

## Determinants of Health Insurance in Indore District

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### ABSTRACT

The efficacy of all indices measuring economic development is lost if the very quality of lives in terms of health is deteriorating. Health is a human right. A single episode of hospitalization disturbs the very budget of an individual irrespective of his financial standing. Health Insurance has evolved as a tool to ease out the financial stress that one undergoes during a medical emergency. The objective of the present paper is to deduce the factors that affect the demand for health insurance. Going a step ahead an attempt has been made to determine the factors that govern the extent of this purchase made.. The buying decision has been articulated in 2 steps wherein the first decision of availing a health plan is studied by a Binary Probit model. A positive decision paves way for the next step, where extent of insurance purchase has been studied by regression analysis.. The results show that formal sector employment along with income and health expenditure play a significant role in availing health insurance. However the extent of purchase is decisively governed by factors like income, annual premium, Health expenditure and number of children in family. In both the equations the role of age of decision makers has thrown light on their “risk aversive” attitude at higher ages.

### Introduction:

Insurance as a concept has always existed in the society even when there was no money or markets or any other kind of financial instruments. In the Indian context, the concept finds its place in the Rig Veda in the form of “Yogakshema” or well-being of the society. As such the idea of insurance isn't new for the Indian masses. The native insurance industry finds its root right back to 1818 (life insurance). In general, by and large, Indians are traditionally risk-averse rather than risk lovers by nature. This has paved way for pooling of risks arising out of any unforeseen health issues. Health Insurance is one such mechanism which when opted for, acts as cushion against any health emergencies. Past two decades, have shown a phenomenal surge in acceleration of healthcare costs that have shown a spiral growth. The epidemiological transition from communicable to non-communicable diseases, quadrupled income and resultant sedentary lifestyle is giving rise to lifestyle induced diseases like Diabetes, Hypertension, Obesity and related health issues. This has necessitated the people to have a re-look on their actual monthly expenditures, spending patterns and simultaneously allocate a proportion of their income towards personal healthcare. It has thus induced people to avail health insurance coverage for themselves and their family members including their dependents.

Independent India adopted the goal of preventive and curative care for all, as recommended by the Bhole Committee in 1946. But the efficacy of the adoption failed as a result of inability to raise public spending. The country is typically identified by its abysmally low allocation for health of its citizens. India unlike other developed and developing countries apportions merely 3.9% of its GDP while its neighbors like Nepal and Maldives spend 6.1% and 11.5% respectively. Similarly on comparing the expenditure with the BRICS nations India lags far too behind its allies. (China - 5.3%; Brazil 8.9%) (World Health Statistics Report, 2018). In order

to attain its goal of universal health coverage for its citizens, provide utmost financial protection and quality services for the poor and underprivileged at the time of any health emergency, the scheme of Rashtriya Swasthya Bima Yojna was initiated in 2011. After 8 years of its inception, at present there are merely 15 states that continue to be under its spread. Many states have their own State sponsored insurance schemes already running so they aren't very keen for RSBY Enrollment. The state of Madhya Pradesh has no state sponsored health insurance scheme according to the latest data with IRDAI (Times of India, Feb 23, 2018 accessed on 25/07/2018). As a matter of fact it is striving hard to meet the key indicators of Human Development Indices like Maternal Mortality Rate (MMR), Child Mortality and Nutrition is one state that is not yet enrolled under the RSBY. Merely 10 districts have been chosen that too on a pilot basis for the scheme's implementation(Runa Paul and Anjali Jain,2014).

Madhya Pradesh finds its place in the EAG (Empowered Action Group) as per the State Diseases Burden report which is undergoing a low level of epidemiological transition. An absence of any State funded insurance scheme, exclusion from the RSBY net, makes Madhya Pradesh one of the least spending states of the country. According to Brookings India report (2017) on Health and Morbidity (2004-2014) the state spent merely 527.88/- as per Capita Health spending and could manage to cover merely 1.7% of its population under insurance net.

The product in its current format finds its roots in 1912 when the first insurance act was passed. Despite such a long prevalence, the cover that stretches for the Indians is not that big. Even today a large proportion of the Indian masses are without any insurance cover. At present there are 28 companies that are offering insurance products few (4) are standalone insurers, Public sector (GIC with its 4 Subsidiaries) and others operating under the private sector. The product of health insurance of the parent industry has registered a consistent growth. Over the years it has become the second line of business for most of the private insurers who have been permitted to enter the Indian market post liberalization. The growth that the health line segment of the parent industry is showing in the recent years instigates probe and this paper attempts to deduce the factors affecting the demand for health insurance by the patients admitted in hospitals of the study area.

David M Dror et al., (2016) found the benefits of Insurance in terms of Access to Health care reduced financial risks and improved economic mobility. Pradeep Panda, Arpita Chakraborty et al (2014) examined the driving factors for insurance uptake in 3 Community Based Health Insurance Schemes located in Rural parts of Bihar and Uttar Pradesh that was offered by the Self Help Groups(SHG'S) and found that household with greater financial liabilities found insurance attractive, enrollment in these schemes was unaffected by that in the National Insurance schemes(RSBY), the economically and socially backward sections(Scheduled Castes and the scheduled Tribes) were more likely to be enrolled. Sulakshana Nandiet al (2017) examined government's scheme of Rashtriya Swasthya Bima Yojna (RSBY) in Chhattisgarh state and catered to the enrolment, utilization of public and private hospitals and Out of Pocket expenditures incurred by the insured and uninsured. Insurance penetration was found to be at 38.8% with people showing greater usage and preference to the public hospitals over their private counterpart. Further women rural residents, scheduled tribes and poorer sections of the society formed a greater chunk of the beneficiaries of this scheme. Insurance coverage is fundamentally designed to avoid out of pocket expenditures for the user however it was revealed that despite of being insured 95.1% of the private sector users incurred OOP expenditures. Kanika Jain et al (2016) studied the awareness of insured inpatients regarding their insurance policies and procedures at a TPA desk of a hospital in North India. The team found high level of awareness amongst the insured patients though they faced challenges while availing the accrued benefits. Despite of this they preferred to be ignorant about

the procedure involved for same. Shijith VP and T.V Sekhar (2015) examined the health insurance scenario of the country by analyzing the trends and pattern of household characteristics of health insurance policy holders from the data collected from DLHS (2007-08) and NFHS (2005-06). They found that merely 5% of the households were merely covered under any kind of health insurance and further that the preference of the state owned health schemes was more. Siddhartha Sarkar (2007) in his paper has studied the issues pertaining to the prospects of health insurance product for the poorer households and in particular, the informal sector of economy. Ramesh Bhat and Nishant Jain (2006) analyzed factors determining demand for health insurance in a micro insurance scheme in Gujarat. The team found that income and health care expenditure play a significant role in buying insurance. Besides, income also affects the extent of purchase. Ramesh Bhat and Srikanth Rajagopal (2005) analyzed the Mediclaim data to understand relation between the diseases patterns and the quality of care and implications for health insurance in our country. For measuring Quality of care, Average Length of Stay (ALS) & Length of Stay (LOS) were used. Longer than expected LOS is an indicator of poor quality of care.

### **Objectives of Study:**

The present study was undertaken to fulfill following objectives.

1. To determine the factors affecting the insurance purchase decision.
2. To determine the factors affecting the demand for health insurance in Indore

### **Research Methodology:**

Health insurance mainly caters to inpatient care. Thus, in order to attain the aforesaid objectives, the probable beneficiaries (admitted patients) were approached. Depalpur, Sanwer, Hatod, Indore and MHOW tehsils that are an integral part of the district were included for the study. The Sampling Plan comprised of Multi Stage Random Sampling. The first stage comprised of selection of tehsils, where all the 5 tehsils were selected. The second stage comprised of selection of the hospitals functioning in these areas. For simplification, the hospitals were categorized as Government Hospitals, Corporate Hospitals and Private hospitals and Nursing Homes. The survey was conducted for 14 hospitals functioning in Indore Tehsil, and care was taken to include all the hospitals functioning in the rural belt. Hospitals tapped in Indore, include both network (10) and non-network (4) units. Overall, 20 hospitals were studied. The third stage of sampling comprised of the patient selection, which in turn was done on a random basis. 20 patients from each hospital were interviewed. Since the objective was to analyze factors affecting demand for health insurance, emphasis was laid on variables like awareness, income, health expenditure, premium paid, occupational profile etc.

Econometric analysis has been used to fulfill the aforementioned objectives. The decision of buying an insurance plan has been articulated in 2 steps. First a choice has to be made for whether to buy an insurance plan or not. Secondly if the decision is positive, then the second choice has to be made with extent of purchase. This choice is in terms of sum insured. In other words the household makes a choice for the amount with which it is insuring oneself. In both steps, the decision maker chooses from mutually exhaustive options.

Looking at the minimal penetration and acceptance of health insurance in the country as a whole, the decision of buying insurance is observed for a limited and non-random sample. The second decision will come only if the first one comes out to be positive. In base line regression social and demographic variables like age, gender, family size, awareness for health insurance etc. have been included, however for final modeling those coming significant have only been included.

The very idea of sample selection model is that the outcome variable,  $y$ , is only observed if some criterion, defined with respect to a variable,  $z$ , is fulfilled. At the first stage, a dichotomous variable  $z$  determines whether or not “ $y$ ” is observed. A condition where “ $y$ ” being observed only if  $z=1$  (insurance purchase). At the second stage, we estimate the expected value of “ $y$ ”, conditional on its being observed.

Equation 1 (Probit)

(Insurance Purchase)

$$P_i = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + U_i$$

$P_i$  = Probability of buying Health Insurance

$B_0$  = Constant (intercept)

$B_k$  = Coefficients

$X_1$  = Income

$X_2$  = Health Expenditure

$X_3$  = Age of decision maker

$X_4$  = Occupation as laborers and farmer

$X_5$  = Occupation in salaried format.

**Output Equation:**

**(Demand for health insurance))**

$$Y_i = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + U_i$$

$Y_i$  = Sum insured

$B_0$  = Constant (Intercept)

$X_1$  = Income

$X_2$  = Health Expenditure

$X_3$  = Age

$X_4$  = Premium

$X_5$  = number of Children in family

**DATA ANALYSIS AND RESULTS**

A detailed analysis of the data tells us the basic characteristics of the sample. The sample size taken for the analysis was 400 patients of which 108 have bought health insurance and 292 have not purchased any kind of health insurance.

**Table 1: Results of ML-Binary Probit (Newton-Raphson/Marquardt steps)**

Parameters	Variables					
	Annual Income (X <sub>1</sub> )	Annual Health Expenditure (X <sub>2</sub> )	Age of Household Head (X <sub>3</sub> )	Occupation of labor and farmer (X <sub>4</sub> )	Occupation Salaried (X <sub>5</sub> )	Occupation Self employed (X <sub>6</sub> )
B <sub>i</sub>	1.53E-06 (2.29E-07)	1.96E-05 (7.33E-06)	-0.019093 (0.008104)	-0.637075 (0.384288)	0.675329 (0.232383)	0.035663 (0.243191)
Z	6.68	2.67	-2.35	-1.66	2.91	0.146
p-value	0.000	0.0075	0.0185	0.097	0.0037	0.883
B <sub>0</sub> (Constant) = -1.165682 (0.400006) =0.365761 z-value = -2.914164 R <sup>2</sup> = 0.299 Standard Error of Regression Residual 52.576 Number of Observations: N=400 Number of Parameters=6 Dependent Variable: Insurance Purchase Decision						

Demand for any commodity is decisively governed by the individual's capacity to pay for it, which in turn is regulated by his income. Patient income came out to be statistically significant and affecting his insurance purchase decision positively. It points out that with higher levels of income generation, people may be inclined to buy a health coverage for themselves for they are facilitated with higher paying capacity

Health expenditure conceptually refers to that part of total expenditure that a household usually spends on the upliftment of health of its component members. It is inclusive of expenditure associated with illness, regular medications and treatment but exclusive of medications that calls for tertiary care (assumed in the current study). The team of Yellai J and Ramakrishna G (2012) found in their study in Hyderabad city of Andhra Pradesh, the role of health expenditure to be statistically significant factor to affect the decision of buying Health Insurance. We found that health expenditure came out to be positively affecting the health insurance buying decision. It may be because those incurring a high recurring expense on health consider it important

enough to plan for their future unforeseen medical expenditure.

Age is a natural process of biological increment with the passage of time. It lays a significant impact on his perception and resultant reaction to the changing environment around him. Most importantly, it plays a decisive role in economic decisions. People of relatively younger age group have a liberal approach towards accepting changes as against their older counterparts. In our equation the age is coming to be statistically significant. However negative sign of its coefficient points out at the “risk averse” attitude of the respondents of higher ages of the study area. Occupational profile not only entails the financial stature of an individual, it directly affects his exposure to social security benefits as well. The salaried class generally has an edge over its business counterpart's. In our equation the significant value of the occupational profile for laborers and farmers is coming significant @ 10 level of significance. The negative sign of its coefficient validates the current scenario prevalent in the economy that the people working in the organized sector are the ones who get the coverage of the insurance benefits from their respective employers. Similarly those who are formally employed are also benefitted with a health coverage.

Thus the factors governing the insurance purchase decision of the complete sample of 400 patients came out to be their income, health expenditure borne, age of the patient and employment in the organized sector.

During the survey it was found that the knowledge of the product of health insurance is indispensable for a positive insurance buying decision. It clearly indicates that generating awareness amongst the masses for the product will positively influence the probability of insurance purchase. 25.75 % (n=103) of the sample was found to be completely unaware about the very product of health insurance.

The second equation (outcome equation) deals with the demand made for health insurance. The same has been depicted by the amount of sum insured availed by the insured patients.

**Table 2: Regression Results for extent of Insurance Purchase**

Parameters	Variables					
	Annual Income (X <sub>1</sub> )	Annual Premium (X <sub>2</sub> )	Annual Health Expenditure (X <sub>3</sub> )	Age of Household Head (X <sub>4</sub> )	No of children in Family (X <sub>5</sub> )	Benefit Utilization (X <sub>6</sub> )
B <sub>i</sub>	0.233 (0.094)	0.333 (0.042)	0.184 (0.097)	-0.0079 (0.00025)	-0.059 (0.021)	-0.007 (0.022)
Z	2.462	4.076	1.883	-3.157	-2.801	-0.334
p-value	0.0155	9.28922E-05	0.062	0.0021	0.0061	0.738
B <sub>0</sub> =3.066 (0.559)						
R <sup>2</sup> =0.420 Adjusted R <sup>2</sup> =0.367 Standard Error of Regression=0.224 Number of observations: N=108 F-value =1.06 E-08						
Dependent Variable: Sum Insured						

Income of the respondents was found to be a major determinant of health insurance purchase decision. A positive association between increased income levels and purchase of health insurance was also revealed. It refers that with increment in income the extent of insurance coverage will be increased.

When a person avails an insurance plan, he agrees to pay a sum in lieu of which he ensures for himself all the expenses arising from medical needs. The insurer will in turn has the responsibility of taking care of the insured's medical needs and treatment costs. This amount is payable on an yearly basis that has the potency to affect the financial budget of an individual unless otherwise arranged for. Premium payable having positive association with insurance coverage reflects the consumer's willingness to pay greater premium provided he is benefitted with comprehensive coverage for his health risks. The product line of health insurance hasn't sank into the minds of the Indian masses as like its "life" counterpart has. Thus financial feasibility of the premium becomes most important factor for its acceptance and execution.

Health expenditure that is fundamentally involuntary in nature was found to be positively associated with the extent of insurance purchase. Premium is an imperative factor governing the extent of insurance purchase, the income earned by the individuals is one that decides their financial appetite. Higher income levels can be assumed to provide larger ease for paying premiums.

Age plays a decisive role in economic decisioning. The role of Age as a component is noteworthy in the business line of health insurance. All plans and policies are instigated depending upon the age of the insured. The insurers have set a bench mark age criterion for entering into a contract with them that generally varies between 3 months and 65 years. In some cases it extends till 70 years while in few there isn't any age bar for renewal of policies. In our study this factor came out to be statistically significant at 10% level of significance but with a negative coefficient. Life expectancy of an average Indian is around 70 years. At increased ages though the health risks are increased but the chances of reaping out the benefits of the insurance coverage reduces. So the decision makers of higher ages tend to downsize the insurance coverage. Although the age coefficient sign is negative but the magnitude is abysmally low to affect the quantum of purchase.

Family composition affects the financial ease of an individual. Lesser the number of dependents greater will be the financial ease. In our equation the extent of insurance purchase is coming to be affected by the number of children in the family. The negative sign of the coefficient points out that smaller is the family size with respect to number of children, larger will be the propensity of individuals to buy larger sum of health coverage.

The key results of the study can be summarized as under:

- a) This paper analyses the determinants of health insurance purchase decision in 2 stages. Income has emerged out to be a determining factor for both decision to avail health insurance and also to the extent of which it has to be bought. Higher income levels increase the possibility of availing insurance.
- b) Health expenditure plays a significant role in insurance purchase decision. However the family composition with respect to number of children is found to be negatively associated with the extent of purchase of health insurance. This result indicates that families with lesser children will go for buying larger volume of health coverage.

**Conclusion:**

Liberalization of the insurance sector came up with the opening up of health insurance segment with varied players. Given the time frame, need and health financing scenario in the country with minimal assistance from the government, it was assumed that this segment would grow manifolds looking at the demographic, economic and epidemiological situation. However the health insurance penetration in the country continues to be very low. The same was found to have descended in the study area. The product of insurance is subjected to solicitation thereby making it a matter of choice for those availing it. The results reveal that knowledge and awareness about the product of health insurance is a very important factor that affects its demand. Therefore it is imperative for the supply side agents to create mass awareness about the real benefits of this product. With the times changing and redefining of the labor laws, the employers are providing health benefits in the form of insurance coverage to their employees. But its confinement to the organized sector needs to be extended. Other occupational forms still continue to be neglected. It was revealed that the “extent” of insurance purchase is materially executed by those who are well off to bear the financial stress of paying high premiums. The positive association of income with the demand for health insurance, pin points that economically weaker sections have a lesser probability of buying it. Thus it is imperative for the insurers to make their product financially more viable so that more and more people would be encouraged to avail its benefits.

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