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Title: Socioeconomic and Institutional Determinants of Healthcare Provider Choice in India

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Abstract:
The healthcare delivery system in India has been broadly characterized, yet micro-evidence on the determinants of healthcare provider choice is inadequate. Using nationally representative data from the District Level Household Survey (DLHS-3) 2007–08 of India, we built a multinomial probit model to examine the determinants of a household's choice of treatment provider among a government hospital, primary or community health center, other public healthcare facility, and a private provider. We find that poorer or ethnic and religious minorities are more likely to visit a public healthcare provider than a private provider. Supply-side and quality perception data on public facilities suggest that supply-side inputs, such as medical staff, hospital equipment, and availability of drugs, do not have a strong association with choice patterns, but quality perception is positively correlated with choice. Additionally, distance to facilities and the level of dissatisfaction with public providers within the community have a strong negative influence on a household's choice of public healthcare facilities.

1. Introduction

Although the Indian public healthcare delivery system has improved during recent decades, a majority of Indians continue to seek expensive private healthcare. Nationally, 63% of rural and 70% of urban households visit a private provider for treatment [1], and the proportion may be as high as 92% in some rural areas [2], [3]. With 69.7% of the total spending on health in India being private expenditure, and 86.4% of all private expenditure being out-of-pocket (OOP), the economic burden of seeking private care in India is also disproportionately large compared with that in many other developing countries [4], [5]. As many as 63.2 million Indians are pushed into poverty every year by catastrophic OOP medical expenditure [5–8].

Despite many studies analyzing macro-level supply-and-demand factors that affect the public-private distribution of provider choice and quality of care in India [9], there remains a large gap in the literature evaluating micro-evidence on factors influencing treatment demand at the household or individual level. In this paper, we analyze the determinants of a household's choice of healthcare provider in India using nationally representative data from the District Level Household Survey (DLHS-3) 2007–08. We use a multinomial probit model to analyze households' choice of a government hospital, primary or community health center, or other public provider, versus visiting a private provider. Though the conclusions of this paper are limited by absence of data on the quality of private healthcare, we find that socioeconomic factors and the quality of public facilities are among the major determinants of provider choice.

Among socioeconomic factors, with a rise in the standard of living (as measured by wealth quintiles), households are progressively less likely to visit a public healthcare provider. We also find that ethnic and religious minorities are more likely to visit public facilities. Availability of a

nearby provider and the perceived quality of a public provider also play a crucial role in influencing household treatment choices[1]. In rural areas, we find that households are less likely to visit a provider situated farther away from a village.

Previous studies have evaluated some of the factors mentioned above, but it remains difficult to accurately measure the quality of a healthcare provider and its effect on a household's choice. Conceptually, quality can be measured in terms of three attributes – structure, process, and outcome [10–12]. Structural factors, such as physical infrastructure of healthcare facilities and the availability of personnel and drugs, are important determinants of healthcare access in countries such as India [11], but studies have increasingly noted that providers do not necessarily use additional infrastructure to improve quality [13], [14].

An alternative is to use process as a measure of quality. Researchers often use this approach to focus on the quality of medical advice offered to patients. Recent studies have analyzed the medical competence of doctors and the effort exerted by them in India and other low-income countries [13–17]. Using medical vignettes and direct observation, the authors find stark differences in doctors' competence and quality between public and private sectors and richer and poorer neighborhoods. In particular, poor patients suffer more because they can access only less competent doctors, who exert less effort to treat them. Furthermore medical vignettes evaluating prescription quality of doctors and clinicians in rural PHCs of Chhattisgarh for specific ailments

[1] Poor quality of healthcare, specifically private healthcare, is a big concern [9], [13], [14], [16], [41], [42], [47], [48], especially in rural areas, where private providers are the dominant market players in the absence of a universally accessible network of public healthcare facilities [9]. For instance, Duflo et al. [41] find that less than 40% of the private providers in Rajasthan have a medical degree, and Nandraj and Duggal [49] show that close to half of rural private healthcare providers in Maharashtra were unregistered, with almost 30% of these facilities run by doctors without formal allopathic training.

also find that the quality of medical care is low and varies by the competence levels of various types of physicians and clinicians [18].

The final component in the conceptual framework of quality is outcome. Measures reflecting the success rates of treatment (e.g., number of deaths averted) across facilities for specific ailments would capture this element [19], [20]. Unfortunately, in developing countries, process and outcome measures at the scale of a health system are difficult to obtain. As a result, structural measures are often used as a proxy for quality despite their shortcomings.

Taking those challenges into consideration, our study evaluates the effect of the quality of public healthcare facilities on Indian households' provider choice in two ways. We first consider a series of structural indicators that measure the availability of drugs and equipment plus the availability and quality of medical personnel in public primary and secondary health centers. Our results show that these factors are not strongly associated with a household's choice of provider. Recognizing the limitations of structural measures of quality [13], [14], we also use households' perceptions, instead of the above structural inputs, to measure the quality of public healthcare providers. We find that the average perception of quality in a community is a strong positive determinant of the likelihood that an individual household will visit a public healthcare provider.

1.1. Existing Micro-evidence on Healthcare Provider Choice in India

Several studies have examined the determinants of provider choice in other countries [21–28], but only a few have evaluated it for India. Sawhney [29] finds that socioeconomic factors are not as important as geographic access in determining the use of maternal health services, particularly in rural areas with limited health services. Contrarily, [30] found that economic status in combination with disease severity significantly affected parent's decision to seek treatment for

their children in case of diarrhea or acute respiratory infection. However, research from other parts of the world downplays the significance of price of healthcare, arguing that it neither affects healthcare demand nor influences provider choice decisions [21], [22], [24].

Contrary to those findings, others [31–33] observe that in addition to distance, prices and income are statistically significant determinants of an individual's choice of healthcare provider in rural India. Using data from the National Sample Survey of India, Borah [31] analyzes the determinants of outpatient healthcare provider choice in rural India using a mixed multinomial logit model and finds that price, income, and distance to a health facility play statistically significant roles in healthcare provider choice decisions. The author also finds that low-income groups are more price sensitive than high-income ones. Similarly, Sarma [33] finds that whereas demand for healthcare is price and income inelastic, an individual's choice of provider is significantly influenced by prices, income and distance. This result is supported by Kesterton et al. [32], who find that although wealth status is the most important factor, distance to the nearest hospital is also an important determinant of institutional delivery in rural India.

2. Methods

We use data from the District Level Household Survey (DLHS-3) 2007–08 of India. DLHS-3 is a cross sectional survey of more than 720,000 households from 601 districts in India, excluding the state of Nagaland. The primary respondents of the survey are ever-married women of reproductive age (15–49 years old), and more than 75% of the surveyed households are from rural areas. DLHS-3 collected information on a range of demographic and socioeconomic characteristics of households and their members, such as living conditions, asset ownership, age,

sex, religion, and caste. The focus of the survey is reproductive and child health, including prenatal, postnatal and pregnancy care, immunization and child morbidity, and family planning.

Additional data were also collected on the reproductive health of 15- to 24-year-old unmarried women.

For rural areas, a village questionnaire collected data on the availability of various facilities and services, such as doctors and other medical staff, healthcare and educational facilities, post office, bank, paved road, and various government schemes. If a health facility was not available in the village, the distance to the nearest facility was recorded.

We construct the outcome variable of our regression analysis from a household-level question about the usual choice of healthcare provider by household members ("When members of your household get sick, where do they mainly go for treatment?"). We exclude 4.37% households who do not seek formal care (categorized as non-medical shop, home treatment, or others) and combine the other 17 possible responses (e.g., government hospital, dispensary, primary health center, private hospital) to this question into four broad groups – government hospitals (19.45%), public primary or secondary health centers (32.67%), other public providers (8.20%), and private providers (39.68%).

We define the treatment provider choice for the $i-th$ household as follows:

$$T_i \begin{cases} = 1 & if\ the\ household\ visits\ a\ government\ hospital \\ = 2 & if\ the\ household\ visits\ a\ PHC\ or\ a\ CHC \\ = 3 & if\ the\ household\ visits\ any\ other\ public\ facility \\ = 4 & if\ the\ household\ visits\ a\ private\ provider \end{cases}$$

where PHC and CHC stand for primary and community health center, respectively. We estimate a household-level multinomial probit regression (with state fixed-effects) of the following form:

$$T_{im}^{*} = \alpha_m + X\gamma_m + D\delta_m + Q\tau_m + \epsilon_{im} \qquad (1)$$

where $m = 1, 2, 3, 4$ for the four choices of providers. T_{im}^* is a latent variable such that

$$T_i = m \;\; if\; T_{im}^* = \begin{cases} m & if\; T_{im}^* = \max(T_{i1}^*, T_{i2}^*, T_{i3}^*, T_{i4}^*) \\ 0 & otherwise \end{cases}$$

We report our results by considering private providers as the base or excluded category of the regression. The error terms ϵ from the four equations in (1) are assumed to be correlated to each other and jointly normally distributed:

$$\epsilon \sim N(0, \Sigma) \;\; ; \;\; \Sigma = I \otimes \begin{pmatrix} \sigma_{11} & \cdots & \sigma_{1m} \\ \vdots & \ddots & \vdots \\ \sigma_{m1} & \cdots & \sigma_{mm} \end{pmatrix}$$

Among the explanatory variables, $\boldsymbol{X}$ is a vector of household characteristics. It includes indicators for caste (scheduled caste, scheduled tribe, and other backward classes) and religion (Muslim, Christian, or Sikh), demographic composition of the household (share of women and children), and household head's age, education, and sex.

A household's standard of living is likely to be a very important determinant of provider choice. Since DLHS data do not include household income or expenditure, we create a composite index of household standard of living following Filmer and Pritchett [34]. The variables that are used in the principal component analysis for creating this index are indicators of living conditions, such as quality of housing construction, availability of toilets, sources of drinking water, and the type of cooking fuel used, along with the possession of various assets (e.g., TV, radio, bicycle,

car). Households are then divided into five wealth groups based on the estimated composite index, and indicators of the top four quintiles are included in $\boldsymbol{X}$.

The costs of consultation, diagnostic tests, and treatment are likely to affect the choice of care provider. Since DLHS does not collect such data, we estimate the average district-level household expenditure on medicines, doctor fees, and hospital charges from the National Sample Survey (NSS) of India 61st round (2004–05) and include them in $\boldsymbol{X}$. Also included are the district-level shares of households that are on or below the 30th percentile of asset index distribution (as a measure of district poverty rate) and the share of households with health insurance.

Using data from the village questionnaire, we include a set of variables (denoted by $\boldsymbol{D}$) that measure the distance (in kilometers) of various types of healthcare facilities from the village. For urban households, these data are not available and we assume $\delta_m = 0$.

Finally, we capture the effect of the quality of public healthcare providers on households' decision-making process. In India, what constitutes a good measure of such quality is not yet fully established [9]. We consider two alternative measures. First, we use data on various infrastructure, equipment, drugs, and human resources for public health facilities surveyed under DLHS-3[2] to construct four indicators for the availability of medical staff (percentage of filled positions out of six), drugs (percentage available out of 13 drugs), equipment (percentage

[2] DLHS-3 administered facility level questionnaires for primary health subcenters, PHCs, CHCs, and district hospitals. Data were not collected on private healthcare providers, and all but the district hospital data have been released.

available out of 17 primary, secondary, and procedural items), and training status of staff (percentage received out of nine basic training courses) for each PHC and CHC (see Appendix, Table 1). However, since these data can be matched with the household data only at the subdistrict or *taluk* level (there can be up to 19 sample PHCs or CHCs in a *taluk*), we take the *taluk*-level average value of each indicator and include them as $\boldsymbol{Q}$ in equation (1).

Since supply-side inputs may not entirely determine treatment demand, and quality as perceived by consumers could be a better measure, we construct a measure of perceived quality in the following way. For households that do not visit a public healthcare provider, DLHS-3 collected data on 11 reasons for not visiting, such as poor physical infrastructure of clinics, lack of doctors, staff absenteeism, and long waiting time. Within each *taluk*, we estimate the average number of such complaints (a household can report multiple complaints) as a ratio of total number of complaints and the number of households. Then, we estimate equation (1) separately by considering this as a measure of perceived quality ($\boldsymbol{Q}$). This second model does not include any previously mentioned supply-side inputs in $\boldsymbol{Q}$.

Each of the two regression models is also estimated separately for rural and urban households. For the sake of comparison, we estimate a final set of rural and urban regression models that exclude quality indicators (i.e., $\tau_m = 0$). To control for state-level factors that may affect

provider choice, all our regression models include state fixed-effects.[3] Regression errors are robust and clustered at the district level.

3. Results and Discussion

Results from the regression model without any measure of provider quality are presented in the Appendix, Table 2. Building on this base model, Tables 3 and 4 present results of analyses that include supply-side health system inputs and perceived quality (complaints), respectively. The base category in all our models is private providers, and because of space constraints, we will focus our discussion mainly on the choice of district hospitals or PHCs and CHCs.

Our results indicate that standard of living, as measured by wealth quintiles, is a major driver of provider choice, and more so in rural areas. Compared with the poorest wealth quintile, richer households are less likely to visit any type of public provider, and the effect size grows with rising living standards. This finding echoes similar findings in previous literature [31], [32]. However, there is no significant difference in the use of government hospitals in urban areas across wealth quintiles (except for the richest).[4] Urban areas typically have larger tertiary-care facilities (e.g., a district hospital, which is generally the largest and best public health facility in a district). Therefore, it is no surprise that most wealth groups generally access these higher-quality facilities. Finally, our results show that households in poorer districts (as measured by the

[3] We combine the smaller northeastern states into one group before creating state dummy variables.
[4] The lack of significant difference across wealth groups is also seen for the usage of other types of public facilities in urban areas. The category "other public facilities" mostly includes facilities that are more prevalent in rural areas, such as primary health subcenters, *Anganwadi* centers etc. Therefore, different urban wealth groups are more likely to be indifferent in using these services.

poverty rate) are more likely to visit PHCs and CHCs in both rural and urban areas, and other public providers in rural areas, compared with private providers.

We also find evidence of greater use of all types of public providers by scheduled caste, scheduled tribe, and other backward class households. These population subgroups are generally poorer and live in more remote areas (especially tribal groups). The greater likelihood of their visiting public providers, even after controlling for standard of living, indicates that public healthcare resources may be well targeted toward the communities with a greater need. Borah [31] also finds that scheduled caste and tribal groups (especially children) are more likely to visit a public care provider, and Banerjee and Somanathan [35] argue that with growing political power, backward caste groups are increasingly successful in bringing public goods to their communities.

Households that belong to districts with a high coverage of health insurance are typically less likely to visit public providers. Health insurance coverage is low (less than 10%) and strongly associated with higher income in India [1], [36], possibly leading to this behavior. Similarly, we find a negative association between medical payments (in particular, doctors' fees) and choosing a public provider. Since richer households can visit more expensive private doctors, this result is also expected.

Among other household characteristics, we do not find a very strong association between religion and treatment-seeking behavior (Tables 2 and 3). Sikhs are less likely to seek treatment at public facilities, possibly because of their higher standard of living (e.g., Punjab, one of the wealthier states, has a high concentration of Sikhs). Also Muslims, who are often socioeconomically disadvantaged, have a higher likelihood of choosing urban government hospitals and rural PHCs or CHCs. Among demographic variables, we find that larger

households or those with a higher share of children are often less likely to choose a public provider [31].[5]

However, the share of women in the household does not have any effect on the choice of care provider, possibly because Indian women's weak intrahousehold bargaining power [37–39]. Similarly, female-headed households choose private providers over public in a few cases but are largely indifferent between the two types of providers. On the other hand, households with older heads are generally more likely to choose public providers, and those with more educated heads are less likely choose PHCs or CHCs and other public providers but visit government hospitals more often.

The "three delays model" of healthcare-seeking behavior cites three reasons for delayed healthcare access: (1) delay in deciding to seek treatment (related to the patient's or caregiver's lack of knowledge about the disease or condition), (2) delay in reaching a healthcare provider (related to distance and other accessibility problems), and (3) delay in receiving the care (related to the availability of staff, drugs, equipment, and other supply-side factors) [32], [40]. Thus availability of a nearby facility (as measured by the distance) can be an important determinant of provider choice. In all models, the greater the distance from a village to a government hospital, PHC, or CHC, the less likely are households to visit that particular type of facility (also seen in

[5] However, we also find that poorer households (which tend to have more children and larger households) are more likely to choose public providers. This apparent contradiction may be driven by the so-called income effect of childbearing. With a rise in income, parents generally substitute quality for quantity of children, leading to a demographic transition [50], [51]. However, higher income may also mean that children are more affordable and fertility rates may rise.

the previous studies [31]). Although this "own effect" is negative, cross partial effects are generally positive. For example, households are more likely to visit PHCs and CHCs when private providers or government hospitals are farther away.

Table 3 presents the regression models with facility level inputs. We do not observe a strong association of the availability indices of staffing, drugs, equipment, and staff training with provider choice. In some cases, the availability of staff or drugs has a negative effect on the probability of visiting public providers. This can be driven by the underlying standard of living in a community. Wealthier neighborhoods or population subgroups are likely to attract more public goods [35], and such households also tend to choose private providers more. Alternatively, the negative coefficients may also signify a reverse causality: communities that use public healthcare providers at a greater rate may experience lower availability of certain inputs, such as drugs and functioning equipment. Also, staff absenteeism rates may vary across regional settings [13], [16], [41], [42] and may be correlated with living standards, thereby biasing our results. Because of data paucity, incorporating these factors is beyond the scope of our study.

Results from models with perceived quality indicators are presented in Table 4. We find a strong negative association between the average *taluk*-level number of complaints and the choice of public providers, with the strongest effect in the case of choosing PHCs and CHCs. These results indicate that consumers' perceptions may measure the quality of service delivery better than supply-side indicators [15], [17], [43], [44], and households may decide to visit public providers based on the average perception in their community. However, there may once again be some reverse causality in this relationship. Perception levels may be determined by people's choice of provider, and not the opposite. The better the actual quality of service delivery at a public

provider, the more people will visit, and this in turn will improve the average perception of quality. Unfortunately, such dynamics factors cannot be captured in our static framework.

Furthermore, in the absence of data, we implicitly assume that private sector quality remains unchanged, the effect of quality in our analysis is likely to be attenuated if private sector quality is highly variable but uncorrelated with public sector quality, and biased if there is correlation. For example, there may be market competition between public and private facilities. Any improvement in the quality of a public provider may therefore induce the local private providers to improve their quality to a similar or higher level.

Although our results are limited by the lack of data on quality of private facilities, other studies, such as the India Human Development Survey 2004-05 (IHDS), provide some comparisons of public and private healthcare in India [45]. The IHDS report points to the near-universal accessibility of public facilities but finds a preference for private providers among consumers. Also, public facilities surveyed by IHDS are generally better equipped in terms of infrastructure and human resources (better-trained doctors) compared with their private counterparts. However, the survey also notes that doctors were available only 76% of the time during a visit at public facilities, compared with 87% at private facilities[6].

Differences in the perception of healthcare quality between public and private facilities extend beyond India as well. In Bangladesh, a study comparing the quality of services provided by public and private hospitals in Dhaka found that private facilities performed much better on attributes of "responsiveness, communication and discipline (measured by perceptions of

[6] There is a tremendous variation in quality within public and private providers. Government facilities range from high-quality providers, such as the All India Institute of Medical Sciences, capable of performing complex surgeries, to poorly equipped village subcenters. Private facilities range from dispensaries run by untrained and unlicensed individuals to high-technology, for-profit hospitals catering to medical tourists from abroad.

maintenance of facility, absenteeism and performance of staff etc.)" [46]. If such differences in perceived quality between private and public providers exist in our underlying data, and if they are correlated, it may bias our estimates.

There are two other limitations to our study. First, since we combine data from various surveys (e.g., different questionnaires of DLHS-3, and NSS 61st round), our regression sample contains only the data from *taluks* or districts that are present in all sources. Our working sample contains households from 463 to 494 districts (depending upon the regression model) instead of the full 601. However, the sample attrition does not appear to be systematic and therefore may not bias our results. Second, since the primary respondents of DLHS-3 are ever-married women of reproductive age, the choice of provider may be more relevant for reproductive and child health matters, even though the survey question is on the "usual choice" of all household members, and the overall choice patterns generally match with other Indian datasets [1].

4. Conclusion

In this study, we characterize the healthcare provider choice patterns of Indian households from a large socioeconomic survey. We find that standard of living, caste, and characteristics of the household head are among the important determinants of provider choice. In general, those who are socioeconomically disadvantaged are more likely to visit government facilities than private ones. Supply-side inputs such as medical staff and drugs do not seem to have a strong association with choice patterns, possibly because of unobserved factors not captured in our model. However, we find a strong negative effect of accessibility (distance to a facility) and community-level dissatisfaction about public providers on the choice of government facilities.

Understanding the factors that affect household choice are of great policy relevance. It can help policymakers identify regions and demographic or socioeconomic subgroups that require additional public health resources, and indicate the pathways of improving quality of service delivery that ultimately affect people's behavior. However, considering the absence of accurate measures of service quality, further research is needed.

Ideally, a study should rely on outcome quality measures (such as facility-level mortality rates) that can be systematically compared across both public and private facilities. However, standardized measures of facility quality that are widely accepted by researchers and policymakers are yet to be developed in India. In addition, there has been very little effort to understand the dynamics of India's private healthcare sector. Despite these limitations, our study makes an important first contribution to characterizing the determinants of provider choice, and it should be followed up by additional research.

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6. Tables and Figures

Table 1: Supply-side staff, training, drugs, and equipment availability considered

No.	Staff positions	Training courses	Drugs	Equipment
1	Medical officer	Whether training organized	Antiallergics	Generator
2	Lady medical officer	Immunization training	Antihypertensive	Functional toilet
3	Staff nurse	Non-scalpel vasectomy training	Antidiabetics	Telephone facility
4	Pharmacist	Medical termination of pregnancy training	Antianginal	Personal computer
5	Lab technician	MiniLap tubectomy training	Antitubercular	Facility vehicle
6	Female health worker	Reproductive tract infection training	Antileprosy	Labour room
7		Management of obstetric training	Antifilarials	Shadowless lamp for operation theatre
8		Integrated management of neonatal and child illnesses training	Antibacterials	Instrument trolley
9		Skilled birth attendant training	Antihelminthic	Sterilization instrument
10			Antiprotozoal	Instrument cabinet
11			Antidotes	Blood stand
12			Solutions correcting water and electrolyte imbalance	Stretcher on trolley
13			Essential obstetric care drugs	IUD insertion kit
14				Normal delivery kit
15				Neonatal equipment
16				Standard surgical set
17				Centrifuge

Table 2: Multinomial probit model of provider choice without quality measures (base category = private provider)

	Government hospital		PHC or CHC		Other public facility	
Treatment choice	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Household size	-0.009***	-0.013***	-0.017***	0.001	-0.031***	-0.024***
Proportion of women in household	-0.003	0.018	-0.013	0.052	0.021	0.007
Proportion of children (under 18) in household	-0.06**	0.015	-0.043*	0.096**	0.033	0.06
Whether household head is female	-0.049	-0.003	0.017	-0.001	-0.026	-0.157***
Age (years) of household head	0.004***	-0.001	0.003***	0.002***	0.002***	-0.002
Education (years) of household head	0.007***	-0.022***	0.002	-0.021***	-0.006***	-0.027***
Scheduled caste household	0.18***	0.287***	0.201***	0.126***	0.204***	0.297***
Scheduled tribe household	0.253***	0.548***	0.359***	0.372***	0.475***	0.407***
Other backward caste household	0.006	0.066*	0.025	0.118***	0.057	0.039
Muslim household	-0.01	0.133***	0.116**	0.069	0.055	0.067
Christian household	-0.036	0.102	-0.22**	-0.152	-0.15	-0.105
Sikh household	-0.144**	-0.057	-0.26***	-0.235***	-0.325***	-0.037
Wealth quintile 2	-0.057**	-0.043	-0.139***	-0.189***	-0.158***	-0.062
Wealth quintile 3	-0.066*	-0.013	-0.285***	-0.282***	-0.269***	-0.092
Wealth quintile 4	-0.219***	-0.042	-0.523***	-0.627***	-0.503***	-0.239***
Wealth quintile 5	-0.64***	-0.472***	-1.042***	-1.402***	-0.978***	-0.598***
Distance to nearest PHC or CHC (km)	-0.001		-0.017***		-0.003**	
Distance to nearest district hospital (km)	-0.008***		0.004***		0.001	
Distance to nearest private clinic (km)	0.008***		0.007***		0.007***	
Distance to nearest private hospital (km)	-0.001		0.003***		0.002**	
% of district households with health insurance	-0.56***		-0.552***	1.036***	-0.336**	-0.935***
Average medicine expenditure in district	-0.001	-0.001	-0.001**	-0.001	-0.001***	-0.001
Average doctor fee paid in district	-0.001**	-0.001**	-0.001	-0.001**	-0.001	-0.001
Average hospital charges paid in district	0.001	0.001**	0.001	-0.001***	-0.001	-0.001
Constant term	1.294***	0.678***	1.808***	0.282	0.687***	0.599*
Sample size	386,098	128,607	386,098	128,607	386,098	128,607

Coefficients that are statistically significant at 10%, 5%, and 1% level are marked with *, **, and ***, respectively. Standard errors are cluster-robust at the district level. Both the rural and urban regressions satisfy model relevance criterion (*p-value* of χ^2=0).

Table 3: Multinomial probit model of provider choice with supply-side factors (base category = private provider)

	Government Hospital		PHC or CHC		Other public facility	
Treatment choice	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
% of staff available per facility per *taluk*	-0.105	-0.051	-0.209**	-0.284*	-0.233**	-0.067
% of drugs available per facility per *taluk*	-0.219	-0.563***	0.204*	-0.119	0.17	-0.454**
% of equipment available per facility per *taluk*	0.063	-0.009	0.037	0.422**	0.099	0.09
% of training courses received per facility per *taluk*	0.062	0.089	-0.112	-0.281**	0.06	0.185
Household size	-0.008**	-0.017***	-0.016***	-0.002	-0.029***	-0.022***
Proportion of women in household	-0.004	0.016	-0.021	0.037	0.025	0.05
Proportion of children (under 18) in household	-0.062**	0.01	-0.046**	0.109**	0.02	0.027
Whether household head is female	-0.056*	0.004	0.019	0.003	-0.037	-0.142***
Age (years) of household head	0.004***	0.001	0.003***	0.002**	0.002***	-0.002
Education (years) of household head	0.007***	-0.018***	0.002	-0.019***	-0.006***	-0.026***
Scheduled caste household	0.174***	0.272***	0.2***	0.126***	0.2***	0.3***
Scheduled tribe household	0.246***	0.559***	0.366***	0.431***	0.498***	0.431***
Other backward caste household	0.002	0.045	0.021	0.089**	0.057	0.025
Muslim household	0.019	0.162***	0.118**	0.07	0.039	0.076
Christian household	-0.071	0.117	-0.189*	-0.124	-0.079	-0.156
Sikh household	-0.181***	-0.066	-0.263***	-0.235***	-0.334***	-0.04
Wealth quintile 2	-0.062**	-0.051	-0.141***	-0.215***	-0.163***	-0.125
Wealth quintile 3	-0.079**	-0.019	-0.287***	-0.305***	-0.276***	-0.121
Wealth quintile 4	-0.234***	-0.051	-0.529***	-0.637***	-0.515***	-0.319***
Wealth quintile 5	-0.653***	-0.488***	-1.047***	-1.389***	-0.995***	-0.701***
Distance to nearest PHC or CHC (km)	-0.001		-0.018***		-0.003**	
Distance to nearest district hospital (km)	-0.008***		0.004***		0.001	
Distance to nearest private clinic (km)	0.008***		0.008***		0.007***	
Distance to nearest private hospital (km)	-0.001		0.003***		0.002**	
% of district households with health insurance	-0.501**	-0.199	-0.535***		-0.343**	-0.952***
Average medicine expenditure in district	-0.001	-0.001	-0.001**	-0.001	-0.001**	-0.001
Average doctor fee paid in district	-0.001*	-0.001**	-0.001*	-0.001**	-0.001	-0.001
Average hospital charges paid in district	0.001	0.001	0.001	-0.001*	-0.001	0.001
Constant term	1.337***	1.209***	1.859***	0.608	0.739***	0.949***
Sample size	355,611	102,190	355,611	102,190	355,611	102,190

Coefficients that are statistically significant at 10%, 5%, and 1% level are marked with *, **, and ***, respectively. Standard errors are cluster-robust at the district level. Both the rural and urban regressions satisfy model relevance criterion (*p-value* of χ^2=0).

Table 4: Multinomial probit model of provider choice with perceived quality (base category = private provider)

	Government hospital		PHC or CHC		Other public facility	
Treatment Choice	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Average no. of facility complaints per *taluk*	-1.103***	-1.023***	-1.296***	-1.252***	-1.088***	-0.697***
Household size	-0.006**	-0.011***	-0.014***	0.004	-0.028***	-0.023***
Proportion of women in household	-0.012	-0.007	-0.023	0.028	0.011	-0.011
Proportion of children (under 18) in household	-0.029	0.018	-0.005	0.098**	0.065**	0.061
Whether household head is female	-0.041	-0.021	0.029	-0.021	-0.017	-0.169***
Age (years) of household head	0.004***	-0.001	0.003***	0.002	0.002***	-0.002*
Education (years) of household head	0.005**	-0.024***	-0.001	-0.024***	-0.008***	-0.029***
Schedule caste household	0.196***	0.284***	0.221***	0.121***	0.222***	0.296***
Schedule tribe household	0.09*	0.378***	0.17***	0.175*	0.314***	0.301***
Muslim household	0.015	0.045	0.038	0.106***	0.067**	0.026
Christian household	0.013	0.137***	0.146***	0.07	0.083*	0.072
Sikh household	-0.022	0.051	-0.193**	-0.215	-0.137	-0.141
Other backward caste household	-0.023	0.01	-0.106	-0.137*	-0.195**	0.008
Wealth quintile 2	0.003	-0.015	-0.068***	-0.148***	-0.099***	-0.043
Wealth quintile 3	0.001	-0.001	-0.206***	-0.259***	-0.204***	-0.089
Wealth quintile 4	-0.149***	-0.009	-0.441***	-0.582***	-0.435***	-0.227**
Wealth quintile 5	-0.559***	-0.409***	-0.951***	-1.322***	-0.902***	-0.569***
Distance to nearest PHC or CHC (km)	0.002		-0.015***		0.001	
Distance to nearest district hospital (km)	-0.008***		0.004***		0.001	
Distance to nearest private clinic (km)	0.007***		0.006***		0.005***	
Distance to nearest private hospital (km)	-0.002**		0.001		0.001	
% of district households with health insurance	-0.186	0.006	-0.111	0.997***	0.034	-0.967***
Average medicine expenditure in district	0.001*	0.001	-0.001	0.001	-0.001	-0.001
Average doctor fee paid in district	-0.001**	-0.001***	-0.001**	-0.001*	-0.001	-0.001
Average hospital charges paid in district	0.001	0.001***	0.001	-0.001***	-0.001	0.001
Constant term	1.354***	1.5***	1.859***	1.204***	0.739***	1.159***
Sample size	386,098	128,607	386,098	128,607	386,098	128,607

Coefficients that are statistically significant at 10%, 5%, and 1% level are marked with *, **, and ***, respectively. Standard errors are cluster-robust at the district level. Both the rural and urban regressions satisfy model relevance criterion (*p-value* of χ^2=0)