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DEMAND FOR HEALTH CARE: MAJOR DETERMINANTS AND ELASTICITIES ACROSS SELECTED INDIAN STATES

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ABSTRACT

In a developing country like India, elasticities of different types of health care, namely, public or private matter for equity and efficiency of the health care system. Our paper addresses this aspect through examining the pattern of health care demand in India by using data from the National Family Health Survey (NFHS 3) to model the health care choices that individuals make when sick or injured. We then consider what these behavioral characteristics imply for public policy.We focus our analysis to study disparities between rural and urban areas and extend this analysis from National All India Level to thirteen Indian states which represent three levels of per capita incomes including an all India average, rich and poorer state and eight north eastern states. Overall our results provide evidence that health care demand both in rural and urban areas is a commodity which emerges as an essential need and choices between public or private provider are guided by income and quality variables mainly in regard to public health care denoting thus a situation of very limited alternatives in terms of availing private providers. Thus to improve health system and reduce disparities across rich-poor states and rural-urban areas health policy should also take into account both the inadequacy and elasticity aspects of health care inputs.

INTRODUCTION

Generally the health care is considered to be a necessity and thus it may be having inelastic demand. However, it could vary with the type of care and thus may be more elastic than presumed otherwise. Some of the studies in the Indian context or other developing countries indeed seem to indicate a possibility of high income and quality elasticities. Moreover the question become pertinent with the growing participation of the private sector in both financing and provision of health care services, while many countries are contemplating the adoption of policies to encourage competition between public and private providers to improve the performance of the health sector. The recent movement towards greater hospital autonomy in many developing countries is evidence of this trend of preparing the public sector for competition with private sector providers. Proponents of public/private competition argue that competition will motivate public providers to increase efficiency and act as a benchmark for measuring and constraining any misconduct of the private sector.

Whether competition can lead to efficiency gains and cost containment is subject to debate. Broadly speaking, competition can take two forms -- price and quality. Whether price competition would lower health care costs or whether the cost reduction will be gained at the expense of quality reduction, this depends on how responsive consumers are to quality, or how capable consumers are of evaluating quality. Often quality competition reduces the price elasticity of demand. In the context of rural areas moreover price may be non-monetary which may include time spent or unsuitable timings of public or private providers to the poor patients and even the trouble or compulsion of going to private provider caused by non-availability or absence of health personnel.

Using the NFHS Survey , the primary objective of this paper is to test empirically for the relative magnitude

of price and quality elasticities of demand to shed light on the extent to which price and quality competition takes place, and hence the likely outcomes for cost and quality. We focus on relatively unexplored part of Indian region, namely, north eastern Indian states (including Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram Nagaland, Sikkim and Tripura) and provide a relative scenario between all India and five other Indian states (which include Karnataka; an average income state; Maharashtra and Gujarat; both high per capita income states and Rajasthan and Madhya Pradesh; both low per capita income states. The results will provide useful information for policy makers regarding the potential effects of increased public and private competition, thus allowing a more informed formulation of regulations or policies. Besides, the results of this study will contribute to effective health policy in India and focusing on improving the efficiency of the public sector and to some extent it may indicate whether public health sector lacks in availability or quality to achieve these goals.

We assume that the health care sector consists of two types of providers, public and private. Each maximizes its objective function subject to two constraints -- market demand for its services, and supply of inputs. We further assume that demand for services provided by the public sector is a function of prices and quality of both the public and private sectors, and similarly, demand for private sector services is a function of the prices and quality of both sectors. Demand is increasing in quality but decreasing in prices. On the other hand, both sectors face the same input supply constraint. Providers choose price and quality in order to maximize their objective functions. We do not, however, postulate whether the chosen prices and qualities are optimal in the sense of social welfare maximization. Under these assumptions, providers are predicted to engage in provision of health services with some areas like bigger urban towns having price competition. In most of rural areas such competition may not prevail and simply it may be a complementarity between two sets of providers. If competition prevails, it may possibly lead to lower prices of services provided that demand is relatively more price than quality elastic. If the absolute elasticity of quality is also high, then price reductions will most likely be achieved through improved efficiency, leaving the level of quality unchanged or even improved. However, if demand is relatively quality inelastic, price competition may lead to lower quality. On the other hand, if demand is relatively more quality than price elastic, providers will engage in quality competition, leading to higher quality of services at higher or unchanged prices, depending on whether demand is elastic with respect to price.

The discrete choice model used by us assumes that people have a limited number of health care options available to them. This is entirely plausible both for rural and urban areas by distinguishing each type of provider into either public or private ones.

Following Grossman's formulation where health--defined broadly to include longevity and illness-free days in a given year--is both demanded and produced by consumers

Using the basic consumption model formulation, using a reduced form equation the effect of various parameters on health could be tested in a regression framework. The literature broadly from the health economics field on the determinants of health outcomes in populations mainly indicate five sets of factors that could be considered important to explore [1]. These include socioeconomic status, access to health services, environment and others including nutrition and personal attributes [2]. The conditional demand for curative care (Equation A, see Annexure 1) is a discrete choice model involving three choices and hence estimated using appropriate logit method.

Generally, rural and urban populations tend to differ with respect to many health indicators. It is typically presumed that the urban population is better off. The reality is depicted more vividly when a disaggregate scenario is analyzed using an acceptable measure of income categories. In definite ways, it is not an exaggeration to presume that health of the urban poor is as worse as the rural population. Thus, there exist wide gap in the utilization pattern of health services and health improvement in urban area [3].

Thus, a priori, based on the formal model of demand for health services one can expect that time will function as a normal price, demand for free care will be more sensitive to changes in time prices than will demand for non-free care. The elasticity of demand for medical services with respect to non-earned income should be positive and the elasticity of demand with respect to earned income is indeterminate but the price effect may dominate for free care (and thus reduce demand) and the income effect may dominate for non-free care (and thus increase demand). Further in the absence of differences in taste for particular types of providers, more education may reduce the demand for care. If there are taste differentials (with the more educated preferring private care), there may be a negative elasticity with respect to education for public care and an elasticity biased upward (possibly positive) for private care.

Data Source

In order to carry out regression exercise we have made use of National Family Health Survey 2005-06(NFHS-3). The third National Family Health Survey (NFHS-3), Government of India, was conducted in 2005-06. NFHS-3 collected information from a nationally representative sample of 109,041 households, 124,385 women age 15-49, and 74,369 men age 15-54. The NFHS-3 sample covers 99 percent of India's population living in all 29 states. The age distribution of the population is typical of populations that have recently experienced fertility decline. Thirty-five percent of the population is

under age 15, and only 5 percent is age 65 and older. Fourteen percent of heads of households are women. Over two third of the population (69 percent) live in rural areas. Based on the religion of the household head, 82 percent of households are Hindu, 13 percent are Muslim, 3 percent are Christian, 2 percent are Sikh and 1 percent is Buddhist/Neo- Buddhist. All other religions together, account for less than 1 percent of households. Nineteen percent of household heads belong to the scheduled castes, 8 percent to the scheduled tribes, and 40 percent to the other backward classes (OBC). About one-third do not belong to any of these three groups. Twenty-seven percent of households have a below poverty line (BPL) card.

As mentioned earlier, a separate analysis at the state level was also done using the same data source. We included thirteen states. The dependent variables used by us are: i) respondent used any source of public health care (PUBCARE), ii) respondent used any private health care (PVTCARE) and iii) respondent used any source of health care (ANYCARE). Among the explanatory variables we used reasons for not availing a public or private source of care, namely, no nearby facility (NONFACTY), facility timing not convenient (TIMENC), health personnel often absent (HPABST), waiting time too long (WAITTL) and poor quality of care as perceived by the respondents (PQUAC). We presume that all these five variables denote quality aspect of care. Among socio -economic variables we used wealth index (WI), BPL card holding (BPL), female education (FEEDU), Highest Education level in the household (HEDULH), religion (RELGN), caste (CASTE), insurance coverage from any source (INSANY), source of water supply (WATSS) , type of sanitation (SANTYP) and having electricity (ELECTR).

RESULTS AND DISCUSSION

All India Analysis: Rural vs. Urban

Below we discuss results of our logit analysis which are presented in Annexure 2 (with Tables 1-6 of the annexure) and elasticity coefficients derived from them are presented in the main text by Tables 1-6(Tables 1-3 for rural areas and Tables 4-6 for urban areas). Results of the rural all India level indicate that all the variables are significant. Among the explanatory variables, quality as represented by different variables indicates that utilization of govt. facilities is hampered by distance, inconvenient timing of facility, absence of health personnel, and poor perceived quality of care.

In contrast to govt. facility utilization, the private health care facility utilization had positive but low elasticity with respect to quality variables in rural areas (Table 2). Poverty hampered the utilization of private provider in the rural results. This is denoted by negative impact of BPL card holding.

It is pertinent to note that income elasticity as denoted by wealth index has been low in rural areas relating to any type of care utilization (Table 3). Likewise elasticity with respect to quality variables has been high only in the results of govt. facility but low in private or any type of care. (Tables 2&3). Education elasticity has been low but negative in private or any type of care. Low level of water sanitation facilities had a positive impact on any type of care but elasticity coefficients are also low. Most importantly these results prove health care as necessity with low elasticities with respect to income and other socio-economic variables. Nevertheless, choice of a better provider (govt. vs. private or no facility vs. any facility) is seen through high responsiveness of rural respondents.

In general, for all the three types of dependent variables, magnitude of income elasticity has been higher in urban areas (Tables 4-6) relative to the rural counterparts (Tables 1-3), but the difference in magnitude is also low.

Pertinently, the results for rural Gujarat indicate high negative elasticity with respect to quality variables impinging on utilization of public health care facilities. However, income elasticity for either of the facilities has been low for rural areas (Tables 1 and 2). An interesting observation is the high income elasticity as well as quality elasticity for public health care utilization in urban Gujarat (Tables 4-6). It indicates that respondents in urban Gujarat had most important criteria as income and quality to utilize public health care. However, the elasticity is much lower in magnitude for either private or any type of care in urban Gujarat both with respect to quality and income. (Table 6).

Results for Maharashtra indicate that elasticity coefficients have been low for most of the results in rural Maharashtra (Tables1-3). In line with other rich state, namely Gujarat, the results of urban Maharashtra also indicate high elasticity coefficients both with respect to quality and income variable in deciding utilization of public health facilities (Tables 4-6). In an akin manner the results of private care utilization and any type of care do not depict high elasticity coefficients.

In line with the all India rural results, the rural results for Karnataka state representing an average income state also depict high elasticity with respect to quality and income variables only for public health care utilization. For other types namely private care and any type of care elasticity coefficients are low. Even the results of urban Karanataka also depict high elasticity coefficients with respect to quality and income variables in the results of public care utilization (Table 4). It seems that major determinant for private care utilization even among quality variables is availability, low waiting time and quality since other two quality variables namely vicinity of facility and timing are also insignificant (Annexure 2).

Results for rural Madhya Pradesh (MP) depict overall significance of only few variables particularly in regard to utilization of public health facilities. The variables which emerged statistically significant include insurance coverage, type of sanitation and electricity. The impact of these variables and elasticities are low and generally depict a lack of all these: namely, insurance coverage (negative sign), sanitation (positive sign) and

electricity (positive sign) (Annexure 2). The results of rural MP for private care utilization depict statistically significant coefficients for most of the variables except water and sanitation (Annexure 2). However, elasticity coefficients are very low for all of them (Table 1) thus again depicting health care as a necessity. In case of any type of care, some of the quality variables namely timing and absence of personnel are insignificant.

In contrast to rural results, urban MP results depict high impact and elasticities for most of the quality variables except absence of health personnel (Tables 4-6). However, high elasticity is indicated for public health facility (-3.35), inconvenient location of facility (-1.14), long waiting time (-2.42) and poor quality of care (-3.72) (Table 4-6). These depict that urban respondents had preference for private care due to lack of above quality factors at the government facilities. The results also indicate BPL card users with positive low elasticity for public health care facilities (.106), negative wealth index coefficient (-.748), religion (-.322) and female education (-.250) (Table 4-6).

In case of private care utilization, urban MP respondents did not depict high elasticity coefficients for any of the variables. However, the results indicated positive impact of all the quality variables, negative female education effect (elasticity as -.093) and positive elasticity for having electricity (.043) and source of drinking water (.012) (Table 4-6). These results depict increasing likelihood of private care utilization due to better quality and inadequacy of water sanitation facilities leading to more private care utilization. In line with public care utilization, the results for urban MP depict low impact and elasticity coefficients for all the variables in utilization of any type of care thus reinforcing compulsive nature of health care (Table 4-6).

The rural results for another poor state, namely Rajasthan, denote insignificance for public care utilization of all the quality variables (Annexure 2, Table 1). However, for private care utilization, most of the included variables depict significance (Annexure 2, Table 2). Except for insurance coverage, SC/St belonging and electricity, others have emerged as significant but with low marginal impacts and low elasticity coefficients (Table 2). In case of any type of care, in line with public facilities, many variables depicting, namely, quality, insurance coverage and source of drinking water are statistically insignificant (Annexure 2, Table 3). The variables like female education and income have the expected negative sign but low elasticity coefficients (Table 3).

Unlike the results of urban MP, the results for public care utilization for urban Rajasthan(Table 4) do not indicate high elasticity coefficients pertaining to any variables except for poor quality (-1.18) and wealth index (1.49). However, other results for urban Rajasthan do not depict high elasticity coefficients either for private care or any type of care utilization (Tables 5&6). Quality variables however have positive and low elasticity for private care. Both the income and education variables have the expected negative elasticity (though low in magnitude) for private care utilization in Rajasthan. The results for any type of care depict a mix of low impact and elasticity coefficients.

A comparative view of elasticities as provided in Tables 1-6 depict that both in rural and urban areas, respondents are responsive to quality variables pertaining to public care utilization. However, except for waiting time, the rural elasticities are higher for quality variables. In terms of income and education, the elasticity coefficients of urban areas are higher than their rural counterparts. A further analysis in terms of rural poor states and rural rich states indicate that the quality variables are not statistically significant. These coefficients are very small for poor states and rural areas. In rich states all quality variables in rural areas are significant for Gujarat only. In terms of coefficient's magnitudes, except for poor quality of care, the elasticity coefficients are higher for Gujarat. In urban areas, a comparison of two poorer states depicts higher elasticity coefficients for MP for all the quality variables but for income Rajasthan's coefficients are higher and for female education MP's elasticity coefficients are higher. In rich states, comparison of urban areas depict two quality variables namely facility timings and absence of health personnel as statistically insignificant for Maharashtra.

Overall there is a mixed nature of magnitudes between rich states (Gujarat and Maharashtra) pertaining to quality variables in urban areas. Likewise, Maharashtra has higher elasticity for income variables and Gujarat has higher elasticity for female education.

In contrast to public care utilization, the elasticity coefficients are generally low across all the categories. In general, urban areas have higher elasticities (with low magnitudes) both for quality and income-education variables. However, a comparative profile of two poor states in rural areas depicts magnitudes to be uniformly higher for those two sets (namely quality and income-education) for Rajasthan. In rich states, a similar observation is broadly true for Gujarat with higher magnitudes of elasticities for many of them. In urban areas, a comparison of two poor states depicts most of the magnitudes for elasticities to be higher for Rajasthan than MP. In rich states, for urban areas, elasticity coefficients have in general higher magnitudes for Maharashtra relative to Gujarat. Among the three sets of elasticities, the coefficients are lowest in the magnitudes for all variables pertaining to utilization of any type of care. In general, rural elasticities are lower relative to urban counterparts. In poor states, across rural areas, MP has generally higher magnitudes. In rich states, it is mixed pattern across Gujarat and Maharashtra in rural areas. In urban areas, with a mixed pattern for quality variables, the income elasticity is higher for MP. In rich states in urban areas, there is a mixed pattern for quality variables, the income elasticity is higher for Gujarat and female education elasticity is higher for Maharashtra. All the north eastern

states denote very low elasticity coefficients for public care. However, the elasticity coefficients are better for private care yet indicate inelastic nature of utilization either for public or private care in rural areas. (Tables 1-3). A similar overall picture of low elasticities emerges in regard to north eastern states in case of urban areas. However, there are some exceptional cases of high elasticities in these states. These include Assam (for public care, pertaining to poor quality of care, BPL, caste, water supply, sanitation, wealth index, religion, education of head of the household and electricity), Nagaland (for poor quality of care and WI), Arunachal Pradesh (for private care pertaining to sanitation type and WI), Sikkim (for private care pertaining to caste and sanitation type) and Tripura (for private care in regard to sanitation type).

Comparison with Other studies

Our high income elasticity coefficients pertaining to public health care utilization are in general (except for urban poor states) in line with the results of other Indian studies [4] and developing countries like [5]. Many other studies conducted in the countries like Kenya [6], Indonesia [7], Pakistan, China [8] and Coted'Ivore have not reported income or quality elasticities.

Table 1. Rural Elasticities

PUBCARE	All India	Gujarat	Maharashtra	Karnataka	MP	Raj	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-3.6149	-2.0952	-1.6059	-3.8698				-0.0021	-0.0075	-0.0455	-0.0006	-0.5294		
TIMENC	-2.1421	-1.5695		-2.8526					-0.0022					
HPABST	-1.9549	-1.2511		-2.3035						-0.0108		-0.0661		
WAITTL	-2.3576	-1.8821		-2.9414				-0.0027						
PQUAC	-4.2684	-3.001	-3.6532	-4.6537							-0.0003	-0.2968		
BPL	0.0333	0.0543	0.1869	0.3214	0.0006		-0.0004	0.0005	-0.0014	0.0096	-0.0007	0.0143		-0.0003
INSANY	-0.0375	-0.0372	-0.0221	-0.1582	-0.0002		-0.001	-0.0002	0.0011	-0.0015	0	-0.0048	-0.0001	
CASTE	-0.2971	-0.6768	-0.4066	-0.0572	0.0064	-0.0015	-0.0316	-0.0114	0.001	0.0634	0.0058	-0.2992	-0.0288	0.001
WATSS	0.3236	-0.1606	-0.4084	0.0336	-0.0121	-0.0002	0.0588	-0.0076	0.0077	-0.0406	-0.0006	-0.0975		-0.0023
SANTYP	-0.2147	0.7551	-0.7806	-0.7328	0.027	0.0005	0.0046	0.0012	-0.0067	0.0875	0.0018	-0.2808	0.0626	-0.0017
WI	-0.4579	-0.8791	-0.2589	-1.0593	-0.0002	-0.0004	-0.0294	-0.0168	0.0028	0.0867	0.0075	-0.4575		0.0039
RELGN	0.0174	0.2275	0.305	0.0155		-0.0008	0.003	0.0004	-0.0015	-0.0036	-0.0071	0.0913	0.0032	
FEEDU	0.0485	0.0169	-0.3011	0.0133	0.0006		0.0147	0.0004	-0.0005	-0.0065	-0.0038	-0.0521		0.0016
ELECTR	0.3052	0.7153	-0.6842	0.9094	0.0048	-0.0003	0.0005	0.0114	-0.0163	-0.001	-0.0037	-0.0235		0.0003

Table 2. Rural Elasticities CONTD

PVTCARE	All India	Guj	Mah	Karn	MP	Raj	Assam	Arunachal	Manipur	Meghalay	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	0.2814	0.2289	0.1609	0.4721	0.0426	0.222	0.3061	0.7114	0.6684	0.4538	0.253	0.6314	0.024	0.2786
TIMENC	0.0505	0.0434	0.0519	-0.074	0.0126	0.1099	0.1215	0.5774	0.3725	0.0735		0.1792	0.0125	0.119
HPABST	0.0397	0.0575	0.0532	0.1306	0.0123	0.0501	0.162	0.2487	0.156	0.0915		0.1674	0.0018	-0.0128
WAITTL	0.0894	0.1149	0.1155	0.1373	0.0244	0.0978	0.1618	0.2622	0.3426	0.1063	0.0051	0.1055	0.0514	0.1891
PQUAC	0.2633	0.2165	0.306	0.502	0.0488	0.2433	0.2077	0.2448	0.5102	0.3366	0.1431	0.2759	0.1262	0.2602
BPL	-0.0216	-0.0054	-0.0014	-0.0033	-0.0016	0.0143	0.0105	0.03	0.0397	-0.0151	0.3491	0.0102	0.1778	0.0099
INSANY	0.0016	0.0025	0.0179	0.0762	-0.0018	-0.002	0.007	-2.9334	-0.1404	0.0056	-2.649	0.0116	0.0319	0.0014
CASTE	0.0012	0.109	0.0404	0.1408	-0.0141	0.0298	0.0565	1.8642	-0.7047	0.2271		-0.1815	-0.698	-0.0273
WATSS	-0.033	-0.0743	0.0201	0.0733	0.0049	-0.037	0.1172	0.3134	0.2995	0.317	0.4798	-0.3348	-0.654	0.0388
SANTYP	0.0601	0.0909	-0.0071	0.0881	-0.0039	-0.117	0.0411	0.6458	-0.5406	-0.1182	-1.606	0.0913	3.4743	0.0969
WI	-0.0091	0.1535	0.0099	0.2141	-0.0078	-0.096	0.0865	1.9286	-0.3482	-1.7314	-3.718	-0.4458	8.5576	-0.0621
RELGN	0.0004	-0.1163	0.0092	-0.007	0.0093	0.046	0.0361	-0.2042	0.0297	0.0892	3.0783	-0.1282	0.0415	-0.0009
FEEDU	-0.0149	-0.0122	0.0063	0.0012	-0.0013	-0.009	0.04	-0.4119	-0.0764	-0.1136	1.8427	-0.0035	0.5603	-0.0017
ELECTR	-0.1013	-0.0774	-0.0463	-0.0062	0.0027	0.016	0.0344	-1.5737	0.121	0.3814	1.5595	-0.0203		0.0413

Table 3. Rural Elasticities CONTD

ANYCARE Rural	All India	Gujarat	Maharashtra	Karnataka	MP	Rajasthan	Assam	Arunachal	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-0.009	-0.0138	-0.038	-0.0544	-0.024	-0.0009	-0.0079	-0.0025	0.0011	-0.001	0	-0.0262	0.0008	0
TIMENC	-0.011	-0.0256	-0.0216	-0.1445	0.0003	-0.0017	-0.0041	0.0019	0	-0.0002	ns	-0.0031	-0.0014	0
HPABST	0.0288	0.0374	0.0449	0.1181	0.00397	0.0017	0.0045	0.0012	0.0008	0.0002	ns	0.0154	0.0031	0
WAITTL	-3E-04	-0.0217	-0.0163	-0.0261	0.01217	-0.0009	0.0022	0.0025	0.0022	-0.002	0	-0.0178	-0.002	0
PQUAC	-0.045	-0.0643	-0.0598	-0.1822	-0.0307	-0.0193	-0.0043	-0.0067	-0.0102	0.0086	0	-0.0291	-0.0028	0
BPL	0.0015	0.0136	0.0191	0.1178	0.00216	0.0178	0.004	0.0041	0.0003	-0.0002	ns	0.0111	0.0045	0
INSANY	0.0025	-0.0002	0.0145	0.073	-0.0009	0.0003	-0.0001	-0.0005	0.004	0.0134	0	0.015	0.0002	ns
CASTE	-0.011	0.0326	-0.0207	0.0587	-0.0407	0.0069	-0.0062	0.0102	-0.0219	0.003	0	-0.0762	-0.0026	0
WATSS	0.0608	-0.0227	0.0852	0.128	0.06917	-0.0001	0.0363	-0.0051	0.005	0.0122	0	-0.0572	-0.0081	0
SANTYP	0.0438	0.0718	-0.0015	0.1722	0.01514	0.0239	0.0068	0.0168	-0.0076	-0.0346	0	-0.048	0.0073	0
WI	-0.052	-0.0653	-0.0716	-0.1213	-0.0282	-0.0146	-0.0173	-0.0051	-0.0201	-0.0018	0	-0.166	-0.0063	0
RELGN	0.0001	-0.0083	0.0055	0.0019	0.01434	0.0352	0.0097	0	-0.0006	-0.0019	0	-0.0042	0.0002	ns
FEEDU	-0.004	0.0006	0.0022	0.0181	-0.0005	-0.0008	0.0014	-0.002	-0.0003	ns	0	-0.0126	0.0008	0
ELECTR	-0.006	0.126	ns	0.2434	0.02261	0.0055	0.0027	0.0059	0.0074	0.0075	ns	0.0423	0.0038	ns

Table 4. Urban Elasticities

PUBCARE	All India	Gujarat	Maharashtra	Karnataka	MP	Rajasthan	Assam	Arunachal	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-3.1053	-3.338	-2.6261	-2.3165	-3.349	-0.6626	ns	-0.0197	ns	-0.0656	-0.0001	-2.082	ns	ns
TIMENC	-1.7218	-1.5526	ns	ns	-1.1392	ns	ns	-0.0054	ns	-0.0448	ns	-0.582	ns	ns
HPABST	-1.1059	-0.5916	ns	ns	-0.5164	-0.0711	ns	ns	ns	ns	ns	-0.1584	ns	ns
WAITTL	-2.7236	-2.1213	-2.252	-1.629	-2.4179	-0.4139	ns	-0.0013	ns	ns	-0.0002	ns	ns	ns
PQUAC	-3.8032	-2.6433	-2.7507	-2.2876	-3.7181	-1.1802	-38.7748	-0.0072	ns	ns	-0.0002	-1.1263	ns	ns
BPL	-0.0085	-0.0302	0.0272	0.0038	0.1065	0.0401	17.7635	0.0015	0.004	0.0031	0	-0.0261	ns	-0.0004
INSANY	-0.048	-0.0486	0.042	-0.0779	0.0348	-0.0005	-0.054	-0.0013	-0.0006	0.001	0.0001	0.0089	ns	ns
CASTE	-0.6425	-0.766	-0.7653	-0.5944	0.2536	-0.2628	-1.0834	0.0157	0.0081	-0.1142	0.0039	-0.3446	0.0622	0.022
WATSS	-0.0967	0.3473	-0.2885	0.3413	0.0517	0.9859	-1.4941	0.2275	0.0051	-0.0107	0.0006	-0.2039	ns	0.0027
SANTYP	-0.121	-0.1507	-0.3348	-0.0308	0.0762	0.2784	-1.8417	-0.0173	0.0033	0.0087	0.0078	-0.1558	ns	-0.0195
WI	-0.8461	-1.3679	-1.6355	-2.2381	-0.7478	1.4949	2.5567	0.0175	-0.0341	-0.2055	-0.0016	-1.3153	ns	-0.117
RELGN	0.0176	0.7078	0.0198	-0.1173	-0.3227	0.3057	37.5258	0.0067	-0.001	-0.0007	-0.0015	0.827	ns	ns
HEDULH	-0.247	-0.386	-0.3137	-0.3976	-0.2505	-0.0251	-1.5381	-0.0013	-0.0065	-0.0337	-0.0012	0.1573	ns	0.0021
ELECTR	0.335	0.6213	-0.3195	0.1745	0.3312	-0.6191	-20.802	ns	0.0051	0.0216	ns	0.2236	ns	ns

Table 5. Urban Elasticities CONTD

PVTCARE	All India	Gujarat	Maharashtra	Karnataka	MP	Rajasthan	Assam	Arunachal	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	0.2388	0.1871	0.2125	0.2583	0.1226	0.317	0.1107	-0.2274	0.523	0.4206	0.0983	0.6214	ns	0.1809
TIMENC	0.0717	0.0698	0.0693	-0.0127	0.0354	0.1872	0.0806	0.3184	0.226	0.3854	0.1137	0.0953	0.0842	ns
HPABST	0.0016	-0.0087	0.0283	0.0323	0.0165	0.0518	0.05	ns	0.2282	0.3184		-0.0148	ns	0.0348
WAITTL	0.1613	0.0665	0.1511	0.2209	0.0839	0.1929	0.0728	0.089	0.3894	0.4669	0.1759	0.0398	0.3822	0.3627
PQUAC	0.2703	0.0713	0.1323	0.3374	0.1126	0.3559	0.1118	0.0324	0.585	0.1	0.2676	0.2249	0.1478	0.6049
BPL	-0.0138	-0.0003	0.0025	-0.0084	-0.0023	0.005	0.0031	-0.0114	-0.1075	0.0054		0.0262	0.0069	-0.0251
INSANY	0.0015	-0.0112	-0.0066	0.0303	-0.0066	-0.0082	-0.0037	0.039	-0.0126	0.0572	-0.084	-0.1686	-0.0074	0.002
CASTE	0.0561	0.0632	0.042	0.01	-0.0033	-	-0.0128	-0.1122	-0.6225	0.3606	2.0027	0.3665	1.027	0.25

				62		0.0672							3	62
WATSS	-0.0158	-0.0306	-0.0262	-0.3058	0.0122	0.0386	0.0721	0.035	0.1121	0.3724	-0.0534	0.1197	ns	-0.5703
SANTYP	0.0245	-0.0053	0.0497	-0.0177	-0.0027	-0.1322	-0.0151	-1.7316	-0.0854	-0.1821	-3.6927	-0.0106	-7.7189	-1.5471
WI	0.0423	0.0293	0.1552	0.1203	-0.019	-0.7331	-0.0504	1.0126	0.1672	-0.0434	-4.658	-0.1086	ns	0.6786
RELGN	-0.0043	-0.1293	-0.0069	-0.0492	0.0026	0.0133	0.0011	0.1068	0.0129	-0.0582	3.2376	0.2702	-0.4692	0.2893
FEEDU	-0.0413	-0.0168	-0.0261	0.0528	-0.0093	-0.0477	0.0063	0.3353	0.3351	-0.0895	1.327	0.1581	0.0863	-0.0338
ELECTR	-0.0983	-0.0534	-0.0098	-0.0617	0.0434	0.0869	0.0433	ns	-0.1912	-0.3436	ns	0.2328	ns	-0.1581

Table 6. Urban Elasticities CONTD

ANYCARE	All India	Gujarat	Maharashtra	Karnataka	MP	Rajasthan	Assam	Arunachal	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-0.0348	-0.0186	-0.0175	-0.1112	-0.0217	-0.0111	-0.0298	-0.012	-0.0034	-0.0498	-0.0001	-0.056	ns	-0.0003
TIMENC	-0.0159	-0.0079	-0.0057	-0.1055	-0.0039	-0.0062	-0.0003	-0.0015	-0.0016	-0.0333	0	-0.017	0	ns
HPABST	0.021	-0.009	0.0289	0.0564	0.0029	-0.0099	0.0125	ns	-0.0027	0.0787		0.0294	ns	-0.0003
WAITTL	-0.0134	-0.0266	-0.0188	-0.0521	0.0145	-0.006	0.0009	0.0005	0.0066	-0.0409	-0.0001	-0.049	-0.0024	-0.0002
PQUAC	-0.0457	-0.0465	-0.0633	-0.0356	-0.0566	-0.042	-0.0432	-0.0035	-0.0118	-0.1189	-0.0002	-0.056	-0.0023	-0.0005
BPL	-0.001	0.0031	0.0061	0.0318	0.0048	0.0525	0.0394	ns	0.0006	0.0225	0	0.0296	0.0004	-0.0001
INSANY	0.0018	-0.0042	-0.0055	0.0203	-0.0055	-0.0002	-0.0041	0.0008	-0.001	0.0349	0.0001	-0.004	0.0002	ns
CASTE	0.0159	0.0068	0.0007	0.0103	0.0178	-0.011	-0.0238	0.0136	-0.0251	0.0283	0.0041	0.055	-0.003	0.0045
WATSS	0.012	0.1742	-0.0376	-0.0896	0.0328	0.0876	0.0305	0.1767	0.0094	0.0838	0.0002	0.0058	-0.007	-0.0007
SANTYP	0.0427	-0.006	0.0013	-0.0299	0.0252	-0.026	-0.0098	-0.0123	-0.0001	0.1803	0.0136	0.0437	0.0071	-0.0025
WI	-0.1658	-0.1987	-0.0279	-0.4895	-0.1415	-0.1661	-0.0726	-0.0031	-0.1261	-0.2152	-0.0068	-0.431	-0.1098	0.0013
RELGN	-0.0006	-0.0419	-0.0032	0.0136	0.0037	0.0114	0.001	0.0071	-0.0007	-0.0054	0.0018	0.0909	-0.0049	ns
FEEDU	-0.0296	-0.0197	-0.0271	0.0037	-0.0218	-0.0108	-0.001	0.0022	0.02	-0.0305	-0.0008	0.0409	-0.0005	-0.0018
ELECTR	0.1818	0.1977	0.0589	0.6704	0.2045	0.0453	0.0245	ns	0.0635	0.0071		0.3372	ns	ns

Annexure 2:

Table 1. Elasticities

	Rural Results→					
Dependent variable→	PUBCARE					
Exp.Variables ↓ Coeff.-->	All India	**Gujarat**.	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	-7.394*	-4.5363*	-8.6687*	-7.3469*	-	-
TIMENC	-7.643*	-5.78388*	-	-6.9228*	-	-
HPABST	-7.219*	-5.3439*	-	-6.1166*	-	-
WAITTL	-7.225*	-4.8533*	-	-6.6586*	-	-
PQUAC	-8.188*	-5.9662*	-11.8758*	-7.7053*	-	-
BPL	0.059**	0.0823	0.6042*	0.3538*	0.1355	-
INSANY	-0.090*	-0.0865	-0.0859	-0.2738*	-0.4136*	-
CASTE	-0.110*	-0.2494*	-0.1769	-0.0194	0.2383	-1.3862*
WATSS	0.013*	-0.0072	-0.0271	0.0014	-0.0444**	-0.0184
SANTYP	-0.008*	0.0271**	-0.0343***	-0.0237**	0.0833**	0.0387
WI	-0.177*	-0.2916*	-0.1225	-0.4102*	-0.0110	-0.3699
RELGN	0.007*	0.2068	0.2670	0.0107	-	-1.6850*
FEEDU	0.052*	0.0183	-0.3088**	0.0145	0.1183	-
ELECTR	0.375*	0.7200*	-1.2278**	0.8132*	0.7167***	-1.4515
constant	3.699*	2.8576*	7.6943*	4.0759*	2.0315	13.9981*
	Pseudo R2 = 0.8735	Pseudo R2= 0.7380	Pseudo R2 = 0.9320	Pseudo R2 = 0.8595	Pseudo R2 = 0.0555	Pseudo R2 = 0.3463
	Number of obs = 147743	Number of obs =4856	Number of obs = 3884	Number of obs = 7613	Number of obs = 3071	Number of obs = 3608

Contd..

Table 1. Elasticities …contd

	Rural Results →							
Dependent variable→	PUBCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY		-5.2053*	-7.2817*	-7.2794*	-8.3670*	-6.6568*		
TIMENC		-3.0599*	-6.0162*					
HPABST				-6.4414*		-5.8334*		
WAITTL		-6.3668*						
PQUAC					-8.7251*	-6.9205*		
BPL	-0.0560	0.0827	-0.2993*	0.9484**	-0.7419**	0.8946**		-0.0910
INSANY	-0.2284*	-0.0999	0.3655	-1.1872	-0.0371	-0.3796*	-0.0158	
CASTE	-0.4378*	-0.4143**	0.0192	0.5641	1.3865	-0.3986*	-0.2562***	0.0554
WATSS	0.0941*	-0.0332*	0.0125	-0.0247**	-0.0087	-0.0109***		-0.0126
SANTYP	0.0080	0.0034	-0.0192	0.0637*	0.0475	-0.0389*	0.0875*	-0.0124
WI	-0.5140*	-0.6296*	0.0536	0.6382*	1.0590**	-0.4844*		0.2075
RELGN	0.0877	0.0039	-0.0203*	-0.0038	-1.0802***	0.0856*	0.0234	
FEEDU	0.5092*	0.0514	-0.0204	-0.1367	-0.9602*	-0.1063		0.1589
ELECTR	0.0787	1.4730*	-1.1129*	-0.0316	-2.1050**	-0.0918		0.0564

constant	2.8945*	6.9258*	5.3518*	0.3204	6.8994**	6.5241*	2.2441**	4.5689*
	Pseudo R2= 0.1151	Pseudo R2 =0.6632	Pseudo R2 = 0.7027	Pseudo R2 = 0.7275	Pseudo R2 = 0.7207	Pseudo R2=0.7638	Pseudo R2=0.0323	Pseudo R2 =0.0168
	Number of obs = 2946	Number of obs = 2608	Number of obs = 3908	Number of obs = 2494	Number of obs = 1825	Number of obs = 4154	Number of obs= 1984	Number of obs = 1949

Table 2. PVTCARE

Dependent variable→	PVTCARE					
Exp.Variables↓ Coeff.-->	All India	**Gujarat**	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	3.0019*	1.8057*	1.6992*	1.6757*	3.0920*	5.3530*
TIMENC	0.9390*	0.5824*	0.7619*	-0.3357*	1.6931*	3.4296*
HPABST	0.7647*	0.8946*	0.9919*	0.6483*	1.7311*	1.5723*
WAITTL	1.4299*	1.0793*	1.4226*	0.5814*	2.5938*	2.9304*
PQUAC	2.6340*	1.5687*	2.2713*	1.5540*	3.2864*	4.8556*
BPL	-0.1997*	-0.0300	-0.0113	-0.0068	-0.1123**	0.2660*
INSANY	0.0201*	0.0210	0.1387*	0.2467*	-0.2501*	-0.0395
CASTE	0.0023	0.1463*	0.0616**	0.0892*	-0.2478*	0.0975
WATSS	-0.0068*	-0.0122*	0.0044	0.0058**	0.0079	-0.0119***
SANTYP	0.0110*	0.0119**	-0.0011	0.0053	-0.0054	-0.0303***
WI	-0.0183**	0.1855*	0.0162	0.1550*	-0.1884*	-0.3453*
RELGN	0.0008	-0.3853*	0.0278***	-0.0090	0.3898*	0.3505***
FEEDU	-0.0832*	-0.0482	0.0215	0.0025	-0.1059*	-0.2845*
ELECTR	-0.6496*	-0.2840*	-0.2307**	-0.0103	0.1363***	0.1771
constant	-1.7308*	-1.6938*	-1.9943	-3.4029*	-1.7925*	-2.7652*
	Pseudo R2 = 0.4364	Pseudo R2 = 0.2437	Pseudo R2 = 0.302	Pseudo R2= 0.2894	Pseudo R2 = 0.5227	Pseudo R2 =0.6863
	Number of obs = 147743	Number of obs 4856	Number of obs =5656	Number of obs = 7613	Number of obs = 8727	Number of obs = 7277

Contd..

Table 2. PVTCARE …Contd.

Dependent variable→	PVTCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland.	Sikkim	Tripura
NONFACTY	5.1270*	4.8332*	5.7433*	4.3776*	8.2007*	3.4360*	9.5491*	9.2462*
TIMENC	4.4641*	4.8670*	3.9131*	1.7215*		2.4745*	0.7550	4.7085*
HPABST	6.1135*	2.2051*	1.9045*	1.6007*		2.8552*	0.9013	-0.5356
WAITTL	5.7606*	2.2519*	3.5143*	2.6447*	2.2576	1.4490*	2.8322*	7.3732*
PQUAC	4.9460*	1.6925*	3.5449*	3.9545*	8.2292*	2.3525*	4.0422*	8.0485*
BPL	0.1445	0.0469	0.1462**	-0.0940	0.7570*	0.1386	0.3143	0.1167
INSANY	0.1250**	-11.4613	-0.6921***	0.1992	-1.3247	0.1969**	0.1990	0.0483
CASTE	0.0928	0.7606*	-0.2823*	0.1218		-0.1287***	-0.2714	-0.0798
WATSS	0.0213**	0.0145	0.0099***	0.0118***	0.0154	-0.0194*	-0.0185	0.0116
SANTYP	0.0081	0.0194**	-0.0308**	-0.0052	-0.0904***	0.0065	0.2128*	0.0359*
WI	-0.1735***	0.8062*	-0.1332	-0.7328*	-1.1189**	-0.2478*	2.3074*	-0.1879
RELGN	0.1253	-0.0213***	0.0082***	0.0055*	0.9869***	-0.0646**	0.0135	-0.0050
FEEDU	-0.1547*	-0.5650*	-0.0597	-0.1232***	1.0153*	-0.0037	0.4672**	-0.0107
ELECTR	0.4216**	-2.0216*	0.1574	0.7125*	1.8910**	-0.0390		0.4196
constant	-4.1131*	-7.9787*	-2.6459*	-2.3255*	-5.9908**	-1.1414*	-19.0342*	-5.2323*
	Pseudo R2 =0.6308	Pseudo R2 = 0.6564	Pseudo R2= 0.6388	Pseudo R2 = 0.5104	Pseudo R2=0.7057	Pseudo R2=0.3973	Pseudo R2=0.5498	Pseudo R2=0.8506

	Number of obs = 4036	Number of obs = 2726	Number of obs = 4451	Number of obs = 2869	Number of obs = 1779	Number of obs= 4662	Number of obs = 1984	Number of obs= 2793

Table 3. ANYCARE

Dependent variable→	ANYCARE					
Exp.Variables↓ Coeff.-->	All India	**Gujarat**	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	-0.2120*	-0.3128*	-0.7078*	-0.3786*	-0.7872*	-0.1400
TIMENC	-0.4394*	-0.9885*	-0.5551*	-1.2857*	0.0183	-0.3571
HPABST	1.2374*	1.6739*	1.6039*	1.1504*	0.2524	0.3518
WAITTL	-0.0119	-0.5855*	-0.3365*	-0.2164*	0.5843*	-0.1861
PQUAC	-0.9981*	-1.3407*	-0.7872*	-1.1064*	-0.9342*	-2.5415
BPL	0.0320*	0.2162*	0.2949*	0.4754*	0.0705	2.1842*
INSANY	0.0696*	-0.0040	0.2007*	0.4635*	-0.0568	0.0450
CASTE	-0.0476*	0.1260**	-0.0542	0.0729*	-0.3231*	0.1483**
WATSS	0.0280*	-0.0108*	0.0344*	0.0198*	0.0502*	-0.0003
SANTYP	0.0178*	0.0270*	0.0014	0.0204*	0.0094	0.0409*
WI	-0.2355*	-0.2269*	-0.1607*	-0.1722*	-0.3058*	-0.3440*
RELGN	0.0004	-0.0791	0.0278	0.0047	0.2708	1.7681*
FEEDU	-0.0433*	0.0063	0.0156	0.0725*	-0.0189	-0.1621**
ELECTR	-0.0787*	1.3295*	-	0.7981*	0.5065*	0.4003**
constant	2.3557*	1.6198*	2.1176*	-0.4958*	2.6372*	1.0715***
	Pseudo R2 = 0.0856	Pseudo R2 = 0.1260	Pseudo R2 = 0.0940	Pseudo R2 = 0.1366	Pseudo R2 = 0.1118	Pseudo R2 = 0.2425
	Number of obs = 147743	Number of obs = 4856	Number of obs= 5663	Number of obs =7613	Number of obs = 8727	Number of obs = 7277

Contd…

Table 3. ANYCARE…Contd.

Dependent variable→	ANYCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-1.9686*	-1.8899*	0.5203	-2.0308*	-211.8723	-1.0344*	1.9854	8.5628
TIMENC	-2.2705*	1.7944**	0.0228	-1.8284*		-0.3097***	-2.9671*	-25.5632**
HPABST	2.5384*	1.1979***	0.5732	-0.2551		1.9021*	7.6464	-10.7178
WAITTL	1.1864***	2.3934*	1.2556*	0.5023	-326.9973	-1.7722*	-4.0499*	21.1105***
PQUAC	-1.5490*	-5.0876*	-3.9206*	-1.9515*	-171.2006	-1.8026*	-5.1621*	-1.9092
BPL	0.8184**	0.7047**	0.0622	4.3557*		1.0889*	1.2413*	1.9546
INSANY	-0.0393	-0.2034*	1.0975*	-0.5378***	-35.9862	1.8588*	0.1697	
CASTE	-0.1528***	0.4558*	-0.4867*	0.5825*	-31.6749	-0.3925*	-0.1753	0.0156
WATSS	0.0987*	-0.0258**	0.0092	0.0091	6.0625	-0.0240*	-0.0389**	2.2723
SANTYP	0.0201	0.0554*	-0.0241***	0.0440*	-10.7152	-0.0250*	0.0696	2.9283
WI	-0.5198*	-0.2338	-0.4259*	-1.1887*	36.1232	-0.6705*	-0.3157	1.6437
RELGN	0.5059*	0.0000	-	-0.0093*	-2.4260	-0.0155	0.0129	

			0.0097**					
FEEDU	0.0784	-0.3084*	-0.0139	-0.1662**	58.7185	-0.0961**	0.1182	-0.1726
ELECTR	0.5010**	0.8314**	0.5372**	1.1455*		0.5916*	0.7246	
constant	2.2751*	2.4102*	6.7242*	4.4303*	111.7663	6.3709*	5.5964*	-64.3585**
	Pseudo R2 = 0.2793	Pseudo R2 = 0.4533	Pseudo R2=0.3659	Pseudo R2=0.4198	Pseudo R2= 1.0000	Pseudo R2 =0.1916	Pseudo R2=0.6235	Pseudo R2=0.8379
	Number of obs = 4036	Number of obs = 2726	Number of obs = 4451	Number of obs = 2869	Number of obs =873	Number of obs = 4662	Number of obs= 2310	Number of obs=2255

Table 4. Urban Results

	Urban Results					
Dependent variable→	PUBCARE					
Exp.Variables↓ Coeff.-->	All India	**Gujarat**	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	-6.6828*	-6.1375*	-7.4714*	-7.0300*	-5.7196*	-9.7196*
TIMENC	-6.2519*	-5.0102*	-	-	-3.6417*	
HPABST	-5.1397*	-2.7865*	-	-	-2.0324*	-5.3756*
WAITTL	-6.9217*	-4.8810*	-8.3366*	-7.7233*	-5.1011*	-8.4164*
PQUAC	-7.2489*	-5.7977*	-8.0638*	-7.5905*	-5.6818*	-8.9119*
BPL	-0.0233	-0.0751	0.1548	0.0098	0.3029**	0.4624
INSANY	-0.0977*	-0.0971	0.1011**	-0.2484*	0.0692	-0.0042
CASTE	-0.21958*	-0.2433**	-0.2493	-0.2031*	0.0886	-0.1831
WATSS	-0.0051*	0.0217**	-0.0223**	0.0204**	0.0028	0.1457*
SANTYP	-0.0068*	-0.0084	-0.0246**	-0.0017	0.0043	0.0339
WI	-0.2217*	-0.3159**	-0.3859*	-0.5955*	-0.1804***	0.6941**
RELGN	0.0101*	0.6302*	0.0107	-0.0877	-0.2317*	0.4735**
FEEDU	-0.1810*	-0.1970*	-0.1451**	-0.2097*	-0.1328*	-0.0364
ELECTR	0.3209*	0.5570	-0.3348	0.1859	0.2853	-1.2853
constant	4.5841*	2.9084*	6.5213*	5.2756*	3.3791*	0.2428
	Pseudo R2 = 0.8369	Pseudo R2 = 0.7210	Pseudo R2= 0.8683	Pseudo R2 = 0.7938	Pseudo R2 = 0.7719	Pseudo R2 = 0.9053
	Number of obs = 98284	Number of obs =2910	Number of obs= 9177	Number of obs = 2619	Number of obs= 6606	Number of obs = 2706

Contd…

Table 4, Urban Results …Contd.

	Urban Results							
Dependent variable→	PUBCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY		-3.3023*		-6.6123*	-11.1159*	-6.6262*		
TIMENC		-2.3520*		-6.5075*		-6.2916*		
HPABST						-4.1638*		
WAITTL		-1.8635**			-10.2870*			
PQUAC	-178.0085	-5.6148*			-8.4650*	-6.7238*		
BPL	127.7601	0.3468	0.8855	0.3482	0.4766	-0.3051*		-0.1208
INSANY	-0.2075***	-0.3184***	-0.1397**	1.8334	0.6114*	0.1297		
CASTE	-0.3752***	0.2681	0.1912	-0.6654*	4.0309*	-0.1733	0.2234	0.6041**
WATSS	-0.0728**	0.6627**	0.0135	-0.0073	0.0724*	-0.0090		0.0098

SANTYP	-0.1260**	-0.0301*	0.0148	0.0068	1.1692	-0.0121		-0.0862*
WI	0.7266***	0.1745	-0.7258*	-0.6772***	-0.7642	-0.3943*		-2.3836*
RELGN	31.2380	0.0327	-0.0150**	-0.0013	-1.0147	0.3918*		
FEEDU	-0.7682*	-0.0373	-0.2192**	-0.1889	-0.8810*	0.0830		0.0702
ELECTR	-28.7720		0.4404	0.3032		0.2769		
constant	4.6738	-4.4901	5.6279*	8.0725*	-8.2370	4.0065*	1.6213	12.3631*
	Pseudo R2= 0.8867	Pseudo R2 = 0.5566	Pseudo R2= 0.1199	Pseudo R2 = 0.7625	Pseudo R2 =0.8821	Pseudo R2=0.7970	Pseudo R2= 0.0030	Pseudo R2=0.2312
	Number of obs = 1042	Number of obs = 857	Number of obs = 2024	Number of obs= 982	Number of obs=1586	Number of obs=3075	Number of obs =11	Number of obs= 327

Table 5. Urban Results

	Urban Results					
Dependent variable→	PVTCARE					
Exp.Variables↓ Coeff.-->	All India	**Gujarat**	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	1.8155*	1.7571*	2.0659*	0.8850*	2.2468*	4.0908*
TIMENC	0.9197*	1.1504*	1.3831*	-0.0574	1.2139*	3.3626*
HPABST	0.0255	-0.2100	1.1203*	0.1917	0.6973*	0.9732*
WAITTL	1.4476*	0.7808*	1.7282*	0.8508*	1.8998*	2.7628*
PQUAC	1.8201*	0.7984*	1.2914*	1.1608*	1.8465*	3.2849
BPL	-0.1357*	-0.0039	0.0395	-0.0277	-0.0709	0.0580
INSANY	0.0105**	-0.1148	-0.0526*	0.1026*	-0.1401*	-0.0792
CASTE	0.0668*	0.1026**	0.0571*	0.0108	-0.0124	-0.0972
WATSS	-0.0029*	-0.0098**	-0.0078***	-0.0302*	0.0070**	0.0102
SANTYP	0.0049*	-0.0015	0.0142*	-0.0017	-0.0016	-0.0296*
WI	0.0365*	0.0346	0.1516*	0.0608	-0.0492	-0.7049*
RELGN	-0.0088*	-0.5879*	-0.0156*	-0.0730	0.0201	0.0426
FEEDU	-0.0747*	-0.0437	-0.0489*	0.0518**	-0.0528**	-0.1369*
ELECTR	-0.3210*	-0.2445	-0.0397	-0.1056	0.4014***	0.3203
constant	-1.5232*	0.2301	-2.0536*	-1.2343*	-1.8685*	0.0657
	Pseudo R2 = 0.2701	Pseudo R2= 0.1507	Pseudo R2 =0.2336	Pseudo R2 = 0.1774	Pseudo R2 = 0.3270	Pseudo R2= 0.5286
	Number of obs= 98284	Number of obs= 2910	Number of obs = 10789	Number of obs = 3779	Number of obs = 6606	Number of obs = 2898

Contd…

Table 5. Urban Results …Contd.

	Urban Results							
Dependent variable→	PVTCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Trpura
NONFACTY	4.3268*	-1.0181	5.0147*	2.9173*	3.9400*	2.2806*		4.0562*
TIMENC	4.7228*	3.6984*	2.7248*	2.4173*	6.5410*	0.8475*	3.3747*	
HPABST	3.3833*		2.9041*	2.9092*		-0.1948		1.4624
WAITTL	3.8850*	3.4756*	4.6562*	2.7049*	4.3919*	0.3628*	3.9334*	4.2806*

PQUAC	3.7831*	0.6784	4.2372*	0.5557**	3.8904*	1.3312*	2.1233*	4.2834*
BPL	0.1371	-0.0723	-0.4497**	0.0380		0.2690*	0.0266	-0.1157
INSANY	-0.0884***	0.2465	-0.0501	0.6002**	-0.2214	-1.9012*	-0.0140	0.0138
CASTE	-0.0548	-0.0511	-0.2995*	0.2220	0.9999	0.2476*	0.3724	0.1070
WATSS	0.0421*	0.0027	0.0057	0.0264*	-0.0032	0.0069**		-0.0350
SANTYP	-0.0121	-0.0802	-0.0074	-0.0147	-0.2813	-0.0011	-0.6756	-0.1093*
WI	-0.1756	0.2696	0.0691	-0.0146	-1.0188*	-0.0436		0.2383
RELGN	0.0109	0.0138	0.0038	-0.0138***	1.1026**	0.1726*	-0.2410	0.3170
FEEDU	0.0375	0.2553	0.2219*	-0.0485	0.4572**	0.1106*	0.0357	-0.0199
ELECTR	0.6112***		-0.3020	-0.4611		0.3660		-0.2180
constant	-3.7606*	-5.6801	-3.0136*	-3.4349*	-3.3329	-3.4739*	2.8697	-1.6517
	Pseudo R2 = 0.5260	Pseudo R2 =0.4910	Pseudo R2 = 0.6179	Pseudo R2 =0.4121	Pseudo R2 = 0.5642	Pseudo R2 =0.2503	Pseudo R2 =0.4942	Pseudo R2=0.5678
	Number of obs = 1530	Number of obs = 857	Number of obs = 2797	Number of obs= 1403	Number of obs =1310	Number of obs =3496	Number of obs = 744	Number of obs=556

Table 6. Urban Results

	Urban Results					
Dependent variable→	ANYCARE					
Exp.Variables↓ Coeff.-->	All India	**Gujarat**	**Maharashtra**	**Karnataka**	MP	Raj
NONFACTY	-0.4703*	-0.3634*	-0.2597*	-0.5882	-0.3847*	-0.7990*
TIMENC	-0.3613*	-0.2713***	-0.1739**	-0.7368	-0.1280	-0.6231**
HPABST	0.6106*	-0.4503**	1.7396*	0.5174	0.1183	-1.0456*
WAITTL	-0.2132*	-0.6499*	-0.3271*	-0.3098	0.3166*	-0.4811*
PQUAC	-0.5465*	-1.0825*	-0.9400*	-0.1891	-0.8957*	-2.1705*
BPL	-0.0169	0.0822	0.1487*	0.1621	0.1406	3.4457*
INSANY	0.0226*	-0.0894**	-0.0664*	0.1062	-0.1127*	-0.0104
CASTE	0.0335*	0.0227	0.0015	0.0107	0.0644***	-0.0893
WATSS	0.00398	0.1153*	-0.0170*	-0.0136	0.0181*	0.1291
SANTYP	0.01518	-0.0035	0.0006	-0.0044	0.0147***	-0.0327**
WI	-0.2536*	-0.4866*	-0.0415	-0.3820	-0.3537*	-0.8947*
RELGN	-0.0023	-0.3951*	-0.0111***	0.0310	0.0277	0.2045*
FEEDU	-0.0950*	-0.1064*	-0.0773*	0.0056	-0.1194*	-0.1742*
ELECTR	1.0537*	1.8790*	0.3614*	1.7732	1.8249*	0.9351***
constant	1.8600*	2.2348*	2.3887*	1.0468	1.6641*	5.2354*
	Pseudo R2 = 0.0501	Pseudo R2= 0.1166	Pseudo R2 = 0.0523	Pseudo R2 = 0.0933	Pseudo R2 = 0.0911	Pseudo R2 = 0.2733
	Number of obs= 98284	Number of obs = 2910	Number of obs = 10789	Number of obs = 3779	Number of obs = 6606	Number of obs = 2898

Contd…

Table 6. Urban Results ….Contd.

	Urban Results							
Dependent variable→	ANYCARE							
Exp.Variables↓ Coeff.-->	Assam	Arunachal Pradesh	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
NONFACTY	-1.5054*	-3.6398	-0.6239**	-1.8118*	-4.1822*	-0.6669*		-2.3667
TIMENC	-0.0259	-1.2231	-0.3686	-1.0965*	-3.0964*	-0.4866*	-0.2560	

HPABST	1.0920***		-0.6580**	3.7705*		1.2591*		-5.9477*
WAITTL	0.0594	1.2900	1.5243*	-1.2421*	-2.1419*	-1.4455*	-3.8271*	-0.8491
PQUAC	-1.8866*	-4.8039	-1.6520*	-3.4648*	-3.9816*	-1.0809*	-4.6953*	-1.7642
BPL	2.2462*		0.0470	0.8244	-0.3217	0.9948*	0.1854	-0.0326
INSANY	-0.1252*	0.3538	-0.0754	1.9187*	0.3652***	-0.1632*	0.0605	
CASTE	-0.1314	0.4543	-0.2324*	0.0914	2.6820**	0.1214**	-0.1315	0.9700***
WATSS	0.0230***	1.0196	0.0092***	0.0311*	0.0128	0.0011	-0.0656**	-0.0258
SANTYP	-0.0100	-0.0409	-0.0002	0.0764*	1.3133**	0.0143***	0.0700	-0.0868**
WI	-0.3265**	-0.0614	-1.0054*	-0.3791**	-2.0249*	-0.5648*	-2.8267	0.4946
RELGN	0.0130	0.0663	-0.0042	-0.0067***	0.8085***	0.1895*	-0.3007**	
FEEDU	-0.0074	0.1160	0.2547*	-0.0866	-0.3734**	0.0934*	-0.0267	-0.5323
ELECTR	0.4464		1.9319*	0.0502		1.7307*		
constant	4.0963*	-8.1697	5.5434*	2.2244**	-8.4891	1.3339*	19.7587***	5.7614***
	Pseudo R2 = 0.1907	Pseudo R2 = 0.5251	Pseudo R2 = 0.1569	Pseudo R2= 0.3409	Pseudo R2 =0.5119	Pseudo R2=0.1318	Pseudo R2 = 0.5715	Pseudo R2 =0.5747
	Number of obs = 1530	Number of obs = 756	Number of obs= 2797	Number of obs = 1403	Number of obs=1609	Number of obs = 3496	Number of obs= 999	Number of obs= 446

CONCLUSIONS AND POLICY IMPLICATIONS

Results of the rural all India level indicate that all the variables are significant. Among the explanatory variables, broadly quality variables indicate that utilization of govt. facilities is hampered by distance, inconvenient timing of facility, absence of health personnel, and poor quality of care as perceived by respondents. The marginal impact of these variables is however small. The elasticity of these variables is particularly high in determining the utilization of govt. fac*i*lities. In contrast to govt. facility utilization, the private health care facility utilization had positive but low elasticity with respect to quality variables in rural areas. Poverty hampered the utilization of private provider in the rural results. This is denoted by negative impact of BPL card holding.

Most importantly these results prove health care as necessity with low elasticities with respect to income and other socio-economic variables. Nevertheless, choice of a better provider (govt. vs. private or no facility vs. any facility) is seen through high responsiveness of rural respondents.

A major difference between rural and urban results is in terms of impact of BPL status. In urban areas, BPL status has been a negative factor in utilization of any type of health care facility. There is no notable difference between rural-urban results in terms of water-sanitation impact which shows mixed results. In general, for all the three types of dependent variables, magnitude of income elasticity has been higher in urban areas relative to the rural counterparts, but the difference in magnitude is also low.In the case of individual state level results, among rich states, the results for Gujarat indicate that for rural Gujarat high negative elasticity with respect to quality variables and it is impinging on utilization of public health care facilities. It indicates that respondents in urban Gujarat had most important criteria as income and quality to utilize public health care. In line with other rich state, namely Gujarat, the results of urban Maharashtra also indicate high elasticity coefficients both with respect to quality and income variable in deciding utilization of public health facilities. In line with the all India rural results, the rural results for Karnataka state representing an average income state also depict high elasticity with respect to quality and income variables only for public health care utilization.

Among poor states, results for rural MP depict overall significance of only few variables particularly in regard to utilization of public health facilities. The variables which emerged statistically significant include insurance coverage, type of sanitation and electricity. The impact of these variables and elasticities are low and generally depict a lack of all these namely insurance coverage (negative sign), sanitation (positive sign) and electricity (positive sign). The results of rural MP for private care utilization depict statistically significant coefficients for most of the variables except water and sanitation. However, elasticity coefficients are very low for all of them thus again depicting health care as a necessity. In contrast to rural results, urban MP results depict high impact and elasticity coefficients for most of the quality variables except absence of health personnel. Unlike the results of urban MP, the results for public care utilization for other poor states, namely Rajasthan for urban areas do not indicate high elasticity coefficients pertaining to any variables except for poor quality (-1.18) and wealth index (1.49). In general, all the north eastern states denote very

low elasticity coefficients for public care. However, the elasticity coefficients are better for private care for these states yet indicate inelastic nature of utilization either for public or private care in rural areas. (Tables 1-3). A similar overall picture of low elasticities emerges in regard to north eastern states in case of urban areas.

Overall our results provide evidence that health care demand both in rural and urban areas is a commodity which emerges as an essential need and choices between public or private provider are guided by income and quality variables mainly in regard to public health care denoting thus a situation of very limited alternatives in terms of availing private providers. These results emphasize that existing public health care facilities are not serving the avowed objective of providing care to the poor in a satisfactory manner even in rural areas also. Thus any strategy to improve health system and reduce disparities across rich-poor states and rural-urban areas should also take into account not only overcoming inadequacy but also inefficiency in allocation and utilization of health care inputs [1,9].

Annexure 1:

To develop empirically testable hypotheses, a model of the demand for health defined in terms of different indicators of mortality and diseases is specified. The model concentrates on the role of money prices, time prices, earned and non-earned income and health insurance (see for instance, Acton, 1973). A number of socio-economic variables including religion, caste, education, assets are also used in empirical estimation. For simplicity, the formal model is developed in terms of only one provider of health, but the implications for several providers can easily be drawn.

Let the inter temporal utility function of a typical consumer be

$U = U(\Delta tHt, Zt), t = 0, 1, \ldots, n,$

where Ht is the stock of health at age t or in time period t, Δt is the service flow per unit stock,

ht = ΔtHt is total consumption of "health services," and Zt is consumption of another commodity.

The stock of health in the initial period (H_0) is given, but the stock of health at any other age is endogenous. The length of life as of the planning date (n) also is endogenous. In particular, death takes place when Ht ΔH_{min}. Therefore, length of life is determined by the quantities of health capital that maximize utility subject to production and resource constraints.

If we write ht = ΔtHt= m denoting medical services or any other commodity or characteristic leading to health and assume that two goods enter the individual's utility function: medical services m, and a composite X, for all other goods and services; and also presume a fixed proportions of money and time to consume m and X, combined these with the full wealth assumption, the model can be represented as follows:

Maximize

U =U(m,X)

Subject to

(p + wt) m + (q + ws) X ≤y + wT=Y,

Where

U = utility.

m= medical services,

X= all other goods and services.

p =out-of-pocket money price per unit of medical services,

t=own-time input per unit of medical services consumed, t

q= money price per unit of X.

s =own-time input per unit of X,

w =earnings per hour.

Y= total (full) income,

y= non-earned income, and

T= total amount of time available for market and own production of goods and services.

Here the consumption of medical services, m, does not affect the amount of time available for production, T.

Based on the optimization process, the reduced-form demand functions for medical care (Mt) can be derived as:

Mt = M(p, q, w, V, H, E; □t)

Where E is a vector of individual, family and community characteristics, and □t is the unobserved initial endowment and V is the current annual household wealth income.

Most of the empirical studies have used the reduced form approach and include both sets of variables denoting either demand and/or production function variables to analyze the determinants of health care.

The 'conditional' demand for curative care (one of the inputs in the health production function can be specified as:

[Mi|Hi=1] = b1 + b 2Pi + b 3Vi + b 4Ei + ei, i=1, 2... m sick persons..….. (A)

Where E is a vector of individual, household and community variables and M is the choice of health-care provider which takes discrete values.

M = 0, if taking no treatment, or taking self treatment and other care (other than public and private) facilities

= 1, if public health facilities are used for treatment

= 2, if private health care is utilized.

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