Microinsurance in India: Insurance literacy and demand

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Abstract: Microinsurance offers policies to cover four types of risk; life, health, accidental and property and is a key element for the financial inclusion of the poor. This study examined the influence of insurance literacy and demographics on the likely hood of having a micro-insurance policy. The survey was conducted in the National Capital Region (NCR), India. Micro-insurance literacy was measured using a Quiz. The demographic variables included in the study were gender, age, education, marital status, income and the type of employment. Data analysis was performed using descriptive statistics and binary logistic regression analysis. Results show that insurance literacy score, income, employment and education increased the likely hood of owning an insurance policy. Furthermore, it was found that the average insurance literacy was only (36 .75 %). Microinsurance can provide risk coverage to the poor which are the most vulnerable section of the society but so far almost 90 percent of the Indian population is uninsured. This study is warranted by the need to create a model that identifies the sections of society which are unlikely to own microinsurance thus contributing to the low offtake of insurance. This study may be beneficial to the government in terms of regulations, the insurance providers in designing their products and Non-Governmental Organizations (NGOs) so that they can reach out to the unlikely groups.

1. Introduction

Insurance is a financial contract or plan between the insurer and the insured to compensate for any unforeseen financial loss due to risk. Each policyholder pays premium to an indemnity deposit which is used to pay for losses (if any) experienced by the insured. Microinsurance can be for health, life or property at a low premium (hence "micro") meant to provide coverage against risks. Potential global market size of microinsurance market is estimated to be around $40bn. For India the annual potential market size of microinsurance is around USD 1 billion. The breakup is as follows: Life Insurance - USD 0.24 to 0.32 bn per year; Health - 0.20 to 0.28 bn per year; Crop - 0.20 bn per year; and Livestock - 0.1 to 0 .12 bn per year. Around that 90% of the Indian population constituting of 950 million people are not covered by insurance and 88% of Indian labor force are still left out from any kind of insurance (UNDP, 2007).

The significance of insurance is incontestable as it serves a wide-ranging community interest and is essential for an individuals' security. The NCAER (2008) survey showed that even though Indian households are good savers but unfortunately they are financially at risk due to lack of planning and financial education. Insurance literacy being a part of the overall financial literacy can help individuals take better decisions to secure themselves and their families thereby increasing their monetary security. Secured families pay more attention to the schooling of their wards which in turn improves the social and economic

future for their children. Secured families are also more active in their communities and promote economic development of their community (Hogarth, 2006). Apart from insurance, informal loans and dependence on aid are also an option for households to deal with unforeseen financial loss. Informal loans can be taken from relatives, community members and moneylenders. But the interest on informal loans is usually much higher than the bank interest rate. Also aid from government and private agencies are usually inadequate and untimely. Thus, when faced with financial loss due to risk, the poor have to sell their meagre assets (if any) or resort to informal borrowing at a high rate of interest and are prone to being victims of poverty traps.

Microinsurance provides a respectable was of dealing with risk, but so far a vast segment of the Indian population is not covered. This study was conducted with the objective of finding the insurance literacy of the respondent, studying how insurance literacy and demographic factors influence the demand for microinsurance and suggesting how the microinsurance demand can be increased. The rest of the paper is ordered as follows. Section 2 provides theoretical and empirical literature on the importance of microinsurance, determinants of the demand for microinsurance which include insurance literacy, age, gender, income, employment and education. The methodology is discussed in the Section 3, which encompassed the overview of the study area, sampling method, data analysis tools and variables. Section 4 deals with the findings and discussions. In the last, Section 5 of this paper has the conclusion and suggestions.

2. Literature review

Microinsurance is a financial plan to shield the poor against unforeseen risk in exchange for fixed premium payments (Churchill, 2006). Microinsurance policies offer coverage for risk such as health, death, theft, fire, livestock and crops (Begum & Ensor, 2007). Micro-insurance mainly offers life, health, accidental and property insurance (Roth, McCord, & Liber, 2007). Health insurance and life insurance are more popular forms of microinsurance, followed by property insurance and accidental insurance (Churchill, 2007). Insurance coverage in low and middle income countries is only around 1-2% which is quite low and the poor rely on their savings, mortgaging their assets or arrange emergency loans from informal sources (Munich Re, 2005).

Reliance on government and other aid agencies is also detrimental as post-disaster the relief is both delayed and inadequate. Past experiences such as the 2004 tsunami and 2001 earthquake in Gujarat, India show that in spite of massive relief efforts just 60% of families received timely and adequate aid (World Bank, 2003; Fritz Institute, 2005). Insurance stands out as a more honorable option of managing unforeseen problems as compared to depending and waiting for assistance Also apart from corruption another fillip side due to reliance on government and other aid agencies is that it discourages individuals from taking preventive actions to avoid risk (Mechler, 2005).

Researchers have highlighted improvement in the financial status of microinsurance beneficiaries in terms of better loan repayment rates as the expenditure are more predictable and reliable. Microinsurance reduces the level of emergency borrowing (Levine & Polimeni, 2012; Dercon, Tessa, & Cesar, 2008). Morsink, Geurts, & Dijk (2011) using ordinal probit regression studied the impact of microinsurance on households in the Philippines. Their findings show that microinsurance lessens vulnerability and reduces the probability of falling into a poverty trap. Other studies such as Hamid, Roberts, & Mosley (2010) and Apostolakis, Gert van Dijk, & Drakos (2015) claim that microinsurance has a noteworthy impact on household food sufficiency and it increases chances of economic growth for poor.

Business and Economic Horizons

Insurance literacy and demand for insurance

Lack of insurance knowledge has been cited as an important reason for not purchasing insurance (Gine, Townsend, & Vickery, 2008). Households with higher financial literacy demand more insurance (Cole et al., 2013). Higher insurance literacy may help in appreciating the advantages and disadvantages of insurance policies and this will enable making better decisions (Cole & Fernando, 2008). Due to the low level of experience there is also a lack of understanding of the terms and conditions of microinsurance contract (Cohen & Sebstad, 2006). There is confusion between insurance with savings and a belief that once insured the insurance should be claimed which may result in unnecessary visits to doctors (Millinga, 2002). Education about insurance or encouraging insurance literacy is a major task where government agencies and micro-insurance providers should focus, in order to make micro-insurance more popular (Cohen & Sebstad, 2006). Researchers have suggested that insurance games can be a way to increase insurance literacy so that the uptake of insurance increases (Cai & Song, 2011).

Tests of insurance literacy

Policy makers and educationalists are gradually identifying the significance of financial literacy and are trying to enrich it through training and education (Lusardi, 2006; Kozup & Hogarth, 2008; OECD, 2008). So far most of the studies use financial measurement such as interest rate compounding, inflation and risk to find the insurance literacy. Also insurance literacy is not widely covered, Huston (2010) found that only 16 of the 52 studies (30.8%) on financial education deliberated upon insurance and suggested that survey methods can be used to measure insurance literacy. Survey method was used by McCormack, Bann, Uhrig, Berkman, & Rudd (2009) to check senior citizen's the awareness of health insurance in USA. The test consisted of true/false questions regarding general health insurance terms and 17 questions related to the terms and conditions of the Medicaid program. They found a mean overall score around 70% and suggested that health insurance literacy increases with more experience in insurance.

National Association of Insurance Commissioners (NAIC, 2010) assessment included 10 questions covering all types of insurance and was conducted with the objective of finding how good consumers were in selecting and using insurance policies. Questions 3, 5, 6, 9 and 10 dealt with health insurance and life insurance coverage and the mean score was 62.2 percent. While, Questions 1, 2, 4, 7 and 8 dealt with automobile and property insurance and the average score was only 30.2 percent. *Bristow-Tennyson (2001)* assessment consisted of ten questions encompassing all types of insurance and was administered to 368 survey respondents. The questions also focused on insurance principles and insurance contract features. Respondents were asked about situations in which auto insurance and life insurance are likely to be a better/worse (Question 1 and Question 5, respectively) and about the main reason of insurance (Question 10). The scores on the Bristow-Tennyson quiz had an average score of 58 percent.

Personal and demographic factors

Age

In the Micro-insurance literature to date, the results with regard to age have been mixed (Eling et al., 2014). Some studies find that age has a positive effect on demand (Chen et al., 2013; Cao & Zhang, 2011). Employees who are toward the end of their working life may exhibit consciousness of life after retirement (Yusof, Gbadamosi, & Hamadu, 2009). Gine et al. (2008) find a negative effect. Liebenberg, Carson, & Hoyt (2010), Savvides

(2006), and Hau (2000) suggest that older individuals may be less likely to plan for long term. Arun, Bendig, & Arun (2012) and Cole et al. (2013) find no evidence of age on insurance.

Education

With increase in the years of schooling of an individual the likelihood of taking insurance increases (Giesbert, Steiner, & Bendig, 2011; Jehu-Appiah, Aryeetey, Agyepong, Spaan, & Baltussen, 2011; Gine & Yang, 2009; Akter, Brouwer, Chowdhury, & Aziz, 2008; Schneider & Diop, 2004; and Jowett, 2003). Conversely some other studies have shown rather negative relation between the years of schooling and insurance purchase (Auerbach & Kotlikoff, 1989). Also, researchers such as Bonan, Dagnelie, LeMay-Boucher, & Tenikue (2011) and Gine et al. (2008) found no relation between the years of schooling and insurance purchase.

Gender

Some researchers have shown that women are more likely to buy the insurance (Jehu-Appiah et al., 2011; Nguyen & Knowles, 2010; and Chankova, Sulzbach, & Diop, 2008). Researchers such as Bonan et al. (2011), De Allegri, Sanon, Bridges, & Sauerborn (2006), and Schneider & Diop (2004) observe a higher subscription rate among men. Thornton et al. (2010) observe no gender differences in insurance demand.

Marital status

Cameron & McCallum (1995) through a sample survey in Canberra (Australia) found that married respondents were more likely to take health insurance. Also, Kimani, Ettarh, Kyobutungi, Mberu, & Muindi (2012) studied the effect of being married and single on the involvement in a health insurance program in Nairobi, Kenya. They found that respondents who were currently in a union were more likely to participate in the public health insurance program. A probable reason for this outcome is that when a person gets single (divorced, separated or widowed), they may become economically weak hence lessening their capacity to make the required payments for subscribing to the insurance. There findings advocate that having a spouse/partner makes the household dual-income and this financial support increases the likelihood of buying insurance.

Employment status

Findings from empirical studies on the link between life insurance consumption and employment status show a positive relation (Savvides, 2006). Both full and part time work was related positively with life insurance demand (Gandolfi & Miners, 1996). Also, employed persons were more disposed to purchasing life insurance products (Liebenberg, Carson, & Hoyt, 2010).

Income

Among the macroeconomic factors income was found to be the most important influencer of insurance consumption in US (Gandolfi & Miners, 1996). Their findings were further corroborated by Rubayah & Zaidi (2000) who studied the quantity of policies an individual has as dependent variable and a number of macroeconomic indicators as

independent variables for a period of twenty-six years beginning 1971 through to 1997. A more recent study by Nesterova (2008) for life insurance consumption in fourteen nations during the period starting 1996 to 2006 found a significant relationship between life insurance demand and income.

3. Research methodology

A structured questionnaire was used to collect data from respondents located in the National Capital Region (NCR), India. 400 Respondent were approached through judgmental sampling and in all 356 questionnaires were usable. The questionnaire obtained information on: Ownership of microinsurance, Gender, Age, Marital status, Education, Employment, Income and Insurance literacy. The respondents were asked to mention if their annual income was above or below the national average of Rs. 94,178 (approx. $1450; as per Central Statistic Organization, India for the year 2014-15). The insurance literacy was measured using the Bristow-Tennyson Quiz. The quiz consisted of 10 questions which were administered after some modification to the original quiz. The maximum and minimum scores were 100 and 0. Data collected was analyzed using descriptive statistics and binary logistic Regression. Variables in the study are shown in Table 1

TABLE 1. VARIABLES DESCRIPTION

Owning a microinsurance policy	0=No;1=Yes
Gender	0=Male; 1=Female
Age	1=18-30 years; 2=31-45 years; 3=46-60 years; 4=Above 60 years
Marital status	0=Married; 1= Unmarried
Education	1= up to class 8; 2=above class 8
Employment	0=Part Time; 1= Full Time
Income	0=Below the national average income; 1= above the national average income
Insurance literacy	0= Below Average Score; 1= Above Average Score

The logit regression model

Since in this study the dependent variable (Demand for microinsurance) is dichotomous we cannot calculate a mathematical value through the regression least squares deviations. Logistic regression which uses binomial probability theory in which there are only two values to predict: that probability (p) is 1 rather than 0, i.e. the event/person belongs to one group rather than the other is appropriate for this study. Logistic regression forms a best fitting equation or function using the maximum likelihood method, which maximizes the probability of classifying the observed data into the suitable category given the regression coefficients.

Logistic regression will provide a coefficient 'b', which measures each independent variable's partial impact to variations in the dependent variable. To undertake our study, a model (i.e. an equation) is created that includes the predictor variables that are valuable in predicting the response variable. Logistic regression will help in the prediction of group membership. As logistic regression computes the probability of success over the probability of failure, the results are in the form of an odds ratio. Logistic regression will also provide information of the relationships and strengths among the Variables. The logistic regression equation from which the probability of Y is predicted is given by:

$$P(Y) \ = \frac{1}{1 + e^{-(b_0 + b_1 X_{1i} + b_2 X_{2i} + \cdots + b_n X_{ni})}} \tag{1}$$

Where $P(Y)$ is the probability of Y occurring, e is the base of natural logarithms, constant ($b0$), the predictor variable (Xi) and a coefficient (or weight) attached to that predictor (bi).

4. Findings and discussions

Based on the response to the quiz the average score of the insurance literacy quiz was found to be 36.75 percent. Table 2 shows the demographic profile of the respondents. The results of binary logistic regression are shown in Table 3. The results of the logistic regression show that the independent variables can predict between 20.7% and 28.5% of the variance in microinsurance demand.

TABLE 2. DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Cross tabulations			Policy			Comments
			No	Yes	Total	
EDUCATION	Up to class 8	% within education	73.0%	27.0%	100.0%	30.3% were educated above class 8; and in this category 52.8% owned a micro-insurance policy. 69.7% were educated up to class 8; and in this category only 27% owned a micro-insurance policy.
		% within policy	78.0%	54.0%	69.7%	
	Above class 8	% within education	47.2%	52.8%	100.0%	
		% within policy	22.0%	46.0%	30.3%	
EMPLOYMENT	Part time	% within employment	71.8%	28.2%	100.0%	39.3% were employed full time; and in this category 45% owned a micro-insurance policy.60.7% were employed part time; and in this category only 28.2% owned a micro-insurance policy.
		% within policy	66.8%	49.2%	60.7%	
	Full time	% within employment	55.0%	45.0%	100.0%	
		% within policy	33.2%	50.8%	39.3%	
INCOME	Below national income	% within income	77.7%	22.3%	100.0%	66 % were above the national income; and in this category 41.3% owned a micro-insurance policy. 34% were below the national income; and in this category only 22.3% owned a micro-insurance policy.
		% within policy	40.5%	21.8%	34.0%	
	Above national income	% within income	58.7%	41.3%	100.0%	
		% within policy	59.5%	78.2%	66.0%	
GENDER	Male	% within gender	65.6%	34.4%	100.0%	68.5% were males; and in this category 34.4% owned a micro-insurance policy. 31.5% were females; and in this category only 35.7% owned a micro-insurance policy.
		% within policy	69.0%	67.7%	68.5%	
	Female	% within gender	64.3%	35.7%	100.0%	
		% within policy	31.0%	32.3%	31.5%	
MARITAL	Married	% within martial	77.8%	22.2%	100.0%	50.6% were married; and in this category only 22.2% owned a micro-insurance policy. 49.4% were unmarried; and in this category 47.7% owned a micro-insurance policy.
		% within policy	60.3%	32.3%	50.6%	
	Single	% within martial	52.3%	47.7%	100.0%	
		% within policy	39.7%	67.7%	49.4%	
AGE	18-30 years	% within age	61.8%	38.2%	100.0%	21.3% were in the age group 18-30 years; and in this category 38.2% owned a micro-insurance policy. 24.7% were in the age group 31-45 years; and in this category 39.8% owned a micro-insurance policy. 33.7% were in the age group 46-60 years; and in this 26.7% category owned a micro-insurance policy. 20.2% were above 60 years; and in this category 38.9% owned a micro-insurance policy
		% within policy	20.3%	23.4%	21.3%	
	31-45 years	% within age	60.2%	39.8%	100.0%	
		% within policy	22.8%	28.2%	24.7%	
	46-60 years	% within age	73.3%	26.7%	100.0%	
		% within policy	37.9%	25.8%	33.7%	
	Above 60 years	% within age	61.1%	38.9%	100.0%	
		% within policy	19.0%	22.6%	20.2%	

Business and Economic Horizons

TABLE 3. LOGISTIC REGRESSION RESULTS

Variables	B	S.E.	Wald	Sig.	Exp(B)
Education	0.741	0.280	7.008	0.008*	2.099
Employment	0.513	0.268	3.662	0.056**	1.670
Income	0.866	0.294	8.695	0.003*	2.376
Age			0.847	0.838	
Age(1)	0.023	0.382	0.004	0.951	1.024
Age(2)	0.095	0.372	0.065	0.798	1.100
Age(3)	-0.204	0.364	0.315	0.575	0.815
Gender	-0.291	0.285	1.046	0.306	0.747
Martial	-1.122	0.258	18.908	0.000*	0.325
Insurance literacy Score	1.262	0.258	23.916	0.000*	3.533
Constant	-1.453	0.425	11.671	0.001	0.234

Note: Cox & Snell R Square=0.207 and Nagelkerke R Square=0.285. * - Significance at 0.01;
** - Significance at 0.1

The classification table showed that our model can predict 91.4% of not owning microinsurance and 49.2% of owning insurance, while the overall correct predictions is 76.7%. The insurance literacy score, income, education and marital status are significant at 1 percent while employment is significant at 10 percent. Insurance literacy score had a positive effect on the ownership of microinsurance. Respondents with high score were almost 3.5 times more likely to own a micro- insurance policy. Income had a positive effect on the demand of microinsurance. Those having incomes higher than the national average income were almost 2.4 times more likely to own a microinsurance policy as compared to those having incomes less than the national average income. Respondents with education above class 8 were twice more likely to own a microinsurance policy as compared to those education less than class 8. Full time employed were almost 1.7 times more likely to own a microinsurance policy as compared to part time employed. While marital status had a negative impact. Unmarried were 0.325 times less likely to own microinsurance policy as compared married.

Conclusion and suggestions

In this paper we examined the determinants of demand for microinsurance in the National Capital Region (NCR) of India. This empirical research is based on the survey data. Descriptive and logistic regression model was used to analyze the data. This study provided some important understanding into microinsurance demand. Microinsurance is an important financial product which helps in supporting the sustainable development of the poor and preventing them from falling in the poverty trap due to various types of risk such as life, health, accidents and assets loss. Microinsurance is a complicated financial product as the policies differ in terms nature of risk covered. Choosing an appropriate insurance policy, deciding the level of coverage and understanding the numerous terms and conditions of the policy requires some insurance literacy. This research finds that the insurance literacy is the most important factor for microinsurance therefore to tap the huge potential requirement of microinsurance products in India there is need to promote insurance literacy as a precursor to making microinsurance more popular.

Households considering microinsurance policies maybe buying insurance for the first time; and thus they do not have the experience and understanding of the probability of risk or how the payouts will be calculated. Such households, that are not conversant with the functioning of insurance, are unlikely to purchase insurance policies. To overcome such problems apart from educating and training there is also a need to redesign the

insurance policy. Redesigning can be in terms of simple disclosures and lesser paper work. Focus groups can be used to evaluate the effectiveness or understanding of the microinsurance. Analysis of the demographic variables in this study enabled an understanding of the categories of people which are insured. As drawn by this research apart from insurance literacy the lack of income, education and employment reduce the off take of microinsurance. The insurance regulatory and development authority (IRDA), India as well as the insurance providers should reach out to the poor, less educated and unemployed/part time workers as those who are not insured maybe unable to bear the impact of financial loss.

To sum up, microinsurance is important from both a moral and an economic point of view as it will help in achieving an inclusive financial systems and easing of risks. In order to reap the benefits of microinsurance there is a need to bring more individuals and households under the umbrella of microinsurance. This challenging task can be achieved through increased insurance literacy and reaching out to unlikely groups.

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