

Moral Hazard in Health Insurance: A case study of Chandigarh

Mrs Archana Bakshi,¹

Asst. Prof in Economics

MCM DAV College for Women, Chandigarh

Dr Kanwaljit Kaur,²

Associate Prof in Economics

SGGS College, Chandigarh

Abstract

Health insurance literature across the world is dominated by analysis of two market failures due to asymmetric information-Adverse selection and Moral hazard. Voluntary health insurance cannot be financially sustainable if adverse selection is severe, since consumers have better information about their health status and relatively unhealthy people tend to purchase it thus lead to high premium rates in health insurance market. Moral hazard is also a major theoretical concern in health insurance market as it results in greater health utilization for the insured individuals. These twin problems seriously limit the size of this market. The present paper is destined to check the presence of moral hazard. It is based on a primary survey of 386 households in Chandigarh city. With a cross sectional research design, data was collected using a pre-tested structured questionnaire. Area sampling was made use of as a sampling technique. The study found strong evidence of moral hazard using logistic regression technique.

Keywords: Health insurance, Moral hazard, health status, health utilization

Introduction

'Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.'

Universal Declaration of Human Rights (1948), Article 25 (1)

Years after this Declaration of Alma-Ata, an estimated 1.3 billion people still lack right to basic healthcare across the world. Each year, 100 million people are pushed into poverty by the need to pay for health care (ILO 2007). Policymakers in all countries have realized the importance of 'Health for All' as a goal. Most high-income countries rely heavily on general taxation (for example, the United Kingdom) or mandated social health insurance (France, Germany) for health financing. Low-income countries depend mostly on private out-of-pocket payments.

A Resolution on Sustainable Health Financing, Universal Coverage and Social Health Insurance', which was adopted at the World Health Assembly in 2005, called for member states to ensure that health financing systems to include a method for pre-payment of financial contributions for health care. An increased interest in health insurance as a mechanism has been ushered to collect and distribute resources for the health sector in a more equitable way, with pre-payment and risk pooling. The World Bank in particular has been influential in driving the growth of private health insurance markets in Latin America, Eastern Europe, and Central Asia. Other important moments on health insurance and/or social health protection were the Berlin conference and recommendations for action (2005); the Paris conference on health coverage in developing countries (2007); and the presentation of the Providing for Health Initiative at the G8 in 2007.

India has been an outlier among major economies in terms of healthcare. It has one of the most privatised healthcare markets in the world, both in terms of financing and provision of healthcare services. While the government's

contribution is roughly one-fifth, while that of households' OOP is nearly 70% of the overall healthcare expenditure. It has been documented well in the past that over-dependence on OOP in India is marked by high inequity (World Bank 2002; GoI 2005; Garg and Karan 2008; Selvaraj and Karan 2009), which has implications for catastrophe and impoverishment (Van Doorslaer et al 2006; Selvaraj and Karan 2009; Ghosh,2011). They have also been described it as the most regressive form of health financing.

In addition to low public health financing expenditures, India faces several other challenges. It has a twin burden of disease-prevalence of communicable diseases like TB(2 million cases),malaria(15 million cases per year),respiratory disorders,HIV-AIDS (2.4 million)and gastrointestinal infections and also growing life-style or non-communicable diseases like diabetes,cancerand cardiovascular. Malnutrition is leading to 44% underweight children in 0-5 age group. There are 72% infants and 52%women are currently anemic. The recently launched National Rural Health Mission has strongly recommended that rural populations be covered by risk-pooling mechanisms, especially by community health insurance (Ministry of Health & Family Welfare 2005).

The pursuit of financial security in case of medical exigencies has led to the evolution of health insurance. Health insurance (HI) protects individuals against catastrophic financial burden resulting from unexpected health care.

Health Insurance was defined by Marcinko as "coverage that provides for the payment of benefits as a result of sickness or injury. It includes insurance for losses from accident, medical expenses, disability or accidental death and dismemberment".

Phillip defined health Insurance as "any form of insurance whose payment is contingent on the insured incurring additional expenses or losing income because of incapacity or loss of good health".

India's insurance sector regulator -Insurance Regulatory and Development Authority (IRDA) elaborates that "health insurance business or health cover means the effecting of contracts which provides sickness benefits or medical, surgical or hospital expense benefits). Whether in-patient or out-patient, on an indemnity, reimbursement, service, prepaid, hospital or other plans basis, including assured benefits and long-term care".

I. PROBLEM STATEMENT

The lack of health security leading to the impoverishment of several poor Indian households is a glaring problem for the Government of India. World Bank data suggested that even one hospitalization would be estimated to account for 58% of per capita annual spending driving 2.2% of population below poverty line. Moreover, the high cost of diagnosis and expensive procedures of treatment has made healthcare financing a big challenge even for the not so poor. Voluntary health insurance cannot be financially sustainable if adverse selection is severe. Consumers have better information about their health status and relatively unhealthy people tend to purchase it; leading to high premium rates in health insurance market. Moral hazard is also a major theoretical concern in health insurance market as it results in greater health utilization for the insured individuals. These twin problems seriously limit the size of this market. The present study concentrates on assessing the purchase of health insurance and further testing of moral hazard to explore the linkage between health utilization and health insurance status.

II. REVIEW OF LITERATURE

Pauly (1968) observed that health insurance often induces moral hazard, so a national health insurance may not potentially be welfare increasing as it could result in an inefficient reallocation of resources. With constant costs and fixed demand curve for healthcare, he determined an optimum situation where marginal willingness to pay will be equal to marginal cost of care. He stated that a health insurance consumer would be paying low out of pocket expenses and would

consume more units of healthcare. In this way mandatory participation for health insurance could lead to wastage of funds.

Waters (1999) assessed the impact of the General Health Insurance scheme for formal sector workers and a separate scheme for agricultural workers in rural communities, both in Ecuador. Using both univariate and bivariate probit estimators, and correcting for heteroscedasticity and selection bias resulting from adverse selection, found that being insured had a strong, positive, and highly statistically significant effect on the use of curative services, but no statistically significant effect on the use of preventive services. He also stated that the health insurance scheme increases access to health care for its members but had a negative impact on equity overall.

Yip and Berman (2001) Using a logit model and data from a survey of over 10,000 households, analyzed that in Egypt the School Health Insurance Programme had a higher probability of seeking outpatient care in case of insured children than the uninsured, in particular those in the lowest income quintile. On average, those children enrolled in the scheme were 34% more likely to visit a provider than children not in school.

Hooda, (2015), evaluated the impact of different types of health insurance schemes on access, cost and health financing in India. To draw evidences on the impact of social and voluntary health insurance he used unit level record of the 60th (2004–05: Morbidity and Health Care, MHC) round of the National Sample Survey Office (NSSO). This data pertained to detailed information on the treatment seeking behavior of sampled households for previous 15 days for outpatients and previous 365 days for inpatients. This information includes expenditure for treatment of 40 diseases and categorization of medical expenditures-doctor fees, diagnostic tests and drugs. The NSS 68th (2011–12: Consumption Expenditure Survey, CES) round was used to examine the impact of Government Financed Health Insurance (GFHI) schemes by following the case-control approach. He examined health-seeking behaviour in terms of average inpatient and outpatient rates per thousand or insured and uninsured persons. His t-test results showed that the insured persons have higher (19.7%) rate of reporting for inpatient. This proportion is 30.4% for the poor persons.

III. **RESEARCH OBJECTIVE**-The present study aims to assess the presence of moral hazard in health insurance consumption in the sampled households in Chandigarh.

SCOPE OF STUDY

The primary cross-sectional survey was conducted in Chandigarh. The Union Territory of Chandigarh, (Capital of Punjab and Haryana) in India came into existence in 1966. As per Census 2011, the population of Chandigarh (U.T) has crossed the one million mark. The share of urban population is 97.25% and rural constitute only 2.75%. Density of population was 9252 persons. Males constitute 55% of the population and females 45%. Male literacy is 90.81% and female literacy is 81.88%. With high per capita income (Rs 130763) and high literacy rates (86.43%), the city of Chandigarh has a Human Development Index of 0.784 as against the national average of 0.577. With a rich socio-economic background of residents of Chandigarh city, it was pertinent to check the consumption of health insurance services and also explore its linkage with health utilization.

IV. RESEARCH DESIGN AND RESEARCH METHODOLOGY

The present study is a cross sectional study based on household level information collected during a primary survey. Data was collected through personal interview method using a pre-tested structured questionnaire

Sample Size: For determining the sample size, Krejcie & Morgan (1970), table for sample size for finite population was used. For a population which is equal to or greater than 1,000,000, the required sample size is 384. In the study, 400 questionnaires were administered and 386 were found to be complete in all respects.

Sampling Technique: Area sampling is used as the sample items are clustered on a geographic area basis. Out of 56 sectors in Chandigarh households were randomly selected.

Table 1: Socio-demographic profile of respondents

		Health Insurance purchase				Total	
		Yes		No			
Age	21-30	24	8%	5	6%	29	8%
	31-40	93	31%	14	16%	107	28%
	41-50	95	32%	38	45%	133	34%
	51-60	54	18%	23	27%	77	20%
	>60	35	12%	5	6%	40	10%
Gender	Male	192	64%	61	72%	253	66%
	Female	109	36%	24	28%	133	34%
Education	Upto Matric	20	7%	12	14%	32	8%
	Graduation	84	28%	39	46%	123	32%
	Post-Graduation/ Professional	197	65%	34	40%	231	60%
Employment	Government Service	43	14%	15	18%	58	15%
	Private Sector Job	137	46%	39	46%	176	46%
	Self Employed/Business	80	27%	25	29%	105	27%
	Retired	25	8%	3	4%	28	7%
	Others	16	5%	3	4%	19	5%
Income	<=50000	52	17%	27	32%	79	20%
	50001-100000	125	42%	39	46%	164	42%
	100001-150000	50	17%	9	11%	59	15%
	>150000	74	25%	10	12%	84	22%
Dependent in Family	Up to two	225	75%	53	62%	278	72%
	Up to four	76	25%	31	36%	107	28%
	Up to six	0	0%	1	1%	1	0%
Total		301	100%	85	100%	386	100%

It was observed that nearly 65.5 per cent of the respondents (253) were males and 34.5 per cent (133) were females. Age profile of respondents shows that majority 27.7% (107) belonged to the category of 31-40 years. Only 10% (40) were senior citizens i.e. above 60 years of age.

As far as employment status is concerned, more than half respondents (59.68%) were post graduates. Only 8.3% (32) have studied up to 10th class. Out of 386 respondents the employment status pattern revealed that majority (45.6%) worked in the private sector followed by self-employed (7.3%). Students and house makers were the least (4.9%).

Monthly income data analysis revealed that 42.5 per cent belonged to the category of monthly income of Rs 50000 to 100000. Only 17% have income less than Rs 50,000. Data on the most crucial variable of this study, insurance status revealed that majority of the respondents (77.97%) were insured under some form of health insurance and only (22.02%) were uninsured.

Health utilization- Primary data was collected on a number of health related variables -self-assessed health status and disability causing limitations on daily activity status, preventive healthcare measures adopted acute/chronic morbidity, type of treatment, choice of public/private healthcare provider, OPD visits, incidence of hospitalization. Information on self-reported illness and health service utilisation was collected at the individual level. A respondent was considered to be suffering from short-term morbidity if he/she was ailing in the past 15 days. Long-term morbidity was defined in terms of

occurrence of hospitalization in the past 365 days.

V. RESEARCH HYPOTHESIS

Ho-There is no significant relationship between health insurance purchase and health utilization.

To test this hypothesis bi-variate and multivariate analysis was done. For bi-variate analysis Chi-square test for independence was performed to test hypothesis. The Chi-square statistic aided the study to determine the statistical significance of the observed association in a cross-tabulation.

Table 2: Cross tab for Health Insurance purchase and hospitalization

		HI purchase		Total	Chi-Square	p-value
		No	Yes			
Hospitalization	No	79	207	286	11.45	.001**
		88.1	69.7%	74%		
	Yes	10	90	100		
		11.9%	30.3%	26%		
Total		89	297	386		
		100.0%	100.0%	100.0%		

Table 2 reveals that out of the total 386 respondents ,100 were hospitalized. Out of the 100 respondents who were hospitalized, 90 were insured for health. The Chi-square value at 5 percent level of significance showed there was significant relationship between hospitalization and health insurance status($p=.001$). The chi square value was 11.45 and p value was much below .05 .Null hypothesis was rejected and relationship between HI purchase and hospitalization was inferred to be significant. It indicated the presence of moral hazard in the selected sample. This was in confirmation with previous studies done in India.

Multivariate Analysis

The purpose of multivariate analysis is to construct a model that can describe the relationship between a single outcome variable and a set of predicting variables (Hosmer & Lemeshow 1989). To estimate the relationship between the dependent variable and the independent variable logistic regression technique was made use of. The dependent variable in the present study was hospitalization, Yes-1. No-0 ,which was binary in nature. The independent variables taken were number of family members, age, gender, marital status, income, number of dependents, education, employment, health insurance status, monthly medical expenditures and health status.

Econometric model for health utilization

Table 3: Model Summary

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
4	394.581	.115	.168

Table 4: Classification Table

Classification Table					
	Observed		Predicted		Percentage Correct
			No	Yes	
	Step 4	Hospitalization	No	270	
Yes			83	17	17.0
Overall Percentage					74.4

Table 5: Variables in the Equation

Variables in the Equation							
		B	S.E.	Wald	df	p-value	Odd-ratio
Step 4	Number Family Member	.365	.108	11.321	1	.001**	1.440
	Health In	1.196	.375	10.157	1	.001**	3.308
	Medical exp	.667	.199	11.268	1	.001**	1.949
	Health Status	-.640	.229	7.836	1	.005**	.527
	Constant	-2.717	.848	10.256	1	.001**	.066

Table 6: Variables not in the Equation

Variables not in the Equation				
		Score	df	p-value
Step 4	Income	.016	1	.898
	Age	.974	1	.324
	Sex	.439	1	.508
	Education	.101	1	.750
	Employment	2.495	1	.114
	Dependents Member	.014	1	.905
	Marital Status	.558	1	.455

VI. ANALYSIS AND INTERPRETATION

To determine the probability of hospitalization, the logit model estimated that Nagelkerke R Square is 0.168, and -2 Log likelihoods was 394.5. The coefficients for number of family members, health insurance and monthly medical expenditures were found to be statistically significant at 5% level of significance, respectively, and have positive signs. The result implies that an increase in any of those variables spontaneously impact positively on hospitalization, holding other factors constant. However, health status had a negative sign showing obviously that a low health status had greater chances of hospitalization. The statistical analysis revealed that households with insurance had higher likelihood of being hospitalized than households not having health insurance other things remaining constant and thus prove presence of moral hazard.

VII. CONCLUSION

Universal health coverage has been an important goal for all countries across the globe. It is indeed a crucial challenge for India to meet the health needs of its 1.3 billion citizens. Several deliberations on health policy have been suggestive of Health insurance as one of the plausible strategies. It has emerged as a health-financing tool for fulfilling the dream of 'Health for all'. The present primary study conducted in 2016 examines the purchase of health insurance among the sampled households in the city of Chandigarh. . It specifically investigated the relationship between HI purchase and hospitalization so as to check the presence of moral hazard in the sample. Bivariate and multivariate analysis revealed that there was significant relationship between health insurance purchase and hospitalization. Voluntary private health insurance cannot be financially sustainable if there is existence of moral hazard so it is suggested that the government should come forward to meet the health needs of people by active provisioning or social health insurance.

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