Multiple Linear Regression Approach to Modeling The Determinants Of Life Insurance Premium in Sri Lanka

BSc.(Hons) Financial Mathematics and Industrial Statistics

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DECLARATION

I, Kushan Kariyawasam hereby declare the project titled "Determinants of life insurance premium in Sri Lanka" ıs record of original work done by under supervision of Dr.E.J.K.P. Nandani, Department of Mathematics, Faculty of Science, University of Ruhuna, as a partial fulfillment of the requirements of level II, Case Study course unit(MIS 2231) of the Bachelor of Science Honours Degree in Financial Mathematics and Industrial Statistics.

I have followed ethical guidelines and not plagiarized. It has not been submitted to any other institution or study program by me for any other purpose.

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Supervisor's Recommendation

I certify that this study was carried out by Kushan Kariyawasam under my supervision.

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ABSTRACT

The current study examined the variables that influenced the life insurance premium in Sri Lanka in 2023 using a sample of 100 people. It analyzed the correlation that existed between the insurance premium and variables like One-way ANOVA tests were used to ascertain the correlations between the determinants and insurance premium in addition to utilizing multiple linear regression modeling and other quantitative data analysis techniques to ascertain age, gender, income, health condition, and amount assured, among other variables. The findings showed that the three most influential factors influencing life insurance premiums in Sri Lanka are income, age, and basic sum assured.

ACKNOWLEDGEMENT

First of all, I would like to thank all of those who helped me to complete this study.

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1 Introduction

1.1 Background of the Study

Life insurance acts as a financial safety tool for our life .It entails a contract between an insured party and an insurer. Financial stability is provided by life insurance to a family in the unfortunate event of the insured person's passing, or pays out a lump sum payment when the insured person reaches old age and their earning potential decreases. In addition to providing security, life insurance can be used as an investment option, with the insured receiving a percentage of the sum promised upon death or at the end of a predetermined period of time. phrase. The fundamental tenets of this agreement are insurable interest and the highest good faith. Additionally, governments have taken action to promote the purchase of life insurance policies. In the sense that the subject matter of life insurance is human life, it differs from general insurance.

Our life is inherently fraught with future remains uncertain, giving rise to various uncertainties. Before engaging in any activity, individuals must contend with possibility of failure or adversity in the future. Insurance offers stability and resources to shield individuals from the unpredictable risks encountered in daily life and it's an investment in your family's future, providing financial security and peace of mind.

1.2 Overview of Methodology

To choose the best characteristics influencing life insurance premiums in Sri Lanka, we mostly use multiple linear regression. As a quantitative analysis technique, we employed correlation analysis to look at the relationship between the variables. For additional analysis, we used the "All possible regression" method.

1.3 Problem and Context

In this study mainly we questioned what are the main factors will be affected to life insurance sector in Sri Lanka.In past few years there have been significant changes in life insurance sector due to economy crisis therefore we looking to identifying existing gaps and drawbacks of the industry through this study.
As well as this study is connected to search answer of the following questions related to the determinants of life insurance premium in Sri Lanka;

- What is the current status of determinants of life insurance premium in Sri Lanka?
- How does factors affect the life insurance premium in Sri Lanka?
- What kind of relationship that have between the factors(age,sum assured,gender etc.) and the insurance premium.
- To identify life insurance patterns in year of 2023.

1.4 Objectives of the Study

Each research endeavor comes with it's set of goals. While this study encompasses numerous objectives, its primary aim is to identify the factors influencing the life insurance premium in Sri Lanka. The detailed objectives of this investigation are articulated as follows,

1. To examine the relationship between age,sum assured,gender,income etc and insurance premium in Sri Lanka.

2. To analyze the impact of age,sum assured,gender,income,health history, etc to the life insurance premium in Sri Lanka.

3. To figure out gaps in the life insurance industry in Sri Lanka

As well as this study aim to identify common pattern in the industry and the study will help to fill some holes in life insurance industry.

2 Literature Review

The literature on the ideas related to the study is reviewed in this part. The factors influencing the calculation of life insurance premiums have been documented in Sri Lanka and other Asian and non-Asian nations.

According to studies conducted by the Insurance Regulatory Commission of Sri Lanka, age is a major factor in determining life insurance premiums in most countries, including Sri Lanka. Younger people usually have cheaper premiums (IRCSL) because of statistically longer life expectancies.
The cost of a life insurance premium is not set; rather, it is determined by three key aspects: financial, demographic, and economic and market factors (Nurul Sarah, 2013). The authors came to the conclusion that these factors are what primarily drive demand for life insurance.
One's marital status refers to their current state of being single, married, separated, divorced, or widowed. Some couples arrange for one spouse to take care of the other by staying at home in the event of the other's early death. In these cases, the survivor will be provided for by life insurance proceeds, as the non-working spouse is dependent on the income of the deceased. However, ceteris paribus, the quantity of life insurance falls with age because it requires a larger total sum of money to maintain elderly people than younger ones (Dorfman and Adelman, 2002).
The factors influencing insurance premiums, which have an indirect relationship to sum assured pricing, are examined by Nesterova (2019). They pinpoint a number of variables that influence demand and premium structures, including life expectancy, inflation, and income level.
One of the main research papers Truett (1990) reveled that people who have higher education level is associated with a stronger desire and they have high awareness to protect dependents and protect their standard of living.As well as Browne and Kim(1993) explained people who have high income and good wealth status they have high awareness about life uncertainty and leading to life insurances coverages.
Family health history also a vital aspect that impacting to the life insurance premium and some studies indicate how it depend to the life insurance price and coverage and greatly influence to the health coverage. Higher premiums may result from pre-existing medical illnesses, commonly referred to as chronic health conditions, such as cancer, diabetes, or heart disease.
Income is one of the primary factors influencing insurance coverage as well as the premium, according to numerous research and publications. According to NS Mahdzan (2013), household disposable income—that is, the amount of money available for saving or spending—has been found to be positively correlated with household saving. Perry and Morris (2004) also found that higher earners were more likely to practice prudent financial management.
Taking into account In the past several decades, poor lifestyle choices like smoking and drinking alcohol have also had a significant impact on life insurance rates. Smoking is one of the main factors life insurers take into account when determining premiums. Research conducted in 2013 by Jha et al. clearly shows a connection between smoking and premiums.Smokers may anticipate paying noticeably higher prices or even having trouble obtaining insurance. Alcohol drinking is a well-known unhealthy habit, and Tsao et al. (2011) found a substantial association between obesity and an increased risk

of death. These findings can be translated into higher insurance coverage. According to Mukamal et al. (2007), insurers may increase premiums or demand more medical examinations.

Additionally, we were able to identify certain gaps in the life insurance market through this study, and we thoroughly examined and talked about the ways that policy terms, gender, and alcohol consumption might affect life insurance premiums. Additionally, this study adds to the body of knowledge already in existence and might assist uncover new aspects of the life insurance sector.

3 Materials and Methodology

3.1 Research Approach

In this study our main aim to investigate the effect of the determinants to life insurance premium and this study employs a quantitative approach to investigate by multiple regression analysis. By analysing past data, we can get a good insight and decisions regarding to our study. Under this, we got 100 sample from population.

3.2 Research Design

For research design mainly we followed regression analysis to determine the factors that effecting to the life insurance premium, regression analysis is a strong statistical method to identify relationship between the independent variable and dependent variable.In our study we consider more than one independent variable therefore we use multiple regression analysis and it will help to use the known values of the independent variables to predict the dependent variable(premium).

The general formula for multiple regression,

$$\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \epsilon$$

We referred predefined customer information of various insurance companies and data set was created by ourselves then used R statistical software to cleaning and data arrangements procedures by using several statistical and visualizing packages.

We used correlation for select our independent variables. As a result, we were able to select more than one variable as independent.

Equation of multiple linear regression according to our study,

$$P = \beta_0 + \beta_1 A + \beta_2 I + \beta_3 NOD + \beta_4 PT + \beta_5 SA + \beta_6 G + \beta_7 CS + \beta_8 HC + \beta_9 BHH + \epsilon$$

β_i - Regression coefficients (i=0,1,2...)
ϵ - Error Term
P - Premium
A - Age
I - Income
NOD - No. of Dependents
PT - Policy Term
SA - Sum Assured
G - Gender
CS - Civil Status
HC - Health Condition
BHH - Bad Healthy Habits

In our studies, we learned there are three main techniques to estimate best multiple regression model. Those are,

(1) Forward substitution

This algorithm fits all regressions involving one regressor, two regressors, three regressors, and so on. The selection criterion is recorded for each regression. Once the procedure finishes, the champion for each subset size is determined, then determine which subset size is optimum for the case.

(2) Backward elimination

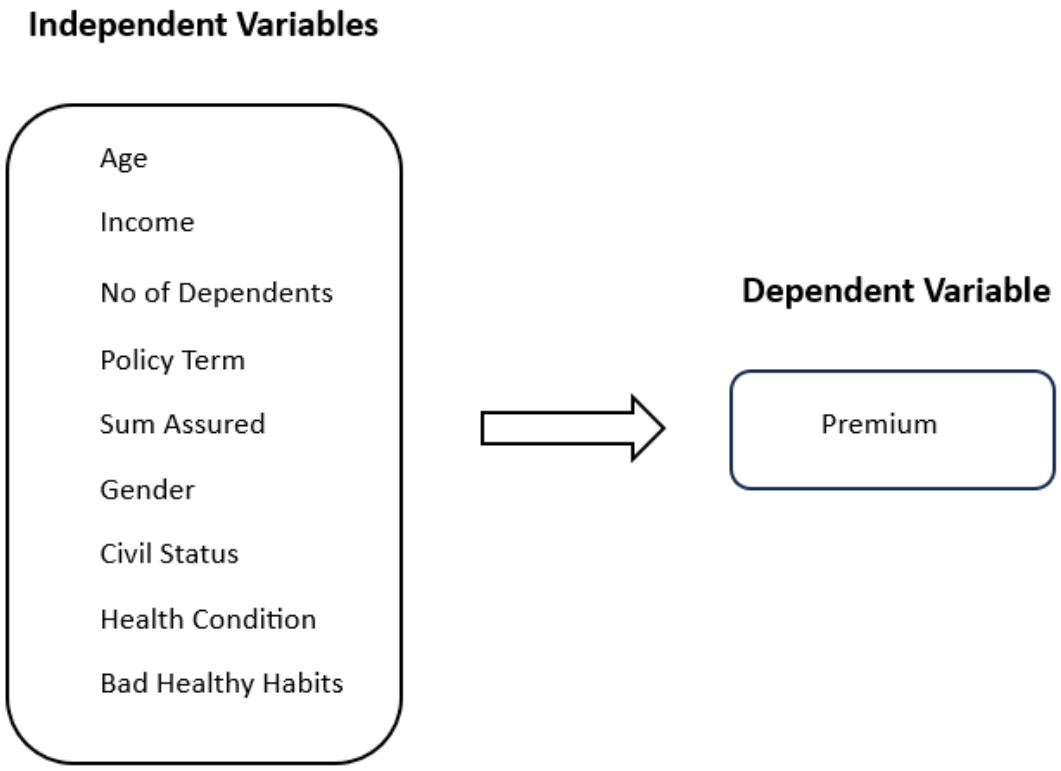
This is a step-wise regression approach that begins with a full model and at each step gradually eliminates variables from the regression model to find a reduced model that best explains the data. Also known as backward step-wise regression.

(3) All possible regression

Under this, tests all possible subsets of the set of potential independent variables and select most suitable model.

3.3 Conceptual Framework

The conceptual framework of the study designed as follows. The study tries to explore the association between independent variables like age, income, no. of dependents, policy term, sum assured, gender, civil status, health condition and bad healthy habits of the respondents and dependent variable that premium amount paid for the life insurance.



3.4 Research Hypothesis

The statement of the relationship between two or more variables known as research hypothesis. Its purpose is to guide a study and give a foundation for testing. There are two types of hypothesis that null hypothesis and alternative hypothesis. The null hypothesis (H_0) states that there is no relationship among variables under consideration. Contradictory to that, the alternative hypothesis (H_1), there is a relationship between the variables.

According to our study,

- Hypothesis 1

H_0 : There is no linear relationship between the insurance premium and the determinants.
H_1 : There is a linear relationship between the insurance premium and the determinants.

- Hypothesis 2

H_0 : Reduced model is suitable.
H_1 : Full model needed.

4 Data

4.1 Preparation for Analysis

The study will be conducted under the ”Determinants of life insurance premium in Sri Lanka”. Based on the above topic, ten variables are obtained including one dependent variable and nine independent variables.

Dependant variable	Independent variables
Insurance Premium	Age Income No. of Dependents Policy term Basic sum assured Gender Civil status Health condition Bad health habits

Basic sum assured, Age, Income, Policy term, No. of Dependants in dataset are continuous and Gender, Civil status, Health condition, Bad healthy habits are the categorical variables. The dependant variable premium measures the amount policy holder pay for a month. Hence, we convert all the categorical data to numerical data by assigning unique integers for data analysis part.

- Gender

$$G=\begin{cases}0 & \text{Male}\\ 1 & \text{Female}\end{cases}$$

- Civil Status

$$CS=\begin{cases}0 & \text{Married}\\ 1 & \text{Single}\\ 2 & \text{Divorced}\end{cases}$$

- Health Condition

$$HC=\begin{cases}0 & \text{Bad}\\ 1 & \text{Good}\end{cases}$$

- Bad Health Habits

$$\text{BHH}=\begin{cases}0 & \text{No}\\ 1 & \text{Both}\\ 2 & \text{Only Smoking}\\ 3 & \text{Only Drinking}\end{cases}$$

Moreover, the group of data that studied are arrange by ourselves. Therefore, there were not any null values or missing values in our set of data.

4.2 Data Dictionary

Insurance Premium	An insurance premium is the amount of money an individual or business pays for an insurance policy. Insurance premiums are paid for policies that cover healthcare, auto, home, and life insurance
Policy Term	The meaning of the policy term is the maximum period the life cover in the policy will remain active. You must decide the policy term for your life insurance cover at the time of buying the policy. Normally, you cannot change the policy term of a life insurance policy after purchasing
No. of Dependants	A dependent is a person who is eligible to be covered by you under these plans. A beneficiary can be a person or a legal entity that is designated by you to receive a benefit, such as life insurance.
Bad Healthy Habits	In here we consider smoking and drinking alcohol as the bad habits
Basic Sum Assured	A sum assured is a fixed amount that is paid to the nominee of the plan in the unfortunate event of the policyholder's demise. The insurance company pays this money as per the sum chosen by you at the time of purchasing the policy.
Health Condition	A pre-existing medical condition is any illness or injury that exists before, or at the time, you take out a life insurance policy
Civil Status	'Civil status' is defined as being single, married, separated or divorced

4.3 Data Set

Age	Income	Civil Statu	#depende	Gender	Health Co	Ocupatior	Bad Healt	Premium I	Policy Ter	Basic Sum	Premium
38	400,000.00	Single	0	Male	Good	Business O	Both	Monthly	25	2000000	$16,497.00
37	250,000.00	Married	3	Male	Good	Business O	No	Monthly	26	2000000	$15,043.00
41	300,000.00	Married	0	Male	Good	Bussines O	Both	Monthly	20	750000	$3,361.00
46	250,000.00	Married	3	Female	Good	Manager	No	Monthly	29	1750000	$23,992.00
43	60,000.00	Married	0	Male	Good	Other	No	Monthly	31	1000000	$4,591.00
34	200,000.00	Married	2	Male	Good	Business O	No	Monthly	25	2250000	$9,998.00
37	400,000.00	Married	3	Male	Good	Business O	No	Monthly	25	1500000	$16,238.00
32	50,000.00	Married	0	Male	Good	Sales Repr	No	Monthly	25	900000	$3,609.00
21	300,000.00	Single	0	Female	Good	Business O	Drinking	Monthly	25	5000000	$25,012.00
31	75,000.00	Married	2	Male	Good	Other	No	Monthly	25	1000000	$4,989.00
24	120,000.00	Single	0	Female	Good	Other	No	Monthly	27	2700000	$10,406.00
33	70,000.00	Married	0	Male	Good	Other	Drinking	Monthly	25	750000	$3,435.00
32	250,000.00	Married	2	Male	Good	Software E	No	Half Yearly	25	3000000	$20,883.00
48	50,000.00	Married	0	Female	Good	Other	No	Monthly	25	750000	$4,252.00
41	175,000.00	Married	1	Male	Good	Manager	Drinking	Monthly	26	1500000	$10,258.00
28	300,000.00	Married	1	Male	Good	Business O	Both	Monthly	25	2000000	$12,960.00
50	500,000.00	Married	4	Male	Good	Business O	Drinking	Monthly	24	500000	$19,224.00
54	300,000.00	Married	4	Male	Good	Business O	No	Half Yearly	19	1500000	$27,106.50
38	200,000.00	Married	3	Male	Good	Salesman	No	Yearly	25	1250000	$8,762.25
56	400,000.00	Married	0	Male	Good	Business O	Smoking	Monthly	16	2000000	$35,249.00
28	300,000.00	Single	0	Male	Good	Business O	Both	Monthly	25	5000000	$25,897.00
45	350,000.00	Married	4	Male	Good	Lawyer	Drinking	Monthly	25	2500000	$25,780.00
46	500,000.00	Married	2	Male	Good	Manager	Drinking	Monthly	25	1500000	$25,076.00
33	175,000.00	Single	0	Male	Good	Postman	Drinking	Monthly	26	2400000	$16,031.00

In here the sources of the data sets for each variable were combined into an MS Excel document, which was then converted into CSV format. Thereafter The CSV file was read using the statistical program RStudio. The syntax utilized for this procedure is outlined below for reference:

`https://1drv.ms/f/c/9dfe17f8cb6b4245/EosiV__0gWVJjU3DghaC4mkBqXQM3uS8M8140E5gcsO_A?e=TYfO`

5 Results

Under this, we discuss very brief observation of descriptive and exploratory data analysis regarding to our study.

5.1 Exploratory Data Analysis

5.1.1 Descriptive Analysis

In this chapter, we discussed some results related to exploratory data analysis which obtained and cleaned by R statistical software. Following table summarizes the some of descriptive statistics of some variables of the study.

Variable	Minimum	Maximum	Mean	Std.Dev
Age	20	63	39.54	8.38
Income	20000	900000	204731	120581.4
No of Dependents	0	5	1.37	1.4
Policy Term	13	34	24.68	2.70
Basic Sum Assured	150000	3500000	1401634	797597.8
Premium	1539	58016	14117	10955.54

Table 1: Table of descriptive statistics

The above chart shows that the average income of 204,731.00 lkr with standard deviation of 120,581.4 and it has a wide range of 20,000.00 lkr to 900,000.00 lkr. As well as above descriptive statistics shows average sum assured 1.40 million with range of 0.15 million to 3.5 million. Also I attached below the relationships of age, basic sum assured and no of dependents with insurance premium.

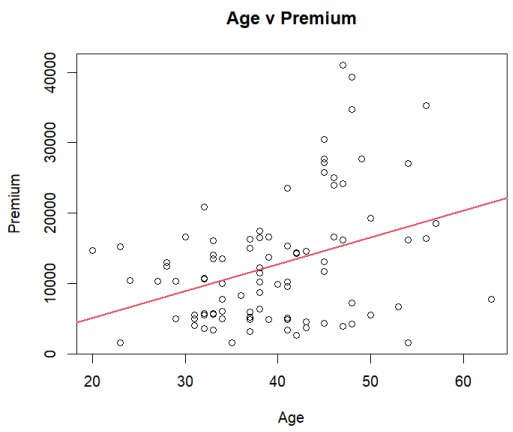


Figure 1: Scatter plot of Age vs. Premium

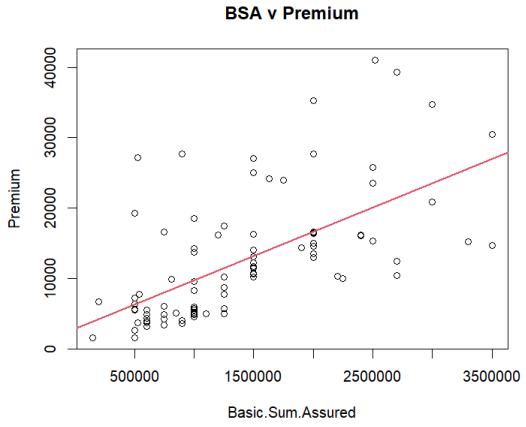


Figure 2: Scatter plot of Basic Sum Assured vs. Premium

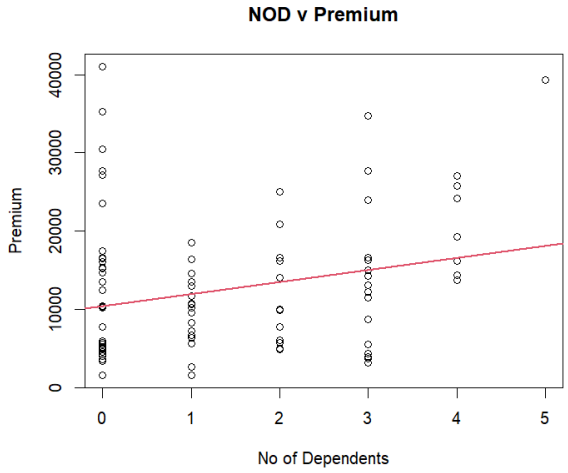


Figure 3: Scatter plot of No of Dependents vs. Premium

- Age

Min.	1st Qu.	Median	Mean	3rd Qu	Max.
20.00	33.00	39.00	39.54	45.00	63.00

Table 2: Table of Age

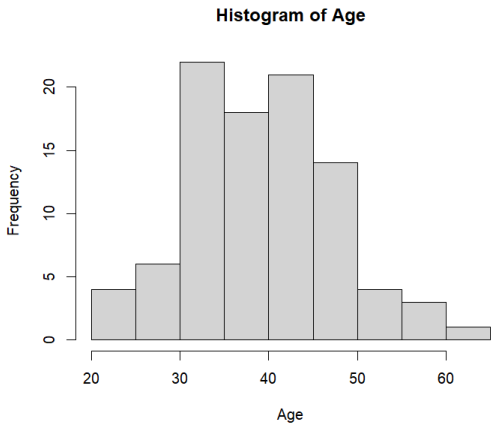


Figure 4: Histogram of Age

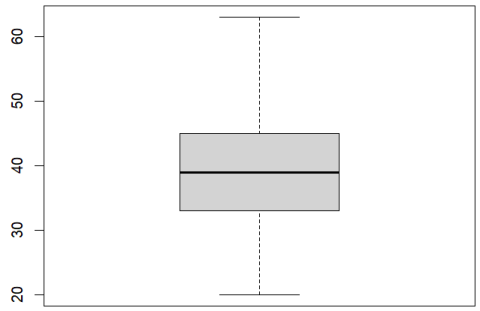


Figure 5: Box plot of Age

The accompanying histogram with age variable suggests that it follows a normal distribution. As a result, it is possible to accept the multiple linear regression model's normality assumption.

- Basic Sum Assured

Min.	1st Qu.	Median	Mean	3rd Qu	Max.
150000	750000	1250000	1401634	2000000	3500000

Table 3: Table of Basic Sum Assured

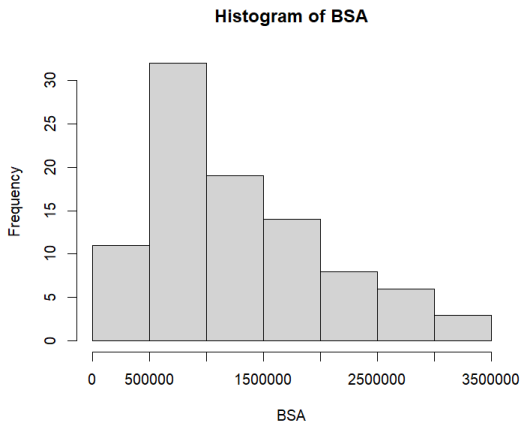


Figure 6: Histogram of Basic Sum Assured

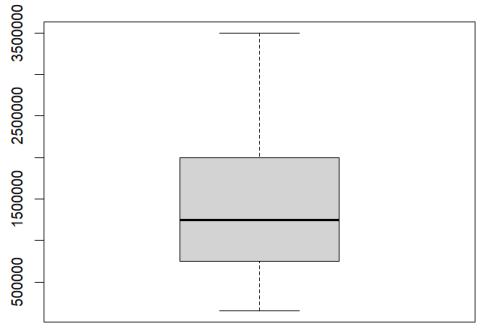


Figure 7: Box plot of Basic Sum Assured

The Basic Sum Assured histogram above is right skewed, known as positively skewed, thus we can conclude that most values end up to the left of the mean. The above descriptive statistics also show that there is a wide spread between the maximum and minimum values.

- Income

Min.	1st Qu.	Median	Mean	3rd Qu	Max.
20000	100000	185000	204731	300000	500000

Table 4: Table of descrIncome

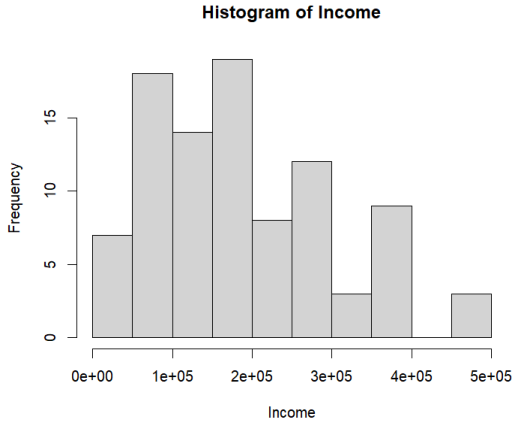


Figure 8: Histogram of Income

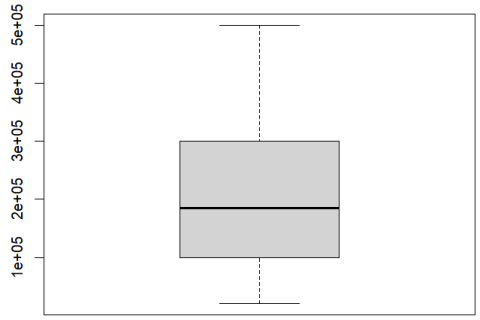


Figure 9: Box plot of Income

When considering the income lowest and maximum income is 20000 lkr and 500000 lkr, As well as histogram of the income also suggest a right skewed graph so most of income values a clustered around with left of the mean value. And following boxplot shows the some descriptive statistics aster removing the outliers of income variable.

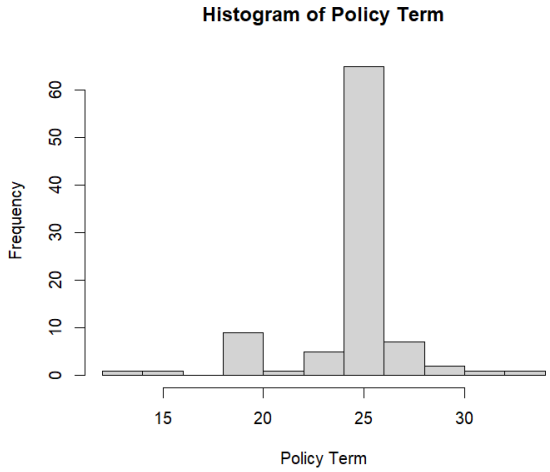


Figure 10: Histogram of Policy Term

The study found that the average insurance term was 24.68 years, with a minimum policy length of 13 years and a maximum policy term of 34 years. However, the premium frequency histogram above indicates a nearly normal distribution, and it is evident that the majority of participants had 25 year policy terms.

5.2 Quantitative Analysis

5.2.1 Correlation Analysis

This study employs a correlation analysis to discover the association and direction of the variables.

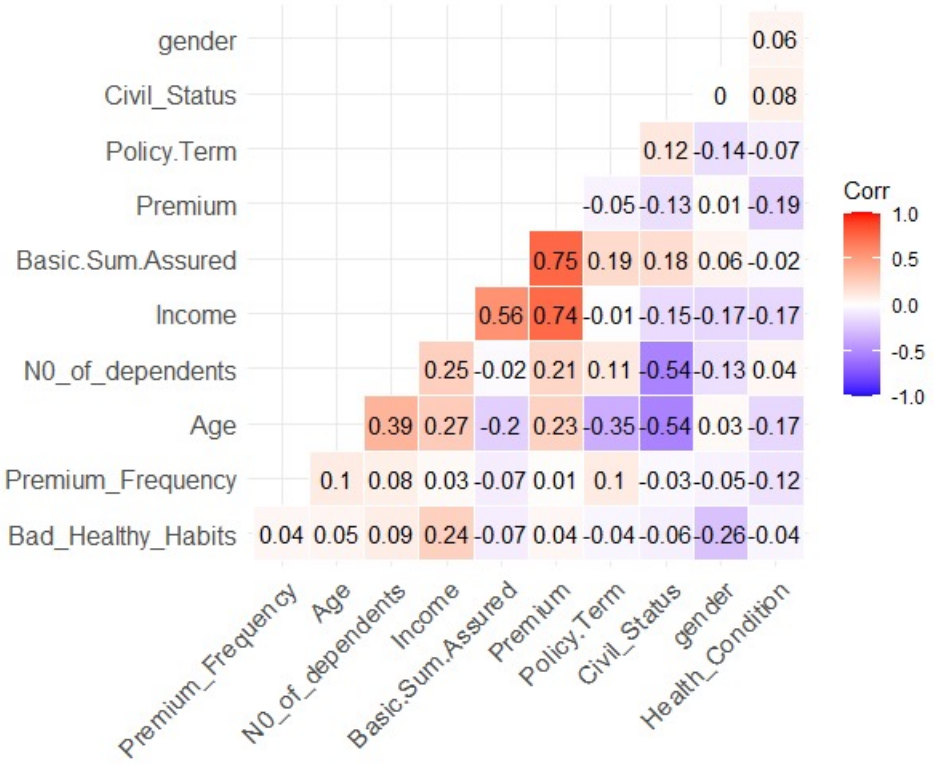


Figure 11: Analysis of Correlation

Following correlation matrix helps to determine multicollinearity among the variables and there is low multicollinearity therefore easy to determine individual effect of each independent variable on dependent variable.

5.2.2 Estimate Model Parameters

In chapter 3, under methods and methodology I touched up 3 model estimation techniques, So in our study we chooses **all possible regression** as our main method for selecting best model to determine life insurance premium.

- All Possible Regression

All possible regression model is a very powerful method which estimate the model by running all possible models using different set of independent variables (predictors). Below I mentioned general steps that we used in all possible method.

Step01

First, we must obtain every model utilizing several sets of predictor variables. The program runs 2^n as many models if there are n independent variables. Since we have 9 predictor variables in our scenario. So we must examine the 2^9=512 model.

Step 02

After we need to find coefficient of determination (R^2 value) for each model. R^2 value determines the proportion of variance in the dependent variable(Premium) that can be explained by the independent variables.

Step 03

Next getting R^2 values we need to find out maximum R^2 value of each subset of predictor variables. The table below display the maximum R^2 values for each set based on our research.

Set	**Predictor Variables**	R^2
0	No variables	0
1	Income	40.5812
2	Age, BSA	61.6574
3	Age, Income, BSA	66.4214
4	Age, Income, BSA, HC	67.1929
5	Age, Income, PT, BSA, HC	68.1353
6	Age, Income, NOD, PT, BSA, HC	68.973
7	Age, Income, NOD, PT, BSA, CS, HC	69.0918
8	Age, Income, NOD, PT, BSA, Gen, CS, HC	69.1379
9	Age, Income, NOD, PT, BSA, Gen, CS, HC, BHH	69.1396

Table 5: Table of R^2 values of Predictor Variables

Step 04

For further analysis we can plot those R^2 against no of predictors of each set.

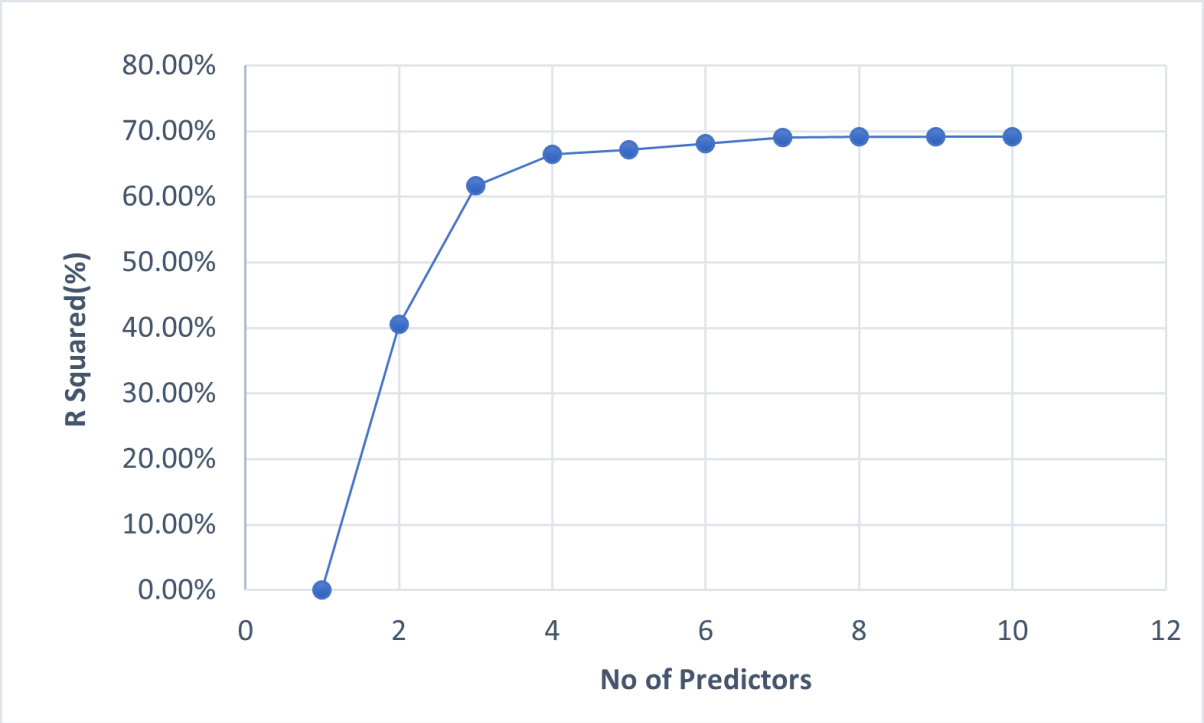


Figure 12: Graph of R Squared

This figure shows, Age, basic sum assured, policy term, health condition, and income can be the main predictor variables in the study, as the plot appears to level off after the predictor variables set size 5 ($R^2 = 68.1353$). There will be a very short increment on set size 6, 7, 8, 9, and 10.

Then, the focus turns to which six predictors should be retained for future use. Therefor we can select model with age, income, policy term, basic sum assured and health condition as our reduced model.

5.2.3 Assess Model Fit

In this part we proceed with F Test by comparing full model and reduced model. F test is a statistical approach used hypothesis testing to check whether the va riances of two samples (or populations) are equal to the same value ,In an f test, the data follows an f distribution.

- Hypothesis Testing

H_0 : Reduced model is suitable
H_1 : Full model needed

Afterwards partial F-test is computed for the reduced model ,then partial F value is compared with $F_{(}\alpha$,k+1-p,n-k-1)

If,

$F_{partial} > F\alpha$, We can reject the reduced model
$F_{partial} <= F\alpha$, We can accept the reduced model

Test statistic=$F_{partial} = \frac{[SS_{Reg(Full)} - SS_{Reg(Reduced)}]}{MS_{Error(Full)}}$

Instead of F test we compared the hypothesis by using p-values with 0.05 level of significance.

According to our study, Let's consider Model set no 5 (Full model) and Model set no 4 (Reduced model),

Model 5=$\beta_0+\beta_1$Age+β_2Inc+β_3PT+β_4BSA+β_5HC (Full Model)

Model 4=$\beta_0+\beta_1$Age+β_2Inc+β_4BSA+β_5HC (Reduced Model)

Model No	Res.Df	RSS	DF	Sum of Sq	F	Pr(> F)
Model 4	88	2373228514				
Model 5	87	2305058771	1	68169743	2.5729	0.1123

Table 6: Table of Model 4 and Model 5

According to p value (0.1123) > 0.05 , Therefore null hypothesis can be accepted i.e Reduced Model can be accepted (Model 4)

The study then focuses on Model Sets 4 and 3, which are the reduced and full models, respectively.

Model 4$=\beta_0+\beta_1$Age$+\beta_2$Inc$+\beta_4$BSA$+\beta_5$HC (Full Model)

Model 3$=\beta_0+\beta_1$Age$+\beta_2$Inc$+\beta_4$BSA (Reduced Model)

Model No	Res.Df	RSS	DF	Sum of Sq	F	Pr($>F$)
Model 3	89	2429041234				
Model 4	88	2373228514	1	55812720	2.0696	0.1538

Table 7: Table of Model 3 and Model 4

As the result shows, p value > level of significance (0.05). So study can also drop Model 4.

Then we can compare Model 2 and Model 3.

Model 3$=\beta_0+\beta_1$Age$+\beta_2$Inc$+\beta_4$BSA (Full Model)

Model 2$=\beta_0+\beta_1$Age$+\beta_4$BSA (Reduced Model)

Model No	Res.Df	RSS	DF	Sum of Sq	F	Pr($>F$)
Model 2		2773656625				
Model 3	87	2429041234	1	344615391	12.627	0.000611

Table 8: Table of Model 2 and Model 3

In here p value (0.000611)< 0.05 which means study should be accepted the full model that is Model No 3.

Therefore as a conclusion we can obtain model with age,Basic sum assured and income is best fit model for the study.

For additional clarification, we can look at the qq-plots that addressed the residuals' normality. These plots show that the residuals are normally distributed, and their normality has an impact on the accuracy and confidence of the hypothesis tests as well as the confidence intervals for the regression coefficients. Let's take a look at the qq-plots for Models 2, 3, 4 and 5.

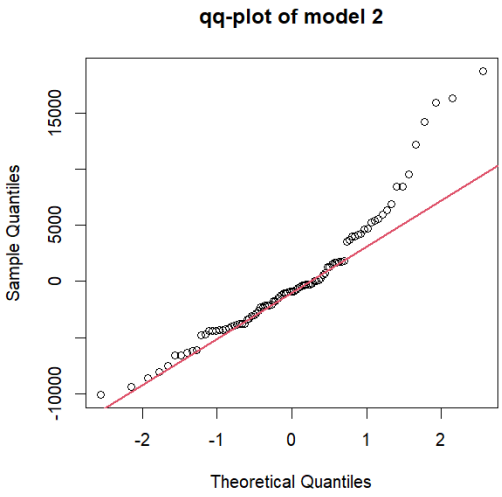


Figure 13: QQ Plot of Model 2

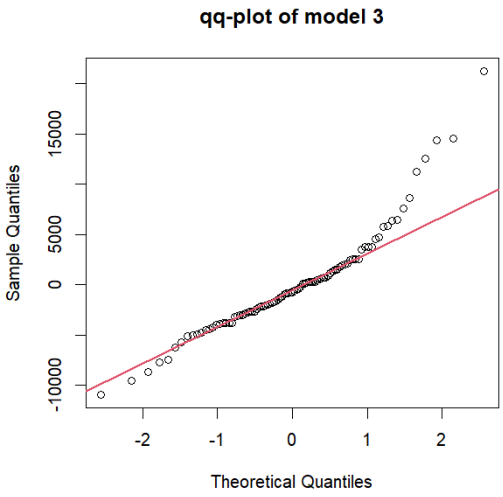


Figure 14: QQ Plot of Model 3

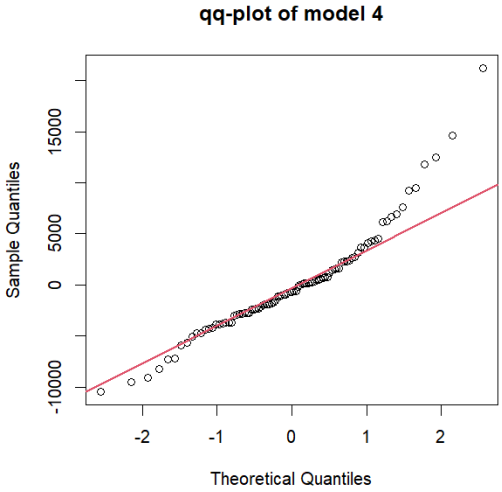


Figure 15: QQ Plot of Model 4

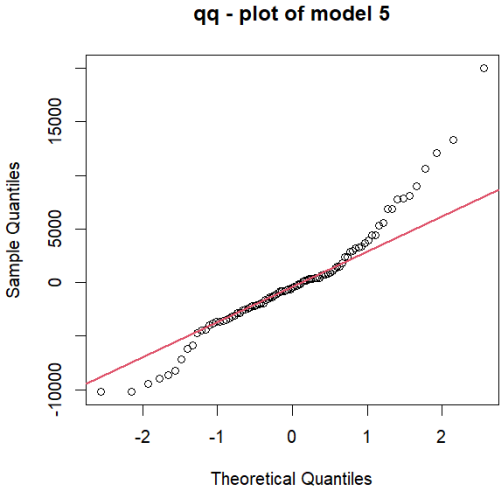


Figure 16: QQ Plot of Model 5

As the above figure depicts, the points fallen close to 45 degree angle and clustered around the line , normality of the residuals satisfied for the Model 3.

So final best fitted model equation,

$$\boldsymbol{Premium} = \beta_0 + \beta_1 \boldsymbol{(Age)} + \beta_2 \boldsymbol{(Inc)} + \beta_4 \boldsymbol{(BSA)}$$

Estimated parameters,

Intercept	Age	Inc	BSA
-1.583 * 10^4	3.856 * 10^2	2.004 * 10^{-2}	6.425*10^{-3}

Table 9: Table of Coefficients

Therefore final equation,

Premium = -1.583 * 10^4 ***+ 3.856*** * 10^2 ***(Age) + 2.004*** * 10^{-2} ***(Inc) + 6.425*** * 10^{-3} ***(BSA)***

6 Discussion and Conclusion

6.1 Discussion

The main objective of conducting this study is to determine factors that effect to the life insurance premium in case of Sri Lanka, Ultimately the study provided a analytical understucture for insurance companies,policyholders, customers, economists etc.

A few notable relationships between the variables were noted based on the findings of the exploratory and descriptive analyses. For instance, there was a significant link between income and insurance premiums, as well as between basic sum assured and insurance premiums.

According to a study, age is a major factor in determining insurance premiums, and as age increases, so do premiums. Being an Asian nation, a large number of people have poor health due to lifestyle choices. As a result, health status and condition are strong predictors of life insurance premiums, even though those with poor health must pay high premiums. Studies also determine how the number of dependents will affect premiums.

According to multiple linear regression analysis study reveled strongly effected that Age, Basic sum assured, Income for insurance premium in Sri Lanka, as well as we concluded that policy term, no of dependents are less effect factors to the life insurance premium.

6.2 Conclusion

There are many factors affect insurance premiums in the life insurance market, and some of these factors are rather important. The purpose of this study has been to determine the nature of the linkages between the factors that affect premiums and their respective effects. The study's conclusions offer helpful advice to insurance companies and other interested parties, empowering them to decide wisely when setting premiums and creating policies.

In summary, this study contributes to the body of knowledge regarding the factors that influence premiums in the context of the insurance market in Sri Lanka. The study's findings are helpful in raising the bar for openness and enhancing the services that the insurance sector offers to both customers and providers.

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