Health Care Delivery in rural Rajasthan[1]

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1. Introduction

There is surprisingly little information about the delivery of health care in rural India, and about the relationship, if any, between health care and health status. Some, such as the Commission on Macroeconomics and Health of the World Health Organization (2001), have argued that better health care is the key to improving health as well as economic growth in poor countries, but there is little systematic evidence that gives us a sense of how easy it is to impact the quality of health care delivery in developing countries and through these improvements to impact the health of the population. This paper reports on a recent survey in a poor rural area of the state of Rajasthan in India intended to shed some light on this issue, where we use a set of interlocking surveys to collect data on health and economic status, as well as the public and private provision of health care.

The existing evidence suggests that there is an extensive system of health care delivery which is however quite dysfunctional in many ways, making reforming the system something of a challenge. A recently completed a survey of absenteeism in public health facilities in several Indian states (Chaudhury, Hammer, Kremer, Muralidharan and Rogers, 2003) suggests a very high level of absence (43%) of health care providers in India Primary Health Centers; a survey of private providers in Delhi (Das, 2001) showed that 41% of the providers are unqualified. Sen, Iyer and George (2002) used two NSS surveys, separated by almost a decade (1986-87 and 1995-96) to study the relationship between income and access to health care, and showed a worsening of inequalities in access to health care. This paper confirms these patterns, and delves deeper into these phenomena

and their relationships with health status.

2. The Udaipur rural health survey

The data collection took place between January, 2002 and August, 2003 in 100 hamlets in Udaipur district, Rajasthan. Udaipur is one of the poorest districts of India, with a large tribal population and an unusually high level of female illiteracy (at the time of the 1991 census, only 5% of women were literate in rural Udaipur). The survey was conducted in collaboration with two local institutions: Seva Mandir, a NGO that works, among other things, on health in rural Udaipur, and Vidhya Bhavan, a consortium of schools, teaching colleges and agricultural colleges, who supervised the administration of the survey. The sample frame consisted of all the hamlets in the 362 villages where Seva Mandir operates in at least one hamlet.[5] This implies that the sample is representative only of the population served by Seva Mandir, not of rural Udaipur district as a whole; Seva Mandir tends to operate in poorer villages, with a larger tribal population. This sample frame presents several important advantages, however. It represents a population of interest to this paper---households in India who are among the most likely to be under-served by the health care system. Seva Mandir's relation with the villages ensured collaboration with survey, and allowed us to collect very detailed information at the village and household level. Seva Mandir's long standing relationship with the health authorities also gained us their full collaboration, making possible a weekly survey of all public health facilities. Finally, the extensive network of Seva Mandir's employees in the district allowed us to hire 130 reliable employees, and will make it possible to for us to implement and evaluate potential health

[5] A hamlet is a set of houses that are close together, share a community center, and constitutes a separate entity. A village is an administrative boundary. One to 15 hamlets constitute a village (the mean number of hamlets in a village is 5.6). Seva Mandir in general operates in the poorest hamlets within a given village.

interventions in the future. The sample was stratified according to access to a road (out of the 100 hamlets, 50 hamlets are at least 500 meters away from a road). Hamlets within each stratum were selected randomly, with a probability of being selected proportional to the hamlet population.

The data collection has four components: a village survey, where we obtained a village census, a description of the village's physical infrastructure, and a list of health facilities commonly used by villagers (100 villages); a facility survey, where we collected detailed information on activities, types and cost of treatment, referrals, availability of medication and quality of physical infrastructure in all public facilities (143 facilities) serving the sample villages, all "modern" private facilities mentioned in the village surveys or in the household interviews (we have surveyed 85 facilities so far, but this survey is still going on, in order to cover all private facilities mentioned by our respondents), and a sample of the traditional healers mentioned in the village surveys (225 traditional healers were surveyed); a weekly visit to all public facilities serving the villages (143 facilities in total, with 49 visits per facility on average); and a household and individual survey, covering 5759 individuals in 1024 households.

The data collected in the household survey include information on economic well being using an abbreviated consumption questionnaire previously used by the National Sample Survey in their 1999-2000 survey (the 55^{th} Round), measures of integration in society, education, fertility history, perception of health and subjective well being, and experience with the health system (public and private), as well as a small array of direct measures of health (hemoglobin, body temperature, blood pressure, weight and height, and a peak flow meter measurement of lung capacity).

The Continuous Facility Survey (CFS) may be the most original part of the project. We identified all the public facilities (143) serving the sample villages, and hired one para-worker who lives close to each facility, who was given the responsibility of checking the facility every week. The para-worker pays an unannounced visit to the facility during opening hours, checks whether the facility is open, and counts the number of doctors, nurses, other medical and non-medical personal, as well as of clients present in the facility. If the facility is closed, because the staff is performing a scheduled village visit, the para-worker goes to the village that the staff is supposed to be visiting, and checks whether he or she can be found in that village. To ensure the quality of the data collected in the Continuous Facility Survey, we have put in place a strictly enforced monitoring system: every four weeks, all the CFS para-workers of a block met, and we collected their data entry forms. They were also given a schedule indicating on which day they must complete their visit in each week of the following month. Two members of the team of investigators used motorcycle transport to visit several facilities every day, following the schedule given to the CFS para-worker. The para-workers were paid only if their visits have been completed on the planned day, and if there were no unexplained discrepancies between their report and that of the CFS monitor. The CFS monitors also visited the facilities on different days, so that we could check that there was no collusion between the para-worker and the facility staff. This survey took place for 13 to 14 months, including a "pilot period" of one to two months in each facility, where the system was fine-tuned. We report data for 12 months for each facility. The survey is complemented by a detailed one time facility survey, which, among other things, will allow us to identify correlates of absenteeism in the centers.

3. Health status

The households in the Udaipur survey are poor, even by the standards of rural Rajasthan. Their average per capita household expenditure (PCE) is 470 rupees, and more than 40 percent of the people live in households below the official poverty line, compared with only 13 percent in rural Rajasthan in the latest official counts for 1999-2000. Only 46 percent of adult (14 and older) males and 11 percent of adult females report themselves literate. Of the 27 percent of adults with any education, three-quarters completed standard eight or less. These households have little in the way of household durable goods and only 21 percent of households have electricity.

In terms of measures of health, 80 percent of adult women, and 27 percent of the adult men have hemoglobin levels below 12 grams per deciliters. 5 percent of adult women and 1 percent of adult men have hemoglobin levels below 8 grams per deciliters. Strikingly, using a standard cutoff for anemia (11 g/dl for women, and 13 g/dl for men), men are almost as likely (51%) to be anemic as women (56%) and older women are not less anemic than younger ones, suggesting that diet is a key factor. The average body mass index is 17.8 among adult men, and 18.1 among adult women. 93 percent of adult men and 88 percent of adult women have BMI less than 21, considered to be the cutoff for low nutrition in the US (Fogel, 1997). We also used peak-flow meter measurement to measure lung capacity in an attempt to detect asthma or other respiratory disorders (chronic bronchitis, etc..). Among adults, the average peak flow meter measurement is 316 ml per expiration (anything below 350 for an adult 1.60 meters tall is considered to be an indicator of respiratory difficulties).

Symptoms of disease are widespread, and adults (self) report a wide range of symptoms: a third

report cold symptoms in the last 30 days, and 12 percent say the condition was serious. 33 percent reported fever (14 percent serious), 42 (20 serious) percent reported “body ache” 23 (7) percent reported fatigue, 14 (3) percent problems with vision, 42 (15) percent headaches, 33 (10) percent back aches, 23 (9) percent upper abdominal pain, 11 (4) percent had chest pains, and 11 (2) percent had experienced weight loss. Few people reported difficulties in taking care of themselves, such as bathing, dressing, or eating, but many reported difficulty with the physical activities that are required to earn a living in agriculture. Thirty percent or more would have difficulty walking 5 kilometers, drawing water from a well, or working unaided in the fields. Eighteen to twenty percent have difficulty squatting or standing up from a sitting position.

In table 1, we show number of symptoms reported in the last 30 days, Body Mass Index, fraction of individuals with hemoglobin count below 12, peak flow meter reading, high blood pressure, low blood pressure, broken down by third of distribution of the monthly per capita expenditure, which we collected using the abbreviated consumption questionnaire. Individuals in the lower third of the per capita income distribution have, on average, a lower body mass index, lower lung capacity, and are more likely to have a hemoglobin count below 12 than those in the upper third. Individual in the upper third report the most symptoms over the last 30 days, perhaps because they are more aware of their own health status; there is a long tradition in the Indian and developing country literature of better-off people reporting more sickness (see for example Murray and Chen (1992) and Sen (2002)).

Yet when asked to report their own health status, shown a ladder with 10 rungs, 62 percent place

themselves on rungs 5 through 8 (more is better), and less than seven percent place themselves on one of the bottom two rungs. Unsurprisingly, old people report worse health, and women at all ages also consistently report worse health than men, which appears to be a worldwide phenomenon (Sadana et al (2002)), and richer people report better health than poorer people but most people report themselves close to the middle.. Nor do our life-satisfaction measures show any great dissatisfaction with life: on a five point scale, 46 percent take the middle value, and only 9 percent say their life makes them generally unhappy. Such results are similar to those for rich countries; for example, in the United States, more than a half of respondents report themselves as a three (quite happy) on a four-point scale, and 8.5 percent report themselves as unhappy or very unhappy. These people are presumably adapted to the sickness that they experience, in that they do not see themselves as particularly unhealthy nor, in consequence, unhappy. Yet they are not so adapted in their reports of their financial status, which was also self-reported on a ten-rung ladder. Here the modal response was the bottom rung, and more than 70 percent of people live in households that are self-reported as living on the bottom three rungs.

4. Patterns of health-care use

In the household survey we also asked on where people go to get health care. Table 2 shows these results. We see that adults visit a health facility on average 0.51 times a month. The poor, defined here as people who are in households in the bottom third of the distribution of PCE (average Rs. 219) per month, visit a facility 0.43 times in a month, while an adult in the middle third of the distribution (average PCE Rs. 361) visits a facility 0.54 times a month and an adult in the highest group (average

PCE Rs. 770) visits the facility 0.55 times a month. The difference between the top third and the middle third, on the one hand, and the bottom third on the other, is significant, and remains so with village fixed effects. Of these 0.51 visits, only 0.12 visits (i.e. less than quarter) are to a public facility. The fraction of visits to a public facility is highest for the richest group, and lower for the other two groups, but about the same for each.. Overall, the rich have significantly more visits to public facility than the poor. No one usespublic facilities very much, and if anything, the poor use them less than the non-poor.

The majority of the rest of the visits (0.28 visits per adult per month) are to private facilities. The rest are to Bhopas (0.11 visits per adult per month), who are the traditional healers. For the poor, the fraction of visits to a Bhopa is well over a quarter of all visits, while for the richest group it is about an eighth of all visits.

In terms of expenditure, Columns 1 and 2 of Table 3 shows the monthly expenditure on health, calculated in two ways: from the expenditure survey, and from the expenditures reported in the adult and children survey. The numbers are similar, except for the rich where the expenditure derived from the expenditure survey is much larger than the expenditure calculated from the addition of last month's visit. Column 3 shows the expenditure as a fraction of household total expenditures, and from the expenditures reported in the adult and children survey, as a fraction of personal expenditures. The average household spends 7% of its budget on health. While the poor spend less in absolute amount, they spend the same amount as a share of their budget. Column 4 shows the average health expenditure for adults. It is about 60 rupees, or 13% of the monthly PCE of his family. This fraction is highest for the poorest (15%) and lowest for the richest group (11%). Poor adults spend 13% of their total health expenditure at public facilities, 23% on Bhopas, and the rest at private facilities. The rich spend 23% of their total health expenditures at public facilities, and less

than 10% on Bhopas, while the middle group spends more than 17% of their health expenditureson Bhopas and 13% at the public facilities.[6] The rich therefore spends a significantly larger fraction of their health rupees on public facilities than do the poor, and a significantly smaller fraction on bhopas. Part of the difference in the consumption of public health care can be attributed to where the rich live, since, once we control for village fixed effects, the difference is smaller (5%) and insignificant.

5. Public health-care facilities in rural Udaipur

Official policy provides for 1 subcenter, staffed by one trained nurse (ANM), for every 3,000 individuals. Subcenters and Primary Health Centers (PHC) or community health centers (CHC), which are larger than PHC, are supposed to be open 6 days a week, 6 hours a day. In principle, the system is intended to provide more or less free and accessible health care to anyone who chooses to use the public health care system, with the sub-centers, staffed by a trained nurse (ANM) providing the first point of care, the PHCs or CHCs the next step, and the referral hospitals dealing with the most serious health problems. In our data, each subcenter serves 3,600 individuals on average, and is usually staffed by one nurse. A primary health center serves 48,000 individuals and has on average 5.8 medical personnel appointed, including 1.5 doctors.

Why then do we see people not making use of the public health system and relying on private health-care and Bhopas? This is a population where almost no one is really rich and the poor, who are just as reluctant to use the public system as anyone else, are actually extremely poor.

[6] The percentage do not necessarily add up to 100, because some people did not know whether some facilities were public or private.

In part the answer must lie in the way the public system actually works. Public health facilities were surveyed weekly, and we have on average 49 observations per facility. Table 4 summarizes the main results. It conveys the impression that things are not working the way they are supposed to be. On average, 45% of the medical personnel are absent in subcenters and aid posts, and 46% are absent in the (larger) Primary Health Centers and Community Health Centers. These high rates of absences are not due to staff outreach activities since, whenever the nurse was absent from a subcenter, we made sure to look for her in the community. Since subcenters are often staffed by only one nurse, this high absenteeism means that these facilities are often closed: we found the subcenters closed 56% of the time during regular opening hours. Only in 12% of the cases was the nurse to be found in the catchment area of her subcenter. The situation does not seem to be specific to Udaipur: these results are similar to the absenteeism rate found in nationally representative surveys in India (where absenteeism in PHCs was found to be 43%) and Bangladesh (where it was found to be 35%) (Chaudhury et al. (2003), Chaudhury and Hammer (2003)).

Table 5 reports results on the kinds of facilities we are most likely to find closed. The 6% of subcenters that are far from the road have only 38% of the personnel present, compared to about 55% for the average. Facilities that are closer to Udaipur or to another town do not have lower absenteeism. The available amenities (water, electricity) do not seem to have a large impact, except for the presence of living quarters, which has a large impact on the fraction of personnel present, particularly in subcenters. Reservations of the position of chairperson (Sarpanch) of the panchayat to a woman have no impact on subcenters, and seem to be associated with increased presence in PHCs.

The weekly survey allows us to assess whether there is any predictability in the fraction of staff present at a center or subcenter. Table 6 show a regression of the fraction of missing personnel on facility dummies (columns to 1 to 3), day of the visit dummy, and day of the visit interacted with facilities dummies (in column 2) and time of the visit dummy, interacted with facility dummies (column 3). The facility dummies are strongly significant, with F statistics of 6.16 for the subcenters, and 17.5 for the PHC and CHC. There are clearly better and worst facilities. However, the F.statistics for the interaction between day of the week and the time of the day and the facility dummies are much smaller. For each center, we ran a regression of the fraction of personnel missing on dummies for each day of the week, time of the day, and seasonal dummies. We find that the day of the week dummies are significant at the 5% level in only 10% of the regressions for the subcenters, and in none of the regression for the PHC and CHC; the time of the day dummies are significant only in 17% of the regressions for the PHC, and 9% for the subcenters. The public facilities are thus open infrequently and unpredictably, leaving people to guess whether it is worth their while walking for over half an hour to cover the 1.4 miles that separate the average village in our sample from the closest public health facility. Indeed, the probably that a center is open more often is correlated with lower utilization of these facilities: in random visits, we find that, on open days, public facilities where the personnel are present more often have significantly more patients than those where the personnel is present less often. In the household survey, we find that, in villages that are served by a facility that is closed more often, the poor (though not the middle class or the rich) are less likely to visit the public facilities, and more likely to visit the bhopa. Of course, the causality could be running either way; from utilization to presence of the personnel, or from presence of the personnel to utilization.

Visits to the public health facilities are therefore often frustrating; they are also not cheap. Columns (1) to (3) in table 3 list the expenditure per visit. For the poor, each visit to a public facility costs Rs. 71, compared to Rs. 84 for visiting a private doctor and Rs. 61 for going to the Bhopa. In other words, visits to the public facilities are not much cheaper than going to the private doctor, who moreover, is probably easier to find. The gap is larger for the middle group who actually spend less per visit to public facility in absolute terms than the poor (although the difference is not significant) and about 50% more per visit to a private facility, but about the same size again (in proportional terms) for the rich. The larger expenditure per visit for the rich disappears completely when village fixed effects are allowed for, and is likely attributable, as before, to the location of the rich relative to the poor.[7]

Given that public facilities are meant to be free, why do they cost about as much as the private facilities? It is true that lab tests are not free but only 4% of all visits lead to lab tests. A more plausible explanation is that, in practice, the public facilities do not always provide free medicines. Government stipulates that medicine must be supplied for free as long as they are available, but that when the medicine is not available, the medicine needs to be purchased from the market. Another possibility is to purchase the medicine from the private stock of the health provider at the public facility, and there is evidence of this in our data, since we often observe people paying for medicine purchased inside the facility. Even a scheme to help those who are officially designated as "below the poverty line", to avoid even these costs (the doctor or the nurse is supposed to purchase the

[7] The large difference in the cost of public visits between the top third and the rest of the population is due to some extent to a few large expenses (in excess of 800 rupees), that never occur in the rest of the sample. But even when we do not include these 5 large data point, the average expenditure of the rich at each visit is still Rs 95, substantially more than for the other categories.

medicines for them) does not appear to adequately cover the poor: they too end up paying only 40% less in public facilities than others.

It is also possible that the public health official charges for his services. This is not necessarily illegal, since they are allowed to practice outside office hours, and it is possible that our respondents are not always making a distinction between what the public official does during office hours and what he does after hours. The fact remains however that they are not getting free health care at the public facilities.

6. Private health care facilities

The main sources of health care in the system are the private practitioners. The public health professionals are required to be qualified and there are precise rules about what they can and cannot treat (ANMs are not allowed to treat malaria for example). By comparison, the private sector is often untrained and largely unregulated, even if exclude the bhopas. We have conducted a survey of all the private facilities mentioned in the village level interview, asking them about their qualifications, the types of diseases they treated, and the types of treatment the used. [8] Table 7 presents private doctors' self-reported qualification. According to their own report, 41% of those who called themselves "doctors" do not have a medical college degree. 18% have no medical or paramedical training whatsoever (including one week courses). 17% have not graduated from high school.[9] Given the symptoms reported by the villagers, the treatment that they report receiving in these facilities appears rather heterodox: in 68% of the visits to a private facility the patient is given an injection; in 12% of

[8] We are currently collecting data on all doctors mentioned in the household level interviews.
[9] These statistics are based on a partial sample of 72 doctor

the visits he or she is given a drip. A test is performed in only 3% of the visits. In public facilities, they are somewhat less likely to get an injection or a drip (32% and 6% respectively) but no more likely to be tested. Among private doctors, in this sample, it does not appear that more qualified doctors are less likely to administer shots: if anything, it seems to be the opposite.

7. Conclusion

The picture painted by our data is bleak: villagers' health is poor despite the fact that they heavily use health care facilities and spend a lot on health care. The quality of the public service is abysmal and unregulated and private providers who are often unqualified provide the bulk of health care in the area. Low quality public facilities also seems to be correlated with worse health: Controlling for age, gender, distance from a road, and per capita monthly expenditures, lung capacity and body mass index are lower where the facilities are worse.

Yet, as we have already seen, villagers seem pretty content with what they are getting. 81% report that their last visit to a private facility made them feel better, and 75% report that their last visit to a public facility made them feel better. Self reported health and well being measures, as well as the number of symptoms reported in the last month appear to be uncorrelated with the quality of the public facilities. The quality of the health services may impact health but does not seem to impact people's perception of their own health or the health care they are getting, perhaps because they have come to expect very little.

Improving the quality of health care in an environment where the clients themselves are not particularly interested in complaining about they are getting, will not be easy. The onus will have to be completely with the state, either in its capacity as a direct provider or as a regulator, and it is not

clear that it is particularly well prepared for this additional burden.

REFERENCES

Chaudhury, Nazmul and Jeffrey Hammer (2003) Ghost Doctors: Absenteeism in Bangladeshi Health Facilities MIMEO, Development Research Group, World Bank

Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Kartik Muralidharan and Halsey Rogers (2003) Teachers and Health care providers Absenteeism: A multi-country study, MIMEO, Development Research Group, World Bank

Commission on Macroeconomics and Health, 2001, *Macroeconomics and health: investing in health for economic development*, Geneva. World Health Organization.

Das, Jishnu (2001), "Three essays on the provision and use of services in low income countries", Ph.D. dissertation, Harvard University.

Fogel, Robert W., 1997, "New findings on secular trends in nutrition and mortality: some implications for population theory," in Oded Stark and Mark Rosenzweig, eds., *Handbook of Population and Family Economics,* Amsterdam, Elsevier, 433-81.

Murray, Christopher J. L.,. and Lincoln C. Chen, 1992, "Understanding morbidity change," *Population and Development Review*, 18(3), 481-503.

Sadana, Ritu, Ajay Tandon, et al. (2002), "Describing population health in six domains: comparable

results from 66 household surveys," Geneva, World Health Organization. GPE Working Paper No. 43.

Sen, Amartya K., 2002, "Health: perception versus observation," *British Medical Journal*, 324, 860-1.

Sen, Gita, Aditi Iyer and Asha George (2002), "Structural Reforms and Health Equity: A Comparison of NSS Surveys, 1986-87 and 1995-96," *Economic and Political Weekly*, April 6, 2002, 1342-1352.

Table 1: Selected health indicators, by position in the income distribution

group	self reported	No. of symptoms in last 30 days	BMI	hemoglobin below 12 g/dl	peak flow meter reading	high blood pressure	low blood pressure
bottom third	5.87	3.89	17.85	0.57	314.76	0.17	0.06
middle third	5.98	3.73	17.83	0.59	317.67	0.15	0.08
top third	6.03	3.96	18.31	0.51	316.39	0.20	0.09

Table 2: frequency of health care visits

	Per capita monthly expenditure	Total number of visits in the last 30 days			
		ALL	Public	Private	Bhopa
PANEL A: MEANS					
ALL	470	0.51	0.12	0.28	0.11
poor	219	0.43	0.09	0.22	0.12
middle	361	0.54	0.11	0.29	0.13
rich	770	0.55	0.15	0.33	0.07
PANEL B: OLS REGRESSIONS: dependent variable: number of visits					
Middle		0.11	0.02	0.07	0.01
		(.052)	(.023)	(.034)	(.027)
Rich		0.12	0.06	0.11	-0.05
		(.05)	(.024)	(.034)	(.022)
PANEL C: OLS REGRESSIONS, WITH VILLAGE FIXED EFFECTS					
Middle		0.14	0.02	0.09	0.02
		(.047)	(.024)	(.033)	(.023)
Rich		0.13	0.04	0.11	-0.03
		(.05)	(.026)	(.036)	(.025)
Villages Fixed effects		yes	yes	yes	yes

Note: Omitted dummies in panel B and C: poor
Standard errors in parentheses below the coefficients

Table 3: Expenditure on health visits

	household monthly health expenditure			Average adult monthly expenditure on:				Average cost per visit			
	level		share/monthly exp.								
	expenditure survey	individual surveys	individual surveys	All visits	share public	share private	share bhopa	all visits	Public	Private	Bhopa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
PANEL A: MEANS											
ALL	286	196	0.07	59	0.18	0.66	0.15	117	113	144	74
poor	70	99	0.07	32	0.13	0.61	0.24	72	71	84	61
middle	162	195	0.09	52	0.14	0.68	0.17	95	52	130	76
rich	571	286	0.08	88	0.23	0.68	0.09	166	173	191	90
PANEL B: OLS REGRESSION											
middle	92	96	0.02	19	0.01	0.07	-0.07	23	-19	46	16
	(21)	(38)	(.018)	(8)	(.042)	(.051)	(.041)	(12)	(24)	(20)	(31)
rich	500	187	0.01	55	0.10	0.07	-0.16	94	102	107	29
	(109)	(34)	(.012)	(12)	(.042)	(.053)	(.041)	(24)	(45)	(35)	(34)
PANEL C: OLS REGRESSIONS, WITH VILLAGE FIXED EFFECTS											
middle	92	63	0.02	16	0.01	0.08	-0.07	5.7	-33	0.46	-7.9
	(21)	(39)	(.015)	(12)	(.04)	(.049)	(.039)	(26)	(78)	(42)	(36)
rich	500	135	0.01	43	0.05	0.07	-0.10	76	-21	73	81
	(109)	(42)	(.016)	(13)	(.042)	(.052)	(.041)	(28)	(86)	(43)	(49)
village fixed effects	yes	yes		yes	yes	yes	yes	yes	yes	yes	yes

Table 4: Continuous facility survey: summary statistics

	Subcenters & aidposts	PHC & CHC
doors closed	0.56	0.03
no personnel found	0.45	0.03
fraction of medical personnel found	0.55	0.64
doctor is appointed	0	0.89
fraction of doctors present	--	0.55
at least one medical personnel is missing	0.56	0.78
observations	5268	1716
number of facilities	108	35
number of visits per facility	49	49

Table 5: Absenteeism by types of facilities

	number of visits	Fraction of medical personnel present	
		Subcenters & aidposts	PHC & CHC
Distance from road			
0 Km from road	5103	0.56	0.65
>0 and <=5 Km from road	1478	0.55	0.63
>5 Km from road	403	0.38	
Distance from Udaipur			
closest to udaipur	2315	0.53	0.61
farther	2254	0.58	0.68
farthest	2415	0.54	0.66
Distance from the nearest town			
closest to town	2350	0.56	0.64
farther	2396	0.55	0.75
farthest	2238	0.54	0.59
Reservations for women			
no reservation for women	2583	0.57	0.50
reservation for women	1843	0.56	0.68
Electricity			
no electricity	3123	0.56	0.60
electricity	1564	0.52	0.65
Water			
in facility	757	0.53	0.61
less than 30 meters from facility	2365	0.57	0.68
30 to 100 meters from facility	794	0.49	0.62
more than 100 meters from facility	771	0.59	0.62
Medical personnel living in facility			
no medical personnel living in facility (with living quarters)	2640	0.56	0.80
at least one medical personnel living in facility	853	0.64	0.69
no living quarters available	3171	0.49	0.64

Note: some data covers only a subset of facilities

Table 6: Pattern in center opening

	Dependent variable: Fraction of medical personnel present					
	Subcenters and Aidposts			**PHC and CHC**		
A. F statistics						
Facility dummies	6.16	6.13	5.62	17.51	16.77	17.12
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Day of visits dummies	no	1.99	no	no	1.49	no
		(0.09)			(0.2)	
Facility dummies* day	no	1.17	no	no	1.06	no
		(0.01)			(0.3)	
Time of visit dummies	no	no	5.35	no	no	9.57
			(0.02)			(0.00)
Facility dummies* time of visit	no	no	1.19	no	no	1.91
			(0.05)			(0.00)
Adjusted R2	0.12	0.13	0.13	0.21	0.22	0.23
Observations	6342	6342	6327	2078	2078	2074
B. Fraction of facility level regressions where the dummies are jointly significant						
Day of visit dummies	0.095			0.000		
Time of the day dummies	0.086			0.171		

Note: 1. Panel A report F statistics and p value for the joint hypothesis that the dummies are significant in a regression where the dependent variable is the fraction of personel present on the day of the visit

2. Panel B reports the results from running a separate regression for each facility, where the dependent variable is the fraction of person present on the day of the visit, and the explanatory variables are days of the visit dummies, time of the visit dummies, and season dummies.

Table 7: Private doctors qualification

Fraction of doctors who have	
Not graduated from class 10	0.08
Not graduated from class 12	0.17
No medical or paramedical training	0.18
No college diploma	0.42
No college degree as doctor	0.41
No medical training whatsoever	0.82
Observations	72