

INFLUENCE OF DEMOGRAPHIC AND HOUSEHOLD FACTORS ON SURRENDER OF LIFE INSURANCE POLICIES IN INDIA

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Abstract

In this research paper, we examined the influence of demographic and household factors on a decision to surrender a life insurance policy before the end of the policy term. As per the handbook on Indian Insurance Statistics 2020-21, by the 5th year of policy sale, only 4 out of 24 life insurers could retain half of their policies. One of the reasons for this low persistence is the increased surrender of policies. Surrendering a policy means the policyholder cancelling the policy and agreeing to take the cash value/surrender value accrued to the policy over time and forgoing the death benefit or maturity benefit. Generally, a policy acquires surrender value after the policyholder has paid the premiums continuously for three years. A survey of randomly selected 537 policyholders was conducted using a structured questionnaire to examine the influence of demographic and household factors on a decision to surrender a life insurance policy. Results of our study suggest that demographic and household factors influence the decision to surrender a life insurance policy. Marital status and occupation are statistically significant predictors of the decision to surrender a policy.

Key Words :life insurance, policy holder, surrender, persistency, maturity, lapsation, logit model

1. Introduction

Life Insurance is a long-term contract between an insurance policyholder and an insurance company, where the insurance company promises to pay a sum of money in exchange for a premium, upon the death of an insured person or after a specific period called the term of the policy (Vidyavathi 2018). Thus, in the life Insurance contract, a policyholder pays the premium for a specific term and in return, the insurance company provides him/her a Life Cover. This Life Cover secures policy holder's loved ones' future by paying a lump sum amount in case of death called a death benefit or maturity Benefit at the end of the policy term. However, in the Indian life

insurance industry, the increased surrender of policies before the end of the policy term is a major concern for most life insurers. The handbook on Indian Insurance Statistics 2020-21 of the Insurance Regulatory and Development Authority of India (IRDAI) has given persistency ratios for the 13th, 25th, 37th, 48th, and 61st months for life insurance companies for the period from 2016-17 to 2020-21. Persistency measures how long customers continue with their policies. The handbook says that for the financial year 2020-21, the life insurance industry, on average, had a persistency of only 41 per cent in the 61st month. By the 5th year of policy sale, 14 out of 24 life insurers had a persistency ratio below this average and only four out of 24 life insurers could retain half of their policies. On the other hand, lower persistence is a worrisome situation as it will pose a threat to the financial health of insurance companies (Vidyavathi, 2013).

This lower persistence is mainly because of the surrender of policies. A surrender leads to a full cancellation of a life policy and the policy becomes void and the policyholder surrenders all the future contract benefits. Once you surrender the insurance policy, all the benefits associated with it, including the protection cover, will cease to exist. Further, there is no provision to reinstate the surrendered policy. So, surrendering a policy means the policyholder cancelling the policy and agreeing to take the cash value/surrender value accrued to the policy over time and forgoing the death benefit or maturity benefit. Generally, a policy acquires surrender value after the policyholder has paid the premiums continuously for three years. The contract will also specify a period when a policyholder can surrender or cancel a policy and claim a cash value if available. Therefore, what determines the amount of cash value is the period for which a policyholder paid the premium and the terms and conditions stipulated in the contract. The policyholder may be charged surrender charges as stipulated in the contract. However, the Insurance and Regulatory Development Authority (IRDA) Regulation 2013 amended from time to time states that life insurance companies are not to levy surrender charges if the policyholder chooses to surrender the policy after five years.

2. Literature Review

Loi Soh Loi, Wu Yuan and Robert Lian Keng Heong (1993) identified and analyzed the factors that may have an effect on the persistence of policies using survival analysis. In their research, persistency was considered as a dependent variable, and factors that may have an effect on persistency such as age at purchase of a policy, sex, marital status at purchase, type of policy, mode of payment, the status of policy, method of payment, service status and size of policy as independent variables. The sample consisted of archival data from 48,243 policies issued by 11 insurance companies in Singapore. According to their study higher persistency is found among policyholders who are older in age, the policies with term coverage, smaller size, premium paid less frequently, paid by pre-authorized methods, and not serviced by agents.

Gemmo and Martin (2016) in their working paper demonstrated that demographic variables like Age, Marital Status, Birth of a child, number of children, and acquisition of assets, influence the surrender of a life insurance policy. Age has got much shock with respect to the surrender policy that old age people tend to surrender more than younger ones. As per the above study, the situation leading to the acquisition of assets may cause the surrender of the policy. In the same paper, the authors have concluded that the shock in household income can also be a reason for the surrender of the policy.

N.V. Subramanian (2004) in a study discussed the importance of retention of the life insurance business. Reasons for lapsation mentioned in his research include wrong selling, forced selling, over selling, bogus selling, the effect of competition, the introduction of new plans, bad service, ignorance, and lack of follow-up by the agent, etc., He also suggested some solutions to reduce the high lapsation ratios of around 30 percent in the Indian insurance market.

Sachin S. Surana and Amar K. Gaur (2013) identified the causes of lapsation and noted down its impact based on the available literature and annual reports of IRDA, and LIC etc., The causes

identified by commitment and malpractice on the part of different distribution channels, financial burden suffered by the policyholder, poor service quality of agents and company, inadequate information and knowledge about the different insurance products particularly of ULIPs, delay in grievance and etc., The direct effects of lapsation are financial loss and loss of life cover for the policyholder. Further, they noted that the lapsation of policies will have an adverse effect on the public image and liquidity position of insurance companies.

Persistency of life insurance policies is integral to the profitability, liquidity and solvency of companies (Vidyavathi 2018). Most companies cover their initial policy issuance expenses over many years; therefore a policy that lapses after only a few years will force an immediate write-off of deferred acquisition costs. Lapsation and surrender activity represents an erosion of the customer base, which likely will lead to an increased fixed administrative cost per policy and require substantial marketing expenditures to rebuild (David T. Russell and others 2013). Belth (1975) and Carson and Dumm (1999) found that high levels of lapsation, *ceteris paribus*, resulted in a significantly higher cost for life insurance.

3.Objectives

The majority of studies have used macro-economic data for testing lapse determinants and very few studies have used microeconomic factors which include household-specific and life cycle factors like family size, number of earning members, education, employment status, marital status, debt status, income/wealth shocks, etc., that drive the lapse and surrender decision (Vidyavathi 2022). Further majority of studies focused on various factors driving the lapsation of life insurance policies and not in particular on the surrender of life insurance policies. Adequate literature is not available on the analysis of microeconomic and household data that lead to a surrender of a life insurance policy. Hence the purpose of this research paper is to analyze whether demographic and household factors influence the decision to surrender a life insurance policy before the end of the policy term.

4.Data and Methodology

The data and information for this study are collected from policyholders and an enquiry has been done whether they have surrendered their policy before maturity and the reasons behind such behaviour. A survey of life insurance policyholders was conducted. During the survey respondents were randomly selected and data and information were collected using a structured questionnaire. Although we approached about 1000 people we could get the required data from only 537 life insurance policyholders. During the survey demographic and household data were collected from the people who either lapsed or surrendered their policies as well as from those who continued their policies. The collected data were analysed using SPSS and Gretl. Cross tabulation and Pearson's Chi-square were used to examine the association between demographic and household factors and decision to surrender a life insurance policy. A logit model was developed using Gretl to test the marginal effect of demographic and household factors on the decision to surrender a life insurance policy before the end of policy term.

5.Results and Discussion

The objective of this study is to find out whether demographic and household factors influence a decision to surrender a life insurance policy before the end of the policy term. The sample for this study consisted of 537 life insurance policyholders. In order to determine whether the policy has lapsed, surrendered or continued, we mainly focused on the following two questions in the survey.

Question 1: Have you ever discontinued any of your policies (lapsed) before the policy attained the surrender value?

Question 2: Have you ever surrendered any of your policies before the end of the policy term?

Respondents who answered in affirmative to the first question were classified as having lapsed policy and were asked several additional questions to probe into the reasons for the lapse of a policy. Respondents who answered in affirmative to the second question were classified as having surrendered a policy and were asked several additional questions to probe into the reasons to surrender a policy. Respondents who answered negatively to both questions were classified as having a continued policy and were asked several additional questions to probe into the factors that could produce better persistence. Table 1 exhibits the classification of a total of 537 respondents into the number of male/female respondents who have lapsed, surrendered and continued their life insurance policies.

Table 1 Status of policy owned by the sample respondents.

Policy holders	Status of the life insurance policy			
	Lapsed	Surrendered	Continuing	Total
Male	73(57%)	82(61%)	182(66%)	337(63%)
Female	55(43%)	53(39%)	92(34%)	200(37%)
Total	128(100%)	135(100%)	274(100%)	537(100%)

Source: Field Survey

Table 2 Pearson’s Chi-Square test for policy surrender and demographic and household variables

Demographic variables		Frequency	Have you ever surrendered any of your policies before maturity?				H ₀ Rejected at $\alpha = 0.05$
			Cross tabulation				
			Yes	No	Chi-square	p-value	
Gender	Male	337 -62.8	82 -60.70%	255 -63.40%	0.313	0.576	No
	Female	200 -37.2	53 -39.30%	147 -36.60%			
Age category	20-30	170 -31.7	33 -24.40%	137 -34.10%	6.305	0.098	No
	31-40	118 -22	30 -22.20%	88 -21.90%			
	41-50	138 -25.7	44 -32.60%	94 -23.40%			
	51 & above	111 -20.6	28 -20.70%	83 -20.60%			
Qualification	SSLC	87 -16.2	21 -15.60%	66 -16.40%	14.673	0.002	Yes
	Intermediate	111 -20.7	39 -28.90%	72 -17.90%			
	Graduation	222 -41.3	39 -28.90%	183 -45.50%			
	Post graduation	117 -21.8	36 -26.70%	81 -20.10%			
Marital Status	Unmarried	141 -26.3	26 -19.30%	115 -28.60%	4.561	0.033	Yes
	Married	396 -73.7	109 -80.70%	287 -71.40%			
Occupation	Agriculture	36 -6.7	5 -3.70%	31 -7.70%	13.478	0.019	Yes
	Business	147 -27.4	40 -29.60%	107 -26.60%			
	Employees of public sector	71 -13.2	15 -11.10%	56 -13.90%			
	Employees of private sector	144 -26.8	45 -33.30%	99 -24.60%			
	Housewife	87 -16.2	25 -18.50%	62 -15.40%			
	Student	52 -9.7	5 -3.70%	47 -11.70%			
Size of the family	Less than 4	135 -25.1	41 -30.40%	94 -23.40%	2.623	0.269	No
	Equal to 4	226 -42.1	53 -39.30%	173 -43%			
	greater than 4	176 -32.8	41 -30.40%	135 -33.60%			
No. of dependents	Zero dependents	147 -27.4	30 -22.20%	117 -29.10%	2.803	0.246	No
	1-2 dependents	192 -35.7	49 -36.30%	143 -35.60%			
	3 and more dependents	198 -36.9	56 -41.50%	142 -35.30%			

Table 2 exhibits the demographic profile of our sample respondents, and the results of cross-tabulation and Pearson's Chi-square test for surrender and demographic and household variables.

Demographic Profile of Respondents

For this study 537 respondents were surveyed, of which, 63 per cent (337) are males and 37 per cent (200) are females. 396 respondents (72.8%) were married and 141 respondents were unmarried. When we look at the age of the respondents, 170 respondents (31.7%) are in the age group of 20-30, 118 are in the age group of 31-40 (22%), 138 are in the age category of 41-50 (25.7%) and 111 are above 51 years of age(20.6%).

Information about the educational qualification of respondents was collected. 87 respondents had an educational qualification of SSLC or below, 111 respondents had an educational qualification of intermediate, 122 were graduates and 177 were postgraduates. We also looked at the occupation of our respondents. A maximum of 208 respondents were employees of either public or private sector with a guaranteed regular income. 147 respondents' income came from business, and 43 respondents drew their income from agriculture. 87 housewives and 52 students who owned life insurance policies had no income of their own and their policies were serviced by their husbands and parents.

This study also collected information about the size of the family and the number of dependents of sample policyholders. There were 226 sample policyholders with a family of 4 members, the family size of 135 sample respondents was less than 4 members and 176 respondents had a family with more than 4 members. Of the 537 respondents, 147 respondents had no dependents, 192 respondents had 1-2 dependents and 198 respondents had 3 and more dependents.

Pearson's Chi-Square Statistics

Whether a decision to surrender an insurance policy is independent of demographic and other related factors is tested using Pearson's Chi-Square statistics. Pearson's Chi-Square follows an asymptotic chi-square distribution with $(R-1)(C-1)$ when the row and column variables are independent. Table 2 gives the analysis of cross-tabulation and the results of Pearson's Chi-Square statistics for surrender and demographic and other related variables.

Chi-Square test for gender and decision to surrender a life insurance policy

Pearson's Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the gender of a policy owner. Hence,

H₀: Gender and decision to surrender an insurance policy are independent

H₁: Gender and the decision to surrender an insurance policy are associated (not independent)

The Chi-Square test result indicates that for our survey data with a Chi-Square value of 0.313 there is no association between a person's gender and the decision to surrender a life insurance policy (p-value = 0.576)

Pearson's Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the age of a policy owner. Hence,

H₀: Age category and decision to surrender an insurance policy are independent

H₁: Age category and decision to surrender an insurance policy are associated(not independent)

The Chi-Square test result indicates that for our survey data with a Chi-Square value of 6.305 there is an association between a person's age and decision to surrender a life insurance policy (p-value = 0.098)

Pearson's Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the qualification of a policy owner. Hence,

H₀: Qualification and decision to surrender an insurance policy are independent

H₁: Qualification and decision to surrender an insurance policy are associated (not independent)

The Chi-Square test result indicates that for our survey data with the Chi-Square value of 14.673 there is no association between a person's qualification and decision to surrender a life insurance policy (p-value = 0.002)

Pearson’s Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the occupation of a policy owner. Hence,

H₀: occupation and decision to surrender an insurance policy are independent

H₁: occupation and decision to surrender an insurance policy are associated (not independent)

The Chi-Square test result indicates that for our survey data with the Chi-Square value of 13.478 there is an association between a person’s occupation and the decision to surrender a life insurance policy (p-value =0.019)

Pearson’s Chi-Square test is used to examine the association the between decision to surrender an insurance policy and the marital status of a policy owner. Hence,

H₀: Marital status and decision to surrender an insurance policy are independent

H₁: Marital status and decision to surrender an insurance policy are associated (not independent)

The Chi-Square test result indicates that for our survey data with the Chi-Square value of 4.561 there is an association between a person’s marital status and the decision to surrender a life insurance policy (p-value =0.033)

Pearson’s Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the family size of a policy owner. Hence,

H₀: Family size and decision to surrender an insurance policy are independent

H₁: Family size and decision to surrender an insurance policy are associated (not independent)

The Chi-Square test result indicates that for our survey data with the Chi-Square value of 2.623 there is no association between a person’s family size and the decision to surrender a life insurance policy (p-value = 0.269)

Pearson’s Chi-Square test is used to examine the association between the decision to surrender an insurance policy and the number of dependents of a policy owner. Hence,

H₀: number of dependents and decision to surrender an insurance policy are independent

H₁: number of dependents and decision to surrender an insurance policy are associated (not independent).

The Chi-Square test result indicates that for our survey data with the Chi-Square value of 2.803 there is no association between the number of dependents and the decision to lapse a life insurance policy (p-value = 0.246)

Logit Model

Pearson’s Chi-Square statistics displayed in table 2 indicate that there is an association between qualification, marital status and occupation of respondents and decision to surrender a life insurance policy as p-value in these three cases is less than the significance value of 5 percent. Hence the decision to surrender a life insurance policy is influenced by these three variables. So qualification, marital status and occupation were selected for logistic regression analysis.

The surrender of life insurance policy (0=not surrendered and 1= surrendered) was the dependent variable. Qualification, marital status and occupation are independent variables which are also categorical and dichotomous. When both dependent and independent variables are dichotomous logit model is used. The three independent variables namely qualification, marital status and occupation group are included in the model. Cross tabulation results given in the table 2 indicate that among the policy holders who have surrendered their policies, people having the qualification of intermediate and graduation are the highest.

So, we have assigned 0 for all the respondents having the qualification other than intermediate or graduation and 1 for the respondents having the qualification of graduation. Policy holders who are married are the highest to surrender among those who have surrendered their policies. So we have assigned 0 for the respondents who are unmarried and 1 for married. Similarly from the cross tabulation result it is clear that among the policy holders who have surrendered their policies respondents employed in private sector are the highest. So we have

assigned 0 for all the respondents employed in other than private sector and 1 for the respondents employed in private sector.

Logit model is constructed in Gretl employing maximum likelihood method and the probability of lapsation of a policy by the policy owner is estimated on the basis of qualification, marital status and occupation of the policy owner.

Logit model is estimated as follows:

$$\text{Policy Surrender} = \beta_0 + \beta_1 \text{Qualification}_i + \beta_2 \text{Maritalstatus}_i + \beta_3 \text{Occupationgroup}_i + \mu_i$$

Where surrender is equal to one if individual i has surrendered the policy, zero otherwise, Qualification is equal to one if individual i has surrendered the policy having the qualification of either intermediate or graduation, zero otherwise, marital status is equal to one if individual i has surrendered the policy with the marital status as married, zero otherwise, occupation is equal to one if individual i has surrendered the policy is employed in private sector, zero otherwise.

Logit model is defined as

$$\text{LN}(P_i/1-P_i) = \beta_0 + \beta_1 X_i + \beta_2 X_i + \beta_3 X_i + \mu_i \quad \text{-----(1)}$$

Our model is estimated as

$$\text{LN}(\text{Surrender}/\text{No surrender}) = \beta_0 + \beta_1 \text{Qualification}_i + \beta_2 \text{Maritalstatus}_i + \beta_3 \text{Occupationgroup}_i + \mu_i \quad \text{-----(2)}$$

Model 1: Logit, using observations 1-537

Dependent variable: policy surrender

Standard errors based on Hessian

	<i>Coefficient</i>	<i>Std. Error</i>	<i>Z</i>	<i>p-value</i>	
const	-1.57524	0.274646	-5.736	<0.0001	***
Qualification	-0.176313	0.26211	-0.850	0.3925	
Marital Status	0.592522	0.249022	2.379	0.0173	**
Occupation	0.481819	0.222372	2.167	0.0303	**

Mean dependent var	0.251397	S.D. dependent var	0.434221
McFadden R-squared	0.017634	Adjusted R-squared	0.004423
Log-likelihood	-297.4558	Adjusted R-squared	602.9115
Schwarz criterion	620.0555	Hannan-Quinn	609.6181

Number of cases 'correctly predicted' = 402 (74.9%)

f(beta'x) at mean of independent vars = 0.434

Likelihood ratio test: Chi-square(3) = 10.6787 [0.0136]

		Predicted	
		0	1
Actual	0	402	0
	1	135	0

Excluding constant p- value was highest for variable 3 (Qualification)

Logit estimates of equation (2) are obtained using Gretl. Following is the logit equation of oursurrender model

$$\text{Policy surrender} = - 1.57524 - 0.176313 \text{Qualification} + 0.592522 \text{Marital status} + 0.481819 \text{Occupation}$$

(0.274646)
(0.206211)
(0.249022)
(0.222372)

Figures in parentheses are standard errors based on Hessian

From the model, it is clear that the effect of marital status and occupation is statistically significant. However, the coefficients in the output are not interpreted as marginal effects. To obtain marginal effect we need to re-estimate the model by selecting the option “show the slopes at mean” and we get the marginal effect of qualification is - 0.03. A policyholder having the qualification of either intermediate or graduation will decrease the probability of surrendering the policy by 3 per cent. A policyholder having the marital status of ‘married’ will increase the probability of surrendering the policy by 10 per cent. Similarly, the marginal effect of occupation is 0.09. A policyholder employed in the private sector will increase the probability of surrendering policy by nine per cent. Overall the entire model gives 75 per cent correct prediction.

Model 2: Logit, using observations 1-537

Dependent variable: policy surrender

Standard errors based on Hessian

	<i>Coefficient</i>	<i>Std. Error</i>	<i>z</i>	<i>Slope*</i>
Const	-1.57524	0.274646	-5.736	
Occupation	0.481819	0.22372	2.167	0.0942751
Qualification	-0.176313	0.206211	-0.8550	-0.00757
Marital Status	0.52522	0.249022	2.379	0.101996

Mean dependent var	0.251397	S.D. dependent var	0.434221
McFadden R-squared	0.017634	Adjusted R-squared	0.004423
Log-likelihood	-297.4558	Akaike criterion	602.9115
Schwarz criterion	620.0555	Hannan-Quinn	609.6181

*Evaluated at the mean

Number of cases 'correctly predicted' = 402 (74.9%)

f(beta'x) at mean of independent vars = 0.434

Likelihood ratio test: Chi-square(3) = 10.6787 [0.0136]

		Predicted	
		0	1
Actual	0	402	0
	1	135	0

Excluding constant p- value was highest for variable 3 (Qualification)

6. Conclusion

Surrendering a life insurance policy leads to a full cancellation of a policy for getting cash surrender value. Policyholders have the freedom of surrendering their policy anytime once it attains the surrender value, usually after completing three years. People surrender their policies for various reasons. In the case of a majority of people, financial conditions change with the change in the life cycle factors. Hence things like age, education, marriage, dependent children/parents, occupation, etc., contribute to people’s decisions on the continuation or surrender of their life insurance policies. The majority of life insurance policies other than term insurance policies build cash value over time as long as they are funded properly, and upon surrender, the policyholder receives these funds. Therefore people choose to cancel their policies (i) when they no longer need the coverage (ii) when they need the funds to cover an emergency expense or (iii) when they want to invest that money into high-yielding investment avenues (iv) when they find the premium very expensive (v) when the policy does not meet their needs anymore, etc.,

Results of our study suggest that demographic and household factors influence the decision to surrender a life insurance policy. Marital status and occupation are statistically significant predictors of the decision to surrender a policy. The findings of this research have two major implications. Firstly, the insurers better focus on educating the policy holders on various alternatives to surrendering. There are various other options available for accessing the cash value of life insurance policy without surrendering such as (i) taking loan against a policy (ii) a direct withdrawal where the policyholder can take out some of the cash value, leaving enough behind to keep the policy active by continuing the payment of premium which will ensure the life cover and other benefits associated with the policy. (iii) taking a life settlement. Under this option, policy holder will sell his/her policy to a qualified buyer. The buyer assumes the payments and their beneficiaries receive the death benefit. One of the main advantages of this is that policy holder get a lump sum payment at the time of purchase. Secondly, due consideration is given to household-specific and life cycle factors while designing life insurance products and making them more lucrative investment opportunities.

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