Uganda. However, whether the public health clinic has toilets is not correlated with absence in any country.

Another aspect of working conditions, the logistics of getting to work and the desirability of the primary health care centers' location, is also correlated with absence in some countries. In Bangladesh and Uganda, providers who live in primary health care center-provided housing (which is typically on primary health care centers' premises) have much lower absence, although this coefficient was not statistically significant in the global sample. In Indonesia, although not in the global sample, primary health care centers located near paved roads have much lower absence rates.

Providers who work the night shift were less likely to be absent for their daytime shifts. Given the usually voluntary and episodic nature of night shifts, this variable may proxy for intrinsic motivation. Alternatively, it is possible that night shifts are assigned to less influential employees, who are less likely to get away with absence.

Alternative Institutional Forms

In our sample, there are no private medical facilities, and we have data on contract employment of medical personnel only in Peru. In that country, contract work is strongly associated with lower absence, despite the fact that like their civil-service counterparts, contract medical personnel are paid on salary rather than on a fee-for-service basis. This result is consistent with previous findings on absence among Peruvian hospital personnel (Alcázar and Andrade, 2001).

Efficiency of Absence

While 19 percent absence among teachers and 35 percent absence among health workers is clearly undesirable, it is worth asking two questions to investigate the extent to which this level of absence is a distributional issue, an efficiency issue or both. First, are teachers and health care workers earning rents beyond what they would obtain outside the public sector, in the sense that the package of pay and actual work requirements is significantly more attractive than what these workers could obtain in the private sector? Because service providers (especially doctors) are typically better off than average, any policy that results in taxpayer-funded rents for them will generally be regressive. Second, taking the value of the overall package of wages and perks for teachers and health workers as fixed, is it efficient for them to be compensated in part through toleration of absence?

It seems clear that many primary school teachers in developing countries earn rents. In India, for example, public-school teachers earn much more than their counterparts either in the private sector or among contract teachers hired by the public sector, and qualified applicants form long queues to be hired as government teachers. Many health workers may also be earning rents, but for high-skilled health care providers, doctors in particular, the case is not clear. It seems possible that if doctors' wages were kept constant, but they were prohibited from being absent, many would quit and enter private practice or even migrate to richer countries.

In their intensive study of medical providers in rural Rajasthan, Banerjee, Deaton and Duflo (2004) find evidence suggesting absence is inefficiently high, in the case of nurses who staff the smaller health subcenters. They argue that efficient absence would require facilities to be open on a fixed schedule so patients would know when it was worth their while to travel to the clinic. They find, however, that facilities are open at unpredictable times. Of course, it is hypothetically possible that clients know when providers are available, or how to find them, even if researchers cannot discern a pattern. It is harder to prove inefficiency for high-skill health workers. One interpretation of high absence rates among skilled health workers is that the government is paying them to locate in an undesirable rural area and to spend part of their day serving poor patients at public facilities.[11] In exchange, the implicit contract between the government and providers allows providers to work privately during the rest of the day. It is possible that this outcome represents fairly efficient price discrimination, with the poor receiving care in government facilities and the better-off seeing doctors privately. In our data, medical personnel who ask to be posted in a particular place are absent less often, which could be interpreted as consistent with the view that absence rates represent a compensating differential.

However, it seems unlikely that the most efficient way to implement a contract

[11] Chomitz et al. (1999) find that many Indonesian doctors would require enormous pay premiums to be willing to accept postings to islands off Java.

that allowed doctors to work part-time for the government would be through a system in which providers were formally required to be present full-time, but these regulations were not enforced. It is also not completely clear what public policy goals are served by subsidizing many types of curative care in rural areas to such an extent. In the typical clinic in Peru, for example, only about two patients were seen per provider hour. This ratio seems fairly low, with health care being very expensive to provide in these areas.

In the case of education, it is possible to reject the efficient absence hypothesis even more definitively. A necessary (but of course, not sufficient) condition for high rates of teacher absence to be efficient is that teacher and student absence in each school be highly correlated over time. In fact, as discussed further in Kremer et al. (2004), the correlation is not that high; students frequently come to school only to find their teachers absent.

Political Economy of Absence

An important proximate cause of absence among civil servant teachers and health workers is the weakness of sanctions for absence, as indicated by our uncovering only one case of a teacher being fired for absence in 3,000 headmaster interviews in India. Technical means for monitoring absence do exist. For example, headmasters could be required to keep good teacher attendance records and could be demoted if inspectors find their records are inaccurate. Such rules are typically on the books but are not enforced. Duflo and Hanna (2005) show that requiring teachers at nonformal education centers to take daily pictures of themselves and their students to qualify for bonuses can dramatically improve teacher attendance and student learning. In some of the countries we examine, teacher and health worker absence was reportedly less of an issue during the colonial period. Absence has reportedly also been reportedly low in some authoritarian countries, such as Cuba under Castro or Korea under Park, although such claims are difficult to verify.

Why doesn't the political system generate demands for stronger supervision of providers? Most of the countries in our sample are either democratic or have substantial elements of democracy. Yet provider absence in health and education is not a major election issue. Apparently, politicians do not consider campaigning on a platform of cracking down on absent providers to be a winning electoral strategy.

One possible reason why provider absence is not on the political agenda is that providers are an organized interest group, whereas clients, particularly in health, are diffuse. Those poor enough to use public schools and public clinics have less political power than middle class teachers and health workers. In many countries, even those who are moderately well off send their children to private schools and use private clinics. This pattern may create a self-reinforcing cycle of low quality, exit of the politically influential from the public sector and further deterioration of quality (Hirschman, 1970).

The centralization of education and health systems in most developing countries may contribute to weak accountability. Voters in a particular electoral constituency selecting a member of parliament may prefer that their representatives use their political influence to obtain a greater share of education funds for their constituency—for example, by building new schools there—rather than in improving the overall quality of the system. The free-rider problem among politicians would be ameliorated if policy were set in smaller administrative units.

But moving from a formal civil service system to control by local elected bodies would come at a price. In the civil service system in place in the countries we examine, providers have weak incentives, but the opportunity for corruption by politicians is somewhat limited. If local elected bodies provided oversight, teachers would have stronger incentives, but local politicians would also have greater opportunity to appoint friends, cronies or members of favored ethnic or religious groups.

Disentangling the many features of civil service systems may be difficult. If teachers are to be paid on a common pay scale, many will earn substantial rents. Heterogeneity in local labor market conditions and in the compensating differentials needed to attract skilled personnel to different regions will typically be greater in developing countries than in developed countries. Since education employs a greater proportion of the educated labor force in developing countries than developed countries, heterogeneity in skill levels among this group will almost certainly be greater than in developed countries. Once a system is in place in which many teachers earn above-market wages, there will be pressures for strong civil service protection to protect those rents. In the absence of such civil service protection, those with the right to hire and fire teachers will be able to extract rents from those teachers who would otherwise receive them. It is therefore understandable that even teachers who do not personally expect to be absent often would favor civil service rules that make it difficult for inspectors or headmasters to fire teachers. Once such rules are in place, those teachers who want to be absent are able to do so, and this may contribute to a culture of absence. This could create a multiplier effect by influencing norms, potentially creating a culture of absence (Basu, 2004).

Conclusion

With one in five government primary-school teachers and more than a third of health workers absent from their facilities, developing countries are wasting considerable resources and missing opportunities to educate their children and improve the health of their populations. Even these figures may understate the problem, since many providers who were present in their facilities may not be delivering services. Our results complement a large recent literature that argues that corruption and weak institutions in developing countries reduce private investment and, thus, growth. Poorly functioning government institutions may also impair provision of education and health. Reduced levels of education and health could substan-

tially reduce long-run growth as well as short-run welfare, since public human capital investment accounts for a large fraction of total investment in many countries.

Faced with high absence rates, policymakers have two challenges. How can education and health policy be adapted to minimize the cost of absence? How can absence be reduced?

On the first point, policies in education and health should be designed to take into account high absence rates. For instance, doctor absence may be difficult to prevent, but possible to work around. Very high salaries (combined with effective monitoring) may be required to induce well-trained medical personnel—doctors in particular—to live in rural areas where they will find few other educated people and where educational opportunities for their children will be limited. To conserve on the permanently posted rural workers who exhibit such high absence rates, health policy might shift budgets toward activities that do not require doctors to be posted to remote areas. This could include immunization campaigns, vector (pest) control to limit infectious disease, health education, providing safe water and providing periodic doctor visits rather than continuous service (Filmer, Hammer and Pritchett, 2000; 2002). Doctors could be used in hospitals and where medical personnel are likely to attend work more regularly (World Bank, 2004), and governments or nongovernment organizations could make efforts to reduce the cost of getting patients to towns and hospitals.

On the second point—how to reduce absence—our results can provide only tentative guidance. Conceptually, there seem to be three broad strategies for moving forward. One approach would be to increase local control, for example, by giving local institutions like school committees new powers to hire and fire teachers. However, the high absence rates among contract teachers in several countries and among teachers in community-controlled nonformal education centers in India suggest that these alternative contractual forms alone may not solve the absence problem.

The second approach would be to improve the existing civil service system. In Ecuador, for example, identifying and eliminating ghost teachers could go a long way. More generally, our analysis suggests a range of possible interventions that might be worth testing. Some, such as upgrading facility infrastructure and constructing housing for doctors, would involve extra budget outlays, but would not require politically difficult fundamental changes in systems. Others, such as increasing the frequency and bite of inspections, could be implemented using existing rules already on the books. More politically difficult may be changes in incentive structures. In the accompanying article in this journal, Banerjee and Duflo review evidence from a number of randomized evaluations of incentive programs linked to teacher attendance and to student performance. However, as discussed above, teachers and health workers are likely to be particularly resistant to approaches that leave lots of room for discretion by those implementing the system, for fear that attempts to reduce absence may unfairly punish teachers who are victims of circumstances, or leave discretion in the

hands of those who may use it for private benefit. Technical approaches allowing objective monitoring of teacher attendance such as the camera monitoring system explored by Duflo and Hanna (2005) may hold promise, if they can help assure teachers and health workers that those who are not frequently absent will not be unfairly subject to sanction.

The final approach would be to experiment more with systems in which parents choose among schools and public money follows the pupils. This choice could either be within the public system or could encompass private schools. A similar approach could be employed in health with money following patients as opposed to facilities.

It is unclear whether political pressure will occur for any of these reforms. There is some evidence that surveys that monitor and publicize absence levels, such as surveys we conducted, can focus policymakers' attention on the issue—even if the problem of absence is already well known to students and clinic patients. In Bangladesh, for example, the Ministry of Health cracked down on absent doctors after newspaper reports highlighted the results of the health survey described in this paper ("24 of 28 Docs Shunted Out," 2003). This type of one-time crackdown may not necessarily be effective, but the provider absence problem documented here clearly warrants greater attention from policymakers and civil society.

Excessive absence of teachers and medical personnel is a direct hindrance to learning and health improvements, especially for poor people who lack alternatives. But provider absence is also symptomatic of broader failures in "street-level" institutions and governance. Until recently, these failures have received much less attention from development thinkers and policymakers than have weaknesses in macro institutions like democracy and high-level governance. Yet for many people, a country's success at economic and social development will be defined by whether it can improve the quality of these day-to-day transactions between the public and those delivering public services, whether they are teachers, doctors or police officers. In service delivery, quality starts with attendance.

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Table A-1

Teachers: Mean Differences in Absence Rate by Selected Characteristics

	Bangladesh	*Ecuador*	*India*	*Indonesia*	*Peru*	*Uganda*
Male	−0.6	0.3	5.2***	3.8**	4.0**	1.4
Received training	3.1	9.0	−12.6***	−5.6**	−0.7	−13.7***
Union member	−0.6	3.6*	−5.6***	−0.3	−1.5	−2.4
Born locally	−0.3	−5.4***	−4.2***	−2.7*	2.5	4.5**
Received recent training	0.9	−5.4***	−3.0***	1.5	1.9	−9.1***
Longer-term employee	−0.3	−1.3	−3.7***	−0.6	0.0	−5.6***
Older than median	−0.1	1.6	6.1***	3.5**	−1.1	8.6***
Married	−9.5*	−0.9	−12.0***	−1.0	−0.8	8.0***
Contract teacher	—	6.0**	−0.5	6.3***	6.9***	—
Has bachelor's diploma	9.2***	−3.2	−0.1	−0.1	−3.6*	19.3***
Has degree in education	−8.9***	−0.0	−13.4***	−6.0	−7.3***	−7.4***
Head teacher	2.6	−1.7	7.1***	9.4***	12.4***	21.3***
School inspected recently	−3.9	−5.3***	−4.5***	3.7**	−2.7*	−5.8***
School is near Ministry of Education office	−4.9*	−4.4**	−1.3**	−11.0***	−0.7	7.4***
School had recent PTA meeting	−0.1	8.1***	−4.8***	−1.2	2.2	−3.1
Students' parents have high literacy rate	−3.3	8.0***	−4.8***	6.3	2.1	−1.7
School has good infrastructure	1.9	−2.4	−8.2***	−2.0	−5.7***	3.2
School is near paved road	−0.5	7.2**	−6.9***	−0.5	−11.1***	−1.0
School has high pupil-teacher ratio	−5.6**	−7.4***	−0.7	−1.4	−0.9	2.8
School is in urban area	2.9	1.9	−2.3***	−3.0*	−6.1***	−3.2
School is large	−5.7**	−1.6	−3.2***	−3.9**	−2.5*	0.5
School has teacher recognition program	1.1	5.7***	−3.6***	−0.7	3.0*	−4.6**

Notes: * Significant at 10 percent, ** significant at 5 percent, *** significant at 1 percent. Table gives the difference in mean absence rates between the indicated category and its complement. For example, it shows that male teachers in India have an absence rate that is 5.2 percentage points higher than that of female teachers and that the difference is significant at the 1 percent level.

Table A-2

Health Workers: Mean Differences in Absence Rate by Selected Characteristics

	India	*Indonesia*	*Bangladesh*	*Peru*	*Uganda*
Male	−2.0***	4.1*	2.6	7.8***	6.7***
Longer-term employee	10.9***	−1.9	−11.4**	−1.5	−3.8
Born locally	−15.8***	−5.3**	−13.1***	9.4**	8.7***
Contract employee				−5.5**	
Employee is doctor	4.5***	2.3	17.5***	0.8	15.0***
Employee works at night shift	−6.1***	−20.1***	0.6	3.7	−9.2***
Employee provides outreach services	9.1***	4.8	−1.4	1.1	−6.8***
Employee resides in PHC housing	3.1***	−7.2**	−4.9	6.9	−8.9***
Facility inspected recently	−2.2***	−10.6***	−3.3	2.5	1.4
Facility is near Ministry of Health office	0.2	−5.6***	5.0	−8.2***	−0.2
Facility has toilet	0.1		5.5	5.3	
Facility has water	−3.8***	0.2	1.2	−14.3***	12.4***
Facility is near paved road	−2.5***	−28.6**	15.0*	−9.7***	0.5
Facility in urban area				−4.4*	
PHC	2.2***				
CHC	−5.1***				

Notes: * Significant at 10 percent, ** significant at 5 percent, and *** significant at 1 percent. Table gives the difference in mean absence rates between the indicated category and its complement. For example, it shows that male health workers in India have an absence rate that is percentage points lower than that of female teachers and that the difference is significant at the 1 percent level.

Table A-3

Correlates of Teacher Absence (OLS and HLM, District-Level Fixed Effects)

(dependent variable = visit-level absence of a given teacher: 0 = present, 100 = absent)

	Country-specific regressions						*Global HLM*
	[1] Bangladesh	*[2] Ecuador*	*[3] India*	*[4] Indonesia*	*[5] Peru*	*[6] Uganda*	*[7] All countries*
Male	3.518	0.669	2.327***	2.174	2.037	−2.356	1.942**
	[3.030]	[2.696]	[0.580]	[1.775]	[2.103]	[2.005]	[0.509]
Ever received training	2.929	23.859***	−2.661***	−6.176*	1.532	−5.565*	2.141
	[3.086]	[7.575]	[0.963]	[3.211]	[11.133]	[3.113]	[4.354]
Union member	−0.097	6.112**	0.405	4.174	0.395	−1.631	2.538*
	[2.704]	[2.617]	[0.731]	[2.978]	[2.246]	[2.529]	[1.258]
Born in district of school	−2.61	−4.722	−1.713***	−3.117*	−0.031	−0.2	−2.715**
	[3.829]	[2.969]	[0.607]	[1.746]	[2.559]	[2.343]	[0.833]
Received recent training	−2.017	−7.979***	0.402	2.42	2.262	−2.045	−0.74
	[3.173]	[2.924]	[0.713]	[1.870]	[2.472]	[2.695]	[2.070]
Tenure at school (years)	0.029	−0.116	−0.02	0.106	0.263	−0.721**	0.033
	[0.178]	[0.186]	[0.041]	[0.133]	[0.187]	[0.291]	[0.044]
Age (years)	−0.173	0.206	0.038	−0.04	−0.165	0.317*	0.021
	[0.207]	[0.145]	[0.034]	[0.155]	[0.153]	[0.177]	[0.046]
Married	4.615	−0.309	−0.651	0.928	1.165	4.904**	0.742
	[5.877]	[2.445]	[0.835]	[3.207]	[1.698]	[2.237]	[0.972]
Contract teacher		5.509	−0.687	8.250**	3.432		5.722
		[4.426]	[1.407]	[3.556]	[3.343]		[2.906]
Has university degree	4.271	−3.675	1.503**	−0.73	1.048	11.773*	−1.055
	[2.953]	[2.407]	[0.589]	[2.530]	[3.331]	[6.572]	[1.162]
Has degree in education	−28.601***	7.492**	1.758*	−4.277	−6.831	−16.266***	1.806
	[5.836]	[3.802]	[1.014]	[5.438]	[4.682]	[4.239]	[2.071]
Head teacher	3.326	0.724	4.482***	7.326**	6.205	5.849	3.771***
	[3.515]	[5.606]	[0.719]	[3.691]	[8.921]	[4.756]	[0.888]
School inspected in last 2 mos.	−2.227	−0.522	−2.435***	1.867	0.657	−3.86	−0.142
	[2.218]	[5.316]	[0.685]	[2.307]	[2.356]	[3.121]	[1.194]
School is near Min. Education office	−2.963	−11.105***	−1.535**	−5.454*	0.12	1.071	−4.944
	[2.554]	[4.217]	[0.773]	[3.199]	[3.066]	[3.569]	[2.642]
School had recent PTA meeting	1.248	4.261	−0.962	−1.816	4.880*	−1.092	2.308
	[2.486]	[4.515]	[0.707]	[2.479]	[2.518]	[3.038]	[1.576]
Students' parents' literacy rate (0–1)	−1.248	−10.313	−5.132***	−22.634	−24.295**	6.883	−9.361***
	[4.659]	[13.446]	[1.663]	[16.143]	[11.303]	[10.810]	[1.604]
School infrastructure index (0–5)	−2.126	−4.648*	−1.352***	−1.04	−1.991	3.197	−2.234***
	[2.090]	[2.682]	[0.382]	[1.817]	[1.751]	[2.771]	[0.438]
School is near paved road	1.338	4.116	−0.784	3.083	−3.317	1.264	0.040
	[3.760]	[6.353]	[0.964]	[4.103]	[8.523]	[4.103]	[1.106]
School's pupil-teacher ratio	−0.063	−0.440*	−0.014	0.153	−0.008	0.145	−0.095
	[0.046]	[0.255]	[0.017]	[0.112]	[0.126]	[0.097]	[0.080]
School is in urban area	−1.285	2.769	0.341	−1.436	1.189	−5.103	2.039
	[2.014]	[5.516]	[0.837]	[3.131]	[6.171]	[3.577]	[1.441]
School's number of teachers	−0.215	0.267	−0.046	−0.282	0.192	0.112	0.015
	[0.652]	[0.443]	[0.144]	[0.349]	[0.130]	[0.317]	[0.113]
School has teacher recognition program	−4.062	7.029	−1.098	−7.524***	5.25	−3.462	0.168
	[7.848]	[4.724]	[0.827]	[2.866]	[3.574]	[3.597]	[3.525]
Dummy for 1st survey round	0.416	7.543***	2.709***	−1.794	4.356*	3.037	2.938
	[2.512]	[2.790]	[0.839]	[2.125]	[2.264]	[4.460]	[1.874]
Constant	59.096***	1.996	31.215***	47.941**	33.524**	3.037	32.959***
	[15.449]	[25.291]	[2.763]	[20.410]	[14.712]	[11.096]	[1.963]
Observations	771	1163	30825	2137	1172	1624	34880
R-squared	0.09	0.21	0.06	0.06	0.11	0.14	

Notes: * Significant at 10 percent, ** significant at 5 percent and *** significant at 1 percent. Robust standard errors clustered at the school level are given in brackets for OLS regressions in columns 1–6. Regressions also included dummies for the days of the week.

Table A-4

Correlates of Health Worker Absence (OLS and HLM, District-Level Fixed Effects)

(dependent variable = visit-level absence of a given medical staff member: 0 = present, 100 = absent)

	Country-specific regressions					*Global HLM*
	[1] Bangladesh	*[2] India*	*[3] Indonesia*	*[4] Peru*	*[5] Uganda*	*[6] (ex Bangl)*
Male	3.404	−2.624	2.11	0.934	1.121	−0.628
	[6.541]	[0.662]***	[2.119]	[2.929]	[2.958]	[1.475]
Tenure at facility (years)	−1.467	−0.469	0.682	1.05	−0.706	0.081
	[1.473]	[0.126]***	[0.501]	[0.863]	[0.608]	[0.382]
Tenure at facility squared	0.046	0.009	−0.029	−0.08	0.001	−0.008
	[0.073]	[0.005]*	[0.023]	[0.059]	[0.024]	[0.011]
Born in PHC's district	−13.479	0.237	−2.328	2.959	8.263	−1.404
	[4.609]***	[0.649]	[2.114]	[4.295]	[3.055]***	[0.873]
Contract employee				−7.058		
				[2.649]***		
Doctor	15.499	3.226	3.512	0.325	15.551	3.380
	[6.714]**	[0.854]***	[2.481]	[3.113]	[4.662]***	[0.754]**
Works night shift	−4.89	−4.921	−1.717	−4.013	−4.851	−4.267
	[5.829]	[0.672]***	[3.278]	[3.076]	[3.352]	[1.066]*
Conducts outreach	−1.286	6.297	4.874	1.422	−7.677	6.617
	[5.525]	[0.671]***	[2.995]	[4.027]	[3.246]**	[0.620]***
Lives in PHC-provided housing	−10.223	0.912	−2.334	−5.027	−5.64	−0.583
	[5.162]**	[1.063]	[2.638]	[5.298]	[3.400]*	[1.507]
PHC was inspected in last 2 mos.	−5.989	−0.356	−4.114	−1.357	−3.149	−1.975
	[5.545]	[0.676]	[2.895]	[2.802]	[2.815]	[0.624]*
PHC is close to MOH office	4.641	2.598	−5.054	−4.311	−0.945	0.768
	[5.261]	[1.550]*	[2.132]**	[3.191]	[4.604]	[1.999]
PHC has toilet	4.163	−0.863		11.162		
	[11.713]	[0.777]		[13.534]		
PHC has potable water	−10.283	−2.69	−8.106	1.871	8.233	−3.352
	[9.450]	[0.840]***	[4.815]*	[5.598]	[4.486]*	[0.844]*
PHC is close to paved road	8.865	−0.874	−32.652	−4.811	0.599	−6.076
	[9.386]	[0.775]	[11.357]***	[4.185]	[4.480]	[3.042]
Dummy for 1st survey round		4.697	−27.659	−8.664	−5.574	−12.457
		[0.674]***	[1.596]***	[4.903]*	[2.761]**	[11.180]
Dummy for 2nd survey round		3.648				
		[0.735]***				
Constant	25.866	36.723	74.061	44.076	51.087	38.014
	[16.876]	[2.074]***	[12.927]***	[17.566]**	[11.649]***	[1.538]***
Observations	339	26127	1767	1123	1264	27894
R-squared	0.12					
Number of providers		9493	1094	607	747	

Notes: * Significant at 10 percent, ** significant at 5 percent and *** significant at 1 percent. Robust standard errors in brackets. Bangladesh regression uses only one round of data, and is therefore a simple cross-section. Regressions include dummies for days of the week (not reported here). Where applicable, regressions also include dummies for urban area (Peru) and for type of clinic (Bangladesh, India).