

Chapter 6

HEALTHCARE COSTS AND FINANCIAL PROTECTION

Chapter 6

HEALTHCARE COSTS AND FINANCIAL PROTECTION

6.1. Introduction

The study so far has proved that due to the high out-of-pocket health expenses and its severe impact on the rural households' economic well-being, and the financial vulnerability of the families from rural settings of Assam is high. The rural dwellers also strongly felt the need for financial security against healthcare risks. Health insurance is one of the many measures, mostly recommended by academicians and policy-makers, to deliver financial protection against unforeseen healthcare risks. There are presently several health insurance policies available (both public and private) in India as well. Hence, this chapter aims to assess the role played by these health insurance policies in delivering financial security against health risks in rural settings. Further, the study has also evaluated the acceptance level for a contributory health security scheme among rural houses, as an alternate health financing measure in recent times.

6.2. Financial Security against Healthcare Cost: The Current Scenario

There are several health insurance **policies** available in India offered by the public as well as the private sector. Among these schemes, government-funded health insurance policies are targeted at the financially weaker section of the society and mandatory in nature. On the other hand, the remaining public and private sector policies are voluntary in nature, mostly confined to the wealthier segment of our society. Even though several health insurance/assurance policies are currently performing across the state, survey data shows that only 19.5% of the sample households are familiar with the concept of health insurance in general. Out of the 1080 sample households, only 244 houses (22.7%), i.e., approximately only one-fifth of the interviewed families have such health scheme registrations. According to the study (Table 83), these households have the enrolment of one of the following three policies; *Ayushman Bharat Pradhan Mantri Jan Arogya Yojana* (97.1%), *Atal Amrit Abhiyan* (2.4%) policy and ESI scheme (0.4%).

Besides the low enrolment under health insurance/assurance schemes, the proportion of households benefitting from these plans is also pretty small. Out of the 245 families with at least one member enrolled in such schemes, only 9.4% of the houses had

received financial assistance under these policies in the past 365 days (from the day of survey). The proportion of households benefitting from these schemes is just 2.1% of the entire sample. Amidst the small pool of enrollees, the enrolment count is highest under the PMJAY scheme in rural settings, but the household profiting from this scheme is the least (7.1%). PMJAY is a newly launched policy by the central government of India. On average, the duration of enrolment of families under this scheme is less than a year (0.87 ± 0.43 year), ranging from 0.08 year to 1.5 years, which might be one of the reasons for the low utilization of the PMJAY scheme. On the other hand, 5 out of 6 households registered to the AAA scheme and the single ESI policyholder household have received reimbursements from the respective policies.

Table 83: Distribution of Enrolled Households and Duration of Enrolment across different schemes

Scheme	Enrolled Households		Duration of Enrolment			
	Count	Percent	Mean	Std. Dev.	Min	Max
Ayushman Bharat	238	97.1	0.87	0.43	0.08	1.50
Atal Amrit Abhiyan	6	2.4	3.92	0.20	3.50	4.00
ESIS	1	0.4	2.00	-	2.00	2.00
Total	245	100	0.95	0.64	0.08	4.00

Source: Compiled by the Author

Table 84: Frequency Distribution of households benefitting from health insurance/assurance schemes

		Payment or reimbursement from a health insurance plan		Total	
		Yes	No		
Households enrolled under a health insurance policy/scheme	Count among the enrolled houses	23	222	245	
	Distribution among the enrolled houses	9.4%	90.6%	100.0%	
	Count within the sample	23	1057	1080	
	Distribution within the sample	2.1%	97.9%	100.0%	
Type of Scheme	Ayushman Bharat	No of HH	17	221	238
		Percent	7.1%	92.9%	100.0%
	Atal Amrit Abhiyan	No of HH	5	1	6
		Percent	83.3%	16.7%	100.0%
	ESIS	No of HH	1	0	1
		Percent	100.0%	0.0%	100.0%

Source: Compiled by the Author

Despite the low level of enrolment counts as well as the tiny share of households served under these policies, it is very important to examine the awareness level and opinion of the enrollees to get insights about these policies already in action. Along with that, considering the low level of awareness, it is essential to assess the rural households' viewpoints regarding the concept of health insurance policies. So, we have carried out a comparative assessment of the perceptions among the enrollees and non-enrollees as well. The fundamental purpose of this segment is to assess rural households' perspective regarding the role of health insurance policies in ensuring financial security against healthcare risks.

6.2.1. Awareness and Opinion of the Enrollees about their health insurance policy

To get an idea of the enrollees' awareness level and view about their respective health insurance policies, two sets of statements were formulated, each set comprising of nine independent statements. During the survey, the households' respondent's level of agreement for each of these statements were recorded using a five-point Likert scale. The frequency distribution (Table 85) has been used to summarize these responses and draw basic interpretations.

Table 85: Frequency Distribution of the Enrollees' responses regarding their policy awareness

Sl. No	Statement(s)	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	I understand the various health insurance terms.	0 (0%)	25 (10.2%)	73 (29.8%)	94 (38.4%)	53 (21.6%)
2	I'm familiar with the enrolment process.	0 (0%)	78 (31.8%)	84 (34.3%)	45 (18.4%)	38 (15.5%)
3	I know which doctors and hospital are included under the scheme.	1 (0.4%)	43 (17.6%)	56 (22.9%)	79 (32.2%)	66 (26.9%)
4	I know what kind of services are included under the scheme	2 (0.8%)	75 (30.6%)	62 (25.3%)	61 (24.9%)	45 (18.4%)
5	I know how much contribution I've to pay for the scheme as premium.	7 (2.9%)	135 (55.1%)	71 (29.0%)	19 (7.8%)	13 (5.3%)
6	I'm familiar with premium payment process.	6 (2.4%)	62 (25.3%)	102 (41.6%)	57 (23.3%)	18 (7.3%)
7	I know how to figure out the share of the cost for care if any, after the health plan pays their share.	0 (0%)	30 (12.2%)	94 (38.4%)	75 (30.6%)	46 (18.8%)

8	I'm familiar how to avail the benefits of the schemes	0 (0%)	47 (19.2%)	35 (14.3%)	80 (32.7%)	83 (33.9%)
9	I know how and where to lodge any complaint regarding the scheme.	0 (0%)	8 (3.3%)	28 (11.4%)	73 (29.8%)	136 (55.5%)

Source: Compiled by the Author

The frequency distribution of the enrollees' responses indicates that the enrollees from the rural regions are still unaware of several aspects of their health insurance policies. The share of households with a basic understanding of the various terms associated with these policies is barely 10.2%. The majority of the families lack the knowledge of the doctors/hospitals (59.4%) and healthcare services covered by these schemes (43.3%). Although mixed responses have been recorded regarding awareness about the enrolment and premium payment process of these policies, most of the enrollees from rural settings are well-aware of the amount of contribution they have paid for these enrolments (58%). Since households are mostly unaware of the policy coverage details, it is highly unlikely that they can figure out the share of the cost for care (if any after the health plan pays out their portion), and the study also reflects the same. A large section of the enrolled families (49%) claimed that they couldn't differentiate between the costs covered by the policy and the additional payments made out of their pockets. Most importantly, approximately two-thirds of the enrollees (66.5%) reported that they don't know how to apply for the benefits of these schemes. And merely 3.3% of the enrollees are aware of the grievance redressal procedure for their respective health insurance policies.

The households with enrolments are distributed randomly among the three policies; most of them have PMJAY enrolment only (i.e., 238 out of 245 or 97.1%). Hence, it won't be appropriate to compare the knowledge and opinion of the enrollees about their respective health insurance policies.

Table 86: Frequency Distribution of the Enrollees' responses regarding their opinion about the schemes

Sl No	Statement(s)	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	The range of services covered under the scheme is satisfactory.	0 (0%)	42 (17.1%)	143 (58.4%)	50 (20.4%)	10 (4.1%)
2	The network of doctors, specialists	0	41	170	30	4

	and hospitals is satisfactory.	(0%)	(16.7%)	(69.4%)	(12.2%)	(1.6%)
3	The protection that coverage provides against medical costs is adequate.	1 (0.4%)	51 (20.8%)	143 (58.4%)	40 (16.3%)	10 (4.1%)
4	The quality of care received under the scheme is appropriate.	1 (0.4%)	42 (17.1%)	179 (73.1%)	19 (7.8%)	4 (1.6%)
5	The share of premium paid justifies the benefits provided by the scheme.	26 (10.6%)	82 (33.5%)	109 (44.5%)	23 (9.4%)	5 (2.0%)
6	Due to the health insurance, I don't feel vulnerable to medical costs.	3 (1.2%)	51 (20.8%)	59 (24.1%)	86 (35.1%)	46 (18.8%)
7	Health insurance subscription has significantly reduced the burden of health expenses.	0 (0.0%)	17 (6.9%)	63 (25.7%)	98 (40.0%)	67 (27.3%)
8	The scheme has made the process of health care service utilization hassle-free.	6 (2.4%)	37 (15.1%)	98 (40.0%)	72 (29.4%)	32 (13.1%)
9	Any kind health care service is affordable with health insurance coverage.	4 (1.6%)	8 (3.3%)	60 (24.5%)	113 (46.1%)	60 (24.5%)

Source: Compiled by the Author

Since most of the households are either not familiar with the health insurance policies or haven't benefitted from these schemes, they were mostly indifferent about satisfaction level with their health insurance plans. The majority of the enrollees shared neutral opinion about the range of services, networks of doctors/hospitals, medical cost coverage as well the quality of care delivered under these policies. All three schemes reported in the survey are government-sponsored, and the state/central government provide these schemes to beneficiaries either free of cost or for a very nominal charge. The large segment of the enrollees (44.1%) also admitted that the share of premium paid justifies the benefits provided by the scheme, while 44.5% neither agreed nor denied it. But despite the health insurance enrolment, most enrolled households (53.9%) do not feel safe from high healthcare costs. Instead, most of the families with health insurance enrolment stated that post-subscription there is neither any significant reduction in their regular burden of health expenses (67.3%) nor the scheme has made the process of health care service utilization hassle-free (42.4%). The enrolled households impartially believe that this kind of health insurance coverage has not been able to make healthcare services affordable for them.

6.2.2. Perception of the Rural Households regarding the concept of health insurance

Considering the limited population coverage under various health insurance schemes and the low rate of utilizing these schemes for paying the medical bills, the study attempted to explore the reasons behind this confined functioning of health insurance policies. According to the survey, 97.3% of the households got enrolled in their respective policies out of obligation only. Very few families (2.6%) registered themselves under these policies on their own to avail healthcare for small charges. On the other hand, the two prime reasons for the enrollees not being to avail the benefits of these health insurance policies are (a) enrollees are not familiar with the administrative procedure to avail the services (55.9%) and (b) the treatment for the ailments are not covered the respective policies (20.9%).

Since most of the rural households have health insurance enrolments because they are mandatory in nature, specifically designated for them, it implies that obligation is the main driving force for these enrolments. The majority of families in rural settings have been avoiding enrolling in such policies for various reasons. The common reasons reported by the rural households for non-enrollment mainly include affordability (54.4%) and lack of awareness (26.1%). Around one-fifth of the families not enrolled in any health insurance policies (18.3%) also reported that they don't prefer such enrolments.

Table 87: Enrollees' reasons for Enrolment and not utilizing the insurance benefits

Reasons for Enrolment	Frequency	Percent	Reasons for not utilizing the insurance benefits	Frequency	Percent
Obligatory	239	97.6	I didn't get sick	35	15.9
To avail health care with small fees	6	2.4	Sick but didn't need to see a doctor	4	1.8
			Sick but the insurance doesn't cover this service	46	20.9
			Not familiar with administrative procedure	123	55.9
			Other	12	5.5
Total	245	100.0	Total	220	100.0

Source: Compiled by the Author

Table 88: Reasons for not participating in any health insurance scheme

Sl. No	Reasons	Frequency	Percent
1	Not eligible	7	0.8
2	No financial ability/ Issue of affordability	454	54.4
3	Don't prefer	153	18.3

4	Unaware of the concept of health insurance	218	26.1
5	Other	3	0.4

Source: Compiled by the Author

Consumers' overall perception related to health insurance always plays a significant role in the family/individual's decision to engage with a health insurance policy. The population's understanding of these policies can also provide better insights for adequate designing and implementation of these kinds of schemes. Hence, in this study, we have carried out a preliminary assessment of the perception of rural households, for both enrollees and non-enrollees, about the general concept of health insurance, based on the existing policies in the market. A brief but thorough introduction was presented to each of the interviewed households to familiarize them with the concept, reducing response errors. Here as well, two sets of nine distinct statements were used each for enrollees and non-enrollees separately. The responses are scaled using a five-point Likert scale, ranging from *Strongly Disagree* to *Strongly Agree*.

According to the frequency distribution of the responses (Table 89), more than four-fifth of the households with health insurance enrolment agreed that there is a need for such policies in recent times, and it crucial for financial security against healthcare risks. About 70 percent of the enrolled households considered health insurance to be essential for maintaining the good health of the household members. Half of these households have maintained a vague opinion about the cost of these policies. On the other hand, 45.7 % of the enrolled families did not find the pricing of the available health insurance policies very desirable. Thus, approximately four-fifth of these households refused to believe that the available health insurance policies are affordable. Moreover, 72.2 % of the families with enrolments claimed that the details of these plans are not easy to understand. Around seven-tenths of enrolled households agreed that health insurance plans could make improve the accessibility of quality healthcare services and address the issue of rapidly rising costs of treatments competently. Around three-fourth of these families agreed that health insurance policies should be made mandatory for every individual.

Table 89: Perception about the concept of Health Insurance from Enrollees' point of view

Sl. No	Statement(s)	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	Health insurance is something I	57	146	40	2	0

	need.	(23.3%)	(59.6%)	(16.3%)	(0.8%)	(0%)
2	Health insurance is important for my health.	26 (10.6%)	150 (61.2%)	67 (27.3%)	2 (0.8%)	0 (0%)
3	Health insurance is worth the money it costs.	25 (10.2%)	87 (35.5%)	123 (50.2%)	10 (4.1%)	0 (0%)
4	Health insurance is important to my financial security.	83 (33.9%)	124 (50.6%)	19 (7.8%)	12 (4.9%)	7 (2.9%)
5	Health insurance is affordable in general.	0 (0%)	2 (0.8%)	38 (15.5%)	114 (46.5%)	91 (37.1%)
6	Health insurance plans are easy to understand.	7 (2.9%)	13 (5.3%)	48 (19.6%)	118 (48.2%)	59 (24.1%)
7	Health insurance helps in accessing quality health care services.	28 (11.4%)	142 (58.0%)	65 (26.5%)	10 (4.1%)	0 (0%)
8	Health insurance is a solution for rapidly rising healthcare costs.	31 (12.7%)	148 (60.4%)	57 (23.3%)	8 (3.3%)	1 (0.4%)
9	Health insurance should be made compulsory for everyone.	75 (30.6%)	108 (44.1%)	45 (18.4%)	10 (4.1%)	7 (2.9%)

Source: Compiled by the Author

Table 90: Perception about the concept of Health Insurance from Non-Enrollees' point of view

Sl. No	Statement(s)	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	Health insurance is something I need.	243 (29.1%)	392 (46.9%)	157 (18.8%)	40 (4.8%)	3 (0.4)
2	Health insurance is important to me (my health).	83 (9.9%)	386 (46.2)	308 (36.9%)	51 (6.1%)	7 (0.8%)
3	Health insurance is important to my financial security	332 (39.8%)	366 (43.8%)	90 (10.8%)	44 (5.3%)	3 (0.4%)
4	Health insurance is not affordable.	425 (50.9%)	191 (17.7%)	134 (16.0%)	73 (8.7%)	12 (1.4%)
5	Health insurance is not worth the money it costs.	30 (3.6%)	76 (9.1%)	424 (50.8%)	234 (28.0%)	71 (8.5%)
6	Health insurance is hard to obtain.	256 (30.7%)	323 (38.7%)	180 (21.6%)	68 (8.1%)	8 (1.0%)
7	Health insurance helps in accessing quality health care services.	262 (31.4%)	341 (40.8%)	170 (20.4%)	61 (7.3%)	1 (0.1%)
8	Health insurance is a solution for rapidly rising healthcare costs	214 (25.6%)	406 (48.6%)	161 (19.3%)	54 (6.5%)	0 (0.0%)
9	Health insurance should be made compulsory for everyone.	305 (36.5%)	323 (38.7%)	178 (21.3%)	25 (3.0%)	4 (0.5%)

Source: Compiled by the Author

The survey responses suggest that there is no significant difference in the perception of health insurance plans between households with and without health insurance enrolments (Table 90). More than three-fourths of the families without any health insurance enrolment agreed upon the need for these insurance policies for them. The majority of these houses admitted that health insurance enrolment could even assist in maintaining good health. And more than four-fifths termed it essential for ensuring

their financial security as well. As expected, affordability is also an issue for this stratum of rural households, and thus, it is hard for most of these families to pay for these policies. Most of the houses presently not enrolled under any scheme don't have a clear opinion about the worth of the pricing of the existing health insurance policies (50.8%). Like the enrollees, the household without any such enrolments also accepted that health insurance has the potential to make quality care easily accessible (72.2%) and to solve the issue of rising healthcare costs to a certain extent (74.3%). Hence, three-fourths of these households also insisted that it should be made compulsory for everyone.

6.3. Scope of Contributory Health Insurance Scheme in the rural settings of Assam

Evidence from around the world claims that health insurance is a progressive way of healthcare financing, and there are various types of health insurance policies currently operating across the globe. Despite the low level of health insurance enrolment in rural settings, the study has proven that rural households have a positive perception of the health insurance concept in general, irrespective of their current enrolment status and low awareness level. In light of this assertive opinion, the study proposed the notion of a contributory health financing scheme to provide the perks of health insurance policies to all and reduce the gap in the current healthcare system.

To make more specific remarks on the idea of contributory health insurance scheme (CHI) as a solution to the issue of financial protection, the study attempted to find out the extent to which the rural households are likely to engage in these types of policies. The Stated Preference (SP) approach was selected for estimating the willingness of rural households to participate in a contributory health scheme. Here, out of the several SP methods, the contingent valuation (CV) method was used for collecting the required data. The CV method has been used in a significant number of studies to measure the willingness to pay for health insurance policies in developing countries over the years (Dong, Kouyate, Cairns, Mugisha, & Sauerborn, 2002; Asgary, Willis, Taghvaei, & Rafeian, 2004; Bärnighausen, Liu, Zhang, & Sauerborn, 2007; Mathiyazhagan, 2018). The study proposed a hypothetical situation about a contributory health insurance product to the respondents. The respondents were requested to consider the feasibility of the product in the actual market and confirm whether they would want to get enrolled under these schemes. The responses were recorded in the dichotomous format (yes or no). In cases, the households express their willingness for enrolment, they were further asked to

quote the maximum amount they would be willing to pay in a year. Since the awareness regarding health insurance is very limited and the study intends to do a preliminary assessment of the idea of a CHI policy, the study opted for dichotomous format to capture their willingness to participate and open-ended elicitation method for gauging their willingness to pay for such schemes, despite its limitations. The respondents also pinpointed the different healthcare services they want these policies to cover, from the following five alternatives: inpatient cost, outpatient consultation cost, cost of medicines, cost of diagnostic tests, and transportation costs.

6.3.1. Willingness to participate in a CHI scheme and its determining factors

Out of the 1080 rural households interviewed for the study, 74.6 percent (806 houses) expressed willingness to get enrolled under a contributory health financing scheme. The distribution of these 806 houses, compliant to the ideas of a contributory health scheme is almost similar across the first four income groups. The compliance is relatively a bit low among the highest-earning families (Table 91).

Table 91: Distribution of the Households willing to participate in a contributory scheme across the Income groups

Households Willing to Participate	Household Income Groups					Total
	Up to Rs. 60000	Rs. 60001– Rs. 90000	Rs. 90001- Rs.129600	Rs.129601- Rs.231000	Rs. 231001 and more	
Count	165	175	160	174	132	806
Percent	20.5	21.7	19.9	21.6	16.4	100

Source: Compiled by the Author

Several variables can persuade a household's decision on whether to participate in a contributory scheme. Based on the systematic review of twenty-one articles from ten countries, Nosratnejad, Rashidian, and Dror (2016) have reported that there are five categories of variables that influence a household's willingness-to-pay (WTP) for any health insurance policy. These five groups are demographic determinants, socioeconomic determinants, health service-related determinants, determinants associated with perceived needs, and insurance-related variables. Several other studies from across the world also observed that variables influencing the WTP for health insurance policies often fall into either of these categories (Entele & Emodi, 2016; Al-Hanawi, Vaidya, Alsharqi, & Onwujekwe, 2018; Jofre-Bonet & Kamara, 2018; Gidey, Gebretekle, Hogan, & Fenta, 2019). These studies have focused on different health insurance policies in various contexts. The determinants identified in these studies are similar but not identical. So, we carried out ten binary logistic regressions (BLR) with five sets of variables to find out what are the different variables that influence a family's decision to engage with a

contributory health scheme in the rural settings of Assam. The Hosmer and Lemeshow test results confirmed that each of these derived logit models is a good fit for the data.²⁶

a) Household Demographics

The demographic variables considered for the logit models are the geographic location of the household (residing district), income group of the households, family size, religion, and the social group of the houses. With these five household demographic variables, we carried out three BLRs.

Table 92: Logit model (1) on households' WTP with respect to their geographic location

Variable		B	S.E.	Wald	df	Sig.	Exp(B)
Name	Description						
District	Residing district of the HH (Ref. Cat: Darrang)			40.163	2	.000	
district(1)	Nalbari	-.316	.186	2.895	1	.089	.729
district(2)	Morigaon	-1.021	.164	38.648	1	.000	.360

Source: Compiled by the Author

The odds ratio (OR) from Table 92 reveals that compared to the households from the Darrang district, families from Morigaon are less willing (OR = 0.360) to participate in such schemes.

On the other hand, the OR values for the second BLR (Table 93) reveal that compared to large families (7 or more members), medium-size families with 3-4 members are 1.933 times more willing to participate in such schemes. As the size of the family increases, usually, the larger share of their earnings gets consumed for fulfilling necessities. As a result, such families become very selective about the remaining income at their hands. Hence, medium-size families might be more willing to invest their money in the contributory scheme. On the other hand, compared to the highest-earning families, households from the remaining three income groups (excluding the lowest-earning houses) are more likely to comply with the concept of contributory healthcare scheme, and the odds varied randomly across these three groups. The odds are the highest for the high earning families (OR = 2.361), followed by the second-lowest income group houses (OR = 2.204), and least for the moderate earners (OR = 1.673). The lowest-earning income is non-significant in this context.

²⁶ The primary assumptions for each of the BLRs have been tested thoroughly before carrying out the regressions, and Hosmer and Lemeshow test results are available in Annexure D

Table 93: Logit model (2) on households' WTP with respect to their annual income and family size

Variable			B	S.E.	Wald	df	Sig.	Exp(B)
Sl. No	Name	Description						
1	HH_size_grp	HH family size (Ref. Cat: 7 or more members)			11.259	4	.024	
	HH_size_grp(1)	Single/ 1 member	.714	.693	1.062	1	.303	2.042
	HH_size_grp(2)	2 members	.272	.374	.528	1	.467	1.312
	HH_size_grp(3)	3-4 members	.659	.212	9.678	1	.002	1.933
	HH_size_grp(4)	5-6 members	.269	.208	1.683	1	.194	1.309
2	Inc_A_Grp	Income group of the households (Ref. Cat.: Rs 231001 or more p.a.)			19.287	4	.001	
	Inc_A_Grp(1)	Rs 60000 or less p.a.	.350	.226	2.397	1	.122	1.419
	Inc_A_Grp(2)	Rs 60001-Rs 90000 p.a.	.790	.238	11.043	1	.001	2.204
	Inc_A_Grp(3)	Rs 90001-Rs 129600 p.a.	.515	.226	5.186	1	.023	1.673
	Inc_A_Grp(4)	Rs 129601-Rs 231000 p.a.	.859	.224	14.736	1	.000	2.361

Source: Compiled by the Author

Table 94: Logit model (3) on households' WTP with respect to their religion and social group

Variable			B	S.E.	Wald	df	Sig.	Exp(B)
Sl. No	Name	Description						
1	religion(1)	Hindu families	.624	.200	9.730	1	.002	1.866
2	caste	The social group of the HH (Ref. Cat.: ST)			11.057	3	.011	
	caste(1)	General	.783	.270	8.396	1	.004	2.187
	caste(2)	OBC	.751	.257	8.541	1	.003	2.119
	caste(3)	SC	.348	.378	.848	1	.357	1.416

Source: Compiled by the Author

According to the third logit model (Table 94), the household's religion and social group are statistically significant in determining their WTP. The odds of a Hindu family willing to register under a contributory scheme is almost twice the odds for a Muslim family (OR = 1.866). The households belonging to the general and OBC categories are more willing than the ST households. The odds are twice for both of the social group (OR = 2.187, 2.119).

b) Healthcare treatment pattern

In the second set of variables, we have considered the households' healthcare-seeking pattern from the previous year. According to the regression, the type of provider visited for OP consultations are statistically significant at the 95% confidence interval. The logit model (4) (from Table 95) showed that if the household has witnessed any OP

visit within the recall period (30 days), they are likely to express their WTP for the proposed contributory scheme. The odds of household WTP is the same irrespective of the type of provider, public or private (OR = 1.362, 1.479).

Table 95: Logit model (4) on households' WTP with respect to the type of provider for OP visits

Variable			B	S.E.	Wald	df	Sig.	Exp(B)
Sl. No	Name	Description						
1	OP_provider_G(1)	Household has visited a public facility for OP consultation	.309	.155	3.956	1	.047	1.362
2	OP_provider_P(1)	Household has visited a private facility for OP consultation	.391	.175	4.987	1	.026	1.479

Source: Compiled by the Author

Table 96: Logit model (5) on households' WTP with respect to count of treatments from different providers

Variable			B	S.E.	Wald	df	Sig.	Exp(B)
Sl. No	Name	Description						
1	IP_G	IP treatments in public facility (count)	.058	.101	.331	1	.565	1.060
2	IP_P	IP treatments in private facility (count)	-.368	.120	9.487	1	.002	.692
3	IP_M	IP treatments in both public and private facility (count)	-.182	.180	1.028	1	.311	.833
4	OP_G	OP treatments in public facility (count)	.147	.089	2.718	1	.099	1.158
5	OP_P	OP treatments in private facility (count)	.245	.113	4.706	1	.030	1.278
6	OP_M	OP treatments in both public and private facility (count)	-.345	.244	1.995	1	.158	.708

Source: Compiled by the Author

Moreover, the count of different types of treatments, based on the type of providers visited, also significant in determining households' WTP status. The visits to private healthcare providers have a strong influence over the households' willingness to participate. According to the logit model (5) (Table 96), the number visits to the private healthcare facilities for IP and OP treatments are statistically significant for predicting the WTP status. The odds ratios indicated that an increase by one in the number of IP treatment availed from a private facility in a year is going to decrease the chances of a family's WTP for a contributory scheme by 0.692 times. On the other hand, increase by

one for the number of OP visits to a private facility in a month is going to increase the odds by 1.278 times.

c) Household healthcare financing decisions

Different households adopt different financing measures to pay their medical bills. The study has identified seven financing alternatives prominently adopted in rural settings, and they are household income, family savings, selling off assets, borrowing from relatives/friends, a loan from moneylenders, and micro-credit from SHG/MFI. Although a share of the households has health insurance registrations, the families that have benefitted from health insurance policies are very few in numbers. According to the logit model 6 (Table 97), out of these several alternatives, households that have relied on micro-credits to pay for healthcare are more willing to pay for a contributory health scheme. The chances of agreeing to participate in a CHI scheme doubles for the families with these micro-credits (OR = 2.607).

Table 97: Logit model (6) on households' WTP with respect to count of treatments from different providers

Variable			B	S.E.	Wald	Df	Sig.	Exp(B)
Sl. No	Name	Description						
1	fin_a(1)	Used household income	.943	.516	3.342	1	.068	2.567
2	fin_b(1)	Used household savings	.121	.222	.300	1	.584	1.129
3	fin_c(1)	Reimbursement received from health insurance policies.	.910	.631	2.082	1	.149	2.485
4	fin_d(1)	Sold off household assets	-.253	.172	2.156	1	.142	.777
5	fin_e(1)	Borrowed from relatives and friends	.206	.151	1.857	1	.173	1.228
6	fin_f(1)	Borrowed from moneylender	.208	.219	.904	1	.342	1.231
7	fin_h(1)	Availed micro-credit from SHG/MFI	.958	.159	36.397	1	.000	2.607

Source: Compiled by the Author

d) Insurance-related information

The knowledge about the concept of health insurance and previous experience with health insurance plans usually help a household's future decisions regarding any such health policies. The study found that there is no significant difference in households' willingness to participate in a CHI between the families already enrolled in a health insurance policy and families without any such enrolments. The current enrolment status of the households is non-significant in determining their WTP for any new health insurance policy. But on the other hand, the families who are previously aware of the concept of health insurance are less likely to agree to the idea of a CHI. According to the

odds ratio, the WTP for a CHI policy is 0.595 times less (Table 98) for the households that are familiar with the concept of health insurance.

Table 98: Logit model (7) on households' WTP with respect to awareness and enrolment status

Variable			B	S.E.	Wald	df	Sig.	Exp(B)
Sl. No	Name	Description						
1	Ins_awareness(1)	Household that are aware of the concept of Health Insurance	-.519	.176	8.699	1	.003	.595
2	Ins_Enrol(1)	Household is already enrolled in a Health Insurance policy	.213	.178	1.428	1	.232	1.237

Source: Compiled by the Author

e) Healthcare costs and its consequences from the household's perspective

Households' annual cost of healthcare and the probable impact of these costs are perceived differently by different houses. The logit models revealed that some of these perceptions of rural households also have a direct influence on their WTP for a contributory policy. The families who do not believe that healthcare expenses are affordable for them are more willing to participate in a CHI scheme. The odds of these households agreeing for a CHI policy is almost twice the odds for houses whose health expenses are within affordable limits (OR = 1.863).

Table 99: Logit model (8) on households' WTP with respect to households' opinion regarding the affordability of healthcare costs

Variable		B	S.E.	Wald	df	Sig.	Exp(B)
Name	Description						
exp_atti3_regrp	Opinion on "Health care expenses are affordable" (Ref: Agree)			12.675	2	.002	
exp_atti3_regrp(1)	Disagree	.622	.176	12.562	1	.000	1.863
exp_atti3_regrp(2)	Neutral	.457	.192	5.653	1	.017	1.579

Source: Compiled by the Author

Similarly, the households whose annual income is not sufficient to cover their health expenses are more willing to get enrolled in a CHI plan. In comparison to the families with satisfactory earnings, the WTP almost doubles for the families who believe their income is insufficient (OR = 1.810) (Table 100). According to the logit model (10), if a household does not have any huge financial debts because of healthcare treatments, they are less willing to engage in a CHI plan (Table 101). For families whose financial

debt level has not been affected by healthcare expenses, the WTP reduces by approximately 50 percent (OR = 0.565).

Table 100: Logit model (9) on households' WTP with respect to households' opinion regarding the sufficiency of household income

Variable		B	S.E.	Wald	df	Sig.	Exp(B)
Name	Description						
exp_atti4_regrp	Opinion on "Household income is sufficient to cover health care costs" (Ref: Agree)			12.137	2	.002	
exp_atti4_regrp(1)	Disagree	.593	.173	11.778	1	.001	1.810
exp_atti4_regrp(2)	Neutral	.300	.199	2.276	1	.131	1.350

Source: Compiled by the Author

Table 101: Logit model (10) on households' WTP with respect to households' opinion regarding increase in financial debt

Variable		B	S.E.	Wald	df	Sig.	Exp(B)
Name	Description						
exp_atti6_regrp	Opinion on "Health care expenses have increased the financial debt of the family" (Ref: Agree)			16.230	2	.000	
exp_atti6_regrp(1)	Disagree	-.571	.159	12.905	1	.000	.565
exp_atti6_regrp(2)	Neutral	.018	.191	.008	1	.927	1.018

Source: Compiled by the Author

6.3.2. Extent of Willingness to pay for a CHI and Expected Coverage

The households who were willing to pay for a CHI also quoted the amount they could afford to pay for such schemes. On average, a family from rural settings is willing to pay Rs. 2556.13 in a year, with a high standard deviation of Rs. 2386.98. Although the WTP amount ranges from as low as Rs 60 to Rs. 24000, with a median value of Rs. 2000, it has been observed that the distribution of these premium shares is positively skewed, and the most frequently premium amount (mode) is Rs. 1200 per year. The Pearson correlation coefficient confirmed that the amount of premium rural households willing to pay for a CHI scheme shares a positive and moderate linear association with the household's annual income ($r = 0.637$) and a weak positive relationship with the size of the family ($r = 0.355$). The amount of premium, that households are willing to pay, increases with the rise in annual income as well as for the increase in family size but not in equal proportion. The survey also recorded respondents' expectation from such a schemes in terms of service coverage. Based on the data (Table 102), the majority of

these households wanted that such plans should cover the costs of medications (93.67%). A significantly large proportion of households have also emphasized that IP treatment costs (43.8%), as well as costs of diagnostic tests (44.67%), should be included under these schemes.

Table 102: Frequency Distribution of expected service coverage

Expected Coverage	IP Cost	OP Consultation Cost	Cost of Medicines	Cost of Diagnostics Tests	Transportation Costs
Count	353	35	755	360	29
Percent	43.8	4.34	93.67	44.67	3.6

Source: Compiled by the Author

There was no restriction imposed on the respondents while choosing their expected service coverage from this CHI scheme, and approximately 75.18% of the households willing to participate in a CHI scheme chose more than one service out of the provided five alternatives. Based on the responses of the houses, there are a total of 17 types of combinations of services that the families want these CHI schemes to cover. Out of these 17 combinations, mainly three combinations are mostly expected by these rural households. 31.4% of the houses wanted protection from the cost of medicines and diagnostic tests. On the other hand, 26.5% of the families expected that the CHI scheme should cover the expenses of both IP treatments and medications as well. 18.9% of the households opt for protection for medicine costs only. The proportion of the other combinations of services in the expected coverage distribution is relatively small.

Table 103: Distribution of the different combinations of services expected to be covered by rural households

Sl. No	Service Composition	Frequency	Percentage
1	Medicine, Diagnostic Test	253	31.4
2	IP, Medicine	213	26.5
3	Medicine only	152	18.9
4	IP, Medicine, Diagnostic Tests	79	9.8
5	IP only	48	6.0
6	OP, Medicine	15	1.9
7	Medicine, Diagnostics Tests, Transportation	12	1.5
8	OP, Medicine, Diagnostic Tests	9	1.1
9	Medicine, Transportation	7	0.9
10	IP, Medicine, Transportation	5	0.6
11	IP, OP, Medicine	3	0.4
12	OP, Medicine, Transportation	2	0.2
13	OP, Diagnostic Test	2	0.2

14	All five (IP, OP, Medicine, Diagnostic Tests, Transportation)	2	0.2
15	IP, OP	1	0.1
16	IP, Medicine, Diagnostic Tests, Transportation	1	0.1
17	IP, OP, Medicine, Diagnostic Tests	1	0.1

Source: Compiled by the Author

6.4. Summary

Considering the significance of financial protection against healthcare risks, the World Health Report (2010) has incorporated it in the UHC cube as one of the three types of essential coverage needed for making healthcare universally accessible and affordable. Despite several attempts, India is still lagging far behind in this front of UHC. Hence, this study has tried to assess the current situation of health insurance policies at the household level. The study has also explored the prospects of a contributory health insurance scheme to fill the void of the country's current health system.

According to the report by NITI Aayog, health insurance coverage in India is only 15.2 percent of the population, among these the coverage by public funded policies is the highest across the country (Joe, 2019). The study also recorded similar findings showing that the penetration level of health insurance policies is very low amidst the sample rural households, and according to the study findings, the main reasons for it are lack of awareness and affordability. The existing literatures have recorded mixed responses about the awareness level regarding health insurance across the country, ranging from very high to very low (Reshmi, et. al, 2007; Reshmi, et al, 2012; Indumathi, et.al, 2016; Bhageerathy, & Sebastian 2018; Kusuma, Pal & Babu 2018). The study showed that, households from the selected rural settings are not well aware of the concept. There have been cases witnessed during the survey where households with health insurance enrolments are also unaware of the concept of health insurance. The study even showed that the only government-sponsored health policies, specifically the newly launch PMJAY scheme holds the largest share of enrolled households from the sample, and the respondents also confirmed that the obligatory norms are the compelling force for these limited number of enrolments. Very few sample households from the sample have been able to utilize the benefits of these policies. According to the study, only a very few families have received financial assistance under these policies against the entire sample. Majority of the enrollees from the sample are still unaware of the several fonts of their scheme, which has affected the usage rate as well. In addition to that, the respondents

from the enrolled households reported that the limited healthcare service and provider coverage are also responsible for such a low utilization rate to a significant extent. It has been found that apart from the premium amount, the enrollees are not very clear about the coverage details, administrative procedures for availing the benefits, and lodging any grievances. They are also unsure about the enrolment and premium payment process.

The low awareness and the minimum usage level among the rural enrollees have also impacted the respondents' satisfaction level. They are mostly indifferent about the cost coverage, service coverage, the network of hospitals and doctors, and the quality of care delivered under these plans. There is a mixed opinion about the share of premiums. But despite the enrolments, the rural families still feel vulnerable to the high cost of care. According to the enrollees, these policies have not brought any significant change in their regular healthcare burden and healthcare accessing process. Any kind of healthcare service is also still not affordable with health insurance coverage.

Previous studies have claimed that people with low earning as well as people without any prior experience usually considered health insurance as a necessity good (Binnendijk, et al, 2013); very small segment of the society considers it to be a necessity (Jain, et al., 2014). Despite everything, the respondents, both enrollees and non-enrollees, share a similar and assertive view about the general concept of health insurance. They believe that health insurance is essential for both health and financial security in recent times. Although these policies are usually perceived to be complicated to understand, rural households agree that they can help in providing better access to quality healthcare and also reduce the burden of high healthcare costs. They even admitted that the government should declare health insurance policies mandatory for all. But according to these families, the pricing policy of the existing plans for the respective service coverage is not very appealing and is not affordable by all. Hence, to address the issue, the concept of contributory health insurance plan is presented and tested. And the findings have also unveiled several insights regarding the willingness of the rural society for CHI schemes from several viewpoints.

a) Role of Demographics: Approximately, three-fourth of the sample expressed their willingness to participate in a CHI scheme. The study has identified significant variation in willingness level across the state; the households from Morigaon districts are most reluctant to this concept. The study has recorded multiple demographic indicators influencing the willing to pay, which contradicts with the existing literatures. In contrast

to the findings reported by Dror, Radermacher, & Koren (2007), the study reported that the medium-sized families are more inclined to engage with a CHI policy. The households from every income group expresses high level of willingness to pay for a CHI policy, except for the lowest-earning families, but the household income didn't have any noticeable impact on the amount quoted. However, Dror, Radermacher, and Koren (2007) as well as Gupta and Trivedi (2014) claimed that the WTP positively correlates with the household incomes, while Binnendijk, et al, (2013) found that WTP has a negative correlation with income. The surveyed households informed that limited earnings of the are often not enough to make their ends meet; thus, an additional contribution to a health policy might not be very tempting for such families. Considering the issue of affordability, the government has already have implemented several pro-poor health protection schemes like *Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana* and many more, at both the national and state levels. So, despite the affordability issue, they at least have some protection, unlike the rest of the income groups. The study further confirmed for association between WTP and social and religious beliefs from the earlier studies (Tundui and Macha, 2014; Dartanto et al., 2016; Beyers, 2017; Kotoh et al.,2017). Hindu families are relatively more inclined to the concept of CHIs than Muslim families, and similarly, general, OBC class households also seemed more willing.

b) Influence of Treatment Pattern: Ghosh and Mondal (2011) has previously claimed that households are more inclined towards paying for in the presence of morbid conditions and prior inpatient experience. IP cases are rare, but the cost of treatment is high. OP cases are frequent and relatively cheaper, but often get prolonged due to routine check-ups. OP visits usually entail high costs of medications and costly diagnostic tests at times. Reports have also shown that, for India, OP care is responsible for 84.84 percent of total household OOP expenses, while IP care expenses stand for 31.96% only (National Health Systems Resource Centre, 2016). The cost of treatments increases manifolds when attended by a private facility. Experience with such medical events aids in realizing the need for financial protections for the households. Thus, the study has added that families that have previously encountered OP cases are more prone to enrolling in CHI policy, although their expectations from these schemes might vary.

c) Impact of Rural households' Coping Strategies: The study has added fresh insights into the matter with the impact of various coping strategies on households' WTP for any CHI scheme. In the rural setting of Assam, micro-credits from SHG/MFI are the

most common method to finance the various short-term needs of the families. According to the study, rural households often relied on such micro-credits to pay medical bills as well. For houses with multiple micro-credits, odds of over-indebtedness are high, and it makes the families financially more vulnerable. In such cases, rural households are more interested in the idea of CHI policies. Surprisingly, previous experience and awareness about health insurance policies have adversely affected the suggested CHI scheme. While the current enrollment status of the households is entirely irrelevant in the context of WTP for a CHI plan, surprisingly, the families that are familiar with the concept of health insurance are found to be reluctant about the idea of CHI. It is an indication that the existing health insurance policies might have failed to deliver as per anticipation, and there is the rural population still lacks proper knowledge about the different beneficial aspects of health insurance schemes.

d) Significance of Rural Perceptions of Healthcare Costs and Its Insurance: The high cost of treatments often changes households' perceptions about their healthcare cost levels and their impacts. Whenever healthcare becomes unaffordable or while coping with these high expenses, families end up with huge debts, the need for financial protection mostly felt. The amount that the households are willing to pay for a safety net is widespread, influenced by the households' annual income level but in moderate proportions. The lack of awareness and wrong perceptions about the health insurance policies might be the prime cause of such controlled WTP. Most of the established schemes mostly emphasized on providing financial assistance for IP treatments. But it is noteworthy that out of the different healthcare services, rural households felt the need for protection against the medication costs most, followed by the costs of diagnostic tests and IP costs. The World Health Statistics Report (WHO, 2019) has also validated that out-of-pocket spending on medicine can be a significant source for such financial hardship for all households, and in the case of India, the cost of medications holds the largest share in the total health expenses of houses (National Health Systems Resource Centre, 2016). So, the need for protection against medicinal necessities being the first priority for rural families is highly relevant at current times.

Financial protection against healthcare costs is the need of the hour. Since a substantial number of households expressed their willingness to pay for it during the survey as per their capability, the government could put the idea of CHI into a test to further confirm its feasibility and effectiveness of the concept in reality. But several

influencing factors must be taken into account while implementing any CHI scheme in the future. Instead of following the conventional design of health insurance policies, the designing could be done in such a way that service coverage harmonizes with the need of the population. The policymakers could aim to maximize the service coverage of these insurance policies as much as possible. In light of the variations in willingness across the different demographics, creating adequate awareness and correcting perception about health insurance policies could also play a crucial role in improving the acceptability of such schemes in rural settings. A CHI scheme might fill in the gap of the current health system for financial protection, but in light of the very confined level of WTP in terms of the contribution, the government could take some intervention to subsidize the premium amounts or decide on the contribution structure in a progressive manner. There is no definite guideline for extending financial protection from healthcare risks, and a contributory health scheme might be a plausible answer to achieve better results in the rural settings of India.

Reference

- Al-Hanawi, M. K., Vaidya, K., Alsharqi, O., & Onwujekwe, O. (2018). Investigating the Willingness to Pay for a Contributory National Health Insurance Scheme in Saudi Arabia: A Cross-sectional Stated Preference Approach. *Applied Health Economics and Health Policy*.
- Asgary, A., Willis, K., Taghvaei, A. A., & Rafeian, M. (2004). Estimating rural households' willingness to pay for health insurance. *The European Journal of Health Economics, formerly: HEPAC*, 209-215.
- Bärnighausen, T., Liu, Y., Zhang, X., & Sauerborn, R. (2007). Willingness to pay for social health insurance among informal sector workers in Wuhan, China: a contingent valuation study. *BMC Health Services Research*.
- Beyers, J. (2017). Religion and culture: Revisiting a close relative. *HTS: Theological Studies*, 73(1), 1-9.
- Binnendijk, E., Dror, D. M., Gerelle, E., & Koren, R. (2013). Estimating Willingness-to-Pay for health insurance among rural poor in India by reference to Engel's law. *Social science & medicine*, 76, 67-73.

- Bhageerathy, R., & Sebastian, S. (2018). Awareness and Willingness to Enroll for Health Insurance in A Rural Population in Southern India. *Value in Health*, 21, S61.
- Dartanto, T., Rezki, J. F., Pramono, W., Siregar, C. H., & Bintara, H. (2016). Why are workers in the informal sector reluctant to join the national health insurance system in Indonesia?. *Journal of Southeast Asian Economies*, 33(3), 320-348.
- Dong, H., Kouyate, B., Cairns, J., Mugisha, F., & Sauerborn, R. (2002). Willingness-to-pay for community-based insurance in Burkina Faso. *Health Economics*, 849-862.
- Dror, D. M., Radermacher, R., & Koren, R. (2007). Willing Entele, B. R., & Emodi, N. V. (2016). Health Insurance Technology in Ethiopia: Willingness to Pay and Its Implication for Health Care Financing. *American Journal of Public Health Research*, 98-106.
- Ghosh, S., & Mondal, S. (2011). Morbidity, health expenditure and willingness to pay for health insurance amongst the urban poor: A case study. *Journal of Health Management*, 13(4), 419-437.
- Gidey, M. T., Gebretekle, G. B., Hogan, M.-E., & Fenta, T. G. (2019). Willingness to pay for social health insurance and its determinants among public servants in Mekelle City, Northern Ethiopia: a mixed methods study. *Cost Effectiveness and Resource Allocation*.
- Indumathi, K., Hajira, S. I., Gopi, A., & Subramanian, M. (2016). Awareness of health insurance in a rural population of Bangalore, India. *Int J Med Sci Public Health*, 5(10), 2162-2167.
- Gupta, I., & Trivedi, M. (2014). Willingness to pay for health insurance among HIV-positive patients in India. *Applied health economics and health policy*, 12, 601-610.
- Jain, A., Swetha, S., Johar, Z., & Raghavan, R. (2014). Acceptability of, and willingness to pay for, community health insurance in rural India. *Journal of epidemiology and global health*, 4(3), 159-167.
- Joe, William (2019), Health Insurance Coverage in India: Insights for National Health Protection Scheme, in *The Impact Assessment of Selected Healthcare Policies in*

India: A Compendium of Studies Conducted by the Population Research Centres 2018-19, Ministry of Health and Family Welfare, Government of India, New Delhi. pp. 163-172.

<http://prc.mohfw.gov.in/pdf/files/5%20Impact%20Assessment%20of%20Selected%20Healthcare%20Policies%20in%20India%202018-19.pdf>

Jofre-Bonet, M., & Kamara, J. (2018). Willingness to pay for health insurance in the informal sector of Sierra Leone. *PLOS One*.

Kotoh, A. M., Aryeetey, G. C., & Van der Geest, S. (2018). Factors that influence enrolment and retention in Ghana's National Health Insurance Scheme. *International journal of health policy and management*, 7(5), 443.

Kusuma, Y. S., Pal, M., & Babu, B. V. (2018). Health insurance: Awareness, utilization, and its determinants among the urban poor in Delhi, India. *Journal of epidemiology and global health*, 8(1-2), 69.

Mathiyazhagan, K. (2018). Willingness to Pay For Rural Health Insurance Through Community Participation in India. *International Journal of Health Planning and Management*, 47-67.

National Health Systems Resource Centre. (2016). *Household Health Expenditure in India (2013-14)*. New Delhi: Ministry of Health and Family Welfare, Government of India.

Nosratnejad, S., Rashidian, A., & Dror, D. M. (2016). Systematic Review of Willingness to Pay for Health Insurance in Low and Middle Income Countries. *PLOS One*.

Reshmi, B., Nair, N. S., Sabu, K. M., & Unnikrishnan, B. (2007). Awareness of health insurance in a south Indian population: A community-based study. *Health Popul Perspect Issues*, 30(3), 177-188.

Reshmi, B., Nair N. S, S. K. M, & Unnikrishnan, B. (2012). Awareness, attitude and their correlates towards health insurance in an urban south Indian population. *Manage Health*, 16(1), 32-5.

- Tundui, C., & Macha, R. (2014). Social capital and willingness to pay for community based health insurance: empirical evidence from rural Tanzania. *Journal of Finance and Economics*, 2(4), 50-67.
- WHO. (2010). *The World Health Report: Health Systems Financing: The Path to Universal Coverage*. Geneva, Switzerland: World Health Organization Press.
- WHO. (2019). *World Health Statistics 2019: Monitoring Health for the SDGs, Sustainable Development Goals*. Geneva: World Health Organization.