Teacher and Health Care Provider Absence:

A Multi-Country Study

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1. Motivation: Why Study Absent Teachers and Doctors?

This section lays out the motivation for the multicountry study of provider absence, describing first the problem and then the contributions from, and gaps in, the existing literature.

Service delivery and the key role of providers

This paper is motivated by the importance of public service delivery to development. It largely takes for granted the relationship between service delivery—or at least the delivery of high-quality, efficient services—and development. [For a detailed discussion of the issue, see the most recent World Development Report, *Making Services Work for Poor People* (World Bank 2003).] And since service delivery in health and especially education is a face-to-face, labor-intensive business, finding ways to motivate medical personnel and teachers will be essential.

Public service delivery in health and education is not all that matters for human development outcomes, of course. Research has identified many factors outside the service delivery system that affect health and education outcomes. In health, such factors as income and the availability of water and sanitation are crucial; in education, the household's socioeconomic status, including parents' own education levels, are important determinants of a child's educational outcomes. Even within the service delivery sector, poor quality of public services causes many clients—even those who can least afford it—to flee to fee-based private services.

Yet public service delivery, and the behavior of public service providers, inevitably matters for outcomes too. First, the quantity and quality of education and health services does have direct effects on the welfare of households and individuals. No carefully controlled research studies should be necessary to convince us that a student taught by a dynamic and well-prepared teacher will learn more than one taught by an unmotivated and untrained teacher who is frequently absent. One way to put it is that having a teacher in place is necessary but not sufficient for being educated. Even in health, where the importance of service delivery in outcomes has more often been questioned, it seems reasonable that medical personnel can make a difference in health outcomes if they are motivated and present at public health centers.

Second, the efficiency of service delivery affects the level of government expenditures. Education and health claim a large share of total government expenditures everywhere, and within those sectors, wage and salary costs are typically the largest share of expenditures. Teacher costs typically claim some 90 percent of recurrent expenditures in developing countries, so that inefficiencies in that spending exact heavy budgetary costs. If even 5 percent of teachers are shirkers who seldom teach, that means that 4.5 percent of the recurrent education budget is being wasted. The result is that either other educational needs are going unmet, or else the absenteeism inflates the overall education budget and creates fiscal pressures.

In any in-depth discussion of the quality of service delivery, especially in South Asia, the topic of provider absence quickly comes up. The Public Report on Basic Education in India drew public attention to this problem with anecdotes collected during their survey of primary schools in four states:

> When the investigators reached the primary school in Jotri Peepal (Bharatpur, Rajasthan) shortly after noon, no teacher was in sight. One teacher, who had apparently left for lunch, soon appeared. He said that the school actually had three teachers, but that the headmaster and another teacher had gone elsewhere on official duty.
>
> The villagers contradicted this story. They said that the two absconding teachers did not turn up at all. The only one who did was the one the investigators had met . . . . He too was highly irregular and opened the school at will (PROBE Team 1999).

Despite anecdotes such as this one, this study neither starts nor ends with the presumption that most teachers and medical personnel are opportunistic shirkers. Indeed, if we step back from the analysis that will be presented in Sections 3 and 4, one of the remarkable findings is that so many providers are apparently so serious about their work. Even in the absence of effective monitoring, discipline, or rewards for good performance, the large majority of teachers and medical personnel appear to show up regularly and do their best in trying circumstances.

But as this study will show, large numbers of providers are nevertheless absent on any given day, particularly in the poorer countries. Some of these absences stem from official duties; others from unavoidable personal conflicts; and still others from the type of uncaring opportunism cited above. From a policy perspective, of course, it is important to distinguish among these causes. At the most basic level, though, but almost any absence from the facility—however justified—will reduce the amount of education and health services delivered.

Literature review: What we know and don't know about provider absence

The problem of provider absence has not escaped the attention of the development community. A good deal of anecdotal evidence, and some careful recent studies, have shed some light on the problem. What these studies lack—and what our study offers—is a foundation in data that is at once nationally representative, internationally comparable, and collected through multiple direct observations of provider absence.

Various small-sample studies in developing countries, primarily in Sub-Saharan Africa and South Asia, have identified teacher absence as an obstacle to education and have tried to measure its severity. Glewwe, Kremer, and Moulin (1999) found that teachers in two districts of Kenya were absent from school 28.4 percent of the time, and physically present in school but absent from the classroom an additional 12.4 percent of the time. The 1999 Public Report on Basic Education (PROBE Team 1999) noted that one-third of the head teachers in surveyed districts were absent from school. The Pratichi Report (Pratichi Trust, 2002) found absence rates of 14 percent among teachers in informal schools and 20 percent in formal schools, in a non-random selection of 17 villages across 3 districts in the Indian state of West Bengal. In the North West Frontier Province of Pakistan (NWFP), the absence rate was 20 percent in a large sample of 257 public and private schools (Ali and Reed 1994; King, Orazem, and Paterno 1999). In that study, enumerators conducted two spot checks on teacher and student absence, and also collected data on teacher attendance from official school records—which revealed an official absence rate of

just 5 percent, or only a quarter of the measured rate. In Bangladesh, a survey conducted by the World Bank indicated that often half of the teachers are absent and that is common that one teacher manages a multigrade classroom of over one hundred children (World Bank 1995).

Careful estimates of provider absence in the health sector are even scarcer. While some studies have cited the problem of doctor absence (Begum and Sen 1997; Sen 1997), virtually none have used spot checks to measure it, even on a subnational level. One recent exception is Chaudhury and Hammer's study of Bangladesh's public and community health centers, which used a nationally representative facility survey and calculated an overall absence rate of 35 percent for all medical providers and 42 percent for doctors (Chaudhury and Hammer 2002). Given that our results will show that medical providers are uniformly absent at higher rates than teachers, the lack of attention paid to this problem is particularly surprising. Nevertheless, it means that for the rest of this section, we focus on the education sector.

Theory and case-study based evidence suggest that there are at least three broad sets of hypotheses for why teachers might be absent.[1] The first is teachers are poorly paid, not well trained, and in general poorly motivated to attend work. The second hypothesis is that they do not have any specific incentives for attending school. The specific reasons for this lack of incentive to attend can include both inadequate supervision and monitoring as well as inadequate infrastructure in the school (lack of electricity, toilets and covered classrooms for instance), which serve to reduce the cost of being absent, and making it unpleasant for teachers to do their duty respectively. The third hypothesis is that there is inadequate community involvement – teachers do not belong to the area where they teach, parents and the broader community is not involved, and this reduces both the motivation of the teachers as well as the extent of monitoring. For instance King and Ozler suggest that a program in Nicaragua that expanded parental involvement and school administrative autonomy led to sharp increases in teacher attendance, particularly in rural areas (King and Ozler 2001). Similarly, Majumdar conducts a comparison study of Rajasthan and Tamil Nadu, and suggests that a large reason for educational success in Tamil Nadu is the strength of local community and parent involvement (Majumdar 2001). She notes for example that teacher absenteeism is widely condemned through a public display of posters demanding the transfer of such teachers.

In addition to these three main hypotheses, other factors have also been mentioned in the literature. Poor health of teachers and frequent illnesses has been posited as a reason for high teacher absence. A World Bank study (World Bank 2002) documents that teachers with HIV/AIDS are frequently absent long before reaching the terminal stage of the disease. In the Indian context, teachers and union representatives report in conversations that they are expected to do significant amounts of non-teaching government administrative duties outside the classroom. These tasks include voter registration, human and cattle censuses, playing an outreach role in public health campaigns such as polio immunization drives, and supervising election stations. Clearly the various hypotheses laid out above are not mutually exclusive, but there has been no research using representative data to indicate the relative importance of these various

[1] *The literature review in the remainder of this section will be updated and made more consistent with the treatment of correlates in Section 4.*

factors, and one of the aims of this paper is to be able to test these hypotheses and the extent of their validity.

Finally, the effects of absenteeism have not been examined in a systematic way either. The aforementioned study of NWFP schools found that higher teacher absenteeism rates increase student promotion rates for given level of test scores but reduce student continuation rates (King, Orazem, and Paterno 1999). They hypothesize that this is because absent teachers have little merit-based information upon which to base the decision to promote a student. The study did not test for the effect of teacher absenteeism on either student attendance or on test scores.

Several studies attempt to suggest policy implications or identify causes of teacher absenteeism. A case study of educational attainment in the state of Uttar Pradesh in northern India concluded that its poor record could largely be explained by teacher absenteeism and shirking. The paper argues that stronger teachers' unions and political participation are the main causes of absenteeism and general lack of accountability (Kingdon and Muzammil 2001). According to an examination of the education system in the state of Himachal Pradesh, women's associations and a few NGOs have increased awareness and addressed the issue of teacher absenteeism and inadequate school facilities (De, Noronha, and Samson 2000). One of the PROBE report's main policy implications was to strengthen the Parent Teacher Associations/Committees.

2. Research objectives and survey methodology

Goals, country coverage, and timeframe

The research project on "Provider Absence in Health and Education" aimed to begin to fill these gaps in the literature on absence of service providers. It was launched as part of the background research for the *World Development Report 2004*, and it was funded largely by the UK Department for International Development, with additional survey funding from the Global Development Network, from World Bank country teams, and from the Bank's research department. The project had two main objectives:

- To document the extent of provider absence in a range of jurisdictions (districts, states, countries) at different levels of development and with different institutional structures.

- To understand the patterns and correlates of provider absence, including community characteristics, individual characteristics, and institutional settings and practices

The study's country coverage reflected these goals, as well as constraints on the team. It was important to assemble a good cross-section of countries, to the extent feasible within a limited budget and timeframe. It was clearly essential to include much of South Asia in the study, for several reasons. First, the limited literature cited above, combined with anecdotal evidence, suggest that the problem of provider absence is particularly severe in the region. Moreover, the costs of provider absence in terms of minimal development goals are likely to be great in South Asia, as the region accounts for nearly half of the world's poorest people (those living under $1/day) and a large share of the primary school-age children who are not in school. Finally, the Indian states offer a great deal of variation in circumstances and policies, allowing us greater scope to gauge the effects of different interventions under a common set of national institutions. For these reasons, we included two countries from South Asia that account for about 85 percent of the region's population—India and Bangladesh. In addition, we devoted to the Indian survey enough resources to launch a full-scale "national-size" survey in each Indian state.

But South Asia is clearly not the only region that confronts a provider-absence problem, and so we included in the study five countries from other regions: Ecuador, Ethiopia, Indonesia, Peru, and Uganda. In addition to spanning three regions, this list of countries includes a substantial income range, from Uganda at $1320 GNI per capita (in 2002) to Peru at $4800. It includes countries that offer a variety of administrative contexts for service delivery, in that Ethiopia and Indonesia have And, not insignificantly, most of the countries on the list had experienced survey firms or research institutes that the core team could partner with to carry out the survey. Because of the WDR deadlines, logistics were an important consideration, as we did not have time to spend several months training the survey teams.[2]

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[2] Thus, although the sample covers more than a quarter of the developing world's population, it should not be seen as fully representative of the developing world as a whole. To the extent that capacity of local survey firms is

The project was launched in the late summer of 2002, with the aim of achieving at least some early results in time for their inclusion in the World Development Report. This necessitated a tight timeframe for survey design, data collection, and preliminary data analysis, so that we could have data from the first round of visits by the February WDR draft. The team designed the template survey instruments in health and education by early fall 2002.[3] Over the next several months, we worked with partner research institutes and survey firms in our sample countries to implement the survey. This entailed translating the instrument, customizing it to local circumstances, training survey teams, conducting the survey, and entering and cleaning the survey data. In addition, in most of the countries, we carried out a companion institutions-focused survey of a small non-random sample of experts, officials, and providers; this survey aimed to provide institutional context for the facility-level results. While the developing-country partners were directly responsible for survey logistics, the core team supervised the customization and implementation of the survey in each country, and was involved in the other steps to varying degrees. This involvement helped ensure a consistency of approaches across survey countries.

The full two or three rounds of data for most of the countries were available by the late summer of 2003, at which point they had to be cleaned further and analyzed. The team presented its early draft analyses at the January 2004 Global Development Network Provider Absence workshop in New Delhi, as well as at other events at the World Bank and Harvard University. This draft reflects those discussions with policymakers and researchers.

Key contributions of this study: Accuracy, representativeness, and comparability

This study makes several innovations that, taken together, allow it to make a unique contribution to the provider-absence literature:

- ***Absence measures based on direct observation during unannounced visits:*** Unlike most past studies of provider absence, whether in the developing world or in OECD countries, this study does not rely on administrative records or retroactive self-reports of absence. Instead, survey teams make unannounced visits to primary schools and primary health centers and physically verify the presence or absence of each provider who is scheduled to be on duty. Few studies in the past took this approach, but those that did have confirmed the importance of direct observation. Recall from the literature review that one study found actual absence rates four times as high as the reported rates. To characterize absence correctly, let alone understand what might be causing it, it is essential to have good data on who is absent and when.

- ***Nationally representative random sampling of facilities:*** A second contribution of this study is that it bases its estimates of absence on data gathered from carefully randomized, nationally representative samples of primary facilities. Most studies of

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correlated with government capacity for service delivery—as it may well be—the countries selected for the survey (at least outside South Asia) may have lower absence rates than their neighbors

[3] For sharing with us their survey instruments as an aid in our survey design, we are grateful to Jishnu Das and Deon Filmer. In particular, we thank Das and his collaborators for the arithmetic-test portion of our student module, which we adapted with little or no modification from their study.

absence until now have been based on unrepresentative samples or samples that are representative of a subnational region. Only a few developing-country studies, mostly recent, have attempted to measure absence through nationally representative samples, and only three of these base their estimates on direct observation.

- ***Multiple visits to each facility:*** Each primary school and primary health center in the sample was visited at least twice (three times in India). A methodology based on multiple visits has two advantages. First, it allows multiple observations of the attendance of each provider, which is essential for distinguishing whether absences are concentrated among a small number of providers or are spread out among a large group. Second, it allows the enumerators to interview providers who are absent once, to get detailed demographic and background information from them. Without a multiple-visit approach, all information on absent providers would have to be obtained from co-workers; with it, we were able to get such information directly even from providers who were absent during one visit (two in the Indian case). Like the direct-observation approach, this should increase the accuracy of the data gathered.

- ***Uniform survey approach and methodology across multiple countries:*** This project is, to our knowledge, the first to apply an identical methodology and similar absence-focused survey instrument across multiple countries. More broadly, while this paper is focused on provider absence, the project probably also represents the first time that a standardized public service facility survey has been used in several countries in different regions; as such, it is likely to yield benefits even beyond the comparative provider absence results. To date, we have results from six countries in four regions (South Asia, East Asia, Latin America, and Sub-Saharan Africa), with results from a seventh country to be added soon.

Thus the results and policy conclusions in sections 3, 4, and 5 below—though still tentative—are based on a dataset uniquely well-suited to suggesting some general conclusions on the issue of provider absence. (For further detail on the sampling and survey methodologies, as well as on the variables collected through the survey, see Appendix 1.[4])

[4] Appendix 1 is still to be added, but it will track closely the relevant sections of the original research proposal.

3. Levels and Patterns of Absence across Countries

This section presents the rates of absences across countries and sectors. A provider was counted as absent if, at the time of the random facility visit, he or she could not be located anywhere in the facility. The basic cross-country results on absence are in Table 1, while Figure 1 presents the same data in a scatter plot diagram with the per capita gross national income of each country.

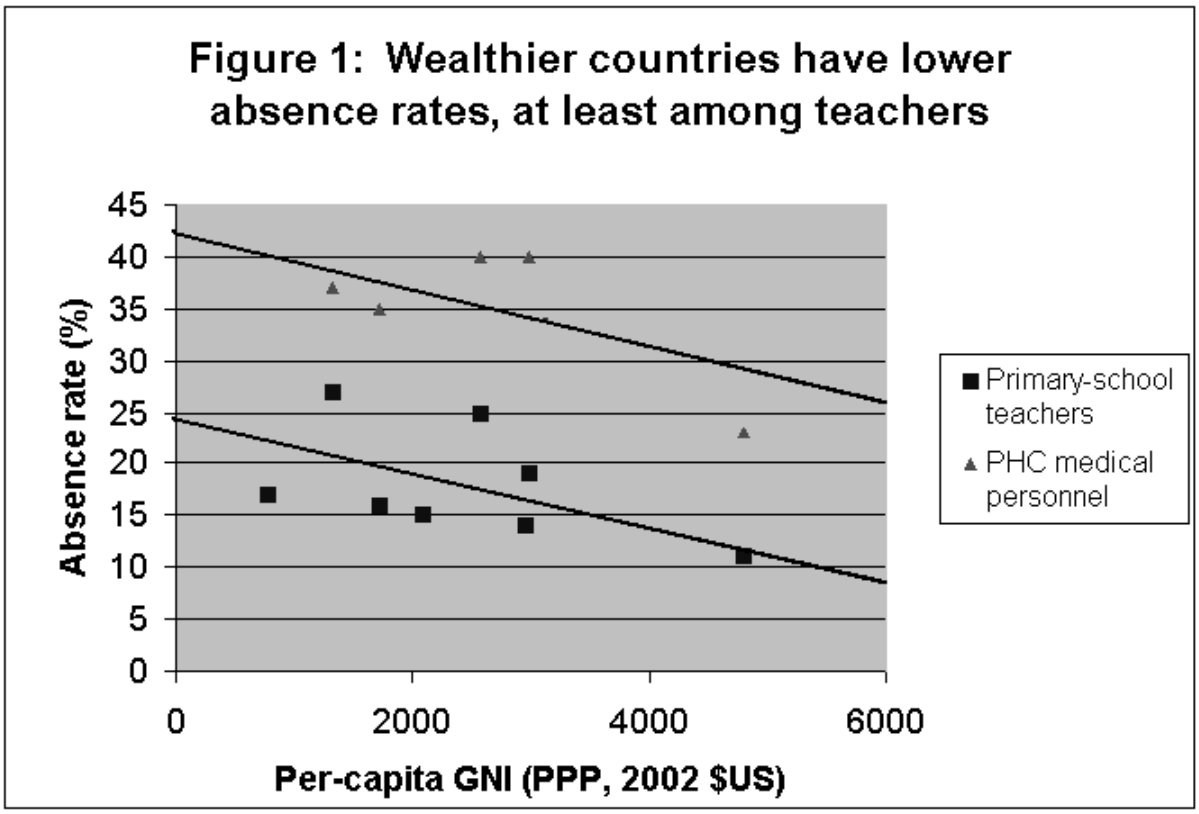
Table 1: Provider Absence Rates by Country and Sector

	Absence rates (%) in:	
	Primary schools	Primary health centers
Bangladesh	**16**	**35**
Ecuador	**14**	**--**
India	**25**	**40**
Indonesia	**19**	**40**
Papua New Guinea	**15**	**--**
Peru	**11**	**23**
Uganda	**27**	**37**
Zambia	**17**	**--**

Note: Absence rate counts those absent from the facility for any reason at the time of a random unannounced spot check; see text for further definition.

Sources: Authors' calculations from facility surveys, except for Papua New Guinea (NRI and World Bank 2003) and Zambia (Habyarimana, Das, Dercon, and Krishnan 2003).

The first point to make is that these numbers are quite high, with teacher absence rates ranging from 11 to 27 percent and medical personnel from 23 to 40 percent. The fact that provider absence is much more common among medical care providers than among teachers also stands out. For reasons that will be discussed below, interpreting this fact is not straightforward. It does not necessarily mean that the "problem" of absence is worse for health than education, in the sense of implying a larger welfare cost. But it is a robust result that requires exploration. With the exception of Peru, the absence rate in the health sector in every country is at least 8 percentage points higher than the highest teacher absence rate.



A second pattern evident in the cross-country comparisons—not previously documented in the literature—is that the rate of absences seems to fall with per capita income of the country. Figure 1 includes a simple regression line calculated based on the assumption that the same marginal relationship between gross national income (GNI) and absence holds in both the health and education sectors (albeit starting from different levels).[5] The relationship comes through clearly, both in the graph and in the regression statistics: an additional US$1000 in per-capita income (PPP-adjusted) is associated with a decline in absence of about 2.8 percentage points.[6]

Of course, additional country/sector combinations will be needed to confirm this relationship. Given the relatively small sample, this result can be sensitive to which countries are

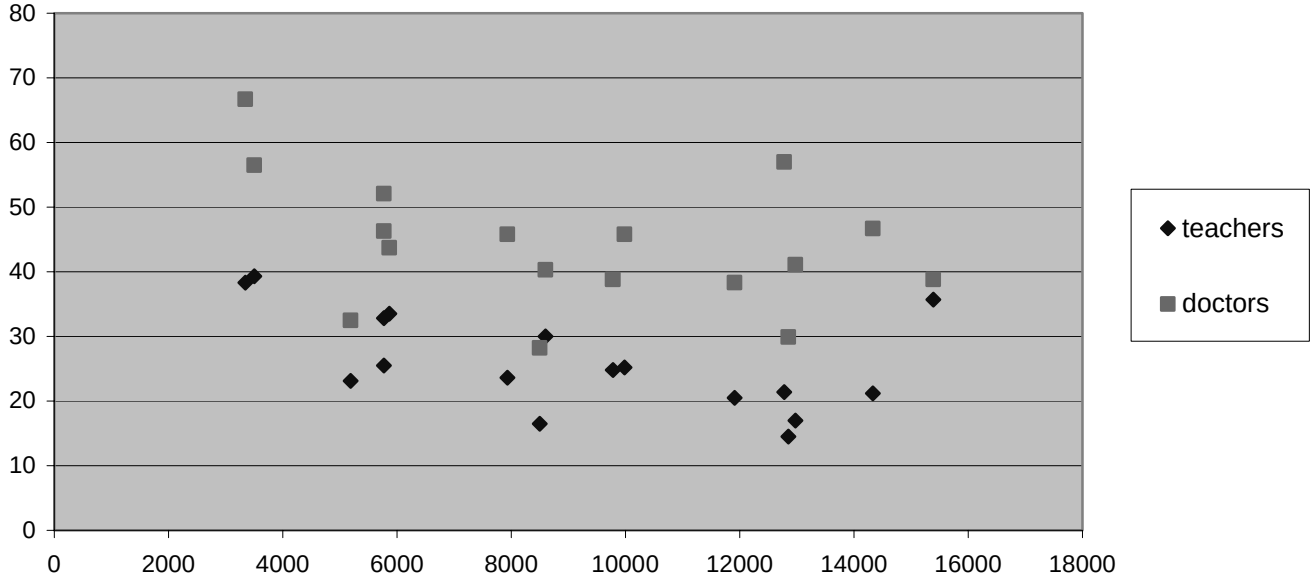
[5] The fit of this regression is surprisingly good, especially for a relationship that had not been noted before: with just two regressors (gross national income on a PPP basis, and a PHC dummy), the adjusted R^2 is 0.75. Much of the explanatory power comes from the PHC dummy (that is, from the rather uniform difference between the two sectors), but in education, the income-absence relationship also explains a considerable amount of variation.

[6] Figure 1 also drives home the large difference in absence rates between the education and health sectors. The PHC dummy estimated at a highly significant 17.8 percentage points. If we dared to extrapolate, as in Figure 1, this would give us a predicted PHC absence rate at $6000 per capita income (roughly the level of Turkey) that is even higher than the predicted primary teacher absence rate for the world's poorest countries (Sierra Leone at $590, say).

included. In health, the negative relationship is driven entirely by Peru's relatively high income and low medical-provider absence rate; without Peru, higher incomes are associated with a slight increase in PHC absence. Still, in primary education, the negative relationship is more robust and shows up with similar magnitude even without Peru (though not with as much precision).[7]

There are several reasons why higher income might lead to lower absence rates. First, while rarely analyzed, it is likely that administrative capacity of a country grows with income. More educated administrators, more and better communications equipment, and more sophisticated monitoring systems should all accompany higher incomes. Second, richer countries have larger middle classes, and the social distance between professionals such as teachers (especially) and medical providers (particularly those that are not doctors) tends to shrink. So, either through direct monitoring and intervention by richer, more educated clients or through greater influence on government, higher incomes could well contribute to better performance of service providers.

Figure 2: Teacher and doctor absence by state per capita income in India

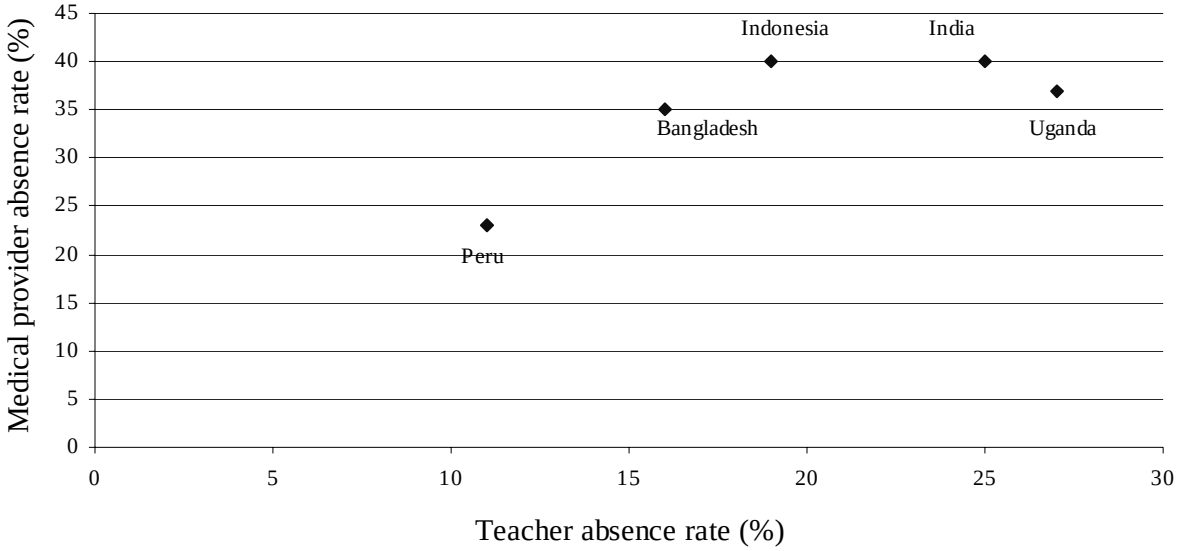


Does the same relationship between income and absence hold between districts or states within each of the sample countries? Replicating this pattern within countries is complicated by relatively small samples at subnational levels in most cases; India is an exception, however, because a complete survey was done for each state. Figure 2 shows the same relationship for teachers and doctors in India, with each state-sector combination entered as a data point. These

[7] For the education sector without Peru, the estimated slope on income drops only slightly, to –2.1 per $1000. It does lose statistical significance, but this is unsurprising with a sample of 8 countries.

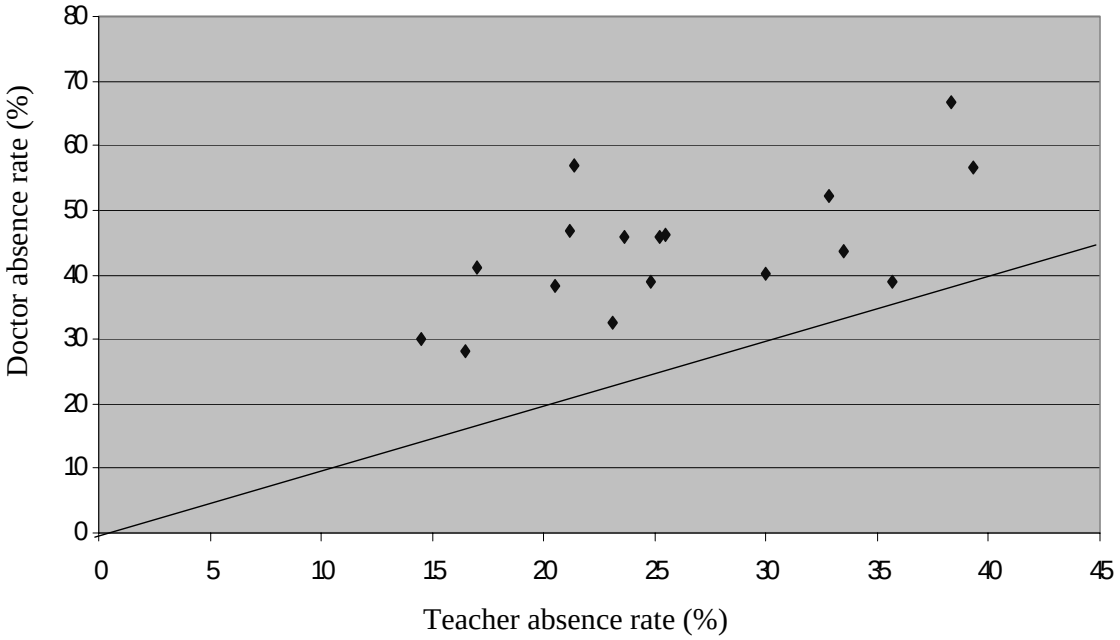
replicates the international comparisons fairly well. Doctors are absent more often than teachers, and the relationship between income of the state and absence rates appears "tighter" in education than in health care. This visual impression is borne out by standard statistical measures. This general observation will provide several clues and hypotheses for testing below.

Figure 3: Correlation of teacher and medical provider absence rates across countries



Absence rates between the sectors, unsurprisingly, tend to be correlated with each other. Again, this can be seen more clearly in India than across countries, because of the relatively large number of Indian states. Figures 3 and 4 show this relationship. In the cross-country graph in Figure 3, Peru once again tends to drive the visual impression of the correlation across sectors. On the other hand, Figure 4 shows that the relationship clearly holds among states of India. At an aggregate level, the relevant variation in income necessary to reveal this relationship may simply be larger than this set of countries in Figure 3 can show, given institutional differences that will shift a county up or down. Within India the differences in income between the richest and poorest states is only a factor of two, but with so many more common institutional factors controlled for, the relationship comes through. (Note also that every data point lies above the 45-degree line in the figure, indicating again that health sector absence is higher than education-sector absence in every state.) Why might national or state absence rates in the two sectors be correlated? We can only speculate, but one simple hypothesis is that management is a matter of governance common to the relevant polity. The highest rates of absences in India are in the states of Bihar and Jharkhand (formerly the southern part of Bihar), which are known for their low administrative capacity, while the lowest absence rates are in Maharashtra, whose government has a much better reputation. Of course, this could all be a matter of higher income.

Figure 4: Correlation of teacher and doctor absence across Indian states



Digging a little deeper into the stated reasons for absences gives only a little insight into the relationship between income and absence. If absences are a problem, then understanding the reasons behind them is important for designing reforms to improve matters. If all absences are for legitimate reasons—such as attending meetings or seeing to other duties that may not be related to the job—then Ministries need to re-examine their ultimate goals and determine if such other duties are as important as the main task of teaching children or caring for patients. It is a common complaint that providers, especially teachers, are called upon to do many administrative tasks, such as overseeing elections, that take them away from their work. By contrast, if the reasons for absence depend on individual choices, then solutions will have to address incentives that individuals face that lead to better performance. In addition, there are factors beyond the control of either the ministry or the individual that could influence absence, including illnesses such as AIDS in Africa and elsewhere.

Tables 2 and 3 give the stated reasons for absence in health and education, respectively. These stated reasons came either from the facility director or from an acting director who responded to the facility survey. Note that in the two Latin American countries, which have low overall absentee rates in education, the relative size of the "no explanation" category is quite large. By contrast, in the poorer countries, India and Bangladesh, there is a much greater likelihood that a reason is given for absences. Whether this reflects reality or a cultural difference in the way in which embarrassing questions are answered is an intriguing but unanswered question. The differences between the countries on this dimension, however, make cross country comparisons impossible.

Table 2
Stated Reasons for Health Provider Absence

Shares of total, in percent

	Uganda	Bangladesh	India	Indonesia
Medical Outreach Work	10.7	3.6	37.6	30.2
Other Official Duties	15.2	29.1	14.8	12.0
Sick	5.5	.	3.0	6.5
Authorized Leave	35.1	34.5	24.4	18.2
Left Early/Late	22.7	1.8	9.8	12.8
Other Reasons	2.6	.	3.1	.
Unauthorized Absence	8.3	31.0	7.4	20.2
Total	100	100	100	100

Table 3
Stated Reasons for Teacher Absence

Shares of total, in percent

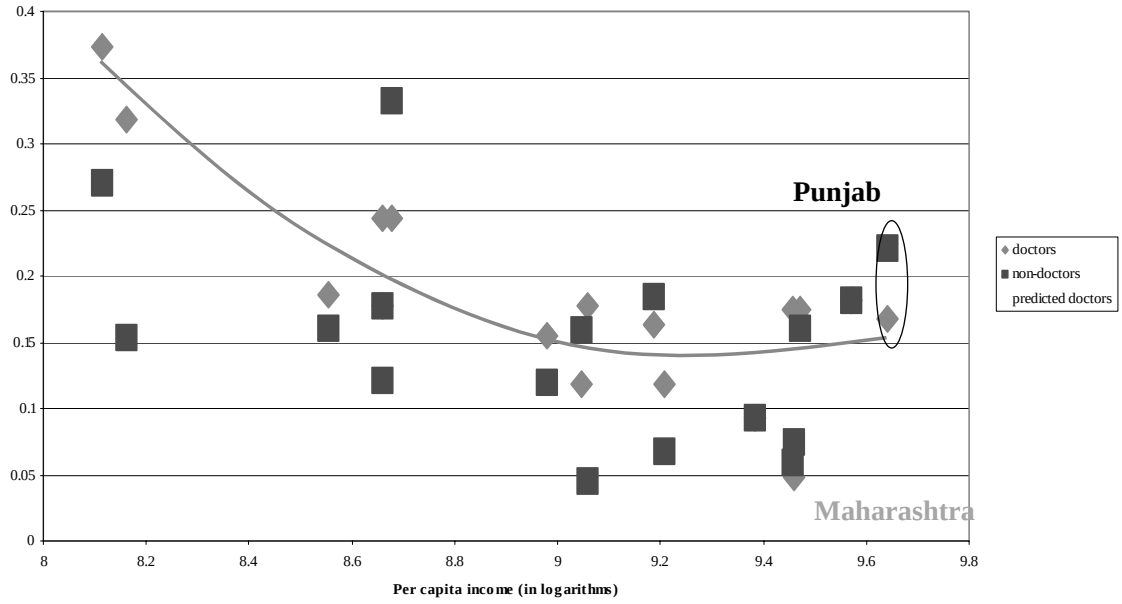
	Uganda	Bangladesh	India	Indonesia	Ecuador	Peru
Official Work	21.5	53.5	33.5	18.7	24.5	12.8
Sick	14.6	9.5	6.1	13.0	12.9	9.3
Authorized Leave	19.5	32.8	27.3	23.6	9.9	11.6
Collect Salary	.	.	1.2	.	.	2.3
Left Early/Late	19.5	2.2	4.9	12.7	9.3	2.3
Other Reasons	.	.	.	.	1.1	7.0
Unauthorized Absence	22.0	1.5	27.3	28.2	42.3	51.7
Total Absence	100	100	100	100	100	100

Within India, however, we will assume enough cultural homogeneity on this issue to attempt a few comparisons. First, note that the reason "non-teaching official duties"—often cited by teacher representatives—accounts for less than one percent of total absences. In part, this may be because gathering data on three separate visits across nineteen states dampened any seasonal and local effects. While it may well be true that during election time, teachers miss school, the

phenomenon of teacher absence is more widespread than can be credibly attributed to such duties.

For doctors, in particular, examining the category "no explanation" for absence yields three interesting results: 1) it results in much lower absence estimates; 2) it gives a much closer "fit" between state income per capita and state absence rates; but 3) it poses a puzzle. The richest state in the Indian sample is the Punjab, which has relatively high (or, at least, no lower) levels of unexplained doctor absences. Without the Punjab in the sample, the relation would be driven by Maharashtra and show a steady decline in absence with income. With the Punjab included, the relationship levels off and may even be rising at high levels of income. Are there factors that attenuate the general tendency to have improved service in high-income areas or do the Punjab or Maharashtra simply need idiosyncratic explanations? The generally closer fit for "no excuse" does not carry over into other categories (Figure 5). It is true that health workers in India are allowed a substantial number of legitimate personal leave days. However, they are allowed to work instead of taking these days off, which allows them to "cash in" the unused leave. In principle, it should be possible to link the absence rates that are due to authorized leave in our sample and compare them to the level of encashment of unused leave slips.

Figure 5: Unexplained Absence by Per Capita Income for Indian States
(regression prediction for doctors included)



One final cross-country comparison focuses on the concentration of absences within providers. That is, are there a small number of providers—call them "ghost workers"—who are on the books but who hardly ever come to work, thus boosting the average absence rate for all providers? Or are the absences more equally spread out across many providers? Since the sampling method allowed (in fact demanded) that individual providers be tracked from one visit

to the next, it is possible to see how concentrated absences are among providers. Table 4 shows substantial variation between countries. In Ecuadorian primary schools, for example, the relatively small overall absence level of 14 percent appears to be highly concentrated in a relatively small number of providers. More than 10 percent of providers were absent during both visits, and these providers were responsible for three-quarters of all absences recorded. By contrast, each of the other countries in the education-sector comparison has a far more even distribution of absences among teachers.

Table 4
Frequency of absences: Share of each type of provider (%)

Provider type and country	Number of times absent in 2 visits		
	0	**1**	**2**
Primary-school teachers:			
Bangladesh	73.4	23.5	3.2
Ecuador	82.8	6.9	10.4
Indonesia	67.7	27.5	4.8
Peru	81.0	17.3	1.7
Uganda	63.0	29.6	7.4
PHC medical workers			
Indonesia	46.1	41.0	12.9
Peru	56.4	33.5	10.1
Uganda	52.0	38.0	10.0

	Number of times absent in 3 visits			
	0	**1**	**2**	**3**
Primary-school teachers:				
India	49.1	32.7	13.5	4.8
PHC medical workers				
India	35.7	31.9	20.8	11.6

Once again, the nature of the policy response in a given country depends on which of these problems needs to be addressed. If it is "ghost workers", then administrative reforms to keep current records are called for (at least to the extent that the existence of such workers is a mistake and not an intentional result of political patronage). If the distribution data suggest that instead an absence problem stems from occasional (but excessive) absence from many workers, then policymakers may need to focus more closely on individual incentives.

Does the fact that medical personnel absence rates are much higher than those in education mean that there is a greater "absence problem" in health than in education? Not necessarily. For one thing, the societal costs of absence may be higher in education than in health. The public sector dominates primary education in most countries, whereas private-sector providers are much more widespread in medical care. To put it another way, there are typically few alternatives to public education and many to public medicine. If a patient gets no satisfaction at the public clinic, he can seek out a private medical provider, assuming he has at least the modest means necessary to pay that provider.

Along similar lines, there are few alternatives to the learning of reading, writing, and arithmetic, besides a classroom with a teacher who is concerned that children are learning. (Sparsely populated areas may sometimes use distance learning, but this is generally quite rare.) If the teacher is not there, the child will usually not be educated. By contrast, there are many ways in which the public sector can improve the health of the population besides providing medical care at fixed facilities. Pest control, periodic vaccination campaigns, health education, and a host of other activities may have at least as much effect as public medical care. If absences from facilities are a problem, there are lots of other ways the public sector can improve health.

Further, imagine that the medical provider takes off from work but uses the time to provide private health care, as is routinely reported. Then, while the system may not be working as conceived by policy-makers, at least services are being provided. In our survey, we did not have the time or financial resources to allow enumerators to track down absent doctors, and so we cannot be sure what they were doing instead. If a public sector salary served to have a qualified doctor locate to a rural area, even if only to set up a private practice using the salary only as an income supplement, it could be that it has given a rural village competent care when it otherwise would have none.

4. Correlates of Absence: What Factors Help Us Predict Absence Levels?

Let us be very clear about the limitations of this study and the kinds of conclusions that we can legitimately make. It is an irresistible temptation to try to infer causal relations between the many variables collected in the surveys and provider absence, particularly when some of these variables can be manipulated by policies. Indeed, this is our ultimate goal. Given the nature of the data, however, the best we can hope for is to identify some robust correlations that suggest hypotheses for more direct testing.

Direct testing would require an *ex ante* approach to research in which baseline data is collected, a policy experiment is undertaken to change some of the variables of interest that includes a control group and the participants in this experiment are followed over time. This can be done in parallel with, say, a change in payment mechanisms for a subset of providers – perhaps along the lines of the EDUCO program in El Salvador that gave parents control over most management decisions in primary schools. While our data does involve repeated observations, few important, independent variables change much over the period of observation that would let us link changes in causes with changes in effect. Therefore, we will eschew the temptation to talk about causation. Any accidental use of the expressions "causes" or "leads to" is unintentional.

The basic results are presented in Tables 5 through 8, which look very similar. Tables 5 and 6 identify variables that, in a bivariate sense, are significantly correlated (either positively or negatively) with absence. If the variable is discrete, then an entry means there is a significant difference in absence rates between the categories of the variable at the 10% level. If the variable is continuous, then an entry indicates a correlation significant at the 10% level. For the sake of brevity, the entries for several variables are composites of more than one variable in the regressions. For example, the "inspections" complex was measured in various ways: whether or not an inspection was done by the relevant ministries (sometimes distinguished by particular kinds of inspections) in the past two months or six months. The single entry of positive or negative is recorded if any of the relevant variables were significant. In the very rare cases in which some of the relevant variables had one sign and others had the opposite sign, it is marked and discussed in a footnote to the table. The choice of variables and their order in the table will be discussed in the context of the multivariate analysis.

Tables 7 and 8, by contrast, indicate whether the partial correlation (that is, the regression coefficient) between the variable of interest and absence is significant at the 10 percent level in a standard, uniform regression used for all countries.[8] For the most part, the same variables are used across the sectors as well except where there were clear and unavoidable differences (such as there being no doctors in schools or teacher recognition awards in primary health clinics). The use of a common specification for all countries and for both sectors (as much as possible) was

[8] The regression method used is a linear probability model with the dependent variable being "is the person who is supposed to be here today actually here – yes or no?". While a probit model is theoretically more appropriate, the linear probability model gives similar results, but with estimated coefficients that are easier to interpret. The estimates use a "random effects" error structure to take into account the fact that we have repeated observations on the same providers. All of the individual countries' regression results are presented in the appendix.

done deliberately to highlight the areas of comparability. There is an inherent tradeoff between searching for the "best" functional characterization for each country, taking into account details of institutional differences, or using mechanical methods of specification searches on the one hand, and looking for frequently recurring relations with a canonical functional model, on the other. Since we have no hope of identifying the "correct" model in any of our countries, we decided to opt for international comparability.

Table 5
Bivariate correlation between variables of interest and provider absence: Education sector

	Uganda	Bangla.	India	Indonesia	Ecuador	Peru
Inspections			-	+	-	-
Nearby Min of Education office	+	-	-	-	-	
PTA/Advisory meetings			-			+
Fee	-				-	
Literacy	-		-	-	-/+	-
Infrastructure	-		-	-	-	-
Training	-	-	-	-	+	
Union			-	+		
Multi-grade	-		+	+	-/+	+
Outreach						
Night work						
Short commute	-		-			
Road/bus within 1km			-		+	-
Born in district/fluent speaker	+			-		
Requested post						
Male			+	+		+
Tenure	-	-				
Age	+					-
Married	+	-			-	
Contract/Part-time				+	+	+
Competition			+		-	-
Other job	-	-	-			
Teacher training education*	+/-	-	-(?)	-(?)	+/-	-
Teacher alone good	-		-		-	-
Pupil/teacher ratio	+	-	-		-	
Lunch program						
Head teacher	+		+	+		+
Staff meetings						
Staff recognition program	-					
Dissatisfaction index						

* Teacher general education levels are often significant, but in varying directions

Note: In Tables 5-8, countries listed in order of ascending per-capita income (PPP-adjusted).

Table 6
Bivariate correlation between variables of interest and provider absence: Health sector

	Uganda	Bangladesh	India	Indonesia
Inspections		+	-	-
Advisory board meetings				
Literacy	-	-	-	-
Toilet				
Water	+		-	
Infrastructure index				
Training		-	+	
Union				-
Outreach	-		+	
Night-work	-		-	
Short commute *	-	-	-	-
Road/bus within 1km		+	-	-
Local Ties	+	-		
Male	+		-	+
Tenure				
Age				
Married		-	-	
Contract/Part-time	+			-
Competition			-	+
Other job	-			-
Lunch				
Doctor	+	+	+	
Staff meetings			-	-
Staff recognition program				

Table 7

Multivariate correlation between variables of interest and provider absence: Education sector

	Uganda	Bangla.	India	Indonesia	Ecuador	Peru
Inspections			-			
Nearby Min of Education office			-		-	
PTA/Advisory meetings			-		-	
Fee	+			+		
Literacy	-/+*		-/+*	-	+/-*	
Infrastructure			-		-	
Training		+				
Union						
Multi-grade						
Short commute	-	+	-			
Road/bus within 1km						
Born district/speech			-	+		
Requested post					-	
Male			+			
Tenure			-			
Age			+			
Married			-			
Contract				+		
Competition	-		+			
Other job	-	-	-			
General education	+			+		
Teacher training education	-					-
Pupil/teacher ratio						
Lunch						
Head teacher			+			+
Staff recognition			-	-	+	
Dissatisfaction index						
Regional effect						
Days of week effect						

* In India and Uganda, fathers' literacy was negatively associated with absences, while mothers' literacy was positively associated with absences. In Ecuador, the reverse was usually true.

Table 8

Multivariate correlation between variables of interest and provider absence: Health sector

	Uganda	Bangla.	India	Indonesia
Inspections		-	-	-
Nearby Min of Health office				
Advisory Board				-
Literacy	-	-		-
Toilet				
Water				-
Infrastructure index			-	-
Training			+	
Union				
Outreach	-		+	
Night-work			-	-
Short commute	-		-	-
Road/bus within 1km				-
Local Ties	+			-
Requested Post				-
Male			-	
Tenure		-	+	
Age			+	
Experience			+	-
Married				
Contract/Part-time	+			
Competition			-	
Other job				
General education				
Head doctor	+	+	+	
Staff recognition program		+		
Regional effect			+	+
Days of week effect	+		+	

In one sense, the entries that appear in the table of regression coefficients have passed a quite stringent test. The variables that appear in the table make up a very long list and many are likely to be quite well correlated with each other. Further, reported results are all from regressions that include state, region, or district effects. (These variables are generally significant and are not reported.) Controlling for regional effects captures a wide variety of institutional structures, administrative and political constraints, cultural differences, policy effects if regions have autonomous decision-making powers (as in Indian states) and a host of other possible effects that would be interesting to control for individually but are unobservable. The addition of many well correlated but not functionally related variables make any one that is consistently significant in so many different settings very much worth attention.

A further reason to treat statements about "causation" skeptically is that we do have an implicit (very general) model in mind when we think about how a provider decides whether or not to go to work on any particular day. Unfortunately, many of the key variables in such a model are not directly observable. What we observe are proxy variables of varying degrees of congruence with the underlying concept we would ideally like to measure. So, once again, the correlations we observe are merely suggestive of what we think underpins the decisions of providers.

The implicit model is very simple. We envision a teacher or medical worker deciding whether or not to go to work (or be at work) on the day (time) we visit. The worker is weighing pros and cons. The pros and cons might be institutional, personal characteristics or related to circumstances. The factors we have in mind are:

1) Logistical problems. How hard is it to get to work? Is the school/clinic nearby? Is it served by a functional road or transportation system?

2) Opportunity costs. What else can the person do instead of work? Doctors have an easily saleable skill and can make a lot of money instead of going to work. Parents might have responsibilities to their children. People might be tempted to take Fridays or Mondays off to get a long weekend, etc..

3) Quality of work-life. Is the facility a good place to work? Does it have a functional toilet? Are there colleagues for socializing or discussing and sharing work-related problems? Are there special difficulties such as teaching large classes or having to do night-shifts at clinics?

4) Sense of personal responsibility to profession/community reflecting the internal motivation of the worker. Do locally recruited teachers feel more responsible to their neighbors? Women are frequently cited as less corrupt than men in politics (Dollar et al), perhaps this reflects a more general orientation to behaving responsibly. And, of course, many people enter these professions precisely because they want to do this type of work.

5) Sanctions/rewards. What happens if the provider is absent? Does s/he get into trouble? With whom? Who would notice and be able to complain? Would it lead to

an inspection or inquiry? Is pay so low that risking job loss is not a serious consideration? Does the provider have some personal power (or a personal connection) that makes threatened sanctions less relevant?

Unfortunately, these are relatively complex and context specific concepts for which there are few directly observable variables. Further, many of the variables that can be observed may be reasonable proxies for more than one of these underlying concepts. For example, living in the village may increase the sense of responsibility to the community, but it may also increase the number of other obligations outside work, thus increasing the opportunity costs of good attendance. Having children while living in the community provides numerous examples of this. Working with colleagues at a higher level clinic may make work life better, but might also make private practice more lucrative, by increasing the prestige of the practice or providing more opportunities for self-referral. Tables 9 and 10 list the variables used to correlate with absence rates and indicates how they match up with the concepts underlying the factors defining pros and cons of attending work. There are very few variables that are related to only one of the main concepts.

Table 9a: Mapping Concepts to Measurement

	Opportunity Costs	Part of community
Tenure in position/ age/ experience	✓	✓ (maybe not age or experience)
Gender	✓	✓
Marital status	✓	✓
Lives in/ nearby	✓	✓
Born in village/district		✓
Native language	?	✓
Private provider nearby	✓	
Day of week	✓	

Table 9b: Mapping Concepts to Measurement

	Quality of work life	Logistics	Sanctions
Lives nearby		✓	
Field/night work	✓	✓	
Location of Facility	✓	✓	
Toilet	✓		
Distance to road		✓	
Community health board/PTA			✓
Recent inspection			✓
Doctor/ Head Teacher			✓

Further complicating the interpretation of the results in Tables 5 through 8 is that the cross-sectional nature of the data confounds two very different kinds of decisions in which the same variable may have different effects. The decision to live in a particular area (particularly a remote one) is made infrequently—usually on an annual basis or even less frequently. Conditional on having made the decision to live in a particular place, there is the daily decision of whether to go to work. A road, for example, may have attracted people of different types to live in a village, since it is accessible to other places. At the same time, it makes it easier to leave for parts of the day to attend to a private clinic, say, in a city or different village. This sort of interaction has been noted among doctors in Bangladesh and is a general concern, since both teachers and medical care providers are relatively well educated people in the countries in our sample. Particularly if they have children, the absence of good schools (of concern to doctors especially) or other amenities in rural areas make the location of residence highly dependent on many of the variables in our regression. Once the choice of residence is made, factors such as roads, closeness to the facility, etc. will have different effects. The structural, causal relations are not identifiable in our surveys.

Tables 5 and 6 show the bivariate relationships between absence and our set of variables. We will not discuss these results in any detail; many of the results are confirmed in the multivariate analysis, so it is best to leave the discussion until we reach Tables 7 and 8. However, there are several variables in which the bivariate relations are significant in several of the countries, but disappear in the multivariate case. These patterns emphasize the value of the

multivariate analysis, and at the same time raise questions about which intervening variables may cause some of the bivariate relations to be misleading.

Two, in particular, speak to policy options generally related to the quality of worklife. Training for teachers and for medical care providers is frequently advocated for a variety of problems of service delivery both quality of worklife as well as instilling a greater sense of commitment. In the bivariate tables, training (in-service) shows up as significantly improving teacher attendance in four countries (with one unexpected reverse effect in Ecuador) and increasing medical provider attendance in Bangladesh (though reducing it in India). Similarly, relevant only for teachers of course, the necessity of teaching in multigrade schools appears as a significant predictor of teacher absence in four of the countries (with Uganda being the only exception with a significant effect going in the opposite direction). In both cases, when other variables are included in the regression, these effects disappear.

Both of these effects are spurious, because both are highly correlated with remote, poorer, and more sparsely populated areas.[9] Multigrade teaching is characteristic of sparsely populated areas which are difficult to get to (unless the teacher lives in the village) and controlling for roads, length of commute and regional effects makes the effect of multigrade teaching per se go away. The extra difficulty of teaching to a variety of students does not appear to have an independent effect even though the pair-wise comparison with absences is strong in a variety of cases. Similarly, both remoteness and the general orientation of regional policies that account for the lack of direct effect of training. More accessible areas and, possibly, regions with generally greater emphasis on education (reflected in many ways, not just in training) have more training and have better attendance but not for any direct relation that stands up controlling for other factors.

Less related to policy, but still intriguing, is that being male and being married are reasonably consistently associated with absence in a bivariate setting, but also disappear in the multivariate setting. The image of a settled, female member of the community taking her service delivery obligations seriously reinforces the sense that such women should be specifically. While seductive and probably consistent with other evidence, this image is not borne out in our data. "Maleness" appears to be picking up a strong effect of being a head teacher (discussed below) or a doctor, both of which are predominantly male occupations in our sample and are strongly associated with absence. A mystery that we do not purport to solve is why in the multivariate setting, only India has significant effects of men on attendance—but those effects are negative in education and positive in health.

Multivariate analyses

Rather than discuss Tables 7 and 8 entry by entry, in this section we identify several broad results that tie together several of the observed coefficients. Once again, it is difficult to discuss regression coefficients without sounding as if results are causal and the stories we are about to tell do sound as if they are about structural, causal relationships. However, this is not justified for this data. Whenever we slip into the language of causality, it is best to think in terms of "these results

[9] *To be checked.*

are consistent with the following interpretation," rather than viewing our results as a test of a hypothesis.

Sanctions/rewards and monitoring. An interesting contrast between education and health is illustrated by the different effect that direct monitoring by administrators has on absences. (It also, by the way, illustrates a contrast between bivariate and multivariate analyses.) Direct monitoring was measured in two different sets of ways: by whether or not there had been a recent inspection, and whether or not there is an office of the Ministry of Education or Health "nearby" (within a certain distance, with the cutoff distance varying by country). In the bivariate relations, the education sector has seven significant coefficients in the "right" direction—meaning more inspections or closer offices are correlated with fewer absences—and two in the wrong direction. In health, there are two in the right direction (both in Indonesia) and one wrong.

In the multivariate analysis, all but two of the coefficients in education (mercifully with the "right" sign) disappear. Direct inspections remain significant in India, and proximity to Ministry of Education offices remains in Ecuador. In contrast, inspections *emerge* as important in three countries in health: in Indonesia the coefficient remains significant, in India it becomes significant, and in Bangladesh it remains significant but reverses signs (in the right direction). Administrative monitoring is correlated with reduced absences in health quite robustly and much less so (certainly less than a bivariate relation would lead one to conclude) in education.

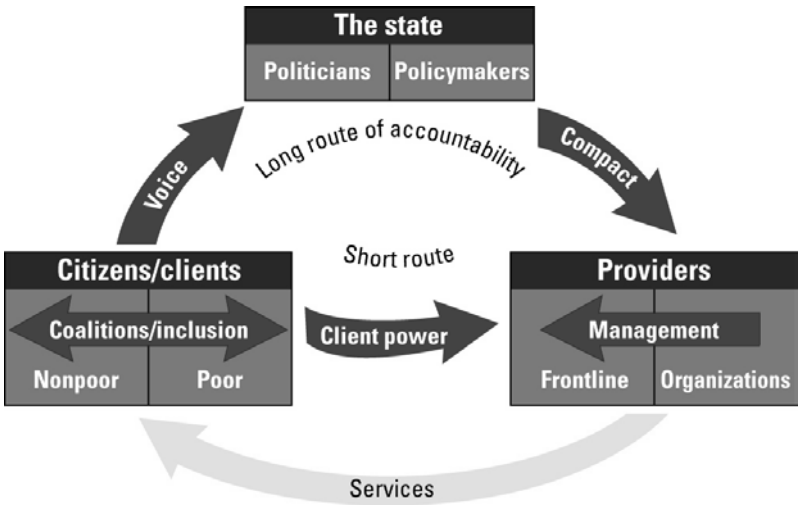
A different type of monitoring turns out to be important in education. One effect that remains strong in a multivariate context is the impact of literacy on teacher absences in four out of five countries. In health, only Bangladesh has the same significant coefficient. The catch-all "literacy" line in Tables 5 through 8 can mean several different things**,** as we used four different literacy variables in the analysis**.** It can apply to children's parents, to district averages of literacy, and is sometimes distinguished between mother's and father's education.

Similarly, in our "mapping" of variables to concepts, literacy can be hypothesized to affect absence through several different channels. It might proxy for the level of income of the area in which the teacher works, for the likely articulateness of members of the community, or for the degree of interest that parents are likely to display towards their children's education. In any case, literacy can be taken as some measure of empowerment and interest of parents and the likelihood that they are paying more attention to (that is, monitoring) the performance of the school. While significant in education, this effect is not as pronounced in the health sector.

The recent *World Development Report 2004* may provide some insight into this pattern of coefficients. That report emphasized that performance of service providers was directly related to various relationships of accountability (see Figure 6). The "long route" of accountability required two steps: first, service users (particularly if they were poor people) had to be able to influence policy makers (the latter being accountable to the former); and second, policy makers had to be able to monitor and control the direct service provider (again, the latter accountable to the former and indirectly to the clients). This is the standard way in which government-provided services work or, if they fail to work, in which it can be identified where things go wrong. In contrast, the "short route" of accountability puts more direct monitoring power in the hands of the users themselves.

Figure 6

Relationships of Accountability in Service Delivery



The report generally characterizes successful reforms in the education sector as strengthening the "short route", either by giving communities the ability to hire and fire teachers (or otherwise be involved with the management of schools) or by increasing the role of markets to give poor people more purchasing power and choice. In contrast, the health sector is characterized as having somewhat less of a role for increasing client power than education (though for certain specific services, greater reliance on the short route is possible). The reason for the distinction is that schools are attended by the same children every day; this gives their parents continuous information about teacher attendance, and allows those parents to constitute an identifiable group that can share information and mobilize pressure. Also, the ultimate outcome of education is observable. Even illiterate parents can tell not only whether the teacher is there, but also whether their children are learning.

In health, the story is more complicated. Individual clients use the services much less frequently, and they comprise a much larger and amorphous group. Furthermore, the variety of services (outreach, public health campaigns as well as clinical services) makes it less clear whether the public provider is shirking or what the relation between inputs and better health is. For these reasons, health care is likely to require more attention to the "long route" of accountability.

This approach is consistent with the pattern of coefficients in this analysis. The performance of government along the "long route" is reflected in the frequency of formal inspections. Hence, when inspections are more common, we see better attendance after controlling for local literacy levels and other factors. The performance of people (parents) along the "short route" is most likely related to their education level and the degree of monitoring this may imply. When controlling for literacy (very likely correlated with better governance generally) the direct measures of government monitoring are attenuated.

Further details of the analysis tend to reinforce this interpretation. First, the measure of literacy that always shows up as correlated with absences is the father's literacy, not the mother's. Men's education is more likely related to the collective power of the community than is women's. Second, there is very little correlation of the existence of a PTA (Parent, teacher association) and teacher attendance. However, if this is examined in more detail, for example in India, it turns out that the mere existence of such an association is not related to performance but regular meetings and other indicators of a properly functioning PTA are related (Kremer, et al. 2004).

Third, there are various measures of "power" of the provider that may yield a degree of protection from any sanctions, explicit or implicit, that could be brought to bear on them. Age in India, for example, is correlated with absences in both health and education. More senior people are likely more secure. Age, of course, is a very crude indicator of "power" and could well be measuring other things. For example, wages are closely related to age in public bureaucracies. That age is correlated with absence may raise some doubts about the role of wages, independent of sanctions, on improving performance.

A second indicator of personal power is the level of general (as opposed to teacher-related) education that teachers have. Better educated teachers are less likely to be on the job in Indonesia and Uganda. The most consistent relationships across sectors and countries are that head teachers and doctors (as opposed to any other medical care provider) are absent much more often than others. This could be an indication of their relative power but could be measuring a number of other characteristics that will be discussed below.

Membership in a union or in a political party could also relate to the ability to withstand pressure for regular attendance. However, while appearing in the bivariate relations (but showing the opposite effect in India – a tendency to attend more), these correlations go away in the multivariate case.

One possible measure of power is being a doctor (virtually always an indicator of high absences) or a head teacher (very strong in India and Peru). However, both of these could be measuring other factors such as opportunity costs for doctors (see below) or a variety of administrative claims on head teachers.

The final variable related to direct incentives is the role of teacher recognition programs. This is a mixed bag. Such programs are negatively correlated with absences in India and Indonesia but positively correlated in Ecuador. The inability to determine the direction of causality is certainly a possible issue here.

Quality of work-life. Variables that capture the quality of life during the working day are mostly the measures of the infrastructure found in facilities. We emphasize the mere existence of various types of infrastructure rather than their level of functioning, since the latter is almost certainly determined simultaneously with absences. That is, maintenance is more likely with better attendance. Perhaps curiously, infrastructure as it affects daily quality of life could be a stronger incentive on the margin than things that we normally consider incentives, such as wages. The marginal decision in question is whether to go to work on any particular day, and working conditions are more closely related to this daily decision than are wages (especially if there is no risk of losing wages as a result of deficient monitoring and sanctions discussed above).

The results on infrastructure are mixed. Three of the five bivariate relations found in primary education disappear in the multivariate formulation. On the other hand, in health two coefficients become significant in the regression framework that were masked in the bivariate form. So, we end up with four cases where better infrastructure is significantly correlated with better attendance. The relative mix between salary and other inputs is highlighted in many reports on education and health, usually suggesting that the mix be changed towards other, recurrent, expenditures. These results do not allow us to conclude much about the recurrent expenditures, per se, but the results here do point to a complementarity between personnel expenditures and various measures of the "plant and equipment" of both health and education facilities. The better the infrastructure, our results suggest, the more likely it is that personnel expenditures will be productive.

Multigrade teaching has been discussed above and found not to have a correlation with absence in the multivariate regressions. Another variable related to satisfaction in teaching is the pupil-teacher ratio. In the bivariate analysis, teachers with large numbers of students were *less* likely to be absent in Ecuador and India than others. This relationship, however, disappears (as does the positive relationship in Uganda) in the multivariate setting. As with multigrade teaching, high pupil-teacher ratios are characteristic of more densely populated (less remote) areas and, when controlling for regional effects and other variables related to proximity to towns, the higher work-load does not appear to have an independent effect. This is not to say that teachers would not prefer smaller class sizes (or single grades, for that matter), but only that the main source of variation in our sample for these indicators of work quality is remoteness, which has a clear and opposite effect.

Specific to the health sector are a couple of surprising results. Health workers are expected to do a variety of tasks other than attend patients in clinics during normal working hours. In particular, the survey asked about other duties such as doing work at night and doing outreach work. Outreach work includes house-to-house visits for various mother and child programs such as monitoring growth in children and providing ante-natal care, health education, participation in immunization campaigns and providing follow-up to treatment for particular communicable diseases such as tuberculosis (when stand-alone TB facilities are not available). Especially where transportation is not easily available or provided by the facilities (a very rare occurrence), these tasks can be difficult. Also, while care was taken to exclude workers who are supposed to be in the field at the time of the interview, it is possible that workers who do field work were occasionally misclassified as absent. Nevertheless, having night-work duties only appears with a negative coefficient (in India and Indonesia), meaning such people were less likely to be absent. It may be that both variables are being driven by a third, unobservable, variable. More dedicated members of the clinic could well volunteer for night-duty as well as be more reliably present. Finally, on the outreach variable, we only have one case that was consistent with expectations (Bangladesh) and one inconsistent (Uganda). The results do not suggest that it is more frequent outreach that drives the higher absence rates in health than in education.[10]

[10] Another informal way to test this point is to examine variation in absence rates among different types of medical workers. When we do so, we find no evidence that the types of workers who are less likely to do outreach or fieldwork—such as pharmacists—are more often present than other workers.

Logistics. The ability to get to work easily appears frequently in the significant correlations. This general factor includes living in the facility complex, living in the village, and living within various specified distances of the facility (differing by country context). This correlation is significant for education in India and Uganda and for all the health sector in all countries. A common complaint among providers, particularly female providers, is that appropriate housing is unavailable in rural areas. This is certainly consistent with common sense. Our results confirm that easy access—through either publicly provided housing or any other means of assuring proximity—is in fact associated with higher attendance.

Logistics also suggest a re-interpretation of a commonly found result in health. Overall (bivariate) absentee rates are generally lower for higher-level facilities—that is, facilities with several posted doctors, as opposed to primary health care (PHC) centers that have only one or two doctors (Filmer, Hammer, and Pritchett 2000). In those countries where more than just PHC's were in the sample, the partial effect from the regression tends to go in the opposite direction: controlling for those factors that capture remoteness, smaller facilities have better attendance of personnel. Hence, the observation that PHC's have a hard time maintaining services appears to be more a matter of their location than the level of service they provide.

Substituting for remoteness, per se, is the presence of a road. In the bivariate results, distance to roads appears frequently as a correlate of absence, but the effect is only confirmed in the multivariate case for Indonesia. Roads and remoteness are correlated, such that more densely populated areas tend to have better roads. Here is certainly one case where the two choices—where to live (not a daily decision) and whether to go to work each day—may be at odds. If there is a road, it is more likely that the staff member will be attracted to the village as a place to live, which will increase attendance. Whether there is an independent effect of the roads on the daily decision is not well supported by our results. In fact, when looking more carefully at the case of health in Bangladesh, there is reason to believe that roads allow medical providers to leave for at least part of the day, and the absence of road keeps a doctor living in a village at work for at least part of the day (Chaudhury and Hammer 2003).

Many factors, of course, contribute to decisions about where to live and when to commute, most of which are hard to observe. In particular, we regret the lack of data on the safety of living in an area, of living alone (particularly for women) or traveling to the village. These would affect both the decision to locate and the disutility of commuting from other villages. Indeed, the coarse variable "do you live within x kilometers of the facility" may not capture many of the variables (amenities, quality of social relations) that could influence daily decisions on top of the choice of place of residence.

Opportunity costs. We have no "clean" variable that represents the value of the options—whether professional or personal—that people have outside of their public employment. Each of the variables that could be picking up the effect of opportunity costs could easily be reflecting one of the other main categories of factors that relate to absence. However, some of the strongest "big picture" results are very likely to reflect decisions to do something more valuable with one's time than go to a public job. First of all, health workers are always absent more than teachers—as shown before in the cross-country comparisons—and within the health profession, doctors almost always (Indonesia excepting) have higher absence rates than others. There is a thriving private health care market in all of our countries; in India and Bangladesh, in fact, the private sector claims the lion's share of the market. Also in those two

countries, the private sector is not effectively regulated, and anyone can offer health care services. Doctors, in particular, have a lucrative, marketable, and certified skill making the lure of private practice difficult to resist.

Nevertheless, direct measures of outside earning opportunities—for example, a respondent's report that she has another job—do not show up in the health regressions. This could be that for Bangladesh and India such activities are illegal and likely to be underreported. There is also the possibility that there is the following, opposing, effect that health shares with education. In education, at least in Bangladesh and India, we find that having another teaching job makes it more likely that a teacher will be at work, not less. This is consistent with a commonly heard complaint that teachers give extra tutoring sessions after normal school hours and use class time to recruit clients (and emphasize the need to pass tests) for their private classes (Glewwe, Kremer, and Moulin 1999; PROBE Team 1999). A recent rapid increase in the private sector in education in these countries makes this of great topical concern. This same effect has been noted in the health sector casually and one study in Delhi seems to confirm the possibility (Chawla, 1996).

Finally, a hypothesis that the regressions suggest is the role that private competition may play in interaction with workers in public jobs. At least for the cases of education in Uganda and health in India (though, oddly the opposite in education), having a private competitor in the area is correlated with fewer absences in public clinics. Very little is known about the overall market for health care (in any developing country), in particular the interaction of public/private facilities and the nature of competitive equilibrium. The results are suggestive of further study.

Commitment to the community and internal motivation: One thing that should be made very clear is that the majority of teachers and most medical care workers are at their assigned posts most of the time. This fact is all the more remarkable given the difficult circumstances they labor under—pay that is often low and received late, a lack of professional support and materials, assignment to isolated areas, and many other problems. It is clear that a large fraction of such providers are highly dedicated and motivated. However, for all of the countries in the sample, there is a long way to go before universal primary school completion (of reasonable quality) and adequate health care are reached. We need to worry about "scaling up" services. This will require more teachers and health care workers, people who are not now in these professions. The question is whether new entrants are as motivated and dedicated as the majority of current providers.

So, the importance of internal motivation is a two-edged sword. On the one hand, if it is very important, then care in recruiting new people is a critical policy concern. Improving incentives on the job is less important than picking the right people in the first place. And the incentives must be those that are important to already motivated workers. On the other hand, if internal motivation is so important, it may not be possible to expand services with the same level of commitment of providers – they are already on the job. This makes "scaling up" more difficult and points to the need to discover incentives for people who are not currently employed as teachers and health workers in the public sector.

There are several main results related to the complex of factors that includes internal commitment and a sense of responsibility to either the community or the profession. One is that, in contrast to the general level of education that a teacher has, having been specifically trained in

education (formal pre-service training) leads to better attendance in Peru and Uganda in the regression results (and in most places in the bivariate results). This is plausibly related to having a long-standing commitment to education. In health, having been at one's current job for a long time decreases absences in India and Uganda. This may reflect being a part of the community.

Recruiting providers from the village being served is frequently suggested as a policy option, on the theory that local providers will be more committed to their mission. This story garners some support from our results from Indian education and Indonesian health offer some support for this view, but not elsewhere. Moreover, the results for Indonesian education seem to go the wrong way. Explicitly requesting a post is correlated with better attendance in Bangladeshi education and Indonesian health, although curiously it has the wrong sign in Uganda.

As discussed before, personal characteristics such as gender and marital status that might be related to community interest rarely appear as significant in the multivariate the equations. That is, the strong bivariate relations are not robust to the inclusion of other variables.

5. Policy Implications: Tackling Provider Absence in Primary Education and Health

This paper has contributed to what we know about provider absence in two major ways. First, it has provided the first comparable multi-country measurements of the extent of absence, and identified relationships between absence and income levels on a cross-country basis. Second, it has identified correlates of absence within and across countries, and has used these relationships to shed light on hypotheses about provider motivations. This section builds on that foundation of new knowledge by exploring possible policy implications.

These policy implications are necessarily very tentative. Although our sample spans three continents and represents some 27 percent of the developing world's population, it still covers only a total of eleven country-sector combinations. More importantly, the correlations that we have drawn among absence and other variables of interest are just that—correlations, and not causal relationships. Most of the variation in our data is cross-sectional rather than time-series, and anyway, it is difficult to find exogenous shocks or conditions that would allow us to identify causal effects with any certainty. So the policy implications in this section are offered as hypotheses for further exploration, and not as settled answers. At the end of this section, we will identify what forms such further exploration might take.

Interventions that may help to reduce absence

First, the analysis in the preceding sections has identified two instruments—a carrot and a stick—that may help to reduce provider absence. It also suggests that country-specific analysis will be necessary to complement the global lessons.

Improving working conditions—especially facility infrastructure—could help to reduce absence: The quality of a facility's physical infrastructure emerged from the analysis as a strong correlate of absence. We hypothesized that this is because it affects the provider's non-pecuniary motivations for attendance. If a better facility makes a teacher feel better about her workplace, it can provide a positive marginal incentive for attendance—marginal in the sense that each day, it provides a renewed incentive for going to work (or at least a reduced disincentive).

What this means for policy is that infrastructure may play a greater role in service delivery than has often been thought. In education in particular, recent years have seen a shift toward emphasizing investment in other factors, at the expense of the "hard infrastructure" of school facilities. But our study suggests that some elements of the physical environment, such as availability of toilets and potable water, may well affect teacher motivations.[11] In projecting the impact of school infrastructure investment, therefore, education policymakers cannot afford to assess only the direct effects on students. They need also to gauge how the investment might affect teacher attendance, providing an indirect route to improving student learning.

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[11] Nonpecuniary motivations are not the only possible channel for the infrastructure effect. The availability of toilets and drinking water could have a direct effect on the provider's health, which could also affect absence rates.

Furthermore, the data suggest that another element of teacher working conditions—whether the school practices multigrade teaching—could also influence attendance decisions. This association is weaker, in that it mostly vanishes once we control for the rurality and remoteness of the school. Nevertheless, it is strong enough in the bivariate correlations to warrant further investigation. We recognize that multigrade teaching is an important policy lever for increasing the supply in many countries. In Ethiopia over the past decade, for example, massive increases in enrollment can be attributed at least partly to the widespread use of multigrade schooling in areas with scarce school infrastructure. At the same time, some studies have identified multigrade teaching as being difficult for many teachers, especially those who do not receive enough training or support to handle it (Little 1995; UNESCO/APEID 1989). It is therefore not inconceivable that the challenges of multigrade classes could increase teacher fatigue and burnout, and thus teacher absence.

Increasing the frequency of inspections may deter absence, especially in the primary health sector: Improved working conditions are a positive incentive, but for some providers at least, frequent monitoring and sanctions in cases of repeated absences are likely to be necessary. Our analysis showed that in different sector-country combinations, lower absence rates were associated with either the frequency of visits in the facility's district or the facility's proximity to a supervising ministry office. Again, while we cannot nail down a causal relationship, it seems likely that inspections have a role in reducing absence.

This point is not as obvious as it might seem. Our survey data and institutional research in sample countries suggest that frequent absence—and poor performance more generally—rarely results in disciplinary action against the offender. In our sample of over 3700 Indian primary schools, for example, only one director had ever dismissed a teacher for absenteeism. Even in Peru, the sample country with the lowest level of absence, conversations with educational experts revealed few incentives for good performance. And yet the data suggest that inspections may make a difference. It is possible that the slim threat of disciplinary action deters absence, but other nonpecuniary factors could be at work too. For example, more frequent inspections could send a message that the Ministry values the providers' work.[12]

As discussed in the previous section, inspections are likely to be especially important in the primary health care sector, for two reasons. First, medical personnel may face greater temptations to be absent than teachers, because they have greater outside income-earning opportunities. Second, other monitoring mechanisms incentives may work less well in the health sector. In primary education, parents can in theory monitor teachers' effort daily through reports from their children, and can also make at least rough judgments about whether the children are being educated.[13] By contrast, PHC clients observe medical personnel at work much less frequently, and find it much harder to judge the quality of medical services. Thus client power

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[12] We recognize that inspections could send negative messages as well—that teachers cannot be trusted to act professionally, or that the work itself is distasteful and requires frequent monitoring. However, the data do not support this "perverse effect" hypothesis.

[13] Even though the PTA variables did not generally come out significant in the regressions, parents' literacy levels did, suggesting that their performance monitoring and ability to exert client power may be important in reducing absence.

may be of limited utility in the health care sector, and top-down inspections may have a particularly important role in health care.

Increasing inspections would require more resources. In addition to the salaries of the inspectors themselves, ministries must pay the costs of transporting the inspectors to facilities that are often remote and inaccessible. Anecdotal evidence suggests that these costs are often viewed as prohibitive by the ministries, especially in the challenging areas such as the Indian state of Bihar.[14] Nevertheless, ministries are constantly making allocation decisions at the margin, and our results suggest that reallocating these marginal funds to inspections might reduce teacher absence. Moreover, the inspection result may suggest steps that could be taken without substantial infusion of funds. If monitoring is important, there may be low-cost ways to increase information flows—for example, through appointment of monitors from the local community—that do not require more inspection visits.

Policymakers should examine country-specific analyses to help them identify other tools for reducing absence: The previous section focused on correlates of absence that appeared in a majority of the survey countries. But policymakers should not focus solely on these correlates; within particular countries or states, other factors may be equally important in reducing absence. Teacher-recognition programs, for example, are not correlated with absence in most countries. Nevertheless, in Indonesia the correlation is strong and negative: teachers in schools with a teacher-recognition program are absent at rates 9 to 12 percentage points less than other teachers. This is a huge effect, and Indonesian policymakers should certainly explore this result further, whether or not it appears in other countries.[15]

"The dogs that didn't bark": Factors that were not associated with absence

At the same time, our results cast doubt on whether some other factors are associated with better attendance:

In contrast to some past research, this study provides little support for the idea that involvement of community or client associations provides incentives for better attendance: Past research has suggested that when communities or users are involved in monitoring or management of providers, service provision can improve. Perhaps surprisingly, our data do not provide general support for this view. Indian primary education may be an exception, in that on average, a higher level of activity of parent-teacher associations (measured by frequency of meetings) is associated with somewhat lower absence. Yet even in this case, the policy lever is not clear. Government might have some control over whether a PTA exists for a given school, but it will not likely be able to make it a dynamic association—yet the data show that the mere existence of a PTA does not predict lower absence rates.

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[14] Other barriers may be even more costly to remove. We were told by one senior Bihar official that not only did his office lack the funds to buy petrol for inspection visits, but also traveling through the countryside was so dangerous that his inspectors would not go out into the field.

[15] Our research team is now writing a series of country- and sector-specific papers, some in collaboration with developing-country researchers, that are aimed at helping policymakers to identify these factors.

This is not to say that greater community engagement in facility monitoring or management will not affect service delivery. It does suggest, however, that we need to examine more closely what type of client and community involvement can increase attendance. The relatively robust association between literacy rates and provider attendance suggests that the characteristics of the community may be more important than the vehicle through which they operate.

Greater financial rewards alone may not reduce provider absence, without improved monitoring. Our facility survey did not collect data on salaries; salary questions seemed too sensitive for a relatively public on-site interview, and anyway the seniority-based pay scales of public education and health sectors allow little variation in pay within ranks. But we can draw some limited inferences about the effects of higher salaries by comparing the absence rates of higher-salaried classes of providers with those of their less well-paid colleagues. By this measure, pay alone seems to have little effect on performance. Consistently, the highest-paid providers in health and education—doctors and head teachers, respectively—are also absent most often.

In theoretical terms, this may not be surprising. While "no-shirking" efficiency wage models predict that higher salaries will improve performance, those models are based on the assumption that there is some probability that a shirking provider will be caught and punished. If he faces no such threat, an unscrupulous provider will simply pocket any higher earnings and continue behaving as he or she did before the pay raise.

Hiring more contract teachers is not likely to reduce absence rates (although it may achieve lower effective pupil-teacher ratios at a given cost). Greater use of contract teachers has been advocated in some educational systems on two grounds: first, such teachers are typically much less expensive than civil-service teachers; and second, because they are not tenured, contract teachers may have better incentives to exert effort on the job. Our data allow us to check on the second hypothesis, and the results do not support it. As reported above, in 3 of the 4 countries that make widespread use of contract teachers, those teachers are actually absent at *higher* rates than civil-service teachers.

Again, this should not be interpreted to mean that contract teachers are a bad idea. Even if they are absent at higher rates than regular teachers, salary data from India and elsewhere show that two or more contract teachers can often be hired for the same salary as one regular teacher. Thus contract teachers may be an efficient way of achieving a given effective (absence-adjusted) pupil-teacher ratio, at least if we abstract away from teacher quality issues. But our evidence suggests that policymakers should not approach such reforms on the basis of a naïve market model that assumes contract teachers will work harder at primary schools than civil servants do. Lacking job security, the contract employees may instead hedge their bets by moonlighting, raising their absence rates.

This is not simply an academic question, as many countries have already moved toward greater use of contract teachers to get around the budgetary costs and rigidities of the civil-service system. In many cases, this move may have been part of a broader decentralization of government responsibilities. In such situations, school officials will need to pay attention to the motivation of contract teachers, and to structure contracts and working conditions in a way that encourages good performance. On this point, evidence from our Ecuador country study

suggests that the form of the contract and locus of decisionmaking may matter. In Ecuador, whereas other contract teachers have absence rates 13 to 15 percentage points higher than regular teachers do (controlling for other factors), contract teachers hired at the school level have marginally better attendance than regular teachers (Rogers, et al. 2004). As more countries experiment with decentralizing decisionmaking in local service delivery, policymakers will need to take into account these dynamics and distinctions.

Despite the possibility that in-service training can improve a provider's nonpecuniary motivation, we find no evidence that training improves attendance. We should recognize that a provider's sense of professionalism may induce him or her to go to work even when formal incentives are lacking. One plausible way to nurture that professionalism and encourage further professional development is to provide in-service training to providers. Not only might training renew the provider's intrinsic motivations for teaching or providing health care, but it should also provide new techniques for effective service delivery, reducing the probability of burnout. Our data provide no general support for the hypothesis that training will reduce provider absence, however.

Other factors for policymakers to keep in mind

Finally, there are a number of factors that policymakers in the education and health sector will not be able to affect, at least in the medium term, but that may have implications for policy design.

Higher-income countries typically have lower absence (at least in primary education), but the variation around that relationship should offer scope for policy to work. Policymakers should recognize the income-absence relationship outlined in Section 3, because it will help them benchmark their country's performance against appropriate comparators. At least from the limited sample available to date, it appears that policymakers in a country with the income of Peru—to take one example—would need to be concerned if their teacher-absence level were to rise to 15 percent, say. In Uganda, by contrast, achieving a rate as low as 15 percent would be an impressive achievement. Having the right benchmarks is important to setting goals that are both realistic and challenging.

At the same time, this is far from a uniform relationship. Comparing across countries, we see that countries at similar income levels have teacher absence rates that vary by as much as 10 percentage points. To put it another way, Bangladesh and Zambia have teacher absence rate that are only marginally higher than those of Ecuador, despite having national income levels that (PPP-adjusted) that, respectively, are only 58 and 26 percent as high as Ecuador's. And within countries, as we have seen, there is no robust relationship between income and absence levels: poorer districts do not systematically suffer from higher absence. So an awareness of the cross-country income-absence relation should breed realism, but not fatalism.

Investing in rural non-school infrastructure—specifically, rural roads—could reduce absence rates. There is some evidence across countries that provider absence in a community is related to its accessibility. This evidence is not unambiguous, but it is certainly suggestive, as seen in the results on the importance of the facility's proximity to a paved road and the provider's commuting distance. Because decisions on rural roads lie outside the purview of

the relevant line ministries (education and health), we include this recommendation in the category on "other factors to keep in mind." But it does suggest an additional motivation for governments to invest in rural infrastructure.

Further research and experimentation

An inescapable conclusion from this study is that we need further research on provider absence. Even a multicountry study like this one can only begin to identify the possible correlates of absence, let alone its effects and the best ways to combat it—if indeed combating it is judged necessary. Further research is needed in several areas:

First, it will be important to broaden the sample of countries, using a similar methodology and sampling approach to ensure comparability. Although this study had a good sample representing almost a billion and a half people, much more work is needed to establish global patterns with any certainty. Dissemination of our early results has already spawned plans for carrying out comparable surveys elsewhere, most notably in parts of Sri Lanka and Pakistan. Results from our Ethiopia school survey should soon be available, as will the results from the Peru PHC survey. But more surveys will be necessary, especially in Sub-Saharan Africa. That region likely faces severe absence problems, as suggested by our Uganda results, and certainly faces the greatest needs in achieving basic education and health for all.

Second, detailed analysis of patterns and correlates of absence is necessary in each survey country. This paper has sketched out the global patterns that are emerging from the analysis, but as noted above, there will be important results that apply only to particular countries—as with teacher-recognition programs in Indonesia. Policy should be based on a combination of global lessons and local experience.

Third—and perhaps most relevant to policymakers—addressing provider absence will require experimentation with new approaches. Especially given the largely cross-sectional nature of this study, we could hope only to identify correlates of absence, not determinants. Neither the bivariate correlations nor the regression results tell us anything directly about what determines absence. To firmly establish causality, policymakers and development researchers will need to experiment with alternative approaches. For example, our research shows that more frequent inspections and more proximate supervisory institutions are associated with lower absence. We do not know, however, whether the inspections actually reduce absence, or whether both the more frequent inspections and lower absence rates reflect an underlying high quality of local governance. To nail down the causality, policymakers could allow a randomized experiment that increased inspections in certain districts. Effectiveness could be gauged through a follow-up survey that compared changes in absence in those districts with changes in control districts.

Indeed, this project has already begun to illustrate what research can achieve in this understudied area. By sketching out a more detailed picture of the extent and correlates of provider absence, it is helping to lay a foundation of credible data for policy action. In the process, it is drawing attention to provider absence and helping to open a space for policy

dialogue on the topic.[16] Shining a spotlight on the problem of absence may directly also induce chastened governments to take action. When the World Development Report was publicized in Bangladesh, the press quickly picked up on the discouraging results of the health-sector absence survey in that country. The press attention spurred the government to make its own high-profile investigation into the problem, which led quickly to firm disciplinary action against absent doctors posted at government hospitals (The Daily Star 2003). While there is no guarantee that any one flurry of action to rein in absence will have permanent effects, what seems certain is that sustained action will require a foundation of knowledge.

[16] For example, a recent front-page New York Times story cited our cross-country absence statistics, to provide comparators and a broader context for its description of the health-absence problems in one Indian state (Dugger 2004).

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