Customers’ Preference Parameters for Investing in Insurance: A Case on Indian Perspective

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Abstract

Life Insurance is considered to be an important part of an individual’s investment portfolio, not necessarily to accumulate wealth, but to feel financially secure. There are individuals who don’t view Life insurance policy have other benefits also, like tax-deduction options, and in some cases long term capital gains. With this regards, researcher’s basic objectives are, examine the age wise difference in the perception of ideal risk cover, occupation wise difference in the sum assured and relation between annual income & total sum assured. The primary data was collected through structured questionnaire and personal interview by using snow ball sampling. The sample size covered for this research is 200 customers. For data analysis various statistical measures like Mean, Median, Mode and Standard Deviation were used. All the statistical analysis was done with the help of MS Excel. For hypothesis testing, various tests like one way Anova, Friedman, Kruskal Wallis test, Association of Attributes were conducted. Researcher mainly found that the age of an individual does not influence perception about the ideal risk cover, occupation wise there is a difference in the sum assured value of respondents and there are no differences in annual income with respect to total sum assured of insurance policies.

Keywords: Investment, Insurance, Customer preference parameter, Risk cover, Sum assured.

Introduction

This paper scrutinizes preference parameters that influence investment decision of Indian customer. Attempt is made to evaluate investment decision in Indian insurance companies based on both qualitative and quantitative parameters. The reason is that qualitative judgment should also take precedence over the reliance on purely quantitative data but should not dominate in investment decision. Most investment decisions in financial institution are based on risk analysis, the risk preference of individual and expected returns on investment. For example the work of Tobin and Marwowitz [1] centred on expected risk and returns on various portfolios in asset choice of financial institution. In particular, an efficient portfolio of assets choice is the one that, for a given expected returns has the lowest possible exposure to risk or for a given level of risk has the highest expected returns. The logic of Tobin and Markowitz [1] was expanded in the capital asset pricing model (CAPM). The CAPM is based on rational choice of the individual investor. Variances of this model exist in literatures. While not going into the logic and framework of each model, it is pertinent to mention that these models based investment decision on measured risks. Most of these orthodox investment decisions theories based on risk have been criticized for their neglect of organizational framework or behavioural framework on environment in which investment decision are made for details see Akinwale and Abiola [2]. In organizational investment decision making according to Tunde [3], managers takes into consideration in their investment decision the influence of cultural, political, personality, risk parameter and environmental influence before concluding on investment decision. In this sense, investment decision is not just a mathematical selection of expected returns on various risk profile but on a whole range of parameters. These factors could have a profound effect on investment decision in an organization. Managers are seen as decision-makers who act to promote, protect and preserve the organization’s value rather than seeking to maximized pay off or utility. In particular, decisions based upon calculated probabilities are backward looking while managerial decisions are forward looking [4]. Insurance is fast emerging as an important strategy even for the low-income people engaged in wide variety of income generation activities, and who remain exposed to variety of risks mainly because of absence of cost effective risk hedging instruments.
Microinsurance, the term used to refer to insurance to the low-income people, is different from insurance in general as it is a low value product (involving modest premium and benefit package) which requires different design and distribution strategies such as premium based on community risk rating (as opposed to individual risk rating), active involvement of an intermediate agency representing the target community and so forth. Although the type of risks faced by the poor such as that of death, illness, injury and accident, are no different from those faced by others, they are more vulnerable to such risks because of their economic circumstances. In the context of health contingency, for example, a World Bank study [5], reports that about one-fourth of hospitalized Indians fall below the poverty line as a result of their stay in hospitals. The same study reports that more than 40 percent of hospitalized patients take loans or sell assets to pay for hospitalization. Indeed, enhancing the ability of the poor to deal with various risks is increasingly being considered integral to any poverty reduction strategy [6]. In the past insurance as a prepaid risk managing instrument was never considered as an option for the poor. The poor were considered too poor to be able to afford insurance premiums. So, "the building up of a social safety net for especially poor population groups is also a very important instrument for reducing world poverty". Often they were considered uninsurable, given the wide variety of risks they face. However, recent developments in India, as elsewhere, have shown that not only can the poor make small periodic contributions that can go towards insuring them against risks but also that the risks they face (such as those of illness, accident and injury, life, loss of property etc.) are eminently insurable as these risks are mostly independent or idiosyncratic. Moreover, there are cost-effective ways of extending insurance to them. Thus, insurance is fast emerging as a prepaid financing option for the risks facing the poor. In most developing countries social protection systems are underdeveloped and generally only cover employees with formal employment. Workers in the informal economy are left to their own devices, or rely heavily on the support of their community. NGOs and microfinance institutions that offer microinsurance can fill this gap. But there are several things that differentiate it from normal insurance. First, it is group insurance that can cover thousands of customers under one contract. Insurance currently covers only 2 per cent of the population, or 950 million people, are excluded from services—a huge missing market. For example in India, Allianz covers 42,000 customers under one contract. More than 75,000 tsunami-affected people in the Indian state of Tamil Nadu further are to be offered insurance for the first time, following the launch of a new partnership between leading insurer Allianz and humanitarian agency CARE International [7, 8]. Second, micro-insurance requires an intermediary between the customer and the insurance company. Preferably, this intermediary is a non-governmental organization (NGO) or microfinance institution, for example a rural bank that can handle the whole distribution and most of the administration process. The Insurance Regulatory and Development Authority (IRDA) defines rural sector as consisting of (i) A population of less than five thousand, (ii) A density of population of less than four hundred per square kilometer, and (iii) More than twenty five per cent of the male working population is engaged in agricultural pursuits. The categories of workers falling under agricultural pursuits are: cultivators, agricultural labourers, and workers in livestock, forestry, fishing, hunting and plantations, orchards and allied activities.

**Literature Review**

Viewed in simple terms, life insurance is a pooling arrangement used by a group of policyholders to accumulate a fund that pays a stated benefit at the death of each member. The fund itself, as well as any additions or subtractions (which are resulted from premium payments, interest earnings or death benefits) is allocated equally among the surviving members of the group. The demand for pure life insurance exists as individuals are uncertain about the date of their death and do not want to run the risk of dying without leaving enough provision for dependents. Therefore, the aim of purchasing life insurance is to maximize the utility and to offer a bequest for surviving individuals (spouse and dependents) who are risk averse to any potential loss of income from the “bread-winner”.

Undeniably, life insurance is able to satisfy two motives for saving; the general motive of saving is for retirement, and a second motive of saving for a bequest. There are two models dealing with the latter motive.According to Yaari ME, The first model is Fisherian model, without a bequest motive, which explains the role of life insurance to improve the opportunities for borrowing, and thereby expanding the set of possible consumption plans. The second, Marshallian model, with a
bequest motive, the more risk adverse an individual is, the more insurance he or she purchases, ceteris paribus [9]. However, each person’s key motives to demand life insurance will differ, which are dependent on a variety of variables. Hammond et al. [10], Ferber and Lee [11], Browne and Kim [12], Halek and Eisenhauer [13] found that at the margin, education increased one’s aversion to pure risk. On the other hand, it also increased one’s willingness to accept a speculative risk. They identified that there were significant relationship in which purely demographic variables such as age, gender and marital status affected an individual’s degree of risk aversion, and thus demand for life insurance.

Truett and Truett [14] and Gandolfi and Miners [15] used the method of maximum likelihood to estimate the life insurance demand model and discovered that the higher a household’s income, the greater the life insurance consumption. The age standardization, decomposition, and cohort analysis to examine the life insurance purchase pattern in the United States from 1940 to 1996. They discovered that the aging process had the expected positive effects on ordinary life insurance purchases and genders had different life insurance purchasing behaviours.

Points out that quality should be at the core of what the insurance industry does. Customer surveys by Prudential have identified that customer want more responsive agents with better contact, personalized communications from the insurer, accurate transactions, and quickly solved problems. A different study by the National Association of Life Underwriters found other important factors such as financial stability of the company, reputation of the insurer, agent integrity and the quality of information and guidance from the agent. Clearly, understanding consumers’ expectations of life insurance agent’s service is crucial as expectations serve as standards or reference points against which service performance is assessed. Technology has also become an important factor in how the agent operates in the field including other functions such as distribution, claim costs and administration.

The theory of insurance business administration (abbreviated iba) contains considerably less theoretical statements concerning decisions than other types of business administration’s dealing with other industries. The insurance industry itself, as well as those concerned with developing insurance business theory [16, 17] point to these difficulties in iba-research. In addition to this necessity for further empirical research concerning decisions which has been noted for years, Farny in particular points to the need for empirical goal research in iba [18]. Namasinghavam et al. [19] analyzed the socioeconomic factors that are responsible for taking life insurance policies and examined the preferences of the policyholders towards various types of policies of LIC. From the analysis, it was found that factors such as age, educational level and sex of the policyholders are insignificant. However, income level, occupation and family size are significant while deciding on an insurance policy. From the analysis, it is inferred that respondents belonging to the age group of 31 to 40 years are much interested in taking a life insurance policy.

Raman and Gayatri [20] observed customers’ awareness towards new insurance companies. It was found that 53% of the respondents belong to the age group up to 30, 24% between 31 to 40, 20% between 41 to 50, and the remaining above 50. They also observed that a large percentage of the insured respondents (32%) are professionals, and 56% of the respondents are married. It was also found that most of the respondents (52%) had taken a policy to cover the risk, 44% to avoid tax, and the remaining to invest the surplus amount. The study suggests that understanding the customer better will enable insurance companies to design appropriate products, determine price correctly and to increase profitability.

Jagendra Kumar [21] in his study, revealed that the life insurance penetration in India is just about 2% of the GDP, while the life insurance premium per capita is just Rs. 550. LIC is the largest player with over 2,000 officers. After liberalization, it has improved efficiency and customer services among the private life insurance companies. ICICI Prudential life Insurance and Birla Sun Life are the first and second largest players. Other prominent companies in competition are Bajaj Allianz, HDFC Standard Life, Kotak Mahindra, ING Vysya Aviva Life, Metlife, etc.

A study conducted by Patil Kallinath S [22] aimed at critically evaluating the performance of existing insurance products. It revealed that the insurance coverage of agricultural groups and agricultural labor is very low. The performance of children related policies like Jeevan Kishore, Jeevan Balya, etc., is very poor, except the children money back policy, which also has not been contributing significantly.
The demonstration of product features, by the agents, is unsatisfactory.

**Research Objectives**

Based on the above theoretical background, researcher developed following research objectives:

- To examine the age wise difference in the perception of ideal risk cover.
- To examine the occupation wise difference in the sum assured.
- To examine the relation between annual income & total sum assured.

**Research Hypothesis**

- Occupation wise there is a difference in the sum assured value of respondents.
- There are no differences in annual income with respect to total sum assured of policies.
- The age of an individual does not influence his perception about the ideal risk cover for himself.

**Research Methodology**

The type of the research that researcher has undertaken is exploratory research. In exploratory research any specific subject can be investigated. It helps to generate a set of hypothesis or research based questions that can be used at a later stage. Further, the method of research undertaken is the survey method. The data is collected through primary sources by preparation of Questionnaire. The variables that researcher considered are age, nature of employment, income & savings/investment. There are differences in the insurance buying habits as per these variables. A definite plan for obtaining a sample from a given population is called as sample design or the sampling plan. It is the technique of selecting items for the sample. Sampling design is determined before the data is collected. For the purpose of this research, snow ball sampling was used for the survey, wherein respondents were selected for the survey and they were asked to answer the questionnaire over an email & in some cases their answers were recorded in a telephone communication. For this research geographical units mainly comprises of Pune City. The sample size covered for this research is 200 customers. Various Statistical measures like Mean, Median, Mode and Standard Deviation were used. All the statistical analysis was done with the help of MS Excel. Various tests like One way Anova, Friedman, Kruskal Wallis test, Association of Attributes were done.

**Result & Discussion**

**Statistical Analysis of Yearly Premium Paid by the Respondents**

Researcher calculated the mean, median, mode and standard deviation for the Yearly premium paid by the respondents.

<table>
<thead>
<tr>
<th>Premium</th>
<th>X</th>
<th>Frequency (f)</th>
<th>Cumulative frequency (c.f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10000</td>
<td>5000</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>10000 - 20000</td>
<td>15000</td>
<td>45</td>
<td>140</td>
</tr>
<tr>
<td>20000 - 30000</td>
<td>25000</td>
<td>25</td>
<td>165</td>
</tr>
<tr>
<td>30000 - 40000</td>
<td>35000</td>
<td>9</td>
<td>174</td>
</tr>
<tr>
<td>40000 - 50000</td>
<td>45000</td>
<td>26</td>
<td>200</td>
</tr>
</tbody>
</table>

\[ Mean = \frac{\sum fx}{n} = \frac{3260000}{200} = 16300 \]

\[ Mean = 16300 \]

\[ Median = 25000 \]

(since \(N/2\)th observation=205/2=102.5 observation belongs to the 3rd set)

\[ Mode = 5000 \]

(since the frequency count of the 1st set is the highest which is 95 )

\[ S.D = \sqrt{\frac{\sum f(x^2)}{n} - \left(\frac{\sum fx}{n}\right)^2} = 13903.59 \]

Thus, the mean yearly premium paid by the respondents is 16300. The median value of the same is 25000 and the modal value is 5000.

The standard deviation of the said data is 13903.59. Thus, there is a variation or dispersion of 13903.59 from the mean yearly premium paid by the respondents.

**Statistical Analysis of Sum Assured for the Respondents**

Researcher calculated the mean, median, mode and standard deviation for the Sum Assured for the respondents.

\[ Mean = \frac{\sum fy}{n} = \frac{160500000}{200} = 802500 \]

\[ Mean = 802500 \]
Table 2: Frequency Distribution

<table>
<thead>
<tr>
<th>Premium (In lakhs)</th>
<th>Y</th>
<th>Frequency (f)</th>
<th>Cumulative frequency (c.f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>2.5</td>
<td>92</td>
<td>92</td>
</tr>
<tr>
<td>5 - 10</td>
<td>7.5</td>
<td>53</td>
<td>145</td>
</tr>
<tr>
<td>10 - 15</td>
<td>12.5</td>
<td>17</td>
<td>162</td>
</tr>
<tr>
<td>15 - 20</td>
<td>17.5</td>
<td>18</td>
<td>180</td>
</tr>
<tr>
<td>20 - 25</td>
<td>22.5</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>

Median = 1250000
(since N/2th observation =205/2=102.5th observation belongs to the 3rd set)

Mode = 500000
(since the frequency count of the 1st set is the highest which is 92)

\[ S.D = \sqrt{\frac{\sum fx^2}{n} - \left(\frac{\sum fx}{n}\right)^2} = 6,69,700 \]

Thus, the mean sum assured of the respondents is 802500. The median value of the same is 1250000 and the modal value is 500000.

The standard deviation of the said data is 669700. Thus, there is a variation or dispersion of 669700 from the mean sum assured paid by the respondents.

Association of Attributes

Association of Attributes is used to determine if the different aspects involved in the study are associated to each other in a positive or negative way or no associated at all (i.e independent).

Association on the Basis of Age & Amount of Premium Paid

Researcher attempting to check if there is any association between the age of an individual & the amount of premium paid. Usually when the age of an individual is less there is a higher amount of premium paid with the expectation of future protection or long term savings.

Attributes. "young, old" & "yearly premium high & low"
young : age less than 40
old: age more than 40
high premium: more than 30000
low premium: less than 30000

Table 3: Young, old & yearly premium high & low

<table>
<thead>
<tr>
<th></th>
<th>A (young)</th>
<th>α(old)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (low premium)</td>
<td>111</td>
<td>54</td>
</tr>
<tr>
<td>β(high premium)</td>
<td>7</td>
<td>26</td>
</tr>
</tbody>
</table>

Association of Attributes = 0.768382353
Therefore researcher say that the two attributes are positively associated.

Association on the Basis of Nature of Employment & Number of Policies

The intention here is to check if there is any association between Nature of Employment & No. of Policies. Usually private employment is not as rewarding after retirement as Government Employment (eg. Pension). So we try to find if there is any positive association between nature of employment & number of policies.

Attributes: "Private, non-private employment" & "less or more policies"

Private Employment
Non- Private : Govt., Self Employed, Not Working, Student
more policies:- more than 3

Table 4: Private, non-private employment" & "less or more policies"

<table>
<thead>
<tr>
<th></th>
<th>A (private)</th>
<th>α (non-private)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (less policies)</td>
<td>63</td>
<td>104</td>
</tr>
<tr>
<td>β (more policies)</td>
<td>12</td>
<td>21</td>
</tr>
</tbody>
</table>

Association of Attributes = 0.02917152
Thus we can conclude that the attributes are negligibly associated or independent.

Association on the Basis of Income & Savings/Investments

The association here is of Income & Savings/Investment. We check whether with high income people save/invest more & same in the case of low income.

Attributes: High/Low Income & High Low Saving/Investment
High Income: 9 and more
Low Income: less than 9 lakhs
High Savings: 15000 & more
Low Savings: less than 15000

Table 5: High/low income & high low saving/investment

<table>
<thead>
<tr>
<th></th>
<th>A(High Income)</th>
<th>α (low income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (high saving)</td>
<td>27</td>
<td>16</td>
</tr>
<tr>
<td>β(low saving)</td>
<td>22</td>
<td>135</td>
</tr>
</tbody>
</table>

Association of Attributes = 0.823867901
Thus we can conclude that the two attributes are highly positively associated.

Hypothesis Testing

Hypothesis 1

Occupation wise there is a difference in the sum assured value of respondents.
Ho: occupation wise no difference in sum assured.
H1: occupation wise difference in sum assured.
**Table 6: To check the hypothesis, researcher use one way ANOVA test**

<table>
<thead>
<tr>
<th>Occupation/SA</th>
<th>0 – 5</th>
<th>5 to 10</th>
<th>10 to 15</th>
<th>15 to 20</th>
<th>Above 20</th>
<th>Total (X&lt;sub&gt;i&lt;/sub&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Employment</td>
<td>31</td>
<td>20</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>75</td>
</tr>
<tr>
<td>Government Service</td>
<td>8</td>
<td>12</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>Self employed</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Student</td>
<td>40</td>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>59</td>
</tr>
<tr>
<td>Not employed</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total (X&lt;sub&gt;j&lt;/sub&gt;)</strong></td>
<td>92</td>
<td>53</td>
<td>17</td>
<td>18</td>
<td>20</td>
<td>200</td>
</tr>
</tbody>
</table>

\[ T = \sum \sum X_{ij} = 200 \]

Correction Factor (C) = \( T^2 / n \)

Where \( n = 25 = 1600 \)

Total Sum of Squares (TSS) = \( \sum \sum X_{ij}^2 - C = 3924 - 1600 = 2324 \)

Sum of Squares between Columns (SSBC) = \( \sum \sum X_{ij}^2/(k-1) = 2457.2 - 214.3 = 857.2 \)

Sum of Squares Within (SSW) = \( TSS - SSBC = 2324 - 857.2 = 1466.8 \)

**Table 7: One way ANOVA**

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Source of variation</th>
<th>Summation of squares</th>
<th>Degree of freedom</th>
<th>MSS</th>
<th>F Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Between Samples</td>
<td>SSBC = 857.2</td>
<td>k-1 = 4</td>
<td>SSBC/(k-1) = 214.3</td>
<td>MSS1/MSS2 = 2.922</td>
</tr>
<tr>
<td>2</td>
<td>Within Samples</td>
<td>SSW = 1466.8</td>
<td>n-k = 20</td>
<td>SSW/(n-k) = 73.34</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Total Sum of Squares</td>
<td>TSS = 2324</td>
<td>n-1 = 24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis 2**

There are no differences in annual income with respect to total sum assured of policies.

H0 – There are no differences in annual income with respect to total sum assured of policies.

H1 – There are differences in annual income with respect to total sum assured of policies.

**Table 8: To check the hypothesis, researcher use Friedman’s Test, the detail explanation is as follow, (Level of Significance = 5%)**

<table>
<thead>
<tr>
<th>Total sum of policies/annual income</th>
<th>0-3lac</th>
<th>3-6lac</th>
<th>6-9lac</th>
<th>9-12lac</th>
<th>12lac and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>62(1)</td>
<td>19(2)</td>
<td>3(5)</td>
<td>4(3.5)</td>
<td>4(3.5)</td>
</tr>
<tr>
<td>5-10</td>
<td>22(1)</td>
<td>15(2)</td>
<td>5(4)</td>
<td>8(3)</td>
<td>3(5)</td>
</tr>
<tr>
<td>10-15</td>
<td>1(5)</td>
<td>2(4)</td>
<td>7(1)</td>
<td>3(3)</td>
<td>4(2)</td>
</tr>
<tr>
<td>15-20</td>
<td>3(3)</td>
<td>7(1)</td>
<td>2(5)</td>
<td>3(3)</td>
<td>3(3)</td>
</tr>
<tr>
<td>20 and above</td>
<td>1(4)</td>
<td>2(3)</td>
<td>0(5)</td>
<td>4(2)</td>
<td>13(1)</td>
</tr>
<tr>
<td>RANKS (Rj)</td>
<td>14</td>
<td>12</td>
<td>20</td>
<td>14.5</td>
<td></td>
</tr>
</tbody>
</table>

\[ X^2 = 12/[bt(t+1)] \sum (Rj^3) - 3b(t+1) \]

\[ X^2 = 12/[5*5*6] \sum (14^2+12^2+20^2+14.5^2)-3*5(6) \]

\[ X^2 = -13.98 \ldots \ldots \ldots \ldots \text{(calculated)} \]

\[ X^2= 9.48 \ldots \ldots \ldots \ldots \text{(from table)} \]

\[ X^2_{\text{table}} > X^2_{\text{cal}} \]

Accept H0, reject H1

**Hypothesis 3**

The age of an individual does not influence his perception about the ideal risk cover for himself

H0: Age wise no difference in perception of ideal risk covers.

H1: Age wise difference in perception of ideal risk covers.
Table 9: To check the hypothesis, researcher use Kruskal-Wallis test, the detail explanation is as follow,
(Level of Significance = 5%)

<table>
<thead>
<tr>
<th>Age</th>
<th>05-10</th>
<th>10-15</th>
<th>15-20</th>
<th>20-25</th>
<th>More than 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>53</td>
<td>14</td>
<td>8</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>30-40</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>40-50</td>
<td>14</td>
<td>7</td>
<td>9</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>50-60</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>More than 60</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 10: Assigning ranks

<table>
<thead>
<tr>
<th>Age</th>
<th>05-10</th>
<th>10-15</th>
<th>15-20</th>
<th>20-25</th>
<th>More than 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>25</td>
<td>22.5</td>
<td>16</td>
<td>18.5</td>
<td>20</td>
</tr>
<tr>
<td>30-40</td>
<td>16</td>
<td>13</td>
<td>5.5</td>
<td>5.5</td>
<td>16</td>
</tr>
<tr>
<td>40-50</td>
<td>22.5</td>
<td>13</td>
<td>18.5</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>50-60</td>
<td>9</td>
<td>10.5</td>
<td>10.5</td>
<td>5.5</td>
<td>13</td>
</tr>
<tr>
<td>More than 60</td>
<td>1.5</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

N = 25
Degree of Freedom = t-1 = 5-1 = 4

\[ x^2 = \frac{12}{n(n+1)} \left[ \sum_{j=1}^{5} \frac{R_j^2}{n_j} \right] - 3(n+1) \]

\[ x^2 = \frac{12}{25 \times 26} \left[ \frac{(74^2)}{5} + \frac{(64.5^2)}{5} + \frac{(56^2)}{5} + \frac{(56^2)}{5} + \frac{(74.5^2)}{5} \right] - 3(26) \]

\[ x^2 (cal) = 1.23 \]
\[ x^2 (table) = 9.490 \]
\[ x^2 (cal) < x^2 (table) \]

Thus, the difference is insignificant. Therefore, accept H0 and reject H1.

Hence, as per the above test researcher conclude that, the age of an individual does not influence his perception about the ideal risk cover for himself.

**Conclusion**

To examine the age wise difference in the perception of ideal risk cover.

Researcher attempting to check if there is any association between the age of an individual & the amount of premium paid. Usually when the age of an individual is less there is a higher amount of premium paid with the expectation of future protection or long term savings. Association of Attributes is 0.768382353, therefore researcher concludes that the two attributes are positively associated. Researcher use Kruskal-Wallis test and calculate \( x^2 (cal) \) is 1.23 and \( x^2 (table) \) is 9.490, thus \( x^2 (cal) < x^2 (table) \) therefore concludes that the age of an individual does not influence perception about the ideal risk cover.

To examine the occupation wise difference in the sum assured.

The mean sum assured of the respondents is 802500. The median value of the same is 1250000 and the modal value is 500000. The standard deviation of the said data is 669700. Thus, there is a variation or dispersion of 669700 from the mean sum assured paid by the respondents. The mean yearly premium paid by the respondents is 16300. The median value of the same is 25000 and the modal value is 5000.

The standard deviation of the said data is 13903.59. Thus, there is a variation or dispersion of 13903.59 from the mean yearly premium paid by the respondents. Researcher use one way ANOVA test and calculate F\(_{cal}\) is 2.922, while F\(_{table}\) is 2.8661, thus F\(_{cal}\) > F\(_{table}\), therefore concludes that, occupation wise there is a difference in the sum assured value of respondents

To examine the relation between annual income & total sum assured

The association between respondent’s income & savings/investments, researcher check whether with high income people save/invest more & same in the case of low income. Association of Attributes is 0.823867901, thus researcher concludes that the two attributes are highly positively associated.

Researcher use Friedman’s Test and calculate \( X^2 \) \(_{table}\) is -13.98 and \( X^2 \) \(_{cal}\) is 9.48, thus \( X^2 \) \(_{table}\) > \( X^2 \) \(_{cal}\).
therefore concludes that, there are no differences in annual income with respect to total sum assured of insurance policies.

References