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The Determinants of Demand for Life Insurance in an Emerging Economy—India

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Social security is virtually non-existent in India. While governments play a role providing some security to poor households (through the public distribution system targeted at households below the poverty line), in general financial security remains the responsibility of individuals. Life insurance is one of the most important social security measures undertaken in the country. Based on primary data generated through the National Council of Applied Economic Research's (NCAER) National Survey of Household Income and Expenditure (NSHIE), this article attempts to identify determinants of life insurance ownership in the country. An analysis using logistic regression has corroborated that insured households tend to be more prosperous, more educated and more optimistic about future security than non-insured households. Both the level of education and occupation of the chief earner of a household are major determinants of life insurance participation, apart from asset-ownership. Further, households that are more optimistic about the adequacy of future income and savings show higher levels of participation. No rural–urban divide has been noticed with respect to these influencing factors.

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JEL Classification: *C31, C35, C80, G22*

1. Introduction

Over the last few decades, the demand for life insurance has experienced rapid growth, significantly outpacing worldwide income growth. Waves of globalisation and privatisation have deeply influenced the insurance market worldwide. With the increase in trade, direct investment and portfolio investment, there has been

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a growing demand for insurance services particularly in emerging markets. At the international level, the total premium volume of the life insurance industry is growing at 9 per cent and has increased from US$ 1.53 million in 2002 to US$ 1.67 million in 2003. Various smaller countries like Bahamas, Hong Kong, South Africa, and so on, have had higher growth rates in life insurance density (premium per capita) and penetration (premium in percentage of GDP). Bahamas, a country with 0.3 million people and US$ 56 billion GDP registered a density of US$ 699.5 and penetration of 4.3 per cent. Australia and Switzerland too have achieved high levels of density and penetration. Insurance density in Switzerland at US$ 3,431.8 was the highest in the world, even higher than the US (US$ 1,657.5) which has the highest GDP globally; and is followed by Japan (US$ 3,002.9) and the UK (US$ 2,617.7). Life insurance penetration in Australia at 12.9 per cent was highest globally, followed by UK (8.6 per cent), Japan (8.2 per cent) and Taiwan (8.2 per cent).

The Indian life insurance market has also witnessed significant growth—US$ 22.4 billion within a period of seven years (2000–07) with a growth rate of 118.2 per cent. The performance of the market is forecast to accelerate to US$ 76.5 billion by 2011 with a Compound Annual Growth Rate (CAGR) of 12.4 per cent and a growth of 59.8 per cent. It is a business growing at the rate of 15–20 per cent annually. With the entry of private sector players backed by foreign expertise, the Indian insurance market has become more vibrant. Competition in this market is increasing with companies' continuous efforts to lure customers with new product offerings.

This extraordinary growth of the Indian insurance market is the result of several macroeconomic factors like an increase in literacy and per capita incomes, a decrease in death rates and unemployment, better tax rebates, growing GDP, an expanding consumer class and an increase in spending and saving capacities. Moreover, with the waning of the joint family system and emergence of nuclear families coupled with ever-increasing costs of living, people are being compelled to plan for their old age. Although various investment options exist, like gold, property, fixed-income instruments, mutual funds, and so on, life insurance presents dual advantages of saving for important goals and protecting assets. Insurance in India is also used as a means to improve personal finances and for income-tax planning.

A well-developed, evolved insurance sector is needed for economic development, as it provides long-term funds for infrastructure development and at the same time strengthens risk-taking ability. India is estimated to require investment of a trillion US dollar over the next 10 years. The insurance sector, to

some extent, can enable investments in infrastructure development to sustain economic growth of the country.

There is a lack of adequate financial awareness among Indian households. Nearly 75 per cent of the Indian households are without life insurance or any social security cover, indicating an immense growth potential for the insurance sector.

The life insurance market in India is still dominated by its Life Insurance Corporation (LIC)—a public sector company, and the market share of private companies is very low. Even insurance density and penetration is quite low in India. In 2003, life insurance density in India was only US$ 12.9 compared to a global density of US$ 267.1. Similarly, life insurance penetration was only 2.2 per cent as against global levels of 4.5 per cent. But with the kind of anticipated GDP growth over the next decade and the increasing level of education regarding insurance and related products, the insurance market has a tremendous potential to head upwards. The saturation of insurance markets in many developed economies is also another factor influencing its growth in India.

Clearly, the Indian insurance sector is on the fulcrum of growth. To tap the opportunity, government and private companies are in the process of market expansion and creating products customised to different demographic segments. They are looking at factors that drive the demand for life insurance; household attitudes towards various insurance products; strategies needed for effective planning, and so on. To help answer these questions, we have analysed data collected by National Council of Applied Economic Research (NCAER) under the India Financial Protection Survey (IFPS[1]) which piggy-backed on the National Survey of Household Income and Expenditure (NSHIE) during 2004–05, which may help with appropriate planning and expansion of the insurance market in the country.

Given the increasing consumer class and rising saving capacities, we have tried to investigate the factors, the triggers and drivers that induce individuals to opt for life insurance. We have also sought answers to the following questions: How does the profile of life insurance participants differ with those of non-participants? What is the perception about financial security of participants

[1] The India Financial Protection Survey (IFPS) is a nationwide survey conducted in 2004–05 partnered with Max New York Life. It contains data on the earnings, savings and investment patterns of households.

and non-participants? The purpose of this article is to present the results of this investigation.

2. Data Source

The current research is based on the data collected by the NCAER in its annual survey, the NSHIE 2004–05. The survey aimed at collecting detailed socio-economic information on household, that is, on demography, employment, income, consumption expenditure, ownership pattern, and so on. Along with the main survey, another survey was undertaken, called the India Financial Protection Index (IFPS), which partnered with Max New York Life, to understand the savings and investment patterns of Indian households. A three-stage stratified random-sampling scheme was adopted in the survey to collect a representative sample of 63,016 households. Districts, villages and households formed the first-, second- and third-stage units, respectively, for the selection of the rural sample, while cities/towns, urban blocks and household were the three stages for the sample selection from urban areas. For further details, reference may be made to Shukla (2007).

The IFPS module contains information on motivations for saving, preferred savings instruments, past borrowings and economic shocks, insurance ownership and perceptions of economic well-being of the household to assess the financial vulnerability of Indian households. Hence, the article uses the information collected through both surveys (NSHIE and IFPS) to identify the drivers that enhance the possibilities of life insurance ownership, by analysing the differences between life insurance participants and non-participants. Life insurance participants were defined as those households that are aware of insurance, and have paid a premium towards life insurance in the past 12 months. Different household characteristics like income, ownership of products, education levels, occupation, saving habits, borrowings, investments, perceptions of well-being, and so on, have been used as regressors. Details of the variables used in the analysis for the rural and urban models are given in the Annexure 1.

3. Theoretical Framework

We model the behaviour of participants and non-participants in purchasing life insurance by adopting a step-wise logistic regression approach. As the dependent variable is binary and discrete—participants and non-participants—the

traditionally used ordinary-least-squares (OLS) method and linear discriminant function analysis cannot be used here, due to their strict statistical assumptions.[2] The logistic regression analysis has been advantageously used in other sciences to model dichotomous responses (Cabrera, 1994; Chuang, 1997; Peng, Manz and Keck, 2001; Trusty, 2000). For studying participation, separate models have been developed for the rural and urban areas, as the population characteristics, and also the drivers of insurance purchase are expected to differ markedly for the two regions.

The following logistic regression model is postulated:

$$P_i = F(Z_i) = F(\alpha + X\beta) = \frac{1}{1+e^{-Z_i}} = \frac{e^{Z_i}}{1+e^{Z_i}}$$

And

$$Z_i = F^{-1}(P_i) = \log(\frac{P_i}{1-P_i}) = \alpha + X\beta \qquad (1)$$

where X is a set of explanatory variables and β are the unknown regression coefficients (parameter) associated with each X. The coefficients β represent the change in the log of odds ratio per unit change in the exogenous variables (Aldrich and Nelson, 1984; Hanushek and Jackson, 1977; Maddala, 1983) and since Z_i (the observed logit) is a monotonically increasing function of P_i, examining the sign of a coefficient indicates the direction of the effect of a change in an independent variable. Also, the relative magnitude of a coefficient indicates the relative influence that a variable has on the probability of choice (Peng and So, 2002a, 2002b).

The parameters of the model (1) were estimated by maximum likelihood method using Statistical Analysis System (SAS) software. Before building the models, the data was treated for missing values and the presence of outliers using suitable statistical techniques. Besides this, the cardinality of some categorical variables with too many categories was reduced, through grouping of low-frequency categories.

A large number of explanatory variables (both continuous and categorical) were examined for their effects on participation using appropriate statistical tests like the chi-square test of independence for categorical variables, t-test

[2] The OLS technique requires linearity, normality (for testing) and continuity while discriminant analysis requires multivariate normality with equal variances and co-variances (Cox and Snell, 1989; Demaris, 1992; Efron, 1975; Hosmer and Lemeshow, 2000; Peng and So, 2002a & b).

for continuous variables and scatter plots; only those variables found to have significant effects were considered for the development of the models for rural and urban areas.

4. Results and Discussion

4.1 Awareness and Ownership of Life Insurance

According to the survey estimates, there were about 206 million households in India in 2005, of which 61 million (30 per cent) reside in urban areas. Although awareness about insurance products is quite high (78 per cent), ownership of insurance is quite low (24 per cent) and is largely confined to urban areas. Further, among various insurance products, Indians consider life insurance the most important. Further analysis of households' awareness about life insurance and its ownership revealed a set of similar characteristics.

Both awareness (95 per cent) and ownership (53 per cent) is highest among households with a regular salary as a major source of income, followed by those that were self-employed in non-agricultural activities. Similarly life insurance awareness and ownership increases with the level of education. Of all the households surveyed, 58 per cent of those where the chief earner was a graduate+ were more likely to buy life insurance. The proportion of insured households tends to rise with educational attainment. Life insurance is also a function of other socio-economic factors like age of the chief earner, income, expenditure, landholdings, ownership of consumer durables, and so on. Estimates also reveal that even the premium paid for life insurance is related to these factors.

4.2 Profile of Insured and Non-insured Households

Table 1 gives a comparative picture of insured and non-insured households across a set of socio-economic factors.

The survey results show that the income and expenditure levels of insured households are more than double that of non-insured. While an insured household has an average income of Rs 113,190 and an expenditure of Rs 78,475, the average income and expenditure of non-insured household is much lower. On average, an insured household is left with nearly three times the amount to save and invest (at Rs 34,714 per annum) compared to an average non-insured household (Rs 10,137).

Occupation levels also vary significantly across insured non-insured households. Forty per cent of insured households are salaried households whereas

Table 1 Socio-Economic Profile of Indian Households

Characteristics	*Insured Households*	*Non-Insured Households*
Share of households (%)	24	76
Average household income (Rs/annum)	113,190	49,482
Average household expenditure (Rs/annum)	78,475	39,345
Surplus income (Rs/annum)	34,714	10,137
Primary Source of Income (%)		
Regular salary/wages	39.9	11.5
Self-employment in non-agriculture	25.8	14.2
Labour	23.7	38.8
Self-employment in agriculture	6.9	32.6
Others	3.7	2.9
Total	**100.0**	**100.0**
Highest Literacy of Household (%)		
Illiterate	8.0	29.3
Primary	10.5	24.9
Up to higher-secondary	49.7	37.7
Graduate+	31.2	5.6
Others	0.6	2.5
Total	**100.0**	**100.0**
Marital Status (%)		
Married	86.6	47.5
Unmarried	10.8	49.0
Others	2.6	3.5
Total	**100.0**	**100.0**
Ownership of Selected Consumer Goods (% of Households Own)		
Television	89.9	54.2
Two-wheeler	65.6	25.9
Fridge	42.2	10.8
Cellular phone	37.9	9.0
Washing machine	17.8	4.1
Car/jeep	14.5	2.8
Pump set	17.6	9.4
Credit card	4.9	0.8
Air-conditioner	3.7	0.5
Tractor	3.2	1.7

hardly 12 per cent of non-insured households earn their living through salaries. Among non-insured households, a large proportion (39 per cent) has labour as the primary source of income, followed by self-employment in agriculture (33 per cent).

On education levels, too, insured households are better situated than the non-insured. Around 31 per cent of life insurance owners are graduate+, while barely 6 per cent of non-owners are graduates+. A majority of non-owners are either primary educated (25 per cent) or illiterate (29 per cent). This indicates life insurance owners are comparatively well educated than non-owners and have better occupational profiles.

The ownership of selected products is also high among households with life insurance. Ninety per cent of insured households own television sets, 66 per cent own two-wheelers, 42 per cent have refrigerators, 15 per cent have cars/jeeps and 3 per cent own air-conditioners. In contrast, only 54 per cent of the non-insured own television sets, 26 per cent own two-wheelers, 11 per cent own refrigerators and 3 per cent own cars/jeeps. Thus in terms of the ownership of consumer durables also, insured households are a well-off category.

4.3 Savings-related Behaviour and Perceptions about Financial Security

The most common reasons for saving among Indian households are: emergencies, children's education, old age and social ceremonies. But the proportion of insured households that saves is slightly higher than the share of non-insured households. For instance, nearly 88 per cent of insured households save for emergencies compared to 81 per cent of non-insured. Table 2 summarises the saving behaviour of insured households vis-à-vis non-insured and their perceptions about financial security. As owning an account in a financial institution is directly associated with insurance ownership, predictably, fewer non-insured (57 per cent) households hold accounts in any financial institution as opposed to the insured (94 per cent).

On further analysis, estimates show that nearly 65 per cent of insured households prefer to hold their savings in bank deposits, while only 45 per cent of non-insured households do so. Their behaviour with respect to keeping cash at home is reversed—non-insured households having a higher tendency to keep their cash at home (42 per cent) as compared to the insured (19.3 per cent). Nearly 4 per cent of insured households (6 per cent of non-insured) opt for post office deposits.

Insured households are much more confident about their future financial stability than the non-insured. Nearly 74 per cent of the insured households were confident about the stability of their household income. In contrast, only 47 per cent of non-insured households are confident about the stability, 36 per cent were not confident, while 17 per cent belonged to the 'can't say' category. Similarly, 9 per cent of insured households said that they could live

Table 2 Savings-related Behaviour and Perceptions of Financial Security

Characteristics	*Insured Households*	*Non-insured Households*
Account holders (%)	93.7	56.8
Loan outstanding (%)	24.4	23.8
Preferred Form of Saving (%)		
Kept at home	19.3	42.5
Deposited in bank	64.9	45.2
Deposited in post office	3.6	5.6
Others	12.2	6.77
Total	**100.0**	**100.0**
Confidence about Stability in Major Income Source (%)		
Confident	74.4	47.2
Not confident	16.1	35.7
Can't say	9.5	17.1
Total	**100.0**	**100.0**
Sustainability on Current Savings (%)		
Less than 6 months	39.7	43.1
6–12 months	35.0	13.1
More than 12 months	9.4	2.2
Can't say	15.9	41.6
Total	**100.0**	**100.0**

on their current savings for more than a year if they lost their income source, while this proportion is barely 2 per cent for non-insured households. Nearly 42 per cent of non-insured households could not give a clear answer to this sensitive question. In sum, the different household characteristics like income, occupation, education and place of residence seem to significantly influence life insurance participation.

4.4 Determinants of Life Insurance

We shall now identify the factors or determinants that induce individuals to participate in life insurance in rural and urban areas, separately. The definitions of variables used in the analysis for rural and urban are given in Annexure 1 and Annexure 3, respectively. The explanatory variables included in the models are classified into eight broad dimensions: affluence, household characteristics, socio-graphic profiles, financial sophistication, financial activity, financial perceptions, threat perceptions and economic shocks. The determinants or factors that are drivers of life insurance purchase can be observed from Annexure 2 for rural and Annexure 4 for urban.

4.4.1 Determinants for the Rural Model

Occupation has a strong effect on life insurance participation; households whose major source of income is a regular salary have higher levels of participation compared to self-employed households and those engaged in casual and agricultural labour (Annexure 2). Among self-employed households, those engaged in agriculture have a marginally lower level of participation.

Although income has only a marginal effect on life insurance participation, ownership of consumer durables (especially two-wheelers) has a much stronger effect. The results also confirm that households with more educated members show a higher level of insurance participation. Significant differences are observed across states also. While states like Karnataka, West Bengal and Orissa are characterised by high levels of life insurance participation, states like Punjab, Assam, Maharashtra and Andhra Pradesh show very low levels of participation.

Financial perceptions also have a significant effect on life insurance participation, with most significant drivers being perceived income adequacy and perceived savings levels—households that believe they have sufficient income in meeting their basic needs, and also enough savings to cover for unexpected expenditure, show a greater tendency to buy life insurance. Households engaged in some kind of financial activity (especially durable purchase), have a higher propensity to purchase life insurance as well—however, the participation rate is dampened for households that borrow money for some purpose.

The rural model has a C-value[3] of 0.855 and is found to perform well in terms of predicting high probabilities for participants and low for non-participants. Somer's D[4] is equal to 0.71. This shows that the model fit is good.

4.4.2 Urban Model

The trend in urban areas with respect to occupation is similar to the rural areas—regular salaried households have the highest level of participation, followed by self-employed households, while households engaged in casual labour have very low levels of participation. Financial perceptions again have a

[3] C-value is equivalent to the Receiver Operating Characteristic (ROC) curve. Its value ranges from 0.5 to 1, where 0.5 corresponds to the model randomly predicting the response, and 1 corresponds to the model perfectly discriminating the response.

[4] Somer's D is used to determine the strength and direction of the relationship between pairs of variables. Its values range from –1.0 (where all pairs disagree) to 1.0 (all pairs agree). In other words, it provides an estimate of the rank correlation of the observed binary response variable and the predicted probabilities. Thus, it is used as an indicator of model fit.

significant effect on life insurance participation, with perceived income adequacy and perceived savings levels being the major drivers here too. Additionally, a perception that influences a household's participation in life insurance is its perceived ability to find an alternative source of income, upon losing its major source. Households that believe they will struggle to find an alternative source tend to show a higher level of participation (Annexure 4).

In urban areas too, income has not much affect on life insurance participation but asset-ownership has a significant affect. Ownership of communication devices (cell phones, telephone landlines) has strong bearing on life insurance participation. There are significant differences across states also. States like Karnataka, Orissa and West Bengal have high levels of life insurance participation, while states like Andhra Pradesh, Chhattisgarh, Punjab and Assam have much lower levels.

As in the case of rural areas, urban households engaged in some kind of financial activity, such as durable/jewellery purchase show a high propensity to purchase life insurance. Further, attitudes towards different savings needs also show an interesting pattern with respect to life insurance participation. Households focused on short-term savings needs (such as social ceremonies, purchase of consumer durables, and so on) show a lower propensity to participate in life insurance, as against households focused on more long-term savings needs (such as children education, saving for emergencies, building a house, and so on).

An important factor which does not influence life insurance participation in rural areas, is the urban household's threat perceptions, especially of losing its major source of income. However, the effect is not clearly explicable—while households that are moderately optimistic about this threat (that is, do not believe they will lose their major source of income in the next two years) and households that are uncertain about this threat show lower levels of participation, households that are extremely optimistic show a higher level of participation.

Urban areas too have a good C-value of 0.83 and a Somer's D equal to 0.66. The fit is good enough to predict ownership probabilities.

5. Conclusions

Under the present changing environment of rapid urbanisation, increasing consumerism, incomes levels and growing mobility, there is an urgent need for households to have adequate financial planning that can provide security against various risks. Our study reveals that a substantial proportion of households

in all income, occupation and education groups are still not insured. To fully exploit this opportunity, there is a need to understand the financial goals and requirements of the common person, both in the short and long term. This requires systematic and complete strategic planning by insurance companies.

An understanding of the demographic profile, psychographic profile (lifestyle and behaviour) and socio-economic characteristics of households that buy insurance and those that do not, will help a lot in understanding the demand for life insurance in the present market.

To sum up, the main findings of the current analysis reveals that:

- Both education and occupation are motivating factors for buying life insurance. The reason being that education helps in understanding the importance and benefits of financial planning. Similarly results reveal that households with a regular salary or business income are more likely to own life insurance than households engaged in other occupations, as the former type of households have more earnings and savings for investment.
- In both rural and urban areas, product ownership is a major determinant of insurance buying, and income has only a marginal impact on life insurance participation.
- While households engaged in borrowing money for any purpose have lower participation rates, the participation rate is higher for households engaged in other financial activities like purchasing goods, investing in shares, buying jewellery, and so on.
- Interestingly, in urban areas, households that focused on short-term saving needs, such as social ceremonies and purchase of consumer durable goods showed a lower propensity to participate in life insurance, as against households focused on more long-term saving needs such as children education, saving for emergencies, building a house, and so on.
- Financial perception is another important dimension, as the data broadly confirms that Indian households are largely optimistic about their financial security in the future. But they are not yet efficient planners as most place their money in low-yielding products.

Our results suggest that in view of increasing awareness among Indian households about planning for future security against various risks, the insurance industry needs to step up financial literacy levels, evolve innovative distribution channels and products to reap benefits in future. From this angle, this article

provides some useful insights for companies to apply in strategic planning during product launches, market expansion and creating sales tools for different demographic segments.

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Annexure 1 Definition of Variables Used in the Rural Model

Variable Name	*Description*
Dependent variable	
Life insurance participants	Households that were aware of insurance, and had paid premiums towards life insurance in the past 12 months(1= life insurance owners, 0=non-owners)
Explanatory variables	
Affluence	
Ownership of household	1 if household is owned
Structure of dwelling unit	1 if structure is pucca
Automobiles owned by the household	Actual number
Household appliances owned by household	Actual number
Ownership of two-wheeler	1 if yes
Ownership of telephone (landline)	1 if yes
Ownership of cable connection	1 if yes
Ownership of electricity connection	1 if yes
Surplus, as a percentage of income	Surplus is defined as income less expenditure and taken in percentage
Per-capita income	Annual per-capita income
Household Characteristics	
Age of head of household	Actual age in years
Presence of a child	1 if yes
Highest education level	Education level of the household taken as continuous

Financial Activity	
Borrowing for health/medical expenses	1 if yes
Borrowing for other expenses	1 if yes
Investment in shares/small savings	1 if yes
Investment in jewellery	1 if yes
Investment in consumer durables	1 if yes
Financial Sophistication	
Post office as source of finance	1 if yes
Commercial bank as source of finance	1 if yes
Cooperative society as source of finance	1 if yes
Household saves	1 if yes
Having bank account	1 if yes
Saving for emergencies	1 if it is very important
Saving for child education	1 if it is very important
Saving for social ceremonies	1 if it is very important
Saving for buying large consumer goods	1 if it is very important
Socio-graphic Profile	
Radio as major source of information	1 if yes
Local people as major source of information	1 if yes
Household: self-employed in non-agriculture	1 if self-employed in non-agriculture is the chief source of income of the household

(*Annexure 1 continued*)

(*Annexure 1 continued*)

Variable Name	*Description*
Household: agricultural labour & other casual labour	1 if agricultural labour & other casual labour is the chief source of income of the household
Household: self-employed in agriculture	1 if self-employed in agriculture is chief source of income of the household
Household: others	1 if rental (land/accommodation), interest/remittance/dividend, pension/ bonus is the chief source of income of the household
Secondary source of income	1 if yes
State: Maharashtra & Goa	1 if state of residence—Maharashtra, Goa
State: West Bengal	1 if state of residence—West Bengal
State: Andhra Pradesh	1 if state of residence—Andhra Pradesh
State: Karnataka	1 if state of residence—Karnataka
State: Rajasthan	1 if state of residence—Rajasthan
State: Punjab, Chandigarh & Delhi	1 if state of residence—Punjab, Chandigarh, Delhi
State: Orissa	1 if state of residence—Orissa
State: Haryana & Himachal Pradesh	1 if state of residence—Haryana, Himachal Pradesh
State: Assam & Meghalaya	1 if state of residence—Assam, Meghalaya
Financial Perceptions	
Perceived adequacy of income in meeting basic needs of the family	1 if not adequate
Confidence in managing health expenditure in case of health emergencies	1 if not confident
Maximum unexpected expenditure that the household believes it can manage using its savings	1 if yes

Perception of whether the household will spend more or less money in the next year	1 if spends about the same
Household's perceived ability to find an alternative source of income within six months of loss of major of income—agree	1 if agree to some extent
Household's perceived ability to find an alternative source of income within six months of loss of major of income—disagree	1 if disagree to some extent
Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly agree	1 if strongly disagree
Threat Perceptions	
Household's perceived threat of loss of major source of income in the next two years—neither agree nor disagree	1 if neither agree nor disagree
Household's perceived threat of loss of major source of income in the next two years—don't know	1 if don't know

Annexure 2 Determinants of Life Insurance Participation in Rural Areas: Logistic Regression Results

Variable	*Coefficient Estimates*	*Standard Error*	*Wald Chi-square*	*Pr > Chi-Sq*
Intercept	–1.46	0.24	37.69	<.0001
Ownership of household	–0.42	0.12	12.53	0.0004
Structure of dwelling unit	0.21	0.04	25.31	<.0001
Automobiles owned by the household	0.11	0.03	18.18	<.0001
Household appliances owned by household	0.03	0.01	15.39	<.0001
Ownership of two-wheeler	0.43	0.05	80.73	<.0001
Ownership of telephone (landline)	0.27	0.05	24.42	<.0001
Ownership of cable connection	0.13	0.05	6.90	0.0086
Ownership of electricity connection	0.21	0.06	13.51	0.0002
Surplus, as a percentage of income	0.25	0.11	5.22	0.0224
Per capita income	0.00	0.00	7.71	0.0055
Borrowing for health/medical expenses	–0.22	0.07	8.82	0.003
Borrowing for other expenses	–0.57	0.07	59.84	<.0001
Investment in shares/small savings	0.57	0.11	28.29	<.0001
Investment in jewellery	0.29	0.05	28.99	<.0001
Investment in consumer durables	0.48	0.04	120.54	<.0001
Post office as source of finance	–0.36	0.08	19.65	<.0001
Commercial bank as source of finance	–0.19	0.05	17.09	<.0001
Cooperative society as source of finance	–0.32	0.07	21.67	<.0001

Household saves	0.27	0.08	10.64	0.0011
Having bank account	0.83	0.07	159.14	<.0001
Saving for emergencies	0.25	0.05	21.41	<.0001
Saving for child education	0.16	0.05	9.25	0.0024
Saving for social ceremonies	0.12	0.04	8.65	0.0033
Saving for buying large consumer goods	–0.12	0.04	7.69	0.0056
Age of the head of household	–0.01	0.00	20.25	<.0001
Presence of a child	0.13	0.04	7.99	0.0047
Highest education level	0.15	0.02	94.12	<.0001
Radio as major source of information	–0.39	0.06	45.68	<.0001
Local people as major source of information	–0.29	0.07	18.55	<.0001
Household: Self-employed in non-agriculture	–0.54	0.06	75.66	<.0001
Household: Agricultural labour & other casual labour	–1.05	0.07	224.52	<.0001
Household: Self-employed in agriculture	–0.89	0.06	258.43	<.0001
Household: Others	–0.8	0.11	55.45	<.0001
Secondary source of income	0.17	0.04	18.00	<.0001
State: Maharashtra & Goa	–0.48	0.08	40.01	<.0001
State: West Bengal	0.81	0.07	138.19	<.0001
State: Andhra Pradesh	–0.44	0.08	31.87	<.0001
State: Karnataka	1.18	0.08	236.72	<.0001
State: Rajasthan	0.28	0.09	10.08	0.0015
State: Punjab & Chandigarh & Delhi	–0.81	0.13	41.55	<.0001
State: Orissa	–0.27	0.11	6.17	0.013

(*Annexure 2 continued*)

(*Annexure 2 continued*)

Variable	*Coefficient Estimates*	*Standard Error*	*Wald Chi-square*	*Pr > Chi-Sq*
State: Haryana & Himachal Pradesh	0.45	0.09	23.76	<.0001
State: Assam & Meghalaya	–0.66	0.13	24.16	<.0001
Perceived adequacy of income in meeting basic needs of the family—not adequate	–0.31	0.03	103.76	<.0001
Confidence in managing health expenditure in case of health emergencies	–0.13	0.03	26.77	<.0001
Maximum unexpected expenditure that the household believes it can manage using its savings	0.14	0.02	91.97	<.0001
Perception of whether the household will spend more or less money in the next year	–0.21	0.04	23.51	<.0001
Household's perceived ability to find an alternative source of income within six months of loss of major of income—agree	0.13	0.06	5.19	0.0228
Household's perceived ability to find an alternative source of income within six months of loss of major of income—disagree	0.3	0.06	22.72	<.0001
Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly agree	–0.21	0.05	16.25	<.0001

Statistic	***Value***
C-value	0.855
Somer's D	0.710

Annexure 3 Definition of Variables Used in the Urban Model

Variable Name	*Description*
Dependent variable	
Life insurance participants	Households that were aware of insurance, and had paid premiums towards life insurance in the past 12 months (1= life insurance owners, 0=non-owners)
Explanatory variables	
Affluence	
Ownership of household	1 if household is owned
Automobiles owned by the household	Actual number
Household appliances owned by household	Actual number
Entertainment gadgets owned by the household	Actual number
Ownership of car	1 if yes
Ownership of two-wheeler	1 if yes
Ownership of telephone (landline)	1 if yes
Ownership of cable connection	1 if yes
Ownership of cell phone	1 if yes
Land owned by the household	Total land (in acres)

(*Annexure 3 continued*)

(*Annexure 3 continued*)

Variable Name	*Description*
Household Characteristics	
Marital status of household	1 if married
Age of the head of household	Actual age in years
Presence of a child	1 if yes
Highest Education level	Education level of the household taken as continuous
Financial Activity	
Having an outstanding loan	1 if yes
Borrowing for health/medical expenses	1 if yes
Borrowing for education expenses	1 if yes
Borrowing for routine household expenses	1 if yes
Borrowing for other expenses	1 if yes
Investment in shares/small savings	1 if yes
Investment in jewellery	1 if yes
Investment in consumer durables	1 if yes
Financial Sophistication	
Commercial bank as source of finance	1 if yes
Regional rural bank as source of finance	1 if yes
Household saves	1 if yes
Having bank account	1 if yes
Saving for emergencies	1 if it is very important

Saving for child education	1 if it is very important
Saving for social ceremonies	1 if it is very important
Saving for buying large consumer goods	1 if it is very important
Saving for buying/building house	1 if it is very important
Saving for improving or enlarging business	1 if it is very important
Socio-graphic Profile	
Newspaper as major source of information	1 if yes
Household: Self-employed in non-agriculture	1 if self-employed in non-agriculture is chief source of income of the household
Household: Agricultural labour & other casual labour	1 if agricultural labour & other casual labour is chief source of income of the household
Household: Self-employed in agriculture	1 if self-employed in agriculture is chief source of income of the household
State: Uttar Pradesh & Uttaranchal	1 if state of residence—Uttar Pradesh, Uttaranchal
State: West Bengal	1 if state of residence—West Bengal
State: Andhra Pradesh	1 if state of residence—Andhra Pradesh
State: Gujarat	1 if state of residence—Gujarat
State: Karnataka	1 if state of residence—Karnataka
State: Delhi	1 if state of residence—Delhi
State: Punjab & Chandigarh	1 if state of residence—Punjab, Chandigarh
State: Orissa	1 if state of residence—Orissa
State: Chhattisgarh	1 if state of residence—Chhattisgarh
State: Assam & Meghalaya	1 if state of residence—Assam & Meghalaya

(*Annexure 3 continued*)

(*Annexure 3 continued*)

Variable Name	*Description*
Financial Perceptions	
Perceived adequacy of income in meeting basic needs of the family	1 if not adequate
Perception of whether the household will earn more or less money in the next year	1 if earns about the same
Confidence in managing health expenditure in case of health emergencies	1 if not confident
Maximum unexpected expenditure that the household believes it can manage using its savings	1 if yes
Household's perceived ability to find an alternative source of income within six months of loss of major of income	1 if strongly agree
Perception of whether the household will spend more or less money in the next year	1 if spends about the same
Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly agree	1 if strongly agree
Household's perceived ability to find an alternative source of income within six months of loss of major of income—agree	1 if agree to some extent
Household's perceived ability to find an alternative source of income within six months of loss of major of income—disagree	1 if disagree to some extent
Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly disagree	1 if strongly disagree

Threat Perceptions	
Perceived stability of major source of income	1 if not confident
Household's perceived threat of loss of major source of income in the next two years—strongly agree	1 if strongly agree
Household's perceived threat of loss of major source of income in the next two years—agree to some extent	1 if agree to some extent
Household's perceived threat of loss of major source of income in the next two years—neither agree nor disagree	1 if neither agree nor disagree
Household's perceived threat of loss of major source of income in the next two years—disagree to some extent	1 if disagree to some extent
Household's perceived threat of loss of major source of income in the next two years—don't know	1 if don't know
Economic Shocks	
Whether the household experienced major sickness in the last five years	1 if yes
Whether the household was affected by crop loss in the last five years	1 if yes
Whether the household was affected by a natural disaster in the last five years	1 if yes

Annexure 4 Determinants of Participation in Life Insurance in Urban Areas: Logistic Regression Results

Variable	*Coefficient Estimate*	*Standard Error*	*Wald Chi-square*	*Pr > Chi-Sq*
Intercept	–2.28	0.24	90.49	<.0001
Ownership of household	–0.12	0.04	9.04	0.0026
Automobiles owned by the household	0.13	0.02	39.15	<.0001
Household appliances owned by household	0.03	0.01	29.79	<.0001
Entertainment gadgets owned by the household	0.05	0.01	14.30	0.0002
Ownership of car	0.12	0.05	4.87	0.0273
Ownership of two-wheeler	0.18	0.04	19.41	<.0001
Ownership of telephone (landline)	0.35	0.04	88.86	<.0001
Ownership of cable connection	0.11	0.04	8.14	0.0043
Ownership of cell phone	0.36	0.04	93.86	<.0001
Land owned by the household	0.06	0.02	11.81	0.0006
Having an outstanding loan	0.18	0.04	15.80	<.0001
Borrowing for health/medical expenses	0.27	0.07	13.75	0.0002
Borrowing for education expenses	–0.36	0.10	13.56	0.0002
Borrowing for routine household expenses	0.34	0.08	17.53	<.0001
Borrowing for other expenses	–0.32	0.09	13.49	0.0002
Investment in shares/small savings	0.25	0.07	14.03	0.0002
Investment in jewellery	0.30	0.05	45.19	<.0001
Investment in consumer durables	0.41	0.03	137.22	<.0001
Commercial bank as source of finance	0.21	0.04	29.21	<.0001
Regional rural bank as source of finance	0.17	0.07	5.54	0.0186

Household saves	0.32	0.09	13.48	0.0002
Having bank account	0.65	0.07	79.94	<.0001
Saving for emergencies	0.12	0.05	6.91	0.0086
Saving for child education	0.21	0.05	20.45	<.0001
Saving for social ceremonies	–0.11	0.03	11.93	0.0006
Saving for buying large consumer goods	–0.11	0.03	9.89	0.0017
Saving for buying/building house	0.23	0.03	47.00	<.0001
Saving for improving or enlarging business	–0.16	0.03	23.19	<.0001
Marital status of household	0.23	0.05	18.13	<.0001
Presence of a child	0.12	0.03	12.76	0.0004
Highest Education level	0.12	0.01	74.82	<.0001
Age of the head of household	0.00	0.00	6.32	0.0119
Newspaper as major source of information	0.28	0.04	41.88	<.0001
Household: Self-employed in non-agriculture	–0.31	0.04	78.52	<.0001
Household: Agricultural labour & other casual labour	–0.68	0.05	169.38	<.0001
Household: Self-employed in agriculture	–0.91	0.06	218.00	<.0001
State: Uttar Pradesh & Uttaranchal	–0.15	0.06	6.44	0.0112
State: West Bengal	0.48	0.06	64.52	<.0001
State: Andhra Pradesh	–0.70	0.07	102.29	<.0001
State: Gujarat	0.20	0.07	9.20	0.0024
State: Karnataka	1.59	0.07	537.54	<.0001
State: Delhi	–0.28	0.07	14.13	0.0002

(*Annexure 4 continued*)

(*Annexure 4 continued*)

Variable	*Coefficient Estimate*	*Standard Error*	*Wald Chi-square*	*Pr > Chi–Sq*
State: Punjab & Chandigarh	–0.63	0.09	51.37	<.0001
State: Orissa	1.31	0.11	148.16	<.0001
State: Chhattisgarh	–0.58	0.16	12.33	0.0004
State: Assam & Meghalaya	–0.40	0.12	10.95	0.0009
Perceived adequacy of income in meeting basic needs of the family—not adequate	–0.24	0.02	92.46	<.0001
Perception of whether the household will earn more or less money in the next year	–0.04	0.01	8.97	0.0027
Confidence in managing health expenditure in case of health emergencies	–0.19	0.02	62.13	<.0001
Maximum unexpected expenditure that the household believes it can manage using its savings	0.12	0.01	111.49	<.0001
Perception of whether the household will spend more or less money in the next year	–0.16	0.05	9.68	0.0019
Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly agree	–0.22	0.04	26.78	<.0001
Household's perceived ability to find an alternative source of income within six months of loss of major of income—agree	0.29	0.04	48.05	<.0001
Household's perceived ability to find an alternative source of income within six months of loss of major of income—disagree	0.43	0.06	58.26	<.0001

Household's perceived ability to find an alternative source of income within six months of loss of major of income—strongly disagree	0.29	0.06	20.88	<.0001
Perceived stability of major source of income	–0.06	0.02	8.89	0.0029
Household's perceived threat of loss of major source of income in the next two years—strongly agree	–0.22	0.08	7.60	0.0058
Household's perceived threat of loss of major source of income in the next two years—agree to some extent	–0.25	0.05	21.14	<.0001
Household's perceived threat of loss of major source of income in the next two years—neither agree nor disagree	–0.25	0.05	29.55	<.0001
Household's perceived threat of loss of major source of income in the next two years—disagree to some extent	–0.43	0.05	89.43	<.0001
Household's perceived threat of loss of major source of income in the next two years—don't know	–0.49	0.05	108.48	<.0001
Whether the household experienced major sickness in the last five years	0.32	0.05	45.68	<.0001
Whether the household was affected by crop loss in the last five years	0.32	0.15	4.92	0.0265
Whether the household was affected by a natural disaster in the last five years	–0.82	0.11	52.56	<.0001

Statistic	***Value***
C-value	0.83
Somer's D	0.66