

## Determinants of Life Insurance at Household Level: An Empirical Analysis of Andhra Pradesh, India.

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### Abstract

*The objective of this research is to identify and evaluate socio-economic determinants of life insurance coverage at household level. This study aims to provide insight in socio, economic and demographic characteristics of households which cause to life insurance coverage of household in urban, rural and tribal areas of Andhra Pradesh. For this study a sample of 552 households were collected through personally-administered questionnaires in the urban, rural and tribal areas. Out of 552 households 276 were insured sample and nearby uninsured unit of each insured in same location were interviewed. The data analyzed and bi-variate tables were generated with socio, economic and demography factors. Chi-square test was carried out for testing the theoretical relations. To ascertain the socio economic determinants of life insurance coverage at household level, Logistic Regression model was estimated. The results found that the likelihood of life insurance coverage increases when the respondent's education, income level and saving improved. The odds ratios of household parameters like caste, family structure, family size dependency ratio and occupation are chance to be positive on life insurance policy ownership.*

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### Introduction

According to Yaari (1965) and Hakansson (1969) the demand for life insurance is attributed to a person's desire to bequeath funds to dependents and provide income for retirement. The consumer maximizes lifetime utility subject to a vector of interest rates and a vector of prices, including insurance premium rates. This framework posits that the demand for life insurance is a function of wealth, expected income over a person's lifetime, interest rates, the cost of life insurance policies (administrative costs), and the assumed subjective discount rate for current over future consumption. Thorsten Beck and Ian Webb (2002) in their study identified the determinants of life insurance demand and classified into demographic determinants, economic determinants and institutional determinants.

In demographic determinants, a higher young dependency ratio is assumed to increase the demand for mortality coverage and decrease the demand for savings through life insurance and annuities. A higher old dependency ratio is assumed to increase the demand for the savings and annuity components and decrease the demand for the mortality risk component of life insurance. Societies with a longer life expectancy should have lower mortality coverage costs, lower perceived need for mortality coverage, but higher savings through life insurance vehicles and more demand for annuities. A higher level of education in a population will be positively correlated with the demand for any type of life insurance

product. The religious inclination of a population may affect its risk aversion and its attitude toward the institutional arrangements of insurance. Economies with greater urbanization are expected to have higher life insurance consumption.

Under economic determinants, life insurance consumption should rise with income for several reasons. First, a person's consumption and human capital typically increase along with income, creating a greater demand for insurance to safeguard the income potential of the insured and the expected consumption of his or her dependents. Second, life insurance may be a luxury good, since increasing income may enable people to direct a larger share of their income to retirement and investment-related life insurance products. Finally, the overhead costs associated with administering and marketing insurance can make larger policies less expensive per dollar of insurance in force, lowering their price. Theory suggests an ambiguous relationship between life insurance and an economy's private savings rate. We expect inflation and its volatility to have a negative relationship with life insurance consumption. We expect banking sector development to be positively correlated with life insurance consumption and size of a country's social security system to be negatively correlated with the demand for life insurance products. In the case of institutional determinants a vibrant life insurance market depends to a large extent on the institutional framework and political stability of a country (Beck and Webb, 2003).

One would assume, a priori, that individual life insurance premium expenditures are some function of income, for that is the earnings flow from which premiums are paid. In addition to income, a large number of other variables are commonly associated with differences in life insurance consumption among households. Family is able to utilize its assets to maintain a standard of living, family head may wish to preserve the full value of their net worth accumulation, education may be viewed as being positively associated and age of the family head is often associated with life insurance premium expenditures, The occupation of an individual, family composition and lifecycle are logically associated with premium expenditures, factor in determining the amount of money spent on life insurance, though, to our knowledge the density of life insurance salesmen among different geographic regions and fixed sum of money at some future date. Finally, life insurance purchase decisions are affected by a large group of variables which are difficult to isolate and measure. Attitudes toward death, family, insurance agents, saving, time preferences, and risk in general all create differences among individual utility functions for life insurance (Hammond et al, 1967).

The determinants for life insurance demand may be usefully separated into three basic groups: (1) variables that stimulate demand as a result of life insurance company selling effort; (2) variables that affect the size of the potential market and the ability to buy; and, (3) variables that affect household decisions to save and accumulate financial assets along with variables that determine the composition of those assets (Headen and Lee, 1974).

## Review of Literature

Anderson and Nevin (1975) studied socio, economic and demographic variables impact on life insurance purchasing behavior of young newly married couples. Geistfeld (1976) explored the socio-economic factors relating to life insurance holdings of families. Campbell (1980) examined the relationship between income uncertainty and insurance purchase. Ferber & Lee (1980) investigated correlates of life insurance purchases of young couples and found that the accumulated stock of insurance tends to assume significance only after the first few years of marriage. Goldsmith (1983) in his paper developed and investigated the relation between a wife's human capital accumulation and household purchases of life insurance on the husband. Burnett and Palmer's (1984) examined various demographic and psychographic characteristics in terms of how well they relate to differing levels of life insurance ownership. Beenstock et al (1986) were developed in which the supply and demand for life assurance is determined by various economic and social variables. Beck and Webb (2003) in their article readdressed determinants of life insurance consumption across countries at macro level. Fu, H. (2004) analyzed demographic and economic factors of demand for Life insurance in Canada using a Tobit model. Forte (2005) conducted a study to find socio, economic and demographic factors of rural insurance market. Moshirian et al. (2007) examined the macro level determinants of life insurance consumption in OECD countries. Sen (2008) studied life insurance demand determinants for selected Asian Economies and India. Kakar & Shukla (2010) investigated the determinants of demand for life insurance in Indian economy based on primary data. Curak & Gaspic (2011) analyzed economic and social factors affecting the life insurance consumption in fast growing insurance market of Central and Eastern Europe. Sherif & Shaairi (2013) were identified the driving forces that influence family Takaful demand in Malaysia and examined various economics and socio-demographic variables by using ordinary least square (OLS) and generalized method of moments (GMM) techniques. Mathur & Tripathi (2014) were made an attempt to explore the factors that have a high influence on customer's choice in selecting insurance industry. Mishra (2014) examined determine the macroeconomic factors leading to the demand for life insurance in Indian case using the annual aggregate data series from 1970-71 to 2009-10. In this paper Reddy et al (2014) were examined the relationship between life insurance and various economic and demographic characteristics of households. Kumar & Kumar (2016) examined the impact of economic determinants on life insurance premium of policies. Zerriaa et el. (2017) investigated the variables driving the demand for life insurance in Tunisia based on annual macroeconomic data spanning the period from 1990 to 2014. Ampaw et al (2018) were examined the determinants of life insurance uptake among male and female household heads in Ghana. Satrovic & Muslija (2018) summarized a large number of economic and demographic determinants that are used to predict the demand for life insurance.

The review of above literature reveals only few studies are available in rural and tribal areas. In this context, the present study designs to examine the determinants of life insurance at household level in terms of depth and content in urban, rural and tribal areas. A couple of issues on socio-economic factors of Households towards life insurance are examined.

## Research Methodology

For this study a sample of 552 households were collected through personally-administered questionnaires in the urban, rural and tribal areas of Andhra Pradesh, India. Out of 552 households 276 were insured sample and nearby uninsured unit of each insured in same location were interviewed. As result, 276 were insured respondents and 276 were uninsured respondents. Out of the total sample, urban respondents are 208, rural respondents are 232 and tribal respondents are 112. The data analyzed and bi-variate tables were generated with socio, economic and demography factors. Chi-square test was carried out for testing the theoretical relations. To ascertain the socio economic determinants of life insurance coverage at household level, Logistic Regression model was estimated.

The choice of this methodology stems from the fact that the dependent variable of the model is binary. The logistic regression is specified as

$$[p/(1-p)] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \beta_{10} x_{10} + \beta_{11} x_{11} + \beta_{12} x_{12} + \beta_{13} x_{13} + \beta_{14} x_{14} + \beta_{15} x_{15} + \mu$$

### Dependent Variable

$p$  = Life Insurance  
if respondents have life insurance =1  
other wise =0

### Independent Variables

$x_1$	=	Age	Age of respondent
$x_2$	=	Marital Status	Marital Status of respondent
$x_3$	=	Religion	Religion of respondent
$x_4$	=	Caste _ OC	Other Caste (OC) as dummy variable (OC = 1, otherwise = 0)
$x_5$	=	Caste _ BC	Backward Caste (BC) as dummy variable (BC = 1, otherwise = 0)
$x_6$	=	Caste _ SC	Schedule Caste (SC) as dummy variable (SC = 1, otherwise = 0)
$x_7$	=	Family Structure	Family Structure as dummy variable (if nuclear family=1, otherwise = 0)
$x_8$	=	Family Size	Size of Household
$x_9$	=	Education	Education in schooling years
$x_{10}$	=	Occupation _ Employee	Occupation as dummy variable ( if Employee =1, otherwise = 0)
$x_{11}$	=	Occupation _ Business	Occupation as dummy variable ( if Business =1, otherwise = 0)
$x_{12}$	=	Occupation _ Cultivation	Occupation as dummy variable ( if Cultivation =1, otherwise = 0)
$x_{13}$	=	Occupation _ Worker	Occupation as dummy variable ( if Worker =1, otherwise = 0)
$x_{14}$	=	Income	Income in Rupees
$x_{15}$	=	Saving	Saving in Rupees
$\mu$	=	Error term	

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14},$  and  $\beta_{15}$  are the parameters to be estimated,  $\alpha$  being the constant.

## Results and Discussion

This section examines the socio-economic factors influence on the respondents towards life insurance. The socio-economic factors are classified as individual factors, family structure, income, property, and savings. The total sample taken is 552 in three areas i.e.

urban, rural and tribal. Out of total sample, 208 respondents from urban area, 232 respondents from rural area and 112 respondents from tribal area were interviewed. The presentation is made by using column percentages. Chi-square test was calculated for the theoretical relation between socio-economic factors and insurance and the significance level.

### **In Urban Area:**

Out of the total 208 urban respondents 50.00 per cent were insured and 50.00 per cent were uninsured. The maximum urban insured were employees followed by workers while maximum uninsured were self-employed and workers. The majority of urban insured were found in the age group of 30-39 years then 19-29 years age group whereas uninsured respondents were observed in the age group of 19-29 years age group followed by 30-39 years. The highest numbers of insured were Hindus next Christians similarly the highest uninsured were Hindus followed by Christians. Out of the total urban insured, majority of them belongs to OC and the least belongs to ST while uninsured also belongs to OC were maximum and STs were minimum. The study found that in the urban area the most insured respondents were graduates followed by upper primary education and primary education. The uninsured were completed upper primary education and SSC. Out of the total insured urban respondents, the highest were belongs to nuclear family whereas uninsured were also observed same. The respondents who have two children were insured more and who have three and four and above were uninsured. From the study it is found that in the urban area the most insured respondents had family size of two members and majority of uninsured respondents had family size of four. The highest numbers of insured and uninsured were found only one earning member in their family and earning in the income range of Rs.25,001-50,000 and above Rs.1,00,000 were noticed least. The maximum uninsured were belongs to the income range of below Rs. 25,000 and the minimum were belongs to the range Rs. 75,001-1,00,000. Majority of insured were saving Rs. 20,001 - 30,000 and Rs. 50,000 above were least. Regarding the uninsured, respondents were savings worth of Rs.10,001-20,000 and Rs. 20,001-30,000 the highest and the lowest were in the saving range of Rs.40,001-50,000. According to Chi-square results of urban area, following variables occupation, age, marital status, religion, education, family structure, number of children, family size annual income of respondent annual income of family and annual saving of family were found significant association with insurance coverage (Table –1).

### **In Rural Area:**

Out of the total 232 rural respondents, 50.0 per cent were insured and 50.0 per cent were not insured. The maximum rural insured and uninsured were cultivators and workers while the minimum rural insured were employees and uninsured are business people. As per age, the highest insured were in the age group of 30-39 years and 19-29 years while the highest members of uninsured were in the age group of 19-29 years. Majority of rural insured were Hindus and Christian similarly uninsured were also same. The study observed that the highest members of rural insured were from BC and lowest from ST whereas majority of uninsured were from OC and few were from ST. The highest insured were accomplished upper primary education then primary education while the majority of the uninsured were illiterates.

Respondents from joint family were most insured and majority of uninsured had nuclear family. The maximum insured had three children and the highest of uninsured had three children. In rural area, most of insured were noticed with the family size of four members and above while uninsured were found family size of three members followed by four & above. Respondents who had two earning members in the family were most insured and who had only one earning member in the families were found uninsured. The majority of insured were earning of below Rs. 25,000 then Rs.25,001-50,000 and most respondents who were earning below Rs. 25,000 and Rs. 75,001-1,00,000 observed uninsured. Most of the respondents had family savings of below Rs. 10,000 were found insured whereas the highest of uninsured were belongs to the families had saving of Rs.10,001-20,000. The results of Chi square test reveal that the parameters namely age, religion, family size, annual income of respondent, annual income of family, annual saving of family and caste were observed significant relation with insurance coverage and remaining variable like occupation, marital status, education, family structure, number of children and earning members in the family were observed not significant (Table-2).

### **In Tribal Area:**

Out of the total 112 tribal respondents, 50.0 per cent are insured and 50.0 per cent are uninsured. In the tribal area, cultivators and self-employed were the highest insured and cultivators and business/trade and workers were the highest and have no insurance. The majority of respondents insured were found in age group of 19-29 years respondents and 30-39 years age group and uninsured were in the age group of 19-29 years age group and 40-49 years age group. Most of the tribal insured and uninsured were Hindus and Christians. Insured respondents were illiterates more followed primary education. Uninsured tribes not having literacy were found more and few members were literates. Most of respondents were from nuclear family and uninsured were from joint family. In the case of tribes, insured respondents those who had two children were the highest while majority of uninsured respondents were who had four children and above. Most of insured and uninsured respondents were found with family size of four members and above and the highest of respondents insured and uninsured in tribal were found only one earning member in their family. The insured tribes earning below Rs.25,000 income were more followed by Rs. 25,001-50,000 whereas uninsured had below Rs. 25,000 were the highest. Half of the insured and uninsured respondents from families with below Rs.10,000 annual savings. As per Chi-square results, the variable like age, religion, annual income of respondent and number of children were significant and confirmed that there is relation between above parameters and insurance ownership (Table-3).

**Table – 1 : Socio-Economic Characteristics of Respondents in Urban Area**

Variables	Variables groups	Insured	Uninsured	Total	$\chi^2$
Occupation	Employee	65 (62.5)	30 (28.8)	95 (47.5)	23.993* (0.000)
	Self Employed	10 (9.6)	21 (20.2)	31 (14.9)	
	Business/Trade	9 (8.7)	15 (14.4)	24 (11.5)	
	Cultivators	8 (7.7)	17 (16.3)	25 (12.0)	
	Workers	12 (11.5)	21 (20.2)	33 (15.9)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Age	19 – 29	34 (32.7)	34 (32.7)	68 (32.7)	14.351* (0.006)
	30 – 39	42 (40.4)	32 (30.8)	74 (35.6)	
	40 – 49	9 (8.7)	27 (26.0)	36 (17.3)	
	50 – 59	12 (11.5)	4 (3.8)	16 (7.7)	
	Above 60	7 (6.7)	7 (6.7)	14 (6.7)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Marital Status	Unmarried	14 (13.5)	16 (15.4)	30 (14.4)	9.672** (0.046)
	Married	76 (73.1)	80 (76.9)	156 (75.0)	
	Divorced	1 (1.0)	5 (4.8)	6 (2.9)	
	Widow	10 (9.6)	3 (2.9)	13 (6.2)	
	Widower	3 (2.9)	-	3 (1.4)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Religion	Hindu	52 (50.0)	69 (66.3)	121 (58.2)	7.771** (0.050)
	Muslim	19 (18.3)	10 (9.6)	29 (13.9)	
	Christian	31 (29.8)	21 (20.2)	52 (25.0)	
	Sikh	2 (1.9)	4 (3.8)	6 (2.9)	
	Others	-	-	-	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Social Community	SC	18 (17.3)	17 (16.3)	35 (16.8)	0.205 (0.977)
	ST	9 (8.7)	10 (9.6)	19 (9.1)	
	BC	24 (23.1)	22 (21.2)	46 (22.1)	
	OC	53 (51.0)	55 (52.9)	108 (51.9)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Education	Illiterate	7 (6.7)	10 (9.6)	17 (8.2)	23.374* (0.001)
	Primary Education	17 (16.3)	21 (20.2)	38 (18.3)	
	Upper Primary Education	18 (17.3)	28 (26.9)	46 (22.1)	
	SSC	16 (15.4)	26 (25.0)	42 (20.2)	
	Intermediate	10 (9.6)	11 (10.6)	21 (10.1)	
	Graduation	22 (21.2)	5 (4.8)	27 (13.0)	
	Post-Graduation	14 (13.5)	3 (2.9)	17 (8.2)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Family Structure	Single	4 (3.8)	9 (8.7)	13 (6.2)	5.587*** (0.061)
	Nuclear	88 (84.6)	74 (71.2)	162 (77.9)	
	Joint Family	12 (11.5)	21 (20.2)	33 (15.9)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Number of Children	One	3 (2.9)	13 (12.5)	16 (7.7)	16.936* (0.002)
	Two	54 (51.9)	37 (35.6)	91 (43.8)	
	Three	27 (26.0)	21 (20.2)	48 (23.1)	
	Four & Above	14 (13.5)	14 (13.5)	28 (13.5)	
	Nil	6 (5.8)	19 (18.3)	25 (12.0)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Family Size	One	4 (3.8)	9 (8.7)	13 (6.2)	8.672** (0.034)
	Two	45 (43.3)	30 (28.8)	75 (36.1)	
	Three	34 (32.7)	30 (28.8)	64 (30.8)	
	Four & Above	21 (20.2)	35 (33.7)	56 (26.9)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Family Income	Below – 25000	15 (14.4)	34 (32.7)	49 (23.6)	12.361** (0.015)
	25001 – 50000	34 (32.7)	30 (28.8)	64 (30.8)	
	50001 – 75000	20 (19.2)	9 (8.7)	29 (13.9)	
	75001 – 100000	19 (18.3)	19 (18.3)	38 (18.3)	
	Above 100000	16 (15.4)	12 (11.5)	28 (13.5)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	
Saving	Below – 10,000	34 (32.7)	19 (18.3)	53 (25.5)	38.413* (0.000)
	10,001 – 20,000	3 (2.9)	33 (31.7)	36 (17.3)	
	20,001 – 30,000	34 (32.7)	33 (31.7)	67 (32.2)	
	30,001 – 40,000	21 (20.2)	10 (9.6)	31 (14.9)	
	40,001 – 50,000	7 (6.7)	9 (8.7)	16 (7.7)	
	Above 50,000	5 (4.8)	-	5 (2.4)	
	Total	104 (100.0)	104 (100.0)	208 (100.0)	

Source: Computed from primary data.

Note: \*significant at 1 per cent level.

**Table – 2 : Socio-Economic Characteristics of Respondents in Rural Area**

Variables	Variables groups	Insured	Uninsured	Total	$\chi^2$
Occupation	Employee	9 (7.8)	13 (11.2)	22 (9.5)	7.175 (0.127)
	Self Employed	15 (12.9)	20 (17.2)	35 (15.1)	
	Business/Trade	19 (16.4)	7 (6.0)	26 (11.2)	
	Cultivators	43 (37.1)	47 (40.5)	90 (38.8)	
	Workers	30 (25.9)	29 (25.0)	59 (25.4)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Age	19 – 29	30 (25.9)	47 (40.5)	77 (33.2)	12.597** (0.013)
	30 – 39	51 (44.0)	37 (31.9)	88 (37.9)	
	40 – 49	9 (7.8)	13 (11.2)	22 (9.5)	
	50 – 59	12 (10.3)	15 (12.9)	27 (11.6)	
	Above 60	14 (12.1)	4 (3.4)	18 (7.8)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Marital Status	Unmarried	15 (12.9)	10 (8.6)	25 (10.8)	1.657 (0.799)
	Married	87 (75.0)	91 (78.4)	178 (76.7)	
	Divorced	3 (2.6)	3 (2.6)	6 (2.6)	
	Widow	8 (6.9)	7 (6.0)	15 (6.5)	
	Widower	3 (2.6)	5 (4.3)	8 (3.4)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Religion	Hindu	65 (56.0)	92 (79.3)	157 (67.7)	17.697* (0.001)
	Muslim	17 (14.7)	8 (6.9)	25 (10.8)	
	Christian	27 (23.3)	16 (13.8)	43 (18.5)	
	Sikh	-	-	-	
	Others	7 (6.0)	-	7 (6.0)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Social Community	SC	14 (12.1)	19 (16.4)	33 (14.2)	47.100* (0.000)
	ST	8 (6.9)	16 (13.8)	24 (10.3)	
	BC	55 (47.4)	34 (29.3)	89 (38.4)	
	OC	39 (33.6)	47 (40.5)	86 (37.1)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Education	Illiterate	18 (15.5)	31 (26.7)	49 (21.1)	7.645 (0.265)
	Primary Education	22 (19.0)	25 (21.6)	40 (20.3)	
	Upper Primary Education	26 (22.4)	19 (16.4)	45 (19.4)	
	SSC	19 (16.4)	21 (18.1)	40 (17.2)	
	Intermediate	15 (12.9)	9 (7.8)	24 (10.3)	
	Graduation	12 (10.3)	7 (6.0)	19 (8.2)	
	Post-Graduation	4 (3.4)	4 (3.4)	8 (3.4)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Family Structure	Single	9 (7.8)	10 (8.6)	19 (8.2)	0.433 (0.805)
	Nuclear	45 (38.8)	49 (42.2)	94 (40.5)	
	Joint Family	62 (53.4)	57 (49.1)	119 (51.3)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Number of Children	One	19 (16.4)	17 (14.7)	36 (15.5)	0.556 (0.968)
	Two	22 (19.0)	26 (22.4)	48 (20.7)	
	Three	43 (37.1)	43 (37.1)	86 (37.1)	
	Four & Above	19 (16.4)	17 (14.7)	36 (15.5)	
	Nil	13 (11.2)	13 (11.2)	26 (11.2)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Family Size	One	9 (7.8)	10 (8.6)	19 (8.2)	22.523* (0.000)
	Two	35 (30.2)	16 (13.8)	51 (22.0)	
	Three	20 (17.2)	51 (44.0)	71 (30.6)	
	Four & Above	52 (44.8)	39 (33.6)	91 (39.2)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Family Income	Below – 25000	27 (23.3)	33 (28.4)	60 (25.9)	9.042*** (0.060)
	25001 – 50000	33 (28.4)	46 (39.7)	79 (34.1)	
	50001 – 75000	27 (23.3)	17 (14.7)	44 (19.0)	
	75001 – 100000	17 (14.7)	16 (13.8)	33 (14.2)	
	Above 100000	12 (10.3)	4 (3.4)	16 (6.9)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	
Saving	Below – 10,000	39 (33.6)	33 (28.4)	72 (31.0)	19.554* (0.002)
	10,001 – 20,000	31 (26.7)	48 (41.4)	79 (34.1)	
	20,001 – 30,000	26 (22.4)	8 (6.9)	34 (14.7)	
	30,001 – 40,000	10 (8.6)	8 (6.9)	18 (7.8)	
	40,001 – 50,000	9 (7.8)	11 (9.5)	20 (8.6)	
	Above 50,000	1 (0.9)	8 (6.9)	9 (3.9)	
	Total	116 (100.0)	116 (100.0)	232 (100.0)	

Source: Computed from primary data.

Note: \*significant at 1 per cent level.



**Table – 3 : Socio-Economic Characteristics of Respondents in Tribal Area**

Variables	Variables groups	Insured	Uninsured	Total	$\chi^2$
Occupation	Employee	9 (16.1)	3 (5.4)	12 (10.7)	6.843 (0.144)
	Self Employed	13 (23.2)	9 (16.1)	22 (19.6)	
	Business/Trade	14 (25.0)	13 (23.2)	27 (24.1)	
	Cultivators	14 (25.0)	18 (32.1)	32 (28.6)	
	Workers	6 (10.7)	13 (23.2)	19 (17.0)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Age	19 – 29	23 (41.1)	48 (85.7)	71 (63.4)	32.469* (0.000)
	30 – 39	19 (33.9)	-	19 (17.0)	
	40 – 49	6 (10.7)	6 (10.7)	12 (10.7)	
	50 – 59	4 (7.1)	-	4 (3.6)	
	Above 60	4 (7.1)	2 (3.6)	6 (5.4)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Marital Status	Unmarried	6 (10.7)	3 (5.4)	9 (8.0)	1.428 (0.839)
	Married	38 (67.9)	40 (71.4)	78 (69.6)	
	Divorced	3 (5.4)	4 (7.1)	7 (6.2)	
	Widow	4 (7.1)	3 (5.4)	7 (6.2)	
	Widower	5 (8.9)	6 (10.7)	11 (9.8)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Religion	Hindu	49 (87.5)	42 (75.0)	91 (81.2)	2.872*** (0.090)
	Muslim	-	-	-	
	Christian	7 (12.5)	14 (25.0)	21 (18.8)	
	Sikh	-	-	-	
	Others	-	-	-	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Social Community	SC	3 (5.4)	7 (12.5)	10 (8.9)	1.757 (0.185)
	ST	53 (94.6)	49 (87.5)	102 (91.1)	
	BC	-	-	-	
	OC	-	-	-	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Education	Illiterate	24 (42.9)	34 (60.7)	58 (51.8)	7.000 (0.136)
	Primary Education	19 (33.9)	11 (19.6)	30 (26.8)	
	Upper Primary Education	-	-	-	
	SSC	7 (12.5)	7 (12.5)	14 (12.5)	
	Intermediate	3 (5.4)	4 (7.1)	7 (6.2)	
	Graduation	3 (5.4)	-	3 (2.7)	
	Post-Graduation	-	-	-	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Family Structure	Single	7 (12.5)	8 (14.3)	15 (13.4)	1.468 (0.480)
	Nuclear	36 (64.3)	40 (71.4)	76 (67.9)	
	Joint Family	13 (23.2)	8 (14.3)	21 (18.8)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Number of Children	One	7 (12.5)	8 (14.3)	15 (13.4)	19.632* (0.000)
	Two	24 (42.9)	6 (10.7)	30 (26.8)	
	Three	10 (17.9)	8 (14.3)	18 (16.1)	
	Four & Above	9 (16.1)	26 (46.4)	35 (31.2)	
	Nil	6 (10.7)	8 (14.3)	14 (12.5)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Family Size	One	7 (12.5)	8 (14.3)	15 (13.4)	2.951 (0.399)
	Two	6 (10.7)	11 (19.6)	17 (15.2)	
	Three	14 (25.0)	16 (28.6)	30 (26.8)	
	Four & Above	29 (51.8)	21 (35.7)	50 (44.6)	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Family Income	Below – 25000	16 (28.6)	22 (39.3)	38 (33.9)	2.322 (0.508)
	25001 – 50000	19 (33.9)	19 (33.9)	38 (33.9)	
	50001 – 75000	12 (21.4)	7 (12.5)	19 (17.0)	
	75001 – 100000	9 (16.1)	8 (14.3)	17 (15.2)	
	Above 100000	-	-	-	
	Total	56 (100.0)	56 (100.0)	112 (100.0)	
Saving	Below – 10,000	28 (50.0)	22 (39.3)	50 (44.6)	3.413 (0.637)
	10,001 – 20,000	15 (26.8)	19 (33.9)	34 (30.4)	
	20,001 – 30,000	4 (7.1)	5 (8.9)	9 (8.0)	
	30,001 – 40,000	1 (1.8)	4 (7.1)	5 (4.5)	
	40,001 – 50,000	5 (8.9)	4 (7.1)	9 (8.0)	
	Above 50,000	3 (5.4)	2 (3.6)	5 (4.5)	
Total	56 (100.0)	56 (100.0)	112 (100.0)		

Source: Computed from primary data.  
Note: \*significant at 1 per cent level.

### Socio-Economic Determinants of Life Insurance

In this section, Logit regression model was estimated to investigate the determinants. The Logit regression coefficients, the z-values and the p-values were used for the evaluation and statistical significance of variables in the model estimated. Age, religion, caste, marital status, family structure, family size, dependency ratio, education, occupation, income and saving are improved the chances of taking life insurance or not analyzed.

Out of total 552 sample respondents 50.0 per cent are belongs to insured category and uninsured category is shared with 50.0 per cent. In insured category, Out of total 276 sample respondents 42.00 per cent are belongs to rural area followed by 37.7 per cent are from urban area and 20.3 per cent are tribes. In uninsured category, the same pattern has been noticed due to equal simple has for both insured and uninsured categories (Table-4).

Table – 4. Insurance Participation in Sample Areas

Sample Area	Insured	Uninsured	All
Urban	104 (50.0) [37.7]	104 (50.0) [37.7]	208 (100.0) [37.7]
Rural	116 (50.0) [42.0]	116 (50.0) [42.0]	232 (100.0) [42.0]
Tribal	56 (50.0) [20.3]	56 (50.0) [20.3]	112 (100.0) [20.7]
Total	276 (50.0) [100.0]	276 (50.0) [100.0]	552 (100.0) [100.0]

Sours: Computed from primary data.

Note: Figures in (.) are represent row & Figures in [.] are represent column percentages.

The result of logistic regression shown that for urban area, the odds ratios of family structure, dependency ratio, education, permanent employment, income and saving are likely to be positive. The positive odds ratio means that the likelihood of the respondents to having life insurance policy increases when the respondent's education, income level and saving improves. The result of logistic regression shown that for rural area, caste (BC), family size, income and saving are to odds of having insurance are likely to be positive. The likelihood of the respondents to having life insurance policy increases when income and saving are change. The odds ratios of household parameters like caste (BC) and family size are chance to be positive on life insurance policy ownership. The odd ratios of education and occupation are predicted as positive and this prediction is satisfied but statistically not significant. This implies that there is the likelihood for the increase in coverage of life insurance to increase the education. In tribal area, the odds ratios of family size and dependency ratio are likely to be positive. Life insurance coverage increases when family size and dependency ratio increases. The estimated model revealed that the occupations (permanent employment, business and cultivation) are likely to be positive. The change in occupation patterns more chance to be positive on life insurance policy ownership. The likelihood of the customers to buy life insurance policy (LIP) increases when the income level improves, all things being equal. This result agrees with as income increases life insurance become relatively more affordable (Table-5).

In the study area, the likelihood of the customers to buy life insurance policy increases when the individual's income and saving level improves compared to when there is low level of income, all things being equal. This result agreed that as the individual's income and saving increases life insurance become relatively more affordable. The study observed that the education was predicted as positive and this prediction was satisfied and statistically significant. This implies that there is the likelihood for the demand for life insurance policy to increase as the education level of the individual improves; this may be due to proper appreciation of the significance of insurance policy for better life in future (Table-6).

Table – 5: Determinants of Life Insurance Coverage - Logistic Regression Results

Independent variables	Urban			Rural			Tribal		
	Odds Ratio	z	P> z	Odds Ratio	z	P> z	Odds Ratio	z	P> z
Age	0.914993*	-3.17	0.002	0.983112	-0.85	0.398	1.030516	0.95	0.344
Religion	0.209768*	-2.67	0.008	0.144079*	-3.95	0.000	0.712199	-0.42	0.671
Caste _ OC	2.293420	0.81	0.420	1.066634	0.08	0.934	-	-	-
Caste _ BC	2.123347	0.69	0.492	6.603359**	2.45	0.014	-	-	-
Caste _ SC	0.530563	-0.59	0.553	0.857962	-0.18	0.855	-	-	-
Marital Status	1.595261	0.68	0.495	0.602970	-0.98	0.327	0.402965	-1.28	0.201
Family Structure	15.028350*	4.63	0.000	0.691623	-0.85	0.393	0.828065	-0.31	0.754
Family Size	0.700782**	-2.27	0.023	1.714664*	3.78	0.000	1.770181*	2.77	0.006
Dependency Ratio	1.014750*	3.19	0.001	0.999731	-0.09	0.930	1.008160**	2.13	0.033
Education	1.155018*	3.11	0.002	1.066727	1.62	0.105	0.921393	-1.32	0.187
Occupation _ Employee	9.719437*	2.70	0.007	0.333250***	-1.79	0.074	8.459929**	2.50	0.012
Occupation _ Business	7.098205	1.61	0.108	3.114397	1.36	0.173	9.226112*	2.64	0.008
Occupation _ Cultivation	-	-	-	1.670705	1.01	0.314	8.144405**	2.39	0.017
Occupation _ Worker	2.724963	1.06	0.290	-	-	-	-	-	-
Income	1.00003*	5.00	0.000	1.000025*	5.22	0.000	1.000017*	2.86	0.004
Saving	1.087328*	2.56	0.010	1.090006*	4.11	0.000	0.999896	-0.01	0.996
Summary Statistics									
Number of observations	208			232			112		
LR chi2(15)	136.05*			133.20*			48.77*		
Prob > chi2	0.000			0.0000			0.0000		
Pseudo R2	0.4718			0.4142			0.3141		
Log likelihood	76.148			94.208543			53.247		
Source: Computed from primary data.									
Note:* Significant at 1% level, ** Significant at 5% level & *** Significant at 10% level.									

Table - 6: Determinants of Life Insurance Coverage in Sample Area

Independent variables	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Age	0.963614*	0.010273	-3.48	0.001	0.943687	0.983961
Religion	0.438342*	0.103923	-3.48	0.001	0.275428	0.697618
Caste _ OC	0.328290*	0.097427	-3.75	0.000	0.183504	0.587311
Caste _ BC	1.055983	0.320689	0.18	0.858	0.582314	1.914946
Caste _ SC	0.314477*	0.115560	-3.15	0.002	0.153038	0.646217
Marital Status	0.826869	0.207234	-0.76	0.448	0.505946	1.351353
Family Structure	1.126943	0.244912	0.55	0.582	0.736063	1.725397
Family Size	1.236683*	0.086822	3.03	0.002	1.077702	1.419115
Dependency Ratio	1.005521*	0.001749	3.17	0.002	1.002099	1.008954
Education	1.038040**	0.020676	1.87	0.061	0.998296	1.079366
Occupations _ Urban	1.407337	0.295508	1.63	0.104	0.932536	2.123884
Occupations _ Rural	(omitted)					
Income	1.000014*	2.00E-06	6.96	0.000	1.000010	1.000018
Saving	1.046625*	0.0116466	4.1	0.000	1.024045	1.069703
Summary Statistics						
Number of observations	552					
LR chi2(13)	180.79*					
Prob > chi2	0.0000					
Pseudo R2	0.2363					
Log likelihood	292.22					

Source: Computed from primary data.

Note:\* Significant at 1% level, \*\* Significant at 5% level & \*\*\* Significant at 10% level.

## Conclusion

According to study in urban area, variables namely occupation, age, marital status, religion, education, family structure, number of children, family size annual income and annual saving were found significant association with insurance coverage. Factors like caste and number of earners were found insignificant and there is no association with insurance coverage. For rural area, parameters namely age, religion, family size, annual income, annual saving and caste were observed significant relation with insurance coverage and remaining variables like occupation, marital status, education, family structure, number of children and earning members in the family were observed not significant and inferred that there is no association with life insurance coverage. In tribal area, the variables like age, religion, annual income and number of children were significant and confirmed that there is relation between above parameters and insurance ownership whereas occupation, marital status, caste, education, family size and saving were observed not significant and inferred that there is no association with life insurance coverage.

In all three sampled areas under the study, the likelihood of life insurance coverage increases when the respondent's education, income level and saving improved. The odds ratios of household parameters like caste, family structure, family size dependency ratio and occupation are chance to be positive on life insurance policy ownership. According to the study, a couple of socio-economic factors are contributing the life insurance coverage at household level. Hopefully, findings highlighted in the study may be useful for life insurance companies and insurance policy makers in developing their strategic policies.

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