HEALTHCARE UTILISATION BEHAVIOUR IN INDIA: SOCIO-ECONOMIC DISPARITIES AND THE EFFECT OF HEALTH INSURANCE

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Abstract

The purpose of this paper is to probe issues such as inequality in healthcare utilisation, impoverishment due to increasing out-of-pocket (OOP) health expenditure, growing dependence on informal sources of healthcare and strengthening the role of insurance, which has been gaining importance within the healthcare systems in low and middle-income countries, including India. The provision of health insurance (HI) is seen as one of the major agendas for policy makers for ensuring universal health coverage. However, little is known at the aggregate level whether HI leads to a change in the way healthcare facilities are used in India. Hence, this paper will analyse the impact of HI on healthcare utilisation behaviour of individuals using the nationally representative data of the Indian Human Development Survey (IHDS) 2004-05. Logit, Tobit and Multinomial Logit Models have been used to analyse the impact of HI along with socio-economic factors on healthcare utilisation behaviour. We found that in Logistic Regression health insurance does not have any statistically significant impact on utilisation behaviour whereas in Tobit and Multinomial Logit we found it to be significant. Nonetheless, the coefficients of health insurance status in different models show positive signs. This implies that insurance increases the probability of healthcare seeking behaviour. It is also found that insurance increases the probability of healthcare either in the private or in the public sector. However, people tend to use the private sector more than the public sector. However, in India the private sector is largely unregulated and very often it leads to unnecessary care and cost escalation. Therefore, on the policy perspective it will be wise on the part of government to bring in a sound regulatory mechanism to control the private sector to ensure the efficient functioning of the health insurance sector for the benefit of the insured people. The government should also educate the people about the benefits of health insurance and persuade the private sector to educate their insured members holistically about their insurance product.

Key words: Health insurance, Universal Healthcare, India, OOP, Healthcare utilisation, Logit, Tobit, Multinomial Logit

Introduction

The importance of health in reduction of poverty and promotion of economic growth has been well highlighted in policy documents in India. We also have experienced a lot of improvement in economic as well as health parametres since independence. However, the surge in economic growth in the recent decade has not really resulted in drastic improvement in health outcomes and India it is still struggling to match developed countries and even neighbouring developing countries like China, Sri Lanka, Nepal and Bangladesh. India is regarded as global hub for burden of disease, with 18 per cent of deaths and 20 per cent of disability-adjusted life-years (DALYs)[1]. It is also experiencing epidemiological transition where non-communicable diseases account for 42 per cent of deaths and 38 per cent of deaths are attributable to communicable diseases, maternal and peri-natal disorders and nutritional deficiencies (MOHFW, 2010). Rural areas report more deaths (41 per cent) due to communicable, maternal, peri-

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[1] WHO (2009). Disease and injury country estimates. Death and DALY estimates for 2004 by cause for WHO Member States. Department of Measurement and Health Information.

natal and nutritional deficiencies. A comparison of important health indicators with neighbouring countries (Table 1) shows that India is lagging behind. It is also documented that India may fail to achieve two important goals related to health in the Millennium Development Goals (MDGs), i.e., reduce child mortality and improve maternal health by 2015. As per the MDGs India Country Report 2011, the target requires reduction of the under-five mortality rate to 42 per thousand live births but the expected outcome is 70. Maternal Mortality Rate (MMR) is projected to be 135 as against the required rate of 109 per 100,000 live births (CSO, 2011).

Most importantly, these abysmal health outcomes are determined by factors such as gender, caste, wealth, education and geography (Subramanian *et.al*, 2006). For example, the infant mortality rate was 82 per 1,000 live births in the poorest wealth quintile and 34 per 1,000 live births in the richest wealth quintile in 2005-06. We also find a high degree of geographical inequality in health outcome, for example, life expectancy is 56 years in Madhya Pradesh where as it is 74 years in Kerala[2]. Many of these socio-economic and geographical inequalities in health outcomes can be traced to the fact that socio-economic inequalities have an impact on behaviour when it comes to utilisation of healthcare services. For instance, the estimated proportion of hospitalised persons differs substantially between the rural (2.3 per cent) and the urban areas (3.1 per cent) during a reference period of 365 days. Further, considering monthly per capita consumption expenditure (MPCE) as a proxy for standard of living, the estimates suggest a positive association between standard of living and the rate of hospitalisation in both rural and urban areas. There are striking variations in hospitalisation rates by gender, wealth, and urban-rural residence (Balarajan *et.al*, 2011). The overall difference between the rural (82.3 per cent) and urban (89.2 per dent) areas is about 7 per cent in spells of ailments treated during 15 days implying that more spells of ailments are being treated in the urban areas (NSSO, 2006). The report also shows that "financial problem" is the second most importance reason after "ailment not serious" for no treatment, accounting for 28 per cent and 20 per cent of the untreated ailments in the rural and urban areas, respectively. It increased from 24 per cent to 28 per cent in rural areas and declined marginally from 21 to 20 per cent in urban areas between 1995-96 and 2004-05. The percentage of people complaining 'no medical facility' also increased in rural areas from 9 per cent to 12 per cent while it remained unchanged in urban areas during the same period. This variation in healthcare outcome may be due to differences in the actual and perceived need for healthcare. There is evidence of gender inequalities in untreated morbidity with likely under-reporting of illness among women (Sen G *et.al*, 2002).

On the other hand, the pattern of utilisation of healthcare services is also changing. The majority of Indian's opt for outpatient and inpatient care at private health facilities – a trend that has been increasing over time (Mahal *et al.*, 2001). Despite considerable investment in developing and maintaining an extensive network of public health facilities, the utilisation of health services is still far from satisfactory (Peters *et al.*, 2002). For example, the number of people taking inpatient treatment in government hospitals has fallen drastically from 59.7 to 41.7 per cent in rural areas and from 60.3 to 38.2 per cent in urban areas during the period 1986-87 and 2004-05 respectively (NSSO, 2006). This trend has serious implication because the fees and cost of treatment is very high in private facilities and

[2] National Family Health Survey (NFHS-3), 2005–06

unaffordable for people with low-incomes. Over the years, out-of-pocket expenditure is increasing and exacerbating poverty. Ill health and related expenditure are contributing to the impoverishment of more than half of the households (Mahal et al., 2010).

In addition, with the advent of new expensive technology in healthcare, health expenditure is also increasing. Due to the fear of high healthcare cost and its impoverishing impact, quite often people take recourse to traditional healers, self-medication and consulting drug store salespersons for medication. This is not preferred or desirable as it is risky and of lower quality compared to professional medical care. The risks stem from (i) incorrect self-diagnosis and self-care, (ii) absence of specialised knowledge of alternative treatments, (iii) abuse of medications due to incorrect dosage and duration of use, (iv) dangers of side effects and neglect of reactions with other drugs. Above all, over the years healthcare has become costlier. The high cost of healthcare deters people from using healthcare services thereby prolonging or worsening health problems (Gilson, 1998; Russell, 2004) and the evidence is found more among socio-economically backward groups. Therefore, providing health security to the lower income and vulnerable households is very important to bring equity in healthcare.

Therefore, in recent years we have seen a drive in low and middle-income countries to strengthen the role of insurance within the healthcare systems. India is no exception. Health insurance is seen as a rational and powerful means that propels access to healthcare facilities significantly. It is regarded as a viable solution in terms of promoting efficiency and equity in the healthcare sector (Churchill 2006).

Table1: Health Indicators of India and its Neighbouring Countries in 2009

Indicators/Countries	Sri Lanka	Bangladesh	Nepal	Pakistan	China	India
Life expectancy at birth	71	65	67	63	74	65
Infant mortality rate	13	41	39	70	17	50
Maternal mortality ratio	39	340	380	260	38	230
Under-five mortality rate	16	52	48	87	19	66

Source: World health Organisation (WHO), 2009

Health Insurance System in India

Health insurance is very new to Indians. It was introduced only in 1912 when the first Insurance Act was passed. The contemporary version of the Insurance Act was introduced in 1938. Since then little change was made until the 1970s. In 1972, the insurance industry was nationalised and 107 private insurance companies were brought under the umbrella of the General Insurance Corporation (GIC). Later on, a dramatic change occurred in the insurance industry after the advent of new economic policy and liberalisation process initiated by Government of India in 1991. This in turn paved the way for the privatisation of the insurance sector in the country. In 1999, with the enactment of the Insurance Regulatory and Development Act (IRDA) private and foreign insurance providers were allowed to enter the market.

Various types of health insurance schemes and plans are available in India. Based on ownership, the existing health insurance schemes can be broadly divided into four categories:

1. *Government or State-based systems*
2. *Market-based systems (private and voluntary)*
3. *Employer provided insurance schemes*
4. *Member organisation (NGO or co-operative)-based systems*

Government or State-based systems include Central Government Health Scheme (CGHS) and Employees State Insurance Scheme (ESIS). Market-based schemes and employer provided insurance schemes could be bracketed into private health insurance schemes. Private health insurance schemes like Mediclaim, government non-life insurance, non-government non-life insurance are voluntary schemes offered by market based systems. These insurance schemes are based on the principle of ability to pay. ACCORD (Tamil Nadu), SEWA (Gujarat), YESHASWINI Trust (Karnataka), Students Health Home (West Bengal), RAHA (Chhattisgarh) etc., are some of the well-known member organisation (NGO or cooperative)-based health insurance schemes.

Nonetheless, the access to health insurance in India has been very low. The estimate varies from study to study. It is estimated to be only about 15 per cent of total population covered under any form of health insurance (Yip and Mahal, 2008). A recent study (PHFI, 2011) shows that approximately 302 million individuals (25 per cent) of India's population were covered by any form of insurance including the CHGS, ESIS, Government sponsored schemes and private health insurance in 2010. The recent surge in health insurance coverage is due to the state and central government initiatives, particularly after 2006-07. Some of the major schemes are Rastriya Swasthya Bima Yojana (RSBY, Central initiative), Chief Minister Kalaignar's Insurance Scheme for Life Saving Treatments (Tamilnadu), Vajapayee Arogyasri Scheme (Karnataka) and Rajiv Aarogyasri (Andhra Pradesh). Many other States in India are planning to launch their own health insurance programmes in collaboration with private players. We cannot ignore the fact that the present UPA-II flagship programme of RSBY can be expanded to APL families too. Kerala has paved the way for APL families in this regard.

The present state of the health insurance system in India is very much government sponsored and has the major share in total coverage. The present strategy adopted by the government of India is to provide a compulsory scheme for salaried workers and, simultaneously, to promote voluntary schemes for those working in the informal sector. It is problematic to extend compulsory insurance to the informal sector for several reasons, including poor information regarding income and difficulty in the timely collection of premium (Ensor T, 1999). Another feature of the present health system with regard to financing is the existence of both user charges and health insurance. The user fee in hospitals was introduced during the Eighth Five-year Plan (1992–97) as part of the reform process to impress upon the healthcare seekers that healthcare cannot be free and it ensures efficiency and equity. The reason for adopting a financing strategy that combines user fees and health insurance is the substantial evidence that reliance on direct out-of-pocket payments negatively affects treatment-seeking behaviour. Evidence shows that user fees for health services have led to lower consumption of essential services amongst high need groups. In turn, they have increasingly turned to self-treatment and low-cost health services provided by unregulated private practitioners (Gilson, 1997 and Creese, 1991).

Rationale, Objectives and Relevance of the Study

There are substantial studies, which argue that with health insurance, the pattern of healthcare utilisation changes due to changes in the behaviour of the household or individual. These studies fall within the framework of moral hazard, which was famously developed by Mark V Pauly in 1968. Much of this literature implies that increased consumption under insurance, especially of expensive inpatient health services, is unnecessary. However, given the high level of unmet health needs in low-income countries like India, increased consumption is a desirable policy goal. The reasons behind the government's proactive direct intervention and encouraging private and NGO sectors to provide health insurance are (i) to increase healthcare utilisation through reduction of healthcare cost at the time of utilisation (ii) to reduce no-care and informal healthcare practices like self-care and consulting pharmaceutical shops and relatives and (iii) to increase the utilisation of healthcare at government facilities. However, a few studies[3] in India have investigated whether or not insurance has led to change in healthcare utilisation behaviour. These investigations will provide empirical support, whether or not to scale up the health insurance scheme to a policy measure to achieve universal healthcare and carefully structure its policy by taking into consideration various concerns it may face in future. For example, it is expected that with the provision of health insurance, utilisation of healthcare in public sector facilities by the low-income group will increase. The poor quality of healthcare in public sector facilities forces the individual to patronise the private sector. We know that in the name of good quality services, the private sector charges higher fees that results in higher out-of-pocket expenditure and eventual impoverishment of the individual. Hence, this paper aims to analyse the impact of health insurance along with socio-economic factors on healthcare utilisation behaviour of the household or individual.

Theoretical Background

The theoretical background of this paper is based on the *"behavioural model"* proposed by Anderson (1968) and the subsequent revised version of the model. It suggests that the people's use of health services is a function of their predisposition to use services, factors that enable or impede use, and their need for care. Therefore, the model consists of three major components (i) predisposing factors, (ii) enabling factors and (iii) need factors.

The predisposing factors are the socio-cultural characteristics of individuals prior to their illness in terms of social structure (education, occupation, ethnicity, social networks, social interactions and culture), health beliefs (attitudes, values and knowledge that people have concerning the health care system) and demographic characteristics (age and gender) of individuals.

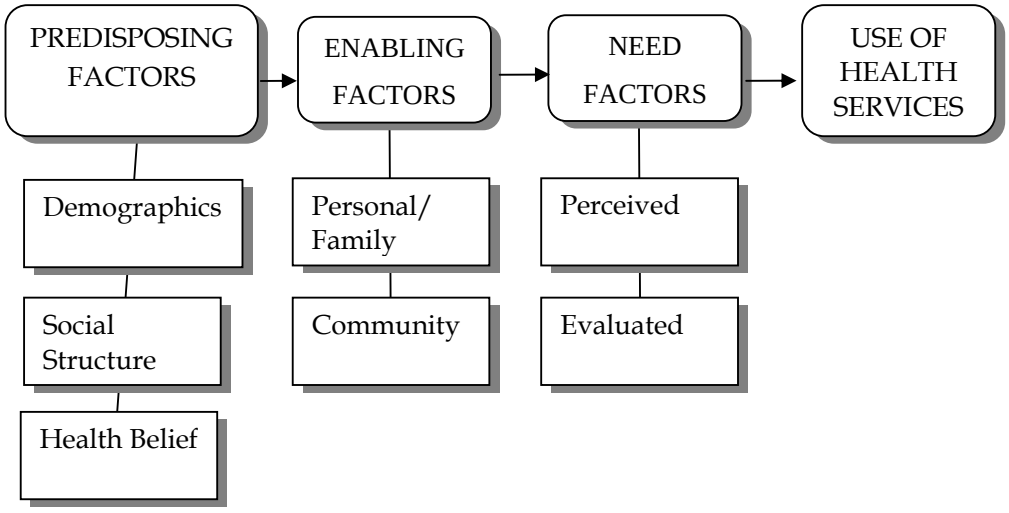
The enabling factors are the main sources of the logistical aspects of obtaining care available from personal/family and community levels. The personal/family level provides the means to access health services, income, health insurance, a regular source of care, travel, extent and quality of social relationships. The available health personnel, facilities and waiting time are some of the factors at community level that enable the use of healthcare services.

[3] Aggarwal (2010) for Yeshasvini CBHI scheme and Devadasan *et al.* (2007) for ACCORD and SEWA schemes

The need factors are the immediate cause for the use of healthcare services ranging from functional to health problems that generate the need for health care services. According Anderson (1995) there two aspects under need factors, namely, perceived and evaluated. The perception of the people of their own health and functional state along with how they experience the symptoms of illness, pain and worries and, later on, the decision to seek help from the professional healthcare provider are the perceived factors. The evaluated factor includes professional judgment about a person's health status and the need for medical care. However, in this paper the behavioural model of Anderson is taken into consideration from an individual's perspective. The role of healthcare providers' judgement of the need for medical care is not considered as it very difficult to measure with the available survey data.

According Anderson (1995) each component is said to contribute independently to healthcare utilisation behaviour. However, the model considers a causal ordering where the predisposing factors might be exogenous (especially of the demographic and social structure), some enabling resources are necessary but not sufficient for use and some need must be defined for use to take place. Hence, in this paper, we hypothesise that health insurance essentially enables the individual to seek healthcare but may not be a sufficient factor. The above theoretical explanation is shown in Figure 1 below.

Figure 1: The Initial Behavioural Model (Adapted from Andersen, 1995)



Methodology

1. Hypothesis

The purpose of this study is to explore the factors influencing health service utilisation and mainly to see the impact of health insurance on healthcare utilisation. It is argued that health insurance can remove the financial barrier that is hindering access to healthcare. We therefore, expect that the insured will use more services than the uninsured. We assume that the impact on the use of healthcare services by the insured would vary between public and private facilities. Individuals with insurance will

prefer private providers for quality services to public unmindful of the higher cost because insurance lowers the cost of treatment.

Aside from insurance coverage, other factors may also contribute to the use of health care service. Based on the availability of survey data, this paper uses factors like age, sex, place of residence, caste, gender, income and other household characteristics as control variables to test the impact of health insurance. Many studies have shown that higher income groups use more services than the lower income groups (Waters, 2000; Glick, *et al.*, 2000; Onwujekwe, 2005). Similarly, utilisation is expected to be higher by individuals from urban areas rather than rural areas. It is hypothesised that with the increase in age, healthcare utilisation declines but it increases after a certain point – when an individual approaches old age. Therefore, it shows a nonlinear convex pattern. Households with more number of persons will have lesser healthcare utilisation because lesser economic resources are available per head. Households with more number of children and old persons will tend to use more healthcare compared to households with fewer children and old persons.

2. Models for Healthcare Utilisation Behaviour

For the analysis of healthcare utilisation behaviour, three models were taken into consideration. First model is the logistic model to analyse the impact of health insurance along with socio-economic and demographic variables on treatment seeking behaviour. So the dependent variable is the case of binary variable which takes the value as 1 if treatment taken and zero if treatment not taken. Therefore, the functional form is as follows

$$\boldsymbol{Ln}\left(\frac{\boldsymbol{P}}{\boldsymbol{1-P}}\right) = \boldsymbol{XB} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (\mathbf{1})$$

Where, *P=* probability of treatment taken and

1-P= probability of treatment not taken

X= vector of explanatory variables including insurance coverage

B= vector of coefficients

The second model is the Tobit model, which has been used to comprehend the impact of health insurance on number of days spent in hospital along with other explanatory variables. Here the dependent variable consists of both zero and non-zero values due to censored data. Individuals may have zero hospital days because they may not have been hospitalised during the survey period for several reasons even though they experienced illness. Therefore, individuals who have experienced hospitalisation will only have positive non-zero values. For this kind of data if we apply the OLS estimates of the parameters obtained, it will be biased as well as inconsistent because it fails to capture the distinction between limit observations (zero hospital days) and non-limit observations (positive hospital days). Therefore, the Tobit model is used to take care of the issue. The Tobit model, it is estimated, is based on the method of maximum likelihood.

Statistically, we can express the Tobit model as

$$Y = \beta X + u \quad \text{if RHS} > 0$$
$$= 0 \quad \text{Otherwise} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (2)$$

The third model used for the analysis of health service utilisation is called Multinominal Logistic Model (MNL) because a patient's alternatives are more than two. The variable in use is an un-ordered categorical variable defined as 0 for not using any of the services, 1 for public facility, 2 for private facility, and 3 for other facilities (pharmaceuticals and traditional healer). Therefore, the dependent variable takes the value of more than two categories ranging from zero to three. The focus of the study is to identify the factors influencing an individuals' healthcare seeking behaviour upon expressing that illness occurred. The model can be written as

$$Ln\left(\frac{Pr(use = j|R = 1)}{Pr(use = 0|R = 1)}\right) = X\beta j \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \qquad (3)$$

Where j=1, 2, 3, representing the three choices of the health service providers – public, private and others; *use=0* is the base group that reported illness but did not use any service; **X** is a vector of explanatory variables including insurance coverage; *R=1* is those who reported illness and $\boldsymbol{\beta_j}$ is a vector of coefficients when choosing provider *j.* The model assumes that each u_{ij} for all alternatives j is distributed independently and identically in accordance with the extreme value distribution. The MNL model requires independent irrelevant alternative (IIA) property be satisfied. This assumption is often not realistic. An alternative to this model is the nested logit model (NLM). However, in this paper all of the right hand side variables are individual characteristics where, providers' characteristics do not appear as an independent variable. The nested logit model produces, essentially, the same result as the MNL model (Econometric Society, 1982).

3. Data, Variables and Methodological Limitation

The data of the Indian Human Development Survey (IHDS) 2004-05 has been used in this study. The survey is nationally representative covering 41,554 households and 2,15,754 individuals. The survey was conducted for multi-topics and was jointly organised by the University of Maryland, and the National Council of Applied Economic Research (NCAER), New Delhi. IHDS was conducted in all states and union territories of India (with the exception of Andaman, Nicobar and Lakshadweep). The sample was drawn using stratified random sampling method and spread across 1,503 villages and 971 urban blocks.

The variables used in this paper are mainly from the morbidity section of individual files. Information on self-reported illness and health service utilisation was collected at the individual level for both short and long-term morbidity. A person is treated as suffering from short-term morbidity if s/he is suffering from three specific illnesses namely, fever, cough and diarrhoea. A person is treated as suffering from long-term morbidity if s/he is suffering from diseases like polio, paralysis, epilepsy, mental illness, STD or AIDS, cataract, heart disease, diabetes, leprosy, cancer, asthma, tuberculosis (Tb), high BP and other long-term diseases. The reference period is 30 days and 365 days prior to the survey for short-term and long-term morbidity respectively. Various socio-economic and demographic

indicators such as age, sex, income, SHI coverage, household size etc., were also collected at the individual as well as household levels. The total number of people reporting ill was 36,432. Therefore, for our analysis the sample size is 36,432.

Definition and Construction of Variables:

For our analysis of the utilisation of healthcare services, three dependent variables were constructed using various given variables. The first dependent variable is called 'healthcare taken or not'. So those who were ill from either short term or long-term morbidity have selected out and then if they have taken healthcare are given value one and zero otherwise. The second dependent variable is called 'how many days spent in hospital due to illness'. For this, we added both hospital days spent due to short term and long-term morbidity. Hence, the dependent variable consists of both non-zero positive values for those who experienced hospitalisation and those who did not suffer an illness. The third variable is called 'choice of care' for those who were ill either from short term or from long-term morbidity. Then those who sought care from public, private and pharmaceutical/traditional healer were assigned value 1, 2 and 3 respectively whereas those who did not seek any-care were assigned zero.

Methodological Limitation:

The presence of health insurance as an independent variable in each model (Logit, Tobit and Multinominal Logit), discussed earlier, can be endogenous. If the purchasing decision on health insurance is voluntary, then the effect of being insured is potentially subject to selection bias. This results in endogeneity and biased coefficient estimates (Waters, 1999). In short, there may be unobservable factors influencing the decision to purchase health insurance. This may in turn also influence treatment-seeking behaviour, resulting in unobserved heterogeneity. However, the data used does not exclusively provide the information whether the individual has voluntary or mandatory health insurance. Therefore, the variable health insurance status in this paper is considered as exogenous.

Results

1. Descriptive Analysis

Table-2 shows a descriptive outlook of the overall morbidity and healthcare utilisation behaviour of the sample population. Out of a total sample of 2,15,754 population interviewed, 36,432 (16.9%) reported illness either from short-term (11.8%) or long-term morbidity (6%)[4]. Only around 7 per cent of the total number of ill persons has not taken any treatment and around 11 per cent have experienced hospitalisation during the reference period of one year during which 6.13 per cent of the sample population spent less than/equal to one week in hospital. If choice of care is divided into public, private, pharmacy/traditional healer and no care, then individuals prefer public sector the most (around 18%) after private sector (around 67%).

[4] Both short term (11.8%) and long-term morbidity (6%) does not sum up to 16.9% because a person can experience both short term and long-term morbidity during the reference period. Therefore, it is not mutually exclusive.

Table 2: An Overall Morbidity and Healthcare Utilisation Behaviour Profile of the Sample Population in India

	%	*Frequency*
Reporting Ill	16.9	36432
Reporting Ill (Short term morbidity)	11.8	25506
Reporting Ill (Long term morbidity)	6.00	13018
Total Sample Size	100.00	215754
Treatment Taken or Not		
No	6.97	2539
Yes	93.03	33893
Total	100.00	36432
No of Days in Hospital		
0 days	88.75	32333
<= 1 week	6.13	2233
<= 2 weeks	2.40	874
<= 1 month	2.12	771
> 1 month	0.60	220
Total	**100.00**	**36432**
Choice of Care		
Public	18.02	6565
Private	66.98	24402
Pharmacy/ Traditional Healer	8.03	2925
No Care	6.97	2539
Total	**100.00**	**36432**

Source: Author's Calculation using IHDS 2004-05 unit level data

Prevalence of Morbidity:

The prevalence of morbidity and utilisation pattern by socioeconomic and insurance status has been shown in Table 3. If monthly per capita consumption expenditure is the indicator of standard of living, it appears from the data that the poor are less prone to sickness than the rich are and that is theoretically dubious. The other plausible reason is that the reporting of morbidity improves with improvement in the standard of living. However, the prevalence is higher among rural than urban individuals. Individuals belonging to different caste groups show little difference in prevalence of morbidity, except the Scheduled Tribes. However, the difference is evident among them when we segregate them as rural and urban population. Rural individuals report higher prevalence of morbidity. With the increase in education, the prevalence of morbidity also declines because educated individuals take care of their

health better compared to the less educated. Both in urban and rural areas, the illiterate have higher morbidity of around 23 and 24 per cent respectively. As for age group and morbidity, the 0-14 years and 60+ years age groups, representing the young and old, show higher prevalence of morbidity of 20.4 per cent and 33.0 per cent, respectively. A difference in prevalence of morbidity is found in the data as expected, showing female as more prone to illness. Females in rural and urban areas suffer a higher percentage of illness (19.8% and 18.3% respectively) compared to males (17% and 14.8% respectively). As far as health insurance and morbidity level is concerned, no significant difference is found between those having and not having health insurance both in rural and urban areas.

Treatment Seeking Behaviour:

Not all the time individuals seek treatment when they are ill. They sometimes resort to self-medication, home remedies or no medical care. Column-3 in Table-3 provides evidence of the treatment seeking behaviour of individuals by socio-economic groups and insurance status. A higher percentage of people – 93.0 per cent – seek treatment while suffering from illness. However, we find a difference across socio-economic groups. Only 88 per cent of the total persons from lowest income quintile seek treatment while it accounts for around 96 per cent in highest income quintile. The rural-urban divide is also found across income quintile where urban people irrespective of income quintile have advantaged over rural people. As far as social/caste group is a concern, individuals from higher caste (around 94%) have better treatment seeking behaviour than the lower caste (ST-88.4%) irrespective of place of residence. With increase in education, the treatment level increases across rural and urban area with little difference. Overall treatment percentage is higher across age groups, but urban people have better treatment seeking behaviour compared to the rural people across age groups. Gender and treatment seeking behaviour is always an interesting subject. The data shows a little difference (overall male-93.1%, female-93.0%) across gender in both rural and urban areas. The impact of health insurance on health seeking behaviour is evident but it is only marginal. Over all difference in treatment sought between having (94.5%) and not having (93.0%) health insurance is only 1.5%. The difference is higher in rural areas.

Table 3: Prevalence of Morbidity, Utilisation (Treatment Taken and Average Number of Days in Hospital) Pattern by Socio-economic Characteristics and Insurance Status

Socio-economic Characteristics	Prevalence of Morbidity (in %) [N=36432]			Treatment Taken (in %) [N=36432]			Average days of Hospitalisation					
							Including Zero days [N=36432]			Excluding Zero days [N=4015]		
(C1)	(C2)			(C3)			(4)			(C5)		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	rural	Urban	Total
Consumption Quintile (CQ)												
CQ1	13.9	14.5	14.0	88.1	90.8	88.4	0.7	1.5	0.8	9.6	10.8	10.2
CQ2	17.9	15.4	17.4	91.4	92.3	91.6	0.9	1.3	1.0	10.4	11.9	10.6
CQ3	19.4	15.7	18.4	93.2	93.7	93.3	1.3	1.5	1.3	10.9	12.1	11.7
CQ4	21.9	16.0	19.6	95.5	95.2	95.4	1.3	1.8	1.5	11.8	12.6	12.2
CQ5	23.9	18.4	21.0	95.8	96.3	96.0	2.5	1.8	2.2	14.0	13.7	13.5
Caste Group												
Higher	18.9	16.4	18.0	93.5	94.7	93.9	1.4	1.9	1.6	12.4	11.1	12.0
OBC	18.5	16.7	18.0	93.5	94.6	93.8	1.2	1.5	1.3	10.9	12.7	11.6
SC	19.3	17.0	18.8	91.0	94.8	91.7	1.3	1.6	1.4	11.2	13.9	11.2
ST	13.7	13.2	13.7	88.1	91.6	88.4	1.1	1.9	1.2	10.0	11.4	10.3
Educational Level												
Illiterate	22.9	24.1	23.1	92.9	95.0	93.3	1.2	1.4	1.2	10.9	12.3	11.2
<= Primary	16.7	16.5	16.6	91.4	94.8	92.2	1.3	1.2	1.3	13.3	11.1	12.8
< = Metric	13.8	13.5	13.7	92.4	94.4	93.1	1.6	1.9	1.7	12.2	14.0	12.8
<= Higher Secondary	11.2	11.4	11.3	94.4	93.6	94.0	1.4	1.6	1.5	12.2	9.9	11.0
Graduate and Above	11.1	12.1	11.7	93.3	94.5	94.1	1.7	1.3	1.4	11.4	11.6	11.5
Age group												
0--14	20.4	19.8	20.3	92.8	95.8	93.5	0.5	0.4	0.4	10.4	7.7	9.6
15--29	11.0	9.0	10.4	90.9	91.2	91.0	1.2	1.0	1.2	12.5	7.9	11.1
30--44	16.9	13.0	15.8	92.6	93.5	92.8	2.0	2.5	2.1	12.9	16.9	13.8
45-59	23.0	22.6	22.9	93.1	95.6	93.8	1.8	2.1	1.9	12.2	15.4	13.1
60+	29.2	33.0	30.1	92.9	95.7	93.6	2.4	2.5	2.4	11.4	12.1	11.5
Gender												
Male	17.0	14.8	16.4	92.7	94.6	93.1	1.5	1.7	1.6	13.1	13.4	13.2
Female	19.8	18.3	19.4	92.4	94.7	93.0	1.1	1.3	1.2	10.8	11.3	10.9
Health Insurance Status												
No	18.4	16.5	17.9	92.5	94.6	93.0	1.2	1.6	1.4	12.0	12.3	12.1
Yes	18.3	16.8	17.6	93.8	95.2	94.5	1.1	1.8	1.3	10.2	13.7	11.8
Total	18.4	16.5	17.9	92.5	94.6	93.0	1.3	1.5	1.4	11.9	12.3	12.0

Source: as Table-2

Average days of Hospitalisation:

Columns 4 and 5 of Table 3 show the average days spent in hospitals by socio-economic characteristics and status of health insurance for those that experienced illness during the reference period of the last 365 days before date of interview. Column 4 includes all the cases illness and then the average taken, while column five includes only those who experienced hospitalisation. It is found that the average number of days spent in hospital is higher among the individuals who are better off in society. The lowest quintile on an average spends 0.8 days (including zero days' cases) and 10.2 days (excluding zero days' case) whereas the figure for highest quintile is 2.2 days and 13.5 days respectively. Similar is the case among social groups. A person of a higher caste on an average spends 1.6 and 12 days whereas a ST person spends 1.2 and 10.3 days in hospital. It implies lower level of healthcare utilisation among socio-economically backward people. As far education is concerned there is no significant difference between less educated and highly educated but gender disparity in days spent in hospital is significant. On an average, a male spends around 2 to 13 days and female accounts for only 1 to 11 days. The presence and absence of health insurance does not make much difference in days spent in hospital. However, a regression analysis will provide a better picture, which will be shown in the next section of regression results.

Choice for Healthcare:

Table 4 shows the distribution of choice of healthcare provider by socio-economic characteristics and insurance status of the individuals. Invariably, it is found that socio-economically advantaged individuals have less percentage of no care compared to others. The rural-urban difference in no care is about 3 per cent. The difference is even higher between ST and higher caste, lowest income and highest quintile, which accounts for around 5 per cent and 8 per cent respectively, whereas a little disparity is found in case of gender and marital status. However, the health insurance status makes difference while making a decision for not getting treatment. Those who do not have health insurance have higher percentage of no care (7.01%) than those who have health insurance (5.53%).

When it comes to choosing a particular type of healthcare provider, the people invariably choose a private provider over public and pharmacy/traditional healer irrespective of their socio-economic background and status of health insurance. However, public providers (18%) are second best after private providers (67%) while making a choice for healthcare. Still, a significant number of people take recourse to pharmacy/traditional healer as their choice for treatment and account for around 7% of all ill people. This fact is very alarming because the percentage is higher among rural and socially and economically backward people.

Table 4: Distribution of Choice for Healthcare Providers by Socio-economic Characteristics and Insurance Status (figures in %)

Socio-economic Characteristics	Public	Private	Pharmacy/ Traditional Healer	No Care	Total
Place of Residence					
Rural	17.64	64.65	9.62	8.09	100.00
Urban	18.89	67.96	7.80	5.35	100.00
Caste Group					
Higher	17.25	68.78	7.86	6.11	100.00
OBC	17.43	68.66	7.70	6.21	100.00
SC	18.54	64.91	8.27	8.28	100.00
ST	24.28	54.11	10.01	11.60	100.00
Religion Group					
Hindu	17.84	67.00	7.97	7.18	100.00
Muslim	18.28	67.05	8.65	6.02	100.00
Christian	23.64	62.82	6.35	7.20	100.00
Others	34.46	140.55	15.6	9.39	100.00
Consumption Quintile (CQ)					
CQ1	19.65	59.26	9.48	11.61	100.00
CQ2	17.59	64.40	9.58	8.44	100.00
CQ3	16.74	68.68	7.90	6.68	100.00
CQ4	20.17	68.11	7.15	4.56	100.00
CQ5	16.19	73.82	6.01	3.99	100.00
Educational Level					
Illiterate	16.96	68.32	8.01	6.71	100.00
<= Primary	18.78	65.62	7.83	7.77	100.00
< = Metric	19.78	64.84	8.44	6.95	100.00
<= Higher Secondary	17.83	68.12	7.96	6.09	100.00
Graduate and Above	17.62	69.17	7.32	5.89	100.00
Age group					
0--14	14.90	70.26	8.34	6.50	100.00
15--29	16.16	65.64	9.18	9.02	100.00
30--44	19.96	64.46	8.37	7.20	100.00
45-59	20.67	66.18	6.92	6.23	100.00
60+	22.99	63.98	6.63	6.40	100.00
Gender					
Male	18.20	67.29	7.63	6.88	100.00
Female	17.88	66.74	8.34	7.04	100.00
Marital Status					
Married	19.57	66.54	7.31	6.59	100.00
Unmarried	16.78	67.36	8.58	7.27	100.00
Health Insurance Status					
No	18.05	66.90	8.04	7.01	100.00
Yes	16.07	71.20	7.19	5.53	100.00
Total	**18.00**	**67.00**	**8.02**	**6.97**	**100.00**

Source: as Table-2

2. Regression Results and Discussion

Treatment Seeking Behaviour:

The result from logit regression in Table 6 shows that after controlling the factors of income, age sex, education, household size, illness severity, types of illness and place of residence, health insurance does not have an impact on the decision on whether or not to take healthcare. On the other hand, the coefficient is positive signalling that insurance has a positive impact on treatment seeking. The marginal effect shows that insurance status increases the probability of seeking treatment by 1.3% citrus paribus. There could be three main reasons for which the coefficient is not significant. Firstly, in the sample a few percentages of individuals (around 3% of total sample) have health insurance. Secondly, the awareness among the people is very low so that they do not know how to use their health insurance plan. Lastly, in India most of the health insurance schemes are inpatient oriented and ignore the frequently required outpatient treatment. Hence, having health insurance does not guarantee that healthcare would be sought. For our analysis, since we have taken the cases of individuals suffering from either long term and/or short-term morbidity, where the short-term morbidity cases have higher percentage and demand less probability of being hospitalised, the impact of health insurance on health seeking decision was not significant. However, in the next analysis we have exclusively taken the hospitalised cases to verify the above phenomena. Since, presence of health insurance does not increase the demand for outpatient services we can conclude that the problem of moral hazard does not seem to be a big problem in India where underutilisation of healthcare is huge.

Other socio-economic factors also play important roles in influencing treatment-seeking behaviour. Some of the statistically significant variables that affect treatment-seeking behaviour are income, caste, religion, marital status, education, place of residence, household size, children in the household, severity of the illness and type of illness. The income variable has a positive sign implying that increase in income will increase likelihood of treatment. In other words, individuals/households from lower-income groups show lower probability of seeking treatment than the high-income groups. The marginal effect shows that with 1 per cent increase in income the probability of seeking treatment, on an average, increases by more than 4 per cent. Individual or ST/SC households display lower tendency to seek treatment compared to the higher caste. The likelihood of an individual belonging to ST/SC seeking treatment is 3 per cent lower than the higher castes implying the existence of inequality. There is little significant difference among religious groups when it comes to treatment-seeking behaviour. Marital status has a significant impact on healthcare-seeking behaviour. As expected, married people have a higher probability of falling sick and hence higher probability of seeking healthcare. Place of residence makes a significant difference to healthcare-seeking behaviour since it affects through the channel of accessibility and availability of the healthcare facility. As expected, we found that the urban people have higher probability (statistically significant at 10%) of seeking treatment when they are ill compared to the rural people. Similarly, education makes difference to healthcare-seeking behaviour. With the increase in education, healthcare-seeking probability increases significantly since educated individuals give higher value to their health than the uneducated.

Presence of children in the household increases the probability of seeking healthcare because children tend to fall ill more often. The result also shows that there is a positive and statistically

significant relationship between illness severity and disease, which is of long term in nature, and health seeking behaviour. With the increase in severity and the presence of long-term morbidity, the tendency to seek treatment increases. We also found that there is a significant regional disparity in healthcare-seeking behaviour. Individuals or households from southern states are more likely to seek healthcare treatment than north Indians. This is because of higher awareness, accessibility and availability of healthcare facilities in southern India compared to other parts of India.

Table 5: **Descriptive Statistics of Variables in the Estimation**

Variables	Definition	Mean	Std. Dev.	Min	Max
Dependent Variables					
Treatment_not	Treatment taken (yes=1, No=0)	0.93	0.25	0	1
Hosp_dys	No. of days in hospital	1.43	8.05	0	365
Prvdr_chc	Choice of providers (Public=1, Pvt.=2, Pharma/Traditional=3, No care=0)	1.73	0.69	0	3
Independent Variables					
Ln(MPCE)	Log of monthly per capita expenditure	6.57	0.69	1.4	10.2
Caste_rd	Caste groups (Higher=1, OBC=2, SC=3, ST=4)	2.00	0.89	1	4
Religion	Religion groups (Hindu=1, Muslim=2, Christian=3, Others=4)	1.32	0.74	1	4
Married	Marital Status (Married=1, Unmarried=0)	0.45	0.50	0	1
Edu	Completed years of education	3.58	4.39	0	15
Edu2	Square of Completed years of education	32.11	52.9	0	225
Sex	Sex (Male=1, Female=0)	1.54	0.50	1	2
Hiinsurnce	Health insurance status (yes=1, No=0)	0.03	0.17	0	1
Urban	Place of Residence (Urban=1, Rural=0)	0.33	0.47	0	1
Npersons	Household size	5.83	2.82	1	33
Old_HH	old persons in the household	0.77	0.35	0	1
Child_HH	children in the household	0.14	0.42	0	1
Illness Severity	No. of days in restricted activities	21.9	64.31	0	365
Short morbid	Suffering from short term morbidity (yes=1, No=0)	0.70	0.46	0	1
Long morbid	Suffering from Long term morbidity (yes=1, No=0)	0.36	0.48	0	1
State_Region	State region (North=1, East=2, Central=3, West=4, South=5)	2.64	1.54	1	5

Source: as Table-2

Table 6: Logit Regression Result of Treatment Seeking Behaviour

Treatment Taken or Not (Dependent Variable)	Coefficients	Marginal Effect	z-value	P>|z|
Independent Variables				
Ln(MPCE)	0. 658	0.037	15.430	0.000
General @				
OBC	0.933	0.005	1.630	0.106
SC	0.025	0.001	0.370	0.712
ST	-0.366	-0.024	-4.090	0.000
Hindu @				
Muslim	-0.053	-0.003	-0.730	0.471
Others	0.079	0.004	0.840	0.388
Unmarried @				
Married	0.163	0.009	3.330	0.001
Edu	0.061	0.003	3.960	0.000
Edu^2	0.003	0.001	2.370	0.018
Male@				
Female	-0.017	0.001	-0.380	0.705
HI (no) @				
HI (yes)	0.172	0.010	1.260	0.237
Rural@				
Urban	0.098	0.005	1.870	0.057
Npersons (continuous)	0.042	0.002	4.280	0.000
Old_ HH (no)@				
Old_ HH (yes)	0.014	0.018	5.300	0.834
Child_HH (no)@				
Child_HH (yes)	0.321	0.001	0.210	0.000
Illness severity (continuous)	0.792	0.045	25.090	0.000
Short morbid (no) @				
Short morbid (yes)	0.002	0.002	0.020	0.981
Long morbid (no) @				
Long morbid (yes)	0.655	0.040	10.960	0.000
North @				
East	-0.879	-0.056	-14.730	0.000
Central	-0.439	-0.023	-5.490	0.000
West	-0 .029	-0.001	-0.340	0.738
South	0.167	0.007	2.160	0.029
Constant	-2.123		-6.75	0.000
Log likelihood	-8288.034			
Observations	36386			
LR Chi-squared (22)	1788.09			
Prob>chi2	0.000			
Pseudo R2	0.1035			

Note: @Reference Category

Source: as Table-2

Days Spent in Hospital:

To see the impact of health insurance on healthcare utilisation behaviour, the Tobit regression was used. The dependent variable is number of days spent in hospital. It is hypothesised that the presence of health insurance will induce the individual to spend more days in hospital as secured individuals have to pay little for hospitalisation. The regression result (Table-7) shows that insured people spend almost five days more compared to the uninsured while controlling all other socio-economic factors. The coefficient is also highly significant at 1 per cent significance level. Socio-economic inequality in utilisation was also found in the result. The income variable has a positive impact on utilisation and statistically highly significant at 1 per cent implying that the rich have better utilisation compared to the poor. We also find gender inequality. On an average, females spend four days less in hospital than males. Similarly, individuals from urban areas spend, on an average, one or more days in hospital compared to those from rural areas. Patients suffering from long-term morbidity on an average spend 17 more days in hospital than others. This suggests the need for serious health financing policy since the more days a patient spends in hospital the higher the healthcare cost incurred. Hence, the government has to take necessary step to curb long-term diseases, mainly of life style, through awareness, financial assistance and insurance provision. Similarly, since the elderly spend more days (on an average 3 more days compared to others) in hospital, old-age health policies or programmes should be initiated. The government should ensure all old age people are covered under suitable health insurance programmes. We also find regional disparity in utilisation of hospitalisation. The number of days spent in hospital is higher among the individuals from central, west, east and south Indian states than the north Indian states. This is because individuals from central, west, east and south Indians states are on an average economically better off than the north Indians.

Table 7: Tobit Regression Result for Hospitalisation

No. of Days in Hospital (Dependent variable)	Coefficients	t-value	P>|t|
Independent Variables			
Ln(MPCE)	4.958	10.890	0.000
General @			
OBC	1.360	2.110	0.035
SC	2.760	3.480	0.000
ST	5.581	4.460	0.000
Hindu @			
Muslim	0.317	0.370	0.710
Others	-4.175	-4.040	0.000
Unmarried @			
Married	0.726	1.290	0.198
Edu	0.090	0.520	0.605
Edu^2	-0.018	-1.290	0.199
Male@			
Female	-2.787	-5.310	0.000
HI (no) @			
HI (yes)	8.080	6.220	0.000
Rural@			
Urban	1.483	2.550	0.011
Npersons	0.270	2.540	0.011
Old_HH (no)@			
Old_HH (Yes)	2.676	3.900	0.000
Child_HH (no)@			
Child_HH (yes)	-0.538	-0.800	0.422
Illness severity	7.133	29.650	0.000
Short morbid (no) @			
Short morbid (yes)	-3.057	-4.620	0.000
Long morbid (no)@			
Long morbid (yes)	27.092	36.870	0.000
North @			
East	-1.800	-2.340	0.019
Central	1.939	1.900	0.058
West	4.892	5.700	0.000
South	3.762	5.110	0.000
constant	-94.127	-25.830	0.000
Log pseudolikelihood	-26447.269		
Observations	36386		
F(21,36411)	5207.07		
Prob > F	0.000		
Pseudo R2	0.089		

Note: @ reference category

Source: as Table-2

Choice for Healthcare Provider:

The multinomial regression result of choice for healthcare provider in Table-8 shows that health insurance does not have statistically significant impact for all the categories except for private provider. This implies that individuals with insurance prefer private healthcare providers, which has many policy implications. In recent years, government schemes like RSBY, Chief Minister's Health Insurance scheme, Rajiv Arogyashree Scheme etc., have a provision for the insurance holder to choose either public or private healthcare provider. Government health facilities are, more often than not, of poor quality and the patients opt for private facilities. Quite often, we notice the private provider prescribing unnecessary medication and expensive surgery without the knowledge of consumer. In the absence of a better regulatory mechanism to curb private providers, the escalation in the cost of healthcare will lead more rapid impoverishment of the consumers.

We can also have a better idea of the impact of various independent variables on the dependent variable by the relative risk ratio (RRR) given adjacent to the coefficients of each independent variable. Using insurance status as example, the RRR for secured patients choosing public provider over no care at all is $[Pr(public)/Pr(no\ care)]_{secured}/[Pr(public)/Pr(no\ care)]_{unsecured}$ which is approximately equal to 1.2. That is, people covered by insurance (secured) are 1.2 times as likely to choose public provider over no-care at all, when compared with similar unsecured people. The coefficients for all the providers except informal care are positive for health insurance status entailing that insurance increase healthcare utilisation. The RRR of choosing private over no-care is 1.3 times higher with insurance than without insurance. However, as expected, with insurance a patient tends to choose private care over public care 1.06 (=1.23/1.16) times more often compared to those without insurance. The choice of private provider is higher because private providers provide better quality healthcare compared to other available options even though they are expensive. The other reason is that insurance reduces cost at the time of treatment.

Some of the socio-economic statistically significant factors that affect the choice for providers are income, marital status, place of residence, short term and long-term morbidity status, illness severity and State or region. The choice of private over public provider increases by 1.2 times as income increases. That means those who are economically better off can access private healthcare facilities more often. The case is similar for choice of public care over informal care. The choice of public/private provider over no-care is higher among urban people compared to rural people. The choice of private over public among persons from urban areas is marginally higher (1.012 times) than rural areas. This implies again that people from urban areas have better access to good quality healthcare and, thus, confirming the rural-urban inequality in healthcare utilisation. With increase in education, the probability of choosing private provider also increases. We also found a regional disparity in choice of provider. Individuals from western and southern states of India have a higher probability of choosing any-care to no-care at all. Besides, they also prefer a private provider compared to individuals from other parts of India.

Table 8: Multinomial Logit regression result for Provider Choice

Base category (No Care)	Public Hospital			Private Hospital			Informal Care		
Independent Variables	**Coeff**	**RRR**	**P>|z|**	**Coeff**	**RRR**	**P>|z|**	**Coeff**	**RRR**	**P>|z|**
Ln(MPCE)	0.452	1.571	0.000	0.783	2.189	0.000	0.303	1.354	0.000
General @									
OBC	0.009	1.009	0.892	0.129	1.194	0.027	0.080	1.083	0.279
SC	0.079	1.082	0.288	0.029	1.009	0.676	-0.097	0.907	0.272
ST	-0.046	0.890	0.387	-0.578	0.532	0.000	-0.127	0.881	0.297
Hindu @									
Muslim	-0.125	0.882	0.119	-0.042	1.003	0.570	0.048	1.188	0.597
Others	0.108	1.478	0.290	0.174	1.721	0.069	0.173	1.281	0.170
Unmarried @									
Married	0.146	1.370	0.007	0.158	1.704	0.002	0.220	1.246	0.001
Education	0.017	1.026	0.305	0.082	1.204	0.000	0.030	1.012	0.132
Edu^2	0.020	1.097	0.802	0.004	1.000	0.001	0.002	1.002	0.215
Male @									
Female	-0.042	0.975	0.389	-0.002	0.983	0.960	0.098	1.023	0.092
HI (no) @									
HI (yes)	0.167	1.162	0.266	0.177	1.258	0.062	-0.186	1.263	0.309
Rural@									
Urban	0.058	1.081	0.318	0.078	1.094	0.147	0.395	1.407	0.000
Npersons	0.011	1.011	0.328	0.056	1.058	0.000	-0.002	0.998	0.859
Child_HH (no)@									
Child_HH (yes)	0.221	1.247	0.001	0.399	1.490	0.000	0.138	1.148	0.083
Old_HH (no)@									
Old_HH (yes)	0.126	1.134	0.087	-0.042	0.959	0.538	0.089	1.093	0.335
Illness severity (continuous)	0.779	2.178	0.000	0.804	1.003	0.000	0.720	1.003	0.000
Short Morbidity (no)@									
Short morbidity (yes)	-0.115	0.892	0.099	0.033	9.481	0.610	0.100	1.000	0.238
Long morbidity (no)@									
Long morbidity (yes)	-0.537	0.584	0.000	-0.628	4.411	0.000	1.113	4.099	0.000
North @									
East	-1.240	0.289	0.000	-0.885	0.413	0.000	-0.107	0.898	0.149
Central	-1.155	0.315	0.000	-0.132	0.877	0.106	-1.271	0.281	0.000
West	-0.493	0.611	0.000	0.165	1.180	0.065	-0.565	0.568	0.000
South	0.159	1.173	0.052	0.201	1.222	0.011	-0.274	0.760	0.007
Constant	-1.832		0.000	-3.512		0.000	-2.139		0.000
Log likelihood	-33447.1								
Observations	36386								
LR Chi-squared (66)	4165.6								
Prob>chi2	0.000								
Pseudo R2	0.058								

Note: @ reference category
Source: as Table-2

Conclusion

This paper studies the impact of health insurance along with socio-economic and demographic factors on healthcare utilisation. We used the Logit, Tobit and Multinomial Logit models that yielded some valuable results and could lead to different policy implications.

In summary, we found that in Logistic Regression health insurance does not have any statistically significant impact on utilisation behaviour whereas in Tobit and Multinomial Logit we found it to be significant. The reasons for that have been explained in the respective sections. Nonetheless, the coefficients of health insurance status in different models show positive signs. This implies that insurance increases the probability of healthcare either in the private or in the public sector. However, people tend to use the private sector more than the public sector. However, in India the private sector is largely unregulated and very often it leads to unnecessary care and cost escalation. Therefore, on the policy perspective it will be wise on the part of government to bring in a sound regulatory mechanism to control the private sector to ensure the efficient functioning of the health insurance sector for the benefit of the insured people. The government should also educate the people about the benefits of health insurance and persuade the private sector to educate their insured members holistically about their insurance product.

The other possible reason for the ineffectiveness of health insurance on healthcare utilisation could be the very restrictive terms and conditions of the health insurance packages from both government and private providers. Most of the schemes support only inpatient service and outpatient services that are required more often are not covered in any of the health insurance packages. Hence, even though they are insured, people hesitate to get healthcare when it is needed the most.

As far as other socio-economic and demographic variables are concerned, income is one of the important factors that significantly affect the healthcare utilisation behaviour. It has a positive sign in all the models. This implies that with the increase in income, an individual's healthcare utilisation improves (probability of treatment seeking, hospital days spent and choice for private provider increases). These results have important implications for equity reasons. That means, the rich have better utilisation compared to the poor. The rich can afford better quality of services in the private sector while the poor have to either compromise with low quality services in the public sector or impoverish themselves after getting treatment in the private sector. Therefore, the government should improve the quality of service in public sector health facilities and initiate various poverty alleviation programmes.

The other significant variable that has policy implication is place of residence. It is found from the results that urban people have better access to healthcare compared to rural people. Both rural and urban people prefer private to public providers. However, the probability of people from urban areas using both public and private facilities is higher compared to rural areas. The reason behind this disparity in utilisation is due to the existence of inequality in both income and access to healthcare facilities. Most of the rural healthcare facilities are dysfunctional or ill equipped and people have to travel to the urban areas for better services. Hence, government should upgrade the facilities in the rural areas.

In conclusion, health insurance should be promoted by both the government and private sectors through innovative packages that cater to the needs of the masses and educate the people

about the benefits of health insurance. Government health insurance programmes will succeed if the government upgrades the existing health facilities and regulates the private sector with an effective regulatory mechanism. Until then the people will choose private over public sector healthcare providers, pay higher medical costs and face inevitable impoverishment.

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