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WHY IS ABSENTEEISM LOW AMONG PUBLIC HEALTH WORKERS IN LAO PDR?

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The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of their affiliations.

Abstract

Absenteeism among public health workers is common in developing countries. Absence rates among public health workers are above 25 per cent in the five developing countries that Chaudhury et al. (2006) examined. However, the present study finds that the corresponding rate in Lao PDR is significantly lower (17 per cent). Using a new dataset from the Lao PDR Public Expenditure Tracking Survey, we find that both extrinsic motivation and intrinsic motivation affect health center worker behavior: The timely payment of wages, a non-rural workplace, and proximity of the workplace to hometown are factors that are negatively associated with absenteeism.

Keywords: Public Health Worker; Public Expenditure Tracking Survey; Lao PDR

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1. Introduction

Absenteeism among public social service providers such as health workers and schoolteachers is common in developing countries. For example, Chaudhury et al. (2006) report that the absence rates of public health workers are more than 25 per cent in Bangladesh, India, Indonesia, Peru, and Uganda. This statistic implies that absenteeism among public service delivery employees is one of the most serious issues that plagues the daily lives of the poor (World Bank, 2003).

However, research on absenteeism is still in its infancy mainly because the information and data necessary for the identification of its determinants are insufficient. Although Chaudhury et al. (2006) and Lewis (2006) report on the incidence of absenteeism in several developing countries, the exhaustive literature survey on the absenteeism problem by Lewis (2006) concludes that existing empirical results are considerably fragmented because of the lack of critical data for comparing countries.

The present paper aims to fill this gap in the existing literature, at least partially, by applying a methodology that is consistent with the one adopted by Chaudhury et al. (2006) to a new dataset from the Lao PDR Public Expenditure Tracking Survey (Lao PETS). This allows us to compare absenteeism in the primary health sector of Lao PDR with that of the developing countries studied in Chaudhury et al. (2006).

To preview our findings, first, we observe that the absence rate of public health workers of Lao PDR—17 per cent (the unauthorised absence rate is even lower at only 7 per cent)—is significantly lower than are those of the five developing countries reported in Chaudhury et al. (2006), which are all higher than 25 per cent. We provide two possible explanations for the low absence rate in Lao PDR based on (1) intrinsic and nonpecuniary motivations and (2) the degree of decentralization. However, we also suggest that future research on absence rates in other developing countries is needed.

Second, we conduct econometric analyses on the determinants of absence rates in Lao

PDR. The within-country data variation shows that several factors significantly correlate with absenteeism. In particular, we find that intrinsic motivation may be an important factor in reducing absenteeism. If the workplace of a health worker is located in his/her hometown district, the incidence of absenteeism is lower, indicating the importance of transaction costs such as commuting expenses. Alternatively, workers display relatively higher levels of discipline if they work in their home districts, which suggests the importance of intangible psychological effects in worker behavior. Moreover, we observe that absenteeism is more frequent in rural areas than it is in urban areas. This implies the importance of peer monitoring by colleagues and senior management such as district offices on workers' attendance. Finally, a delay in paying wages negatively affects health workers' attendance. This suggests that a lack of financial incentives deters health workers from attending their workplaces. Thus, our results imply that the timely payment of wages and efficient monitoring of workers' attendance is necessary in order to reduce absenteeism. Furthermore, relocating health workers to their own communities may also reduce absenteeism. It is also implied that increasing the number of homegrown health workers may be important to improve the quality of health services in rural communities, given the apparent shortage of skilled health workers from such communities. Although the national absence rate of public health workers in Lao PDR is lower than the rates of the five countries reported in Chaudhury et al. (2006), the empirical evidence of within-country regional variations will help design policy devices to reduce absenteeism.

The rest of this paper is organised as follows. Section 2 describes the institutional arrangements of public health service provision in Lao PDR. Section 3 explains the datasets used in the study. Further, we present the national absence rate of Lao PDR and compare it with those of Bangladesh, India, Indonesia, Peru, and Uganda. Section 4 presents a domestic analysis that identifies the characteristics that are systematically correlated with absenteeism. Finally, Section 5 summarises our findings and discusses their policy implications.

2. Health Care Service Provision in Lao PDR

In Lao PDR, the public health system is the predominant form of health care service provision. In 2005, its health facilities consisted of four central teaching and referral hospitals; five regional hospitals, including one teaching hospital; 13 provincial hospitals; 127 district hospitals; and approximately 746 health centers (HCs; WHO, 2010). In the present paper, a HC is defined as an entity that serves as a health facility at the village level under the corresponding district health office (DHO). Most HCs cover fewer than 10 villages containing several thousand residents in total. The operating hours of HCs vary between four and eight hours per day and all HCs are supposed to stay open five days per week. HCs do not provide emergency services outside business hours. Most HCs have only a couple of health workers and are not fully functioning health facilities; thus, they provide only minimal health services. Indeed, most report that they do not have enough equipment and that they have difficulty accessing the villages in their coverage areas because of a lack of transportation.

Lao PDR faces similar challenges to all low-income countries as regards to human resources issues in the health sector, namely the underfunding of wages, maldistribution of qualified staff across geographic areas and health system levels, and limited numbers of qualified health workers. Indeed, in our sample only 2 per cent of respondents were doctors, whereas other medical assistants comprised 18 per cent and nurses and midwifes were 72 per cent. The hiring process of HCs is relatively decentralised in Lao PDR. Staff is hired by the chief of the DHO with approval by the provincial health office (PHO). The PHO, in turn, reports the number of employees of both the PHO and DHOs in the province to the personnel department at the Ministry of Health. The PHO controls the hiring process of health workers at HCs. HC staff is paid directly by the appropriate DHO, which receives money from its district finance office. HCs are supposed to have close links with DHOs regarding the employment status of their staff because DHOs are obliged to report the number of employees to the district finance offices on a quarterly basis. This reporting procedure seems to address the usual concern of ‘ghost workers’ in Lao PDR.

Most HCs provide village residents with services for free except for drugs and laboratory services, but they often apply an exemption for drug costs. Although the drug cost exemption criteria are set individually by each HC, most HCs exempt monks, students, and the poor from paying prescription fees.

3. Data and Descriptive Statistics

We employ a new dataset collected using the World Bank's PETS methodology (Dehn, Reinikka, and Svensson, 2003; Reinikka and Svensson, 2004). The Lao PETS was conducted by the National Statistics Centre (NSC). The PETS tracks the flow of resources through the administrative layers in order to determine the amount of the originally allocated resources that reaches every level. It sheds light on the governance, accountability, and targeting of public resources by providing information on how the allocated budget reaches the intended recipients.

We match the Lao PETS datasets with the 2002–03 Lao Expenditure and Consumption Survey (LECS) dataset in order to integrate HC and health worker information from the Lao PETS and HC user and community information from the 2002–03 LECS. The sample respondents of the Lao PETS are selected from HCs in villages surveyed by the LECS. In 2003, there were 717 HCs in Lao PDR. Based on this number and the information derived from other PETS, the Lao PETS covers 107 public HCs. Such a sampling scheme based on the LECS has two operational advantages. First, the Lao PETS respondents are chosen from the nationally representative LECS sample, unlike other PETS.[1] The Lao PETS covers 56 out of 141 districts in 17 out of 18 provinces in Lao PDR. Second, the survey response rate is sufficiently high because the NSC is acquainted with the representatives of the sampled villages.

The PETS questionnaire comprises two parts. The first part is a series of quantitative assessments of budget flows through the various layers of government, ranging from central government to the facility. Second, the facility survey collects detailed information on inputs (including public funds), outputs, and outcomes for HCs. The information on community

characteristics is compiled from the village questionnaire of the 2002–03 LECS.

During the pilot survey for the Lao PETS, we found out that it might be worth studying absenteeism in the context of Lao PDR. For instance, in one province, the DHO did not inform our targeted HCs in advance of our visit. We encountered a HC under the DHO where the director was away attending to private matters. The World Bank team and NSC agreed that the survey should be conducted during an unannounced visit. The importance of this unannounced visit was emphasised during the training of enumerators, and afterwards we checked with the enumerators to understand whether our visit had indeed been unannounced or not.

In general, a PETS-style survey seeks detailed financial information from each administrative layer. In that sense, it might be preferable to notify enumerators' visits well in advance. However, such prior announcement might provide respondents with enough time to manipulate the data. Hence, there is a practical trade-off between data provision and accuracy. Because data manipulation generates biased results in econometric analyses, an unannounced visit was preferred in this study. In fact, the government also prefers unannounced visits for a PETS because of concerns about financial corruption and the abuse of financial resources. If PETS-style surveys are conducted during unannounced visits, the government can attribute a large financial leakage to the low quality of financial data obtained through such visits. Thus, the World Bank and the government agreed that the Lao PETS would be conducted by unannounced visits.

The surveys were conducted from the end of January 2006 until March 2006. Nominal values such as wages are deflated by the spatial price indices used for computing the 2002–03 poverty line. This adjustment ensures that comparisons across localities adequately reflect cost differences.

3.1 The incidence of absenteeism

The key variable of interest is the absence rates of public health workers. We follow the methodology of Chaudhury et al. (2006) in order to study the absence rates in Lao PDR. In our sample, each HC has at least one full-time worker, and our measure of the absence rate is one for the full-time HC workers. A worker is considered to be absent if he/she is not physically present in the HC at the time of an unannounced visit during working hours. Further, we inquire about the reasons for absence because a worker can be absent for official reasons (Table 1). In this environment, we determine two absence rates, namely, broadly defined and narrowly defined. The former refers to the unadjusted absence rate, which is identical to that used in Chaudhury et al. (2006). This means we can compare the absence rates in our paper with the absence rates reported in Chaudhury et al. (2006). The latter excludes workers who are absent for official reasons.

From the 107 targeted HCs in the present study, we note that 11 received an enumerator visit that had been announced. Hence, we exclude these 11 HCs from our analysis, and thus the total sample of HCs is 96.[2] In these 96 HCs, 41 of the 243 HC workers were absent at the time of the unannounced visit of the enumerators. Thus, the broadly defined absence rate is 16.9 per cent. Table 1 displays the reasons for these absences. More than half of the absences were for official reasons: eight for outreach or education, 11 for other official duties, and six for authorised leave. If these are excluded, the absence rate becomes 7.3 per cent, that is, 16 out of 218. However, as Chaudhury et al. (2006) point out, it is difficult to assess the extent to which absence is authorised. The same concern could apply to the case of Lao PDR. Enumerators generally asked the director of the health center about the reason for absence. However, directors may not always have the true information or answer truthfully. The absence rate for our broad definition of absence is comparable with those of the five developing countries reported in Chaudhury et al. (2006). The absence rate of 16.9 per cent of Lao PDR is much lower than those of the five developing countries mentioned in Chaudhury et al. (2006): at least 25 per cent.

This cross-country comparison leads to the question of why the absence rate in Lao

PDR is so low. We postulate two hypotheses.

First, health workers in Lao PDR seem to be well motivated intrinsically. In the Lao PETS, more than 90 per cent of health workers answered that they are very or adequately satisfied with their overall work, even though approximately 45 per cent of them reported limited wages as the main drawback at work. This suggests the importance of nonpecuniary worker incentives such as morale or pride, which is consistent with the findings of Alcázar et al. (2004) and Chaudhury et al. (2006).

Second, informal and formal enforcement mechanisms through a high degree of governmental decentralization under the communist regime may lead to low absenteeism. It is well known that Lao PDR is one of the most decentralised countries in East Asia in terms of its financial system and accountability. In particular, the PETS shows that most HCs in Lao PDR are supervised by their DHOs every three months and by their PHOs every six months. In two out of three cases, health workers are formally assessed by the director of the HC or DHO a few times a year. In addition, Lao PDR is a country ruled by a communist party. North (1991) emphasises the importance of institutions, which consist of both informal constraints such as sanctions, taboos, customs, traditions, and codes of conduct and formal rules such as constitutions, laws, and property rights. A communist state like Lao PDR is clearly different from a capitalism state in a variety of aspects. Alesina and Fuchs-Schündeln (2007) find former East Germans are more in favor of state intervention than former West Germans are, implying that communism affected individuals' intrinsic preferences toward the role of the state in providing social services.[3] These institutional environments may generate implicit or explicit enforcement mechanisms. The studies of Chaudhury et al. (2006) and Lewis (2006) do not include communist states, which makes the present analysis unique.

However, we have to emphasise that the exploration of between-country variation in absenteeism awaits more country-level observations in the future.

4. Determinants of Absence in Lao PDR

In this section, we examine within-country variations to uncover the relationships among workers, communities, institutional characteristics, and absenteeism. We use broadly defined absence information. After classifying absence rates into several groups (Table 2), we estimate standard linear probability and probit models of absenteeism at the worker level.

Table 2 shows that doctors display higher absence rates, but because only three doctors are included in the sample, it is impossible for us to perform reliable statistical tests. However, this higher absence rate is consistent with the findings of Chaudhury et al. (2006). The small number of doctors in our sample raises two issues. First, if doctors are absent significantly more than are other health workers, regardless of the country or region in the world, the small number of doctors in our data may bias downward the national absence rate of Lao PDR. Second, and perhaps more importantly, public health care services in Lao PDR suffer from a lack of human resources in terms of the qualifications of health workers.

We find that female workers display a higher absence rate than do male workers. Further, workers located in priority districts, rural areas, less impoverished areas, less ethnically concentrated areas, or those located outside their home sub-districts, display higher absence rates. However, none of these differences is statistically significant, according to the statistical test of mean differences shown in Table 2. The only characteristic associated with a significant difference in absence rates (at the 10% level) is whether a worker is from the same sub-district as the HC. This is probably because we do not simultaneously control for other factors that affect absence. The relatively small sample sizes in the dataset may also increase standard error.

In light of the foregoing, Table 3 shows the estimation results of the linear probability and probit models for the determinants of absenteeism at the worker level. The dependent variable is equal to one if a worker is absent (regardless of the reason) and zero otherwise. We define the dependent variable following Chaudhury et al. (2006) because it is difficult to assess the extent to which absence is truly authorised. In the results in Table 3, we simultaneously control for various factors affecting absenteeism, and standard errors are clustered at the facility

(HC) level. Columns 1 (linear probability model) and 2 (probit model) present the results of the estimation of absenteeism on various health worker or HC characteristics.

Several findings emerge: if HC workers live in the same sub-districts as their workplaces, they are less likely to be absent.[4] Indeed, they are 10 per cent less likely to be absent than are those from outside the community. This is significant at the 5 per cent level. The reason for this could be that they are more motivated to contribute to the health improvement of their own communities; this argues that intrinsic and nonpecuniary motivations matter. Alternatively, workers may display a higher level of discipline if they work in their home districts, suggesting the importance of intangible psychological effects in worker behavior. Alternatively, this finding may also indicate the importance of transaction costs such as commuting expenses.

Columns 3 (linear probability model) and 4 (probit model) present the results of absenteeism including several control variables at the village level. The qualitative results of the coefficients of workers and HC characteristics do not differ from those in specifications (1) and (2). In specifications (3) and (4), the logarithm of unpaid wages is positively and marginally correlated with absenteeism at the 10 per cent level, suggesting that this financial disincentive may affect absence rates. Interestingly, the level of wages is not significantly correlated with absenteeism: although the coefficient sign is negative in the absenteeism model, it is not statistically significant. The rural dummy has a positive coefficient that is statistically significant at the 5 per cent level. Indeed, merely being in a rural location increases the probability of absence by 8 per cent. This may indicate the importance of monitoring workers' attendance by peers such as colleagues and the DHO because such monitoring is less frequent in HCs located in rural areas. Alternatively, a health worker may require an entire day to commute to the nearest town for a private purpose, which implies that he/she would not be present at the HC during opening hours. With regard to other variables, education level and gender are not systematically correlated with absenteeism.[5]

To check robustness, we estimate the same model with a different definition of

absenteeism (Table 4). In the four specifications, the dependent variable is equal to one if a worker is absent without an official reason at the time of an unannounced visit and zero otherwise. Hence, workers who are absent with a 'likely' authorised reason at the time of an unannounced visit are omitted from the sample. Both the linear probability and probit models are implemented. The results (Table 4) are broadly comparable to those in Table 3. Unpaid wages are significantly correlated with absenteeism, suggesting that this financial disincentive is more likely to correlate with absenteeism when we focus on (reported) unauthorised absence. The same sub-district variables are highly significant, suggesting that both extrinsic motivation and intrinsic motivation affect HC worker behavior.

5. Conclusion and Policy Implications

In this paper, we show that the absence rate of health workers in Lao PDR is significantly lower than those of Bangladesh, India, Indonesia, Peru, and Uganda. Our results indicate that delayed payment of wages, rural workplace, and the proximity of workplace to hometown positively correlate with absenteeism. These findings indicate that both extrinsic and intrinsic motivations affect HC worker behavior. Appropriate policy interventions in order to modify worker incentives may further reduce absenteeism. For example, the timely payment of wages and efficient monitoring of workers' attendance are important factors to reduce absenteeism. Furthermore, encouraging and facilitating health workers to work in their own communities may result in lower absenteeism. At the same time, a key policy implication to improve public health service provision in rural communities could be to the importance of increasing the number of homegrown (and well-qualified) health care workers given the strong supply-side constraints. Although the national absence rate of public health workers in Lao PDR is significantly low, the findings from the within-country variations might help design policy devices to reduce absenteeism in other developing countries.

References

Alesina, A., Baqir, R. and Easterly, W. (1999) Public Goods and Ethnic Divisions. *Quarterly Journal of Economics*, Vol. 114(4), 1243–1284, November.

Alesina, A. and Fuchs-Schündeln, N. (2007) Good bye Lenin (or not?)—The effect of communism on people's preferences. *American Economic Review*, 97, 1507–1528.

Alcázar, L., Rogers, F.H., Chaudhury, N., Hammer, J., Kremer, M. and Muralidharan, K. (2004) Why Are Teachers Absent? Probing Service Delivery in Peruvian Primary Schools. Unpublished paper, World Bank and GRADE (Peru).

Chaudhury, N., Hammer, J., Kremer, M., Muralidharan, K. and Rogers, F.H. (2006) Missing in Action: Teacher and Health Worker Absence in Developing Countries. *Journal of Economic Perspectives*, Vol. 20, 91–116.

Corneo, G. (2001) Inequality and the State: Comparing US and German Preferences. *Annales d'Economie et de Statistique*, 63-64, 283-296.

Corneo, G. and Grüner, H. (2002) Individual Preferences for Political Redistribution. *Journal of Public Economics*, 83, 83-107.

Jan, D., Reinikka, R. and Svensson, J. (2003) Survey Tools for Assessing Performance in Service Delivery, in Bourguignon and Pereira da Silva (eds) *Evaluating the Poverty and Distributional Impact of Economic Policies* (Oxford University Press and the World Bank).

Maureen, L. (2006) Governance and Corruption in Public Health Care System. Center for Global Development, Working Paper, 78.

North, D. (1991) Institutions. *Journal of Economic Perspectives*, 5(1), 97-112.

Ockenfels, A. and Weimann, J. (1999) Types and Patterns: An Experimental East-West-German Comparison of Cooperation and Solidarity. *Journal of Public Economics*, 71, 275-287.

Paolo, M. (1995) Corruption and Growth. *Quarterly Journal of Economics*, Vol. 110(3), 681–712, August.

Reinikka, R. and Svensson, J. (2004) Local Capture: Evidence from a Central Government

Transfer Program in Uganda. *Quarterly Journal of Economics*, Vol. 119(2), 679–706.

World Bank. (2003) *World Development Report 2004: Making Services Work for Poor People.* Washington, DC: Oxford University Press for the World Bank.

World Health Organization, Western Pacific Region. 2010. http://www.wpro.who.int/countries/lao/2010/LAO.htm.

Table 1: Reasons for absence

	Frequencies
Outreach/education	8
Other official duties	11
Sick	6
Authorized leave	6
Unauthorized absence	3
Other reasons	7
Total	41

Source: Public Expenditure Tracking Survey, Lao PDR

Table 2: Absence rates (in %) by group

	Absence rate	Sample size
Total	16.9	243
Medical doctors	33.3	3
Medical assistants	15.9	44
Nurses/midwifes	18.3	174
Pharmacists/pharmacy technicians	8.3	12
Others (incl. laboratory technicians)	0.0	10
Male	13.8	101
Female	19.0	142
From the sub-district	14.5*	91
Not from the sub-district	20.9*	152
Priority districts	20.0	46
Other districts	16.2	197
Rural	18.0	173
Non-rural	14.3	70
Poverty areas	16.2	191
Less impoverished areas	19.2	52
Ethnically concentrated	14.6	45
Not ethnically concentrated	17.9	198

*: significant at 10%

Note 1: A priority district is a district towards which government investment priorities are directed (and an initially poor district).

Note 2: We define an area as a poverty area if its poverty severity index is greater than 0.03.

Note 3: An ethnically concentrated area is defined as an area where a single ethnic group has a majority share (more than 50%).

Table 3: Linear probability and probit estimation models on absenteeism (broadly defined absenteeism)

Dependent variable = 1, if absent regardless of the reason; = 0, if present

	(1) Linear	(2) Probit	(3) Linear	(4) Probit
Log(unpaid wages)	0.048	0.042	0.054	0.047
	(1.30)	(1.24)	(1.71)*	(1.70)*
Log(wages)	-0.069	-0.077	-0.070	-0.091
	(0.96)	(1.14)	(1.06)	(1.42)
Gender dummy (= 1, if male)	0.026	0.032	0.022	0.020
	(0.54)	(0.69)	(0.41)	(0.44)
From the sub-district (= 1)	-0.098	-0.104	-0.076	-0.088
	(1.99)**	(2.19)**	(1.98)**	(2.24)**
Log(age)	1.872	3.077	2.203	3.788
	(0.78)	(1.28)	(0.95)	(1.65)*
Log(age) squared	-0.287	-0.461	-0.336	-0.558
	(0.87)	(1.36)	(1.05)	(1.73)*
Education-level dummies				
Primary (= 1)	-0.039	-0.061	-0.082	-0.078
	(0.23)	(0.34)	(0.53)	(0.51)
Lower secondary (= 1)	0.106	0.121	0.080	0.117
	(0.59)	(0.56)	(0.48)	(0.63)
Upper secondary (= 1)	-0.019	-0.009	-0.062	-0.028
	(0.10)	(0.04)	(0.36)	(0.16)
Nursing school (= 1)	0.101	0.140	0.144	0.237
	(0.56)	(0.58)	(0.78)	(0.96)
Village control variables				
Priority district (= 1)			-0.095	-0.084
			(1.10)	(1.18)
Rural (= 1)			0.075	0.081
			(1.99)**	(2.12)**
Poverty severity			-1.946	-1.957
			(1.42)	(1.39)
Ethnicity diversity index			0.235	0.237
			(0.83)	(0.76)
Log pseudolikelihood		-100.06		-97.35
(Pseudo) R-squared	0.07	0.09	0.10	0.12
Observations	235	235	235	235

Robust z statistics in parentheses

All parameters reported in the table are marginal effects.

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

Table 4: Linear probability and probit estimation models on absenteeism (narrowly defined absenteeism)

Dependent variable = 1, if absent without an official reason; = 0, if present

	(1) Linear	(2) Probit	(3) Linear	(4) Probit
Log(unpaid wages)	0.040	0.027	0.042	0.018
	(1.70)*	(1.77)*	(1.80)*	(2.04)**
Log(wages)	-0.014	-0.008	-0.029	-0.016
	(0.35)	(0.25)	(0.68)	(0.64)
Gender dummy (= 1, if male)	0.043	0.037	0.027	0.022
	(1.37)	(1.64)	(0.74)	(1.45)
From the sub-district (= 1)	-0.097	-0.086	-0.075	-0.046
	(2.24)**	(2.66)***	(2.01)**	(2.03)**
Log(age)	1.551	1.879	1.678	1.752
	(0.99)	(1.70)*	(1.04)	(2.19)**
Log(age) squared	-0.231	-0.280	-0.249	-0.257
	(1.07)	(1.77)*	(1.13)	(2.26)**
Education-level dummies				
Primary (= 1)	-0.058	-0.042	-0.129	-0.041
	(0.35)	(0.62)	(0.94)	(0.93)
Lower secondary (= 1)	-0.027	-0.026	-0.081	-0.042
	(0.16)	(0.28)	(0.58)	(1.06)
Upper secondary (= 1)	-0.055	-0.055	-0.106	-0.076
	(0.32)	(0.58)	(0.72)	(1.61)
Nursing school (= 1)	-0.023	-0.010	-0.086	-0.025
	(0.14)	(0.11)	(0.55)	(0.84)
Village control variables				
Priority district (= 1)			0.005	0.001
			(0.06)	(0.05)
Rural (= 1)			0.100	0.059
			(1.99)**	(2.26)**
Poverty severity			-1.045	-0.462
			(1.24)	(1.27)
Ethnicity diversity index			-0.006	-0.027
			(0.03)	(0.21)
Log pseudolikelihood		-47.54		-43.59
(Pseudo) R-squared	0.08	0.16	0.19	0.23
Observations	209	209	209	209

Robust z statistics in parentheses

All parameters reported in the table are marginal effects.

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

Notes for Tables 3 and 4

Note 1: The coefficient reported is the change in probability for an infinitesimal change in each independent variable.

Note 2: The default category of education level is university/technical institute.

Note 3: A priority district is a district towards which government investment priorities are directed (and an initially poor district).

Note 4: The ethnicity concentration index is defined as follows: suppose that x_{dj} is a population share of ethnic group j in a district d and that there are J ethnic groups in the district d. We have $\sum_{j=1}^{J} x_{dj} = 1$. Then, the ethnic diversity index of district d, θ_d, is defined as $\theta_d = \sum_{j=1}^{J} x_{dj}^2$. Thus, the more the district is concentrated in terms of ethnicity, the higher (and closer to 1) is the index. The idea of this index is similar to that of the ethnolinguistic fractionalization index widely used in previous literature such as Mauro (1995), Alesina, Baqir, and Easterly (1999), and many others.

[1] Most PETS-style surveys are conducted in selected areas of the country to reduce expenditure on fieldwork.

[2] The reasons that the unannounced visits to these 11 HCs were unsuccessful are not necessarily clear. These 11 informed facilities are distributed across 10 provinces. Therefore, there is likely to be no systematic leakage of information about the enumerators' visits. Of the 6 absent workers at the 11 HCs that received an announced visit, 5 workers had official reasons, so only one worker was absent without authorization, implying they might have 'prepared' in advance of the enumerator's visit some official reasons for the absences of the 5 workers. However, it is difficult to make an accurate inference with the small sample size used.

[3] Other evidences using German data are Ockenfels and Weimann (1999), Corneo (2001), and Corneo and Grüner (2002).

[4] Chaudhury et al. (2006) find a similar 'local' effect in the education sector, but not in the health sector.

[5] Education level and occupation have a strong correlation, and they compete with each other if incorporated into the estimation specification. Further, occupation dummies such as laboratory assistant/technician perfectly predict 'presence,' which forces us to drop such observations from the sample. Thus, we decided to use dummies for education level.