Ghost Doctors: Absenteeism in Rural Bangladeshi Health Facilities

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Unannounced visits were made to health clinics in Bangladesh to determine what proportion of medical professionals were at their assigned post. Averaged over all job categories and types of facility, the absentee rate was 35 percent. The absentee rate for physicians was 40 percent at the larger clinics and 74 percent at the smaller subcenters with a single physician. Whether the medical provider lives near the health facility, the opportunity cost of the provider's time, road access, and rural electrification are highly correlated with the rate and pattern of absenteeism.

People frequently express dissatisfaction with the performance and quality of public services.[1] Service quality may be poor because not enough money is allocated or because the money is not spent effectively. This article quantifies one way in which public money may not be spent effectively—or at least not as originally intended. It reports on a study that conducted unannounced visits to health clinics in Bangladesh to determine what proportion of medical professionals were present at their assigned post.

Absenteeism of public servants has long been discussed as an impediment to effective delivery of public services. Glewwe and others (1999) found that teachers in one area of Kenya were absent from school 28 percent of the time and in school but absent from their classrooms an additional 12 percent of the time. A much publicized report on primary education in several states of India found absentee rates of 33 percent among head teachers and absentee rates so high among all teachers that teaching was occurring in less than half the schools visited (PROBE Team 1999). The report also notes gross misconduct among teachers who do show up for work, but emphasized absenteeism as the major

1. See Filmer and others (2000, 2002) for ways that public spending on health may fall short of expectations.

problem. Recent work in the state of Udaipur also found very high rates of absence from health centers (Banerjee and others 2004a,b).

In Bangladesh, too, absenteeism of workers in health clinics has frequently been identified as a problem reducing the effectiveness of public spending in health (Sen 1997; Begum and Sen 1997). Nowhere, however, have systematic efforts been made to quantify the extent of this problem on a nationally representative scale.[2] This gap was the main motivation for the current study.

Special concern arises over the staffing of facilities in rural areas because of both the benefits expected from public provision of health care in rural areas and the particular difficulties in achieving such provision. Although health care is a private good, being both excludable and rivalrous, public provision of health services can be justified on grounds that vary with the nature of the service. Considerations of equity and of correcting externalities associated with communicable disease (itself correlated with poverty; see Bonilla-Chacin and Hammer 1999) argue for extending services to rural areas where the incidence of poverty is much greater than in urban areas. In a country with as small an urban population as Bangladesh, the majority of poor people live in rural areas.

Two problems in particular are common to providing public services in rural areas. One is that many posts do not get filled because no one is willing to accept certain placements. The other is that even when the post is filled, the provider often fails to show up. Both situations compromise the ability to serve the poor, but with different welfare and budgetary implications. Unfilled posts reflect an absence of public medical care, but they do not absorb budget resources for salaries, though upkeep of the facility is still required. Absent personnel, on the other hand, still receive salaries.[3] A large proportion of expenditures in health and education are absorbed by wages. If public servants are not on the job, the expenditures embodied in salaries do not reach the intended beneficiaries. In the case of absenteeism, the welfare implication is unclear because services may be delivered by the absent personnel in their role as private providers. Assessing the welfare implications of public subsidies for the private provision of services is beyond the scope of this article. The analysis herein is purely positive, and no value judgments are made concerning the results.

Why is staffing rural clinics so difficult? One hypothesis is that most medical practitioners in developing economies are urban-born and reared, are highly educated compared with the population as a whole, and have skills that are

2. Various surveys of health facilities (Thomas and others 1996 report on one in Côte d'Ivoire) and schools (Schleicher and others 1995) have highlighted the problem of provider absenteeism. However, these surveys were not specifically designed to address this problem (the questionnaires were administered only to headmasters, without independent verification of information on individual teachers).

3. See Reinikka and Svensson (2001) for an example from Uganda. In other contexts leakages of central government expenditures for public services have been documented, with monies never reaching their intended recipients.

highly marketable. If they have children, they are likely to want the same advantages for them. These considerations are most applicable to physicians but are likely to be true of nurses and paramedics, if to a lesser extent. Chomitz and others (1998) find that in Indonesia inducing physicians to live in remote areas requires paying them a multiple of their current salary.

Because medical skills are marketable and greatly in demand, there is usually a ready opportunity to make money as a private provider outside (and sometimes inside) the public clinic, whether legal or not. So in addition to the problem of getting practitioners to serve in rural areas, there is the problem of getting them to forgo their private earning potential to provide services in the public facility. Many of the results reported here are consistent with stories that medical personnel have substantial discretion over where and when they discharge their public responsibilities—favoring rich areas and responding to earning ability in the private market.

Although there is a great deal more to learn about the reasons for incomplete attention to work responsibilities, this article starts by trying to get a general estimate of the extent of the problem. The survey conducted for this study can get at some of the correlates of staff absence, but the primary purpose is to focus on the overall magnitude of the phenomenon.

I. Methods

In rural areas the government of Bangladesh provides health services through a three-tier system. The 376 *upazila* (subdistrict) health complexes deliver inpatient services. They are managed by physicians[4] and staffed by nurses[5] (four years of training), medical officers/paramedics (minimum of three years of training), family welfare visitors and senior family welfare visitors[6] (minimum of 18 months of training), pharmacists,[7] and lab technicians. Some 1,000 upgraded union health and family welfare centers and rural health dispensaries are staffed by one physician, paramedics, and family welfare visitors. The government plans to increase the number of these facilities by posting more physicians and improving facilities. Finally, there are about 3,000 union health and family welfare centers managed by paramedics and family welfare visitors. Both types of union family welfare centers provide outpatient care.

4. *Upazila* health complexes have been staffed by medical doctors; it is rare for nonallopathic physicians (for example, homeopathic, *unani*) to be assigned to public health facilities. This policy is being revised, however, to bring nonallopathic physicians into the public health system.

5. Nurses are posted only at *upazila* health complexes (and hospitals).

6. Family welfare visitors are supposed to be involved primarily with reproductive health issues and public health programs, such as vaccination campaigns.

7. These pharmacists are not pharmacology school graduates, but rather have received about 18 months of training and earned a certificate.

The survey sample was made up of 150 health facilities. Sixty rural *upazilas* were selected at random from among the 376 in the country. The sole health complex in each *upazila* was included in the sample, and one union family welfare center was chosen randomly from each of the 60 *upazilas*. Finally, 30 upgraded union family welfare centers from the same areas were sampled, also at random but only from *upazilas* having at least one such facility. This strategy balanced the need for wide coverage to achieve national representation with the need to keep costs down—choosing facilities at different levels of the health system from the same subdistricts reduced the required travel for interviewers.[8]

The official opening and closing times of the health facilities are 9 AM and 3:30 PM. Each sample facility was visited by a team of trained investigators, who recorded the availability of doctors and paramedics at the facility once at approximately 9:30 AM and once no later than 2:30 PM. Between those times the team collected information on the facility and its providers. Facilities were not notified in advance of the visit. All facilities were visited between mid-March and mid-April 2002. Although there is no way to be sure that the results would be the same in other seasons, there were no major festivals in the period surveyed that might lead to higher than usual rates of absence, and it was not the monsoon season (which is in June and July). In any case, official rules of attendance do not differ by season.

Besides noting the presence or absence of medical practitioners, interviewers recorded information on key characteristics of the physicians, nurses, paramedics, family welfare visitors, lab technicians, and pharmacists. For practitioners who were present, information was collected on age, gender, education, professional training, location of residence, length of service, and duration of posting. For physicians who were absent in both the morning and the afternoon, information came from a variety of sources, including the statistical officer, *upazila* health complex administrators,[9] and other medical staff. Statistical officers in *upazila* health complexes usually maintain an updated profile of all medical staff (age, gender, years in service, duration of posting, residence). The statistical officer was present during visits to all 60 *upazila* health centers. When the only physician was absent in upgraded union family welfare centers, information on the physician was provided by the paramedic. Facility-specific information was also collected (for example, distance to *upazila* headquaters). Besides practitioner and facility information, secondary data were also collected on *upazila* characteristics (for example, percentage of households in the *upazila* with electricity).

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8. There was a preliminary stratification of the subdistricts based on the presence of nongovernmental organizations, which is not discussed here and which did not affect any of the statistical results because very few areas were not covered by both government and nongovernmental organization facilities.

9. Union health and family planning officer (the chief administrator) and resident medical officer are the two highest ranking doctors at *upazila* health complexes.

T ABLE 1. Vacancy Rates in Sampled Health Facilities in Bangladesh (%)

Division, Profession, and Facility Type	Vacancy Rate (%)	
	All Staff	Physicians Only
Total	26.2	
Division		
Barisal	30.3	
Chittagong	32.6	
Dhaka	20.1	
Khulna	25.2	
Rajshahi	26.7	
Sylhet	37.7	
Profession		
Physician	41.0	
Nurse	11.1	
Paramedic	17.6	
Senior family welfare visitor	20.4	
Family welfare visitor	4.9	
Pharmacist	46.0	
Type of facility		
Upazila health complex	23.7	41
Upgraded union family welfare center	24.0	44

Source: Public health facility surveys, March–April 2002.

II. D ESCRIPTIVE R ESULTS

This section looks at the basic descriptive results to identify problems of vacancy and absenteeism.

Which Posts Are Vacant?

Nationwide, the average number of vacancies over all types of providers is high, at 26 percent (table 1). Even without considering the problem of attendance, then, it already appears that providing public sector services is severely hampered by a lack of people willing to take such positions in the first place. The high average percentage of vacant posts is made worse by the wide variation across various dimensions. Regionally, the share of recent posts is generally higher in the poorer parts of the country. In the richer regions of Dhaka, Khulna, and Chittagong, 25 percent of posts for all types of providers are vacant, compared with 31 percent in the poorer regions of Syhet, Rajshahi, and Barisal.[10] The differential increases from 37 percent for the richer regions and 50 percent for the poorer when only physician vacancies are considered.

10. This split by income is based on commonly held notions of relative standards of living. Bangladesh does not have credible measures of income at subnational levels.

There is also substantial variation across types of medical practitioners. By far the greatest proportion of vacant posts are for physicians, pharmacists, and senior family welfare visitors. With the notable exception of paramedics and nurses, this pattern is consistent with the relatively high opportunity cost for being in public service and the related scarcity of such workers for public service.[11] Gender variation between professions may also play a part, a consideration explored later.

There are no substantial differences in number of vacant posts across different levels of facility, however. Both upgraded union family welfare centers and upazila health complexes have vacancy rates of 40–45 percent for doctors. The consequences of vacant positions in the two types of facilities are substantially different, however. A full complement of physicians in a *upazila* health complex is 7–9, whereas there is only one physician posted per upgraded union family health center. Although other available staff can fill in for vacant positions in the larger facilities, a physician vacancy in the upgraded union family welfare center means that there is no public physician for that village.

Who Shows Up for Work?

Practitioners in sanctioned and filled posts were considered absent all day when they were not at the facility during either of the two visits by the survey teams, absent a half day when they were at the facility during either the morning or the afternoon visit, and present when they were there at both times. Average absentee rates for any group of practitioners reflect the average of the values of 1, 0.5, and 0 for each practitioner in the group. So, an absentee rate of 50 percent could mean that all providers are absent for a half day or that half the providers are absent all day.

The reasons for absences were not explored at any depth, but others at the center were asked whether the absent person was on "deputation" to another post or to training. This category amounted to 2.7 percent of filled posts. Because the background variables of people on deputation more closely match those of other absent people than those of people who were present, people on deputation were considered absent in calculating the absentee rates.

Several clear patterns emerge for staff absences (table 2). For the entire sample of practitioners, the absentee rate is 35 percent. But variation around this figure is dramatic. Professionals are far more likely to be at work during the official morning hours than in the afternoon. This is not surprising: It is common knowledge that practitioners of all types use the afternoons to see private patients. A second clear result is that physicians have the highest rates of absenteeism—again consistent with the overall view that the opportunity cost of a practitioner's time is an important determinant of public service performance.

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11. Until recently it was rare for nurses to be engaged in private practice in Bangladesh. However, with the emergence of private retirement homes, there is a growing demand for nurses in the private sector.

TABLE 2. Absentee Rates in Sampled Public Health Facilities in Bangladesh (%)

Variable	All Providers	Physicians Only
Total	35	42.2
Profession		na
Physicians	42.2	na
Nurses	27.3	na
Paramedics	25.0	na
Senior family welfare visitors	30.0	na
Family welfare visitors	32.0	na
Pharmacists	28.0	na
Type of facility		
Upazila health complex	34.4	40.4
Upgraded union family welfare center	37.4	74.0
Union family welfare center	35.3	na
Time of day		
Morning	15.5	22.7
Afternoon	54.4	61.7
Administrative division		
Dhaka	41.7	45.2
Chittagong	33.2	40.3
Khulna	26.5	31.8
Rajshahi	34.4	45.5
Sylhet	29.3	41.7
Barisal	29.0	40.0
Gender		
Male	34.5	40.6
Female	31.9	41.7
Place of residence		
Same as facility	28.0	33.0
Other	39.0	47.8

Note: na is not applicable. All differences between values of the variables are significant at the 5% level except for gender. As examples, the *F*-test between means of the different professions and the *t*-test between morning and afternoon show significant differences.

Source: Authors' calculations based on public health facility surveys, March–April 2002.

Curiously, although physicians are supposed to be at the clinic during the hours that the survey teams visited but were often absent, family welfare visitors are usually supposed to be visiting families as part of their outreach duties, but were rarely absent from the clinic. This gives some empirical credence to the general perception that even family health workers, who are recruited from the local community, are often reluctant to deliver services to poor households.

In contrast to vacancy rates, which are higher in poorer areas than in richer areas, there are no significant differences in absentee rates in poorer and richer areas. When absentee and vacancy rates are combined, however, the effective number of public service physicians in the poorer regions is much less than

government norms would imply. With an overall official coverage rate of 20 physicians per 100,000 people based on sanctioned positions, the 41 percent vacancy rate from the sample implies a de facto coverage rate of 12 physicians per 100,000 people. Factoring in the absentee rate of 42 percent from the sample drops the de facto coverage rate to 8.4 physicians per 100,000 people.

A finding of potentially great policy significance is the difference in attendance rates between *upazila* health complexes and the upgraded union family welfare centers. The government recently proposed increasing the number of upgraded facilities by assigning a doctor to each of the ordinary union family welfare centers that normally do not have one. The absentee rate of physicians is 40 percent at the *upazila* health complex level but jumps to an astounding 74 percent in the upgraded union family welfare centers.[12] For both types of facilities the physician is expected to be on site during the clinic's hours of operation. The position does not include outside responsibility for home or community visits, for example, which could make the impact of this result ambiguous. The difficulty of keeping physicians in attendance in the relatively remote rural areas served by the upgraded union family welfare centers should lead policymakers to reexamine the proposed change.

Another strong finding is that practitioners who live within the facility compound or in the village where the facility is located are more likely to be at work at some time during the day than practitioners who live elsewhere. This finding is even clearer when the results are broken down into more specific categories and when separate absence rates are reported for half days and whole days (see table 2). For example, among physicians in *upazila* health complexes, 36 percent of those who live outside the town in which the facility is located did not show up for work at all during the day of the survey team visits, compared with 13 percent of those who live in the same town. Similarly, only 22 percent of those living in a different town were present at the facility all day, compared with 43 percent of those living in the same town. Although commuting time and costs would be expected to be a barrier to attendance, the magnitude of the difference is striking.

Finally, absentee rates differ across gender but in a way counter to expectations. Female physicians were absent 41.7 percent of the time and male physicians 40.6 percent of the time, though the difference was not statistically significant in a simple *t*-test of difference in means. This can be of policy importance because some women in rural Bangladesh are not allowed by their families to be treated by male doctors. Differential attendance makes the already skewed availability of medical services away from rural women that much worse. The full story of why female physicians are absent more than male physicians requires the closer examination that follows.

12. This absence rate was 80 percent during a second round of visits several months later, indicating that this was not a seasonal or idiosyncratic phenomenon.

T ABLE 3. Matching Variables to Factors Influencing Costs and Benefits

	Opportunity Costs	Accessibility of Work	Sanctions for Absence	Internal Motivation
Profession (physician versus other)	✓		✓ (for professionals other than physicians)	✓
Length of time in profession	✓			✓
Duration of current posting	✓			✓
Gender	✓			✓
Lives in area		✓		✓
Type of facility	✓		✓	
Road within 1 kilometer of facility		✓		
Interaction of road and place of residence		✓		
Electricity in village			✓	
Literacy rate in village			✓	
Regional dummy variables	✓		✓	

Source: Authors' calculations based on public health facility surveys, March–April 2002.

III. EXPLORATORY MULTIVARIATE ANALYSIS

The main purpose of this research was to establish the magnitude of the problem of absenteeism. Because the survey is a single cross-section,[13] many questions related to identification and the direction of causality cannot be answered. However, a multivariate analysis was conducted to examine some basic partial correlations, to see what kinds of patterns emerge in the data. These results can establish a bench-mark for replications of this type of study. Further studies can be designed with more attention to the determinants of practitioner behavior.

The variables used in the analysis were limited to those that could be easily collected and that were relevant to practitioners who were absent for the entire day at the time of the visits. Underlying these variables is the assumption that people will be present at their jobs if that is the best use of their time—they balance the costs and benefits of showing up for work each day. Because public service providers are paid on salary, there is no monetary incentive to go to work in the morning. Other factors that could influence the decision to go to work and for how long are the opportunity cost of practitioners' time, the actual costs (time, money, effort) of getting to work on any particular day, sanctions that can be expected for not showing up for work, and practitioners' sense of responsibility toward their job or the community they serve. The proxies used for these variables are listed in table 3

13. This study led to a much larger one done for the *World Development Report 2004: Making Services Work for Poor People* (World Bank 2004) that made repeated visits to both health facilities and primary schools in several countries, including Bangladesh and every major state in India. This research is currently under way, but preliminary results are available from the authors.

and matched to the underlying variables they represent. (For further discussion of this mapping of variables to concepts see Chaudhury and Hammer 2003.)

The analysis used a multinomial logit estimation procedure based on a random utility model of choice. The choices are among these alternatives: to be present at the assigned post for the whole day, to be present for a half day, and to be absent all day. This was not modeled with the three categories being ordered because the option of being present for a half day is not intermediate between the other two options in any relevant sense. As will be evident, the choice to be present part-time involves different considerations than those of being present full-time or completely absent.

Regression Results

The regressions were estimated (table 4), and the results were used to predict the probabilities of being absent for different combinations of independent vari-

TABLE 4. Multinomial Logit Regression of Absenteeism

	Physician Sample		Nonphysician Sample	
	Absent All Day	Absent Half Day	Absent All Day	Absent Half Day
Length of service	−0.050 (2.09)**	−0.006 (0.31)	−0.034 (0.82)	0.003 (0.16)
Duration of posting	0.057 (0.59)	0.048 (0.69)	−0.009 (0.17)	0.010 (0.43)
Female	−0.397 (0.81)	−0.402 (1.00)	0.563 (1.18)	0.188 (0.85)
Lives in area	−19.368 (51.69)***	−1.071 (0.53)	−2.423 (2.70)***	−0.660 (1.29)
Road ≤ 1 km	−0.274 (0.20)	−3.744 (2.58)***	−0.879 (1.43)	−1.273 (2.95)***
Lives in area and road ≤ 1 km	18.372 (.)	0.886 (0.43)	0.990 (0.93)	0.642 (1.13)
Upazila health complex	−0.870 (1.03)	3.540 (2.48)**	−2.634 (3.32)***	0.592 (2.25)**
Percent of households with electricity	−0.020 (1.10)	−0.017 (1.80)**	0.012 (1.07)	−0.007 (0.76)
Literacy rate	−0.002 (0.10)	−0.014 (0.85)	0.019 (0.71)	−0.002 (0.12)
Dhaka	0.097 (0.14)	2.088 (2.86)***	1.750 (1.54)	1.019 (2.13)**
Chittagong	−0.151 (0.20)	0.717 (0.95)	1.322 (1.11)	0.419 (0.85)
Khulna	−1.310 (1.45)	0.999 (1.31)	0.196 (0.15)	0.230 (0.45)
Sylhet	0.280 (0.26)	1.008 (1.01)	1.126 (0.72)	−0.585 (0.74)
Rajshahi	−0.037 (0.05)	1.355 (1.85)	0.736 (0.63)	0.158 (0.34)
Constant	1.680 (1.03)	−0.199 (0.13)	−1.691 (0.93)	−0.029 (0.03)
Observations	321	321	397	397
Pseudo R^2 (joint estimation)	0.10		0.10	
Log likelihood	−298.4		−317.9	
H_0: χ^2 (10) division effects = 0 {joint estimation}	22.30***		14.9	

*Significant at 10 percent level; **significant at 5 percent level; ***significant at 1 percent level.

Note: Numbers in parentheses are absolute value of z statistics. Reference choice category is "Present all day." Left out division is Barisal.

Source: Author's calculations based on public health facility surveys, March-April 2002.

TABLE 5. Average Predicted Probabilities from Multinomial Logit
Regression of Absenteeism: Physician Sample (%)

Variable	Absent All Day	Absent Half Day	Present All Day
9 years experience	24.9	35.6	39.5
21 years experience	17.0	37.6	45.4
Female	19.0	32.9	48.1
Male	22.2	38.2	39.6
Lives in area	12.8	37.3	49.9
Doesn't live in area	29.4	35.5	35.1
Road ≤ 1 km	24.3	31.5	44.2
Road ≤ 1 km	10.0	80.2	9.8
Lives in area and road ≤ 1 km	17.3	32.3	50.4
Doesn't live in area and road ≤ 1 km	31.8	30.5	37.7
Lives in area and road ≤ 1 km	0.0	77.3	22.7
Doesn't live in area and road ≤ 1 km	13.0	78.9	8.1
Upazila health complex	13.6	50.3	36.1
Upgraded union family welfare center	42.3	5.7	52.0
Dhaka	19.7	50.3	30.0
Chittagong	24.3	25.7	50.0
Khulna	9.7	35.0	55.3
Sylhet	29.9	28.2	41.9
Rajshahi	22.6	36.6	40.8
Barisal	29.9	15.2	54.9

Source: Author's calculations based on public health facility surveys, March–April 2002.

ables, other variables being kept at their mean values (tables 5 and 6). This was
done because the magnitude of the regression coefficients in a multinomial
probit regression are difficult to interpret directly. Variables with statistically
significant results are discussed next.

PROFESSION. Results of separate regressions for the subsample of physicians and
the subsample of other practitioners are generally consistent with the differences
in means for overall absenteeism presented earlier (see table 2). The impact of
variables included in the regression are much stronger for the physician sub-
sample than for the other practitioners subsample in both magnitude of effect
and statistical significance. This may simply reflect the heterogeneity of profes-
sions within the other practitioners subsample.

TYPE OF FACILITY. Workers in the higher-level *upazila* health complexes are
much more likely than workers in other facilities to be absent for a half day.
The probability of half-day absence rates for physicians are 50.3 percent in the
upazila health complexes but just 5.7 percent in upgraded union family welfare
centers. For other practitioners, the probabilities are 46.7 percent in *upazila*
health complexes and 28.4 percent in upgraded union family welfare centers.
Working in a *upazila* health complex is more prestigious than working in
a lower-level facility and so can contribute to higher outside earnings from

TABLE 6. Average Predicted Probabilities from Multinomial Logit
Regression of Absenteeism: Nonphysician Sample (%)

Variable	Absent All Day	Absent Half Day	Present All Day
9 years experience	6.0	40.4	53.6
21 years experience	4.3	42.0	53.7
Female	6.3	43.4	50.3
Male	4.3	40.1	55.6
Lives in area	2.2	41.3	56.5
Doesn't live in area	8.5	40.5	51.0
Road ≤ 1 km	5.0	38.6	56.4
Road ≤ 1 km	6.0	65.5	28.5
Lives in area and road ≤ 1 km	2.5	39.3	58.2
Doesn't live in area and road ≤ 1 km	8.0	37.7	54.3
Lives in area and road ≤ 1 km	1.7	54.1	44.2
Doesn't live in area and road ≤ 1 km	9.4	63.5	27.1
Upazila health complex	1.1	46.7	52.2
Upgraded union family welfare center	14.8	28.4	56.8
Dhaka	6.9	53.4	39.7
Chittagong	6.1	40.1	53.8
Khulna	2.6	37.4	60.0
Sylhet	6.8	20.4	72.8
Rajshahi	4.2	35.1	60.7
Barisal	2.3	32.4	65.3

Source: Author's calculations based on public health facility surveys, March–April 2002.

self-referrals (requiring half-day absences), particularly for physicians.[14] But the larger facilities also have more people to monitor absenteeism. It is much more unusual for nonphysician practitioners to be absent all day than half a day, which makes sense if being absent all day is considered a worse offense than being absent for half a day.

EXPERIENCE. Years of experience but not tenure at the current post was significant and only in the physician regression. The number of years of experience is correlated with being present all day (and negatively and significantly correlated with being absent all day or half a day). This seems surprising because more experienced physicians may have more established private practices. But experienced people who are still working in these kinds of facilities tend to be either less successful or particularly dedicated to providing primary care. These are not prestigious jobs for physicians (even the *upazila* health complex positions), and experienced physicians prefer to practice in well-equipped hospitals or administrative posts in urban areas.

VILLAGE ELECTRIFICATION. Electrification and village literacy rates (which never appear significant) are the only measures of income of the village, crude as they

14. See Chawla (1996) for a discussion of self-referral from public to private practice in India.

are. Electrification tends to increase the probability of all-day attendance for physicians (significantly reducing half-day absences and reducing, but not significantly, full-day absences). If electricity is measuring wealth, it may reflect more pressure from the community. Working conditions should not be directly affected since facilities have their own generators.

ACCESSIBILITY: PLACE OF RESIDENCE AND ROADS. As in the bivariate analysis, living in the village is strongly correlated with being present at official posts for at least part of the day. The correlation is much stronger for physicians than for other practitioners and stronger for full-day than for half-day absence. Physicians can have a private practice in the same village in which the public facility in which they serve is located, so living nearby is not necessarily an impediment to outside earnings. The effect, at least for physicians, is so strong that the decision to live nearby is examined later in greater detail.

Having a road within a kilometer of the facility is highly correlated with being present for a half day, and the correlation is much stronger for physicians than for others. Lack of a road is correlated with the highest rate of half-day absence for all providers, a finding consistent with needing a lot of time to get to work. Roads are also correlated with whether providers live near the facility (discussed later).

The interaction effects between roads and place of residence yield some interesting results. Although the *t*-statistics for the interaction variables in each equation are individually insignificant, their joint effect on the pair of equations (whole- and half-day absences) is significant at the 5 percent level. The sign is consistently positive, indicating that the presence of a convenient road reduces the correlation of living outside of town with absenteeism.

When there is no road, the difference in attendance rates between practitioners other than physicians who live in town and those who do not is 17.1 percentage points (44.2–27.1 percent). With a road, the difference falls to 3.9 percentage points (58.2–54.3 percent), suggesting that ease of access is a partial substitute for proximity of residence. For physicians the story is a little different: Physicians who live in the village where they work are never absent all day when the road is far away (see table 6).

REGIONAL EFFECTS. Regional variations do not appear very important except that working in Dhaka increases the probability of being absent for half a day but not a whole day. Dhaka is the most lucrative market and would exert the most pull for private practice. Why only for a half day rather than all day could be because of opportunities for self-referral or because of the proximity of supervisors, increasing the probability of being discovered away from one's post.[15]

15. Readers familiar with Bangladesh may find this discussion refreshingly naive because there isn't really much shame or probability of formal sanctions associated with being absent, but we mention it as a possibility anyway.

DOGS THAT DIDN'T BARK. Some variables that were expected to be highly corre-
lated with absenteeism were not. Gender was one. In other contexts, women are
often found to be less corrupt and otherwise more rule abiding (Dollar and
others 2001; Swamy and others 2001). Any effect may be attenuated by place of
residence (examined later). Literacy in the village also had no effect—it is not a
good measure of public pressure, public pressure may have no influence, or it
may be too strongly correlated with electrification. Finally, duration of tenure at
the current posting is unrelated, either because it has opposing effects—long
residence may increase private opportunities but also increase sense of respon-
sibility to the community—or simply because it is unrelated.

Correlates with Place of Residence

In taking a closer look at who chooses to live near their assigned facility
(because living nearby is closely correlated with absenteeism), the cross-section
structure of the survey is an impediment because this decision may be jointly
determined with the expectation of how often one plans to be at the public
service job. In a sense, there are two types of decisions about how to allocate
time. One is made more or less annually—where to live—and one is made
daily—conditional on where you live, how do you allocate your time during
the day? For now, the decision to live in an area will be considered to have been
made prior to the decision to go to work each day, and the simultaneous effects
that expectations about the second might have on the first will be ignored.

The main results, perhaps not surprisingly, are related to characteristics of the
town or village (table 7). The proportion of households with electricity is a
strong encouragement for practitioners to live in the village. This may be due to
electricity being a proxy for wealth, or it may be due to the direct benefits of
living with access to electricity.

A road being more than a kilometer away from the facility (and the village) is
associated with a lower likelihood that the practitioner lives in the village, as would be
expected of an indicator of the quality of life. Roads, therefore, are not only related to
absenteeism directly but also through their correlation with residential location.

Two variables distinguish physicians from the other providers. First, whether
the facility is an *upazila* health complex influences physicians but not other
practitioners. It appears that physicians will not live in villages far from *upazila*
headquarters, whereas other practitioners are just as likely to live by a union
family welfare center as by a larger facility. Second, the probability that a female
physician will live in the town or village of her assigned health care facility is
very low. An educated woman in Bangladesh will almost certainly be married
(all but 4 of the 42 female physicians in the sample were married) to an educated
man with a career, and they will likely live near his job.[16] This result explains

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16. If both the husband and wife are physicians, then priority is supposed to be given for assignment
to the same health facility. Information on spouses was not collected, however.

TABLE 7. Probit Regression of Choice of Residence (marginal probabilities)

	Physician Sample	Nonphysician Sample
Length of service	0.005 (1.17)	−0.005 (1.10)
Duration of posting	−0.001 (0.03)	0.008 (1.36)
Female	−0.168 (1.90)*	0.001 (0.02)
Road ≤ 1 km	0.217 (1.32)	0.100 (1.36)
Upazila health complex	0.390 (2.08)**	−0.023 (0.38)
Percentage of households with electricity	0.007 (2.48)**	0.001 (0.50)
Literacy rate	0.005 (1.21)	−0.000 (0.10)
Dhaka	−0.194 (1.43)	0.373 (3.41)***
Chittagong	−0.046 (0.32)	0.383 (3.50)***
Khulna	−0.099 (0.66)	0.155 (1.24)
Sylhet	0.142 (0.65)	0.392 (2.81)***
Rajshahi	−0.281 (2.11)**	0.280 (2.48)**
Number of observations	321	397
Pseudo R^2 (joint estimation)	0.10	0.06
Log likelihood	−199.3	−259.5
H_0: χ^2 (10) division effects = 0	16.56***	22.7***

*Significant at 10 percent level; **significant at 5 percent level; ***significant at 1 percent level.

Note: Numbers in parentheses are absolute value of z-statistics. Dependent variable takes a value of 1 if provider lives in the area and 0 otherwise. Left out division is Barisal.

Source: Author's calculations based on public health facility surveys, March–April 2002.

the unexpected relationship between low attendance and being female. Conditional on residential location, there is no difference between men and women as far as attendance is concerned (though this, too, was somewhat unexpected).

What Difference Does Absenteeism Make?

Does the absence of medical practitioners from their public posts have measurable consequences on other outcomes one might care about? It cannot be claimed that the observed absentee rates necessarily imply adverse welfare effects relative to full attendance. Being on the public payroll may be necessary to induce professionals to locate outside of metropolitan areas. Although their services are not provided free in the public facilities, they reach areas that would otherwise not be served. The real world does not play by the rules, but it might be that the rules are unrealistic and unduly restrictive. The data collected for this study do not include any information from households that would help assess the overall availability of medical care by geographic area. Nor is it possible to assess the full welfare implications of the results empirically.[17]

However, such high rates of absenteeism give rise to a strong presumption that something is wrong. The survey collected information that will permit examination

17. Current work by Banerjee and colleagues (2001) in the Udaipur district of Rajasthan state in India is designed to better address welfare implications.

TABLE 8. Correlations between Absenteeism and Facility Characteristics

	Absenteeism	Working Toilet	Visual Privacy	Auditory Privacy	Water in Examination Area	Adequate Lighting	No. Patients per Week
Absenteeism	1.000						
Working toilet	−0.204	1.000					
Visual privacy	−0.068	0.239	1.000				
Auditory privacy	−0.071	0.252	0.873	1.000			
Water in examination area	−0.210	0.297	0.095	0.106	1.000		
Adequate lighting	−0.233	0.178	0.016	0.035	0.342	1.000	
No. patients per week	−0.128	0.264	0.191	0.164	0.510	0.269	1.000

Note: Number of observations is 144; the facility is the unit of observation. Correlations greater than 0.162 in absolute value are significant at the 5 percent level.

Source: Authors' calculations based on public health facility surveys, March–April 2002.

of the correlation between the pattern of absences and two sets of indicators of facility performance. One comes from observations on a set of clinic characteristics that were made by the interviewers. These include subjective judgments about the cleanliness of the facility, the degree of visual and auditory privacy, and the adequacy of lighting, as well as more objective measures, such as whether the piped water and toilets were functional. A simple hypothesis is that professionals who regularly attend their assigned post will look after these aspects of the facility, generally keeping it in good repair. The direction of causality could, of course, go the other way. Another set of indicators relates to the use of the facility by clients. The absence of professionals, particularly of physicians, has often been noted by clients as a cause of low utilization of facilities. Interviewers were instructed to look at the intake sheet of the facility over the past week and note the number of people visiting the facility.

Piecing out the various causal pathways that each of these variables might have with others is very difficult with cross-section data and the limited instruments available.[18] Simple correlation coefficients between each of the various characteristics of facilities and their average absentee rate show that all of these variables move together (table 8). Low absenteeism is correlated with generally well-functioning facilities, particularly as measured by the more objective criteria (rather than interviewers' subjective judgments) and greater utilization. Interestingly, the direct correlation of absenteeism and number of patients is weak.

18. An attempt to disentangle the various possible causal relations is presented in Chaudhury and Hammer (2003). We think that the case can be made that absenteeism is more likely to lead to poor maintenance than that poor maintenance lowers attendance. Furthermore, we believe that better maintenance leads to more visits by patients. Skeptics, however, are entitled to remain so.

All of these indicators are also highly correlated with the level of the facility. The larger *upazila* health complexes are all better staffed, better attended, and better maintained than the lower-level facilities. This is consistent with the argument in Filmer and others (2002) that managing small primary health centers poses a much greater challenge than running larger facilities, because physicians especially are more likely to attend and manage themselves.

V. Conclusion

The aim of this study was to assess the commonly held belief that staff attendance in public health clinics is low. Common opinion appears to be correct. Absenteeism is very high and can reach 74 percent or higher in small rural posts.

The results cannot take us much farther than this. They cannot be used to assess the welfare consequences or to identify causal relations, let alone policy-related interventions. Data from surprise visits are not collected frequently and by their nature are limited in determining the reasons for attendance patterns. It is hard to get more detailed information on absent workers without large increases in costs.

The results do, however, suggest important areas for future work. First, they highlight the fact that public employees are active decisionmakers and that services do not get provided simply by fiat. The motivations of workers, the opportunity cost of their time, and the conditions under which they work (or get to work) are all likely to influence their performance on the job. Sometimes these conditions can be changed through policy measures. Sometimes they have to be taken as given constraints. Research on the behavior of service providers is in its early stages.[19] The World Bank (2004) highlights the importance of understanding provider behavior. It was intended to stimulate further research. As part of that report, a major research project was initiated to study absence rates of medical providers and teachers in primary schools in several countries (Chaudhury and others 2004a,b).

In Bangladesh, the policy direction that the government has chosen—upgrading union family welfare centers to include a posting for a physician—appears to run up against the reluctance of physicians to serve in such posts. Whether the posts can be made attractive enough to increase the very low attendance rates observed in this study, whether the government is willing to accept these rates in the hope that more qualified physicians can be induced to live in rural areas as private physicians (a hypothesis that should be rigorously tested), or whether the policy should be reconsidered and different means found to help the rural poor are important decisions made starker by the results of this study.

Second, both theoretical and empirical work are necessary to answer questions about the welfare implications of the results. For example, where are the

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19. See Leonard (forthcoming) and references therein for examples of such work.

private practitioners when they are away from their public post? Are they in rural areas near their post, or are they serving the richer market in urban areas? How much does their absence reduce medical services for the rural poor, and how much does it translate into greater travel time and costs that patients must bear? For both positive analysis and policy discussions, the supply side of service provision should be a high priority for future work.

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