

**Module Title:** Business Analytics

**Module Code:** 7FNCE040W

**Course:** MSc Fintech and Business Analytics (Core), Semester 1, 2023/2024

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# UNDERSTANDING CUSTOMER BEHAVIOUR

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**Word Count:** 2621 words.

## Table of Contents

<b>I. INTRODUCTION</b>	<b>3</b>
1. ABOUT WISEINSURE PLC	3
2. OBJECTIVE	4
<b>II. RECOMMENDATIONS</b>	<b>4</b>
<b>III. DEMOGRAPHIC PROFILE</b>	<b>5</b>
<b>KEY FINDINGS</b>	<b>6</b>
1. ANALYSIS	6
2. EVIDENCE FROM ANALYSIS	6
3. CUSTOMER PERCEPTION ON QUALITY OF SERVICE AND WILLINGNESS TO RECOMMEND (REGRESSION EQUATIONS)	7
3.2 <i>Linear Regression</i>	7
3.3 <i>Logistic Regression</i>	8
<b>IV. REFERENCE LIST</b>	<b>10</b>
<b>V. APPENDIX</b>	<b>11</b>
1. DEMOGRAPHICS (GRAPHS WITH SUMMARY TABLES)	11
2. DESCRIPTIVE STATISTICS	13
3. T-TESTS	17
4. ONE-WAY ANNOVA	19
5. CHI-SQUARE TESTS	20
<b>VI. REGRESSION MODELS</b>	<b>21</b>
<i>Linear Regression</i>	21
<i>Logistic Regression</i>	22

# I. INTRODUCTION

## 1. About WiseInsure PLC

WiseInsure Plc is a global provider of insurance and asset management services, with operations in the US, UK, Africa, Asia, and other continents. Its main office is in London. A publicly listed business on the London Stock Exchange is WiseInsure PLC. WiseInsure PLC provides car insurance, home insurance, travel insurance, life insurance, business insurance, savings accounts, and loans, among other goods and services. WiseInsure PLC operates in a highly competitive market. The UK insurance market is dominated by a few large players, such as Aviva, RSA, and Admiral. These companies have a significant advantage in terms of brand awareness and economies of scale.

On the other hand, WiseInsure PLC has been able to successfully compete by concentrating on niche markets and providing cutting-edge goods and services. For instance, the business provides a selection of insurance plans made especially for small enterprises. In addition, it provides a number of distinctive features, like its "price promise" guarantee, which guarantees that clients can always find a more affordable insurance rate elsewhere. The popularity of online insurance shopping is also helping WiseInsure PLC. The business is well-known online and provides a quick and simple online quote and purchase process.

All things considered, WiseInsure PLC is a competent insurance provider with a promising future. The business has a solid growth history and is in a good position to take advantage of the expanding market for insurance products in the UK and globally.

## Market Overview

With a 2% market share in the UK, WiseInsure PLC is a comparatively small insurance provider. Still, it's expanding quickly; in the last year alone, its clientele has grown by more than 50%. Various insurance products and services, such as home, auto, life, and business insurance, provide the company with its income.

When it comes to revenue generation, WiseInsure PLC's primary market is the UK, accounting for approximately 75% of its total revenue. Germany, France, Ireland, and other nations account for the remaining 25% of its revenue.

Here is a table showing WiseInsure PLC's market share and revenue from various parts of the globe in 2022:

Table 1. Market Share of WiseInsure PLC (WiseInsure PLC Annual Report, 2022)

Region	Market Share	Revenue (GBP)
UK	2%	£100 million
Ireland	1%	£10 million
France	0.5%	£5 million
Germany	0.25%	£2.5 million
Other	0.25%	£2.5 million

The main source of income for WiseInsure PLC is auto insurance, which will account for 33% of its total revenue in 2022. At 25% of total revenue, home insurance is the company's second-

largest source of income. Significant sources of income for the company also include life, business, and travel insurance.

A smaller amount of WiseInsure PLC's revenue comes from financial services, but loans and savings accounts still play a significant role in the company's operations.

Here is a breakdown of WiseInsure PLC's revenue by product segment in 2022:

Table 2. revenue by product segment of WiseInsure PLC (WiseInsure PLC Annual Report, 2022)

Product Segment	Revenue (GBP)	Percentage of Total Revenue
Car insurance	£40 million	33%
Home insurance	£30 million	25%
Travel insurance	£20 million	16%
Life insurance	£15 million	12%
Business insurance	£10 million	8%
Financial services	£5 million	4%

## 2. Objective

Understanding customer perception will be extremely beneficial to WiseInsure PLC's business because customer relations play a major role in the company's operations. This will allow the company to identify opportunities for growth and to enhance its current offerings.

Customers of WiseInsure PLC were given a questionnaire in order to accomplish that objective.

## II. RECOMMENDATIONS

Though it is well-positioned to profit from the rising demand for insurance products, WiseInsure PLC is a company with a strong track record of profitability and growth. It offers a wide range of insurance products and services at competitive prices with innovative features. However, there are always a few risks to consider, including competition from other insurance companies, economic risks, and regulatory risks.

In order to increase customer reliability and, consequently, ratings and recommendations, WiseInsure PLC also needs to focus more on families with lower annual incomes and enhance assurance and responsiveness.

The means of rating and recommending WiseInsure PLC differ significantly ( $t=16.6$ ,  $p<0.05$ ). This indicates that those who rated WiseInsure PLC higher were also the ones who suggested it to others.

Since assurance perception is the most important aspect of perception, WiseInsure PLC should focus on improving it the most (at test value 5.6). WiseInsure PLC must focus on customer-centric activities, such as customer relations and customer service, in order to meet the objectives set forth by the business. Initiatives to expand WiseInsure PLC's customer base include personalised packages, loyalty programmes, and a more noticeable presence. Enhancing employee satisfaction is a priority for WiseInsure PLC because it has a direct impact on customer relations.

### III. DEMOGRAPHIC PROFILE

This Questionnaire was emailed to 1000 policyholders of WiseInsure PLC, where we heard back from 285 of them. Among them, we had 144(52.2%) males and 132(47.8%) females, furthermore these values are excluding 9(missing data). (Appendix-Table 1.1)

**Most** of the respondents (79.6%) were **married** and we could observe that there were more of female respondents compared to men that were single, divorced, and widowed. (Appendix-Table 1.2)

A **major** chunk of respondents lies in the age group of **25-44 years** (109) (Appendix-Table 1.3) **indicating** that we have a **younger customer base**.

The **majority** of customers report incomes **between £20,000 and £49,999**. (Appendix-Table 1.4) If we further segregate it with respect to gender, we could see that the mean income for both male (3.99) and females (3.73) looks similar and lies in the range of £30,000-£49,999 (Appendix-Table 1.4)

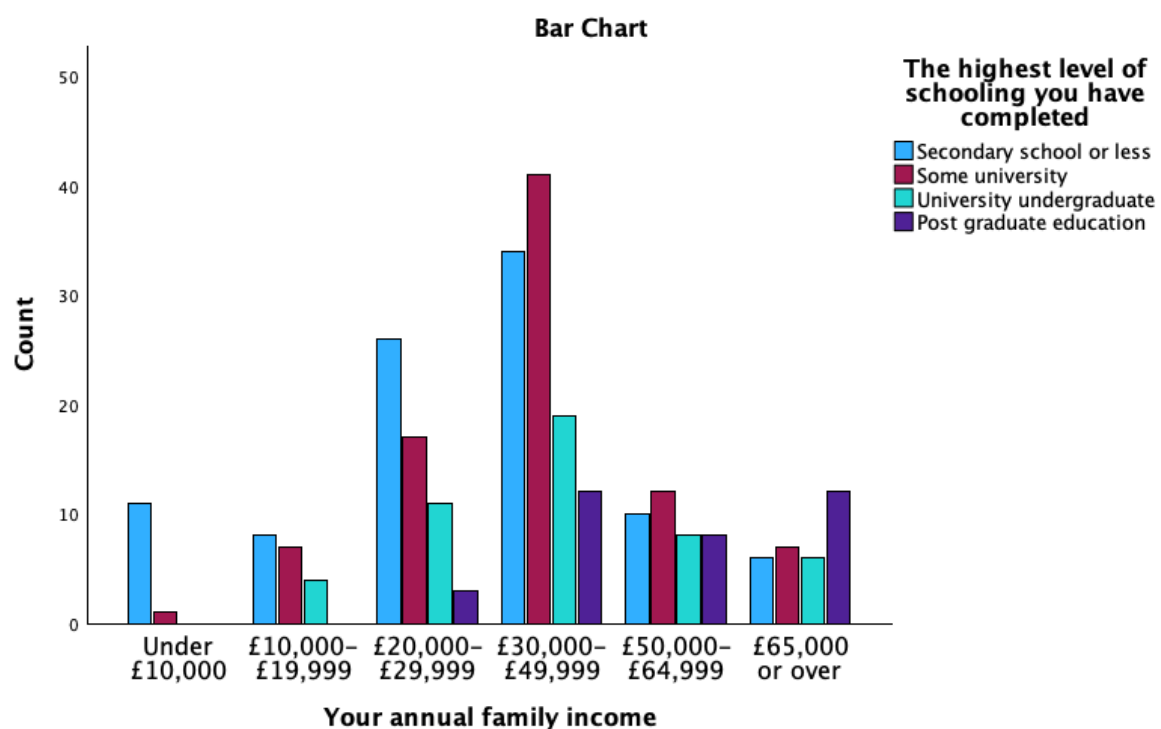
The **maximum** number of respondents in the dataset had an education level of **secondary school or less** (102/37.4%) (Appendix-Table1.5) Classifying further based on gender we could determine that there were 19 more male (27) respondents compared to female (8) who had a Post-graduation, Degree. (Appendix-Table1.5)



# KEY FINDINGS

## 1. Analysis

The age-reliability crosstabulation reveals those respondents in the 25–44 age range are the most likely to have completed secondary school or less and to have attended a university, but the relationship between the two variables is not statistically significant. On the other hand, dependability is significantly correlated with income and education. ( $p^*=0.01$  for  $\chi^2$ : 32.74 and  $p^*<0.001$  for  $\chi^2$ : 70.94, respectively) The respondents' ratings are significantly correlated with their level of education. ( $p^*<0.001$ ,  $\chi^2$  = 42.59) (Appendix-Section 2)



When the respondents had some problem with the service of WiseInsure PLC recently, their issues and queries were resolved to satisfaction and therefore the results suggest that they have recommended WiseInsure PLC's services. ( $t=-5.359$ ;  $p<0.001$ ) (Appendix-Section 3)

## 2. Evidence from Analysis

According to a one-way Anova, there is a significant difference in family income ( $F=3.63$ ;  $p<0.001$ ) and educational qualification ( $F=3.23$ ;  $p<0.001$ ), but there is no significant difference in respondents' ratings according to gender, marital status, or age. (Appendix-Section 4)

According to the results of the Tukey HSD test, **respondents with a family income of less than £10,000** gave the **highest rating** ( $\mu = 9.64$ ), while respondents with an income of **more than £65,000** gave the **lowest rating** ( $\mu = 6.38$ ). Moreover, respondents with a **secondary education or less** gave WiseInsure PLC a **higher rating** ( $\mu = 8.30$ ) than **postgraduates**, who gave it the **lowest rating** ( $\mu = 6.59$ ). (Appendix-Section 4)

The five perception dimensions that we examined were assurance, tangibles, empathy, responsiveness, and consistency. All five of these dimensions had positively skewed means and standard deviations that ranged from 1.07 to 1.54 and 5.43 to 5.75, respectively. We test the perceptions at a test value of 5.6 to determine which of them are significant at that level because the mean and standard deviation are so close.

From the tests conducted we find out that assurance and reliability are the only perceptions significant at 5.6 test value and empathy, responsiveness, tangibles and reliability are not significant. ((Appendix-Section 3)

We found out that **assurance** was the **most critical** dimension of perception and **reliability** was the **least critical** dimension of perception since at the test value of 5.6 the mean was below the test value of 5.6. (Appendix-Section 3)

### 3. Customer Perception on Quality of Service and Willingness to Recommend (Regression Equations)

To understand more about the customer perception, WiseInsure PLC needs to find out areas which they can improve to better serve their customers and improve service quality. There were two types of **regression equations** (Linear and Logistic) calculated, to understand perception of reliability among customers of WiseInsure PLC against the various dimensions of services provided to the customers.

There were **twenty-two** questions emailed in the survey that was sent to current users of WiseInsure PLC.

For Analysis we start building a model, we are using the average service perception ratings (reliability: ( $\mu=5.43$ ,  $\sigma=1.46$ ), empathy: ( $\mu=5.56$ ,  $\sigma=1.42$ ), tangibles: ( $\mu=5.62$ ,  $\sigma=1.06$ ), responsiveness ( $\mu=5.61$ ,  $\sigma=1.54$ ), and assurance: ( $\mu=5.75$ ,  $\sigma=1.43$ ))(Figure 1.1) here for building the model as well as some variables from the data for which we have described the descriptive statistics.

A **Pearson's bivariate collinearity** was conducted to know if empathy, responsiveness, responsiveness, assurance, tangibles, gender, marital status, education, annual family income and age have an association with reliability, where we found out that **empathy, responsiveness, responsiveness and assurance** are significantly and **positively linked to reliability** of WiseInsure PLC. Whereas **education** and **annual family income** had a negative, weak but significant correlation with reliability.

#### 3.2 Linear Regression

##### Model Summary

**Model R** - 0.858

**R Square** - 0.735

**Adjusted R Square** - 0.732

**Predictors:** (Constant), C1 - Annual family income, C2 - Responsiveness, C3 – Assurance

**Dependent Variable:** Reliability

The adjusted  $R^2$  value indicates that the three factors mentioned above can account for 73% of the variability in the reliability. Every factor has a significance level of less than 0.001. **Three outliers** should be eliminated from the analysis, according to the **case-wise diagnostics**. Once the outliers were eliminated, the adjusted  $R^2$  value increased to 75.3%.

#### **After removing all the outliers Model**

**R** - 0.870

**R Square** - 0.756

**Adjusted R Square** - 0.753

**Final Linear regression equation**

$$Y (\text{Reliability on a scale of 1 to 10}) = 1.00 - 1.37(C1) + 0.53 (C2) + 0.33(C3)$$

(All at significance of <0.001)

#### **Interpretation:**

According to this model, if "Annual family income" is rated higher by one point, the overall rating for WiseInsure PLC's reliability will decrease by a factor of 1.37 (keeping all other factors constant). Similarly, if "Responsiveness" is rated higher by one point, the overall rating for WiseInsure PLC's reliability will increase by 0.53 (keeping all other factors constant). Ultimately, the reliability of WiseInsure PLC will increase by a factor of 0.33 if the "Assurance" factor increases by one unit (keeping all other factors constant).

This indicates that WiseInsure PLC should focus on factor C1, as it has the greatest influence on the ratings, out of the three factors. We could propose that WiseInsure PLC concentrate on families belonging to low-income groups in order to enhance their dependability. (Appendix-Section 6)

### **3.3 Logistic Regression**

#### **Model Summary**

For the answers to the suggestion question, a dummy variable was made.

**Beginning Block 0** – 79.3% correct predictions.

**Block 1** – Cox and Snell  $R^2$  43.2%; Nagelkerke  $R^2$  67.6% and 91.2% correct predictions.

**Variables:** (Constant), C1 - Annual family income, C2 - Responsiveness, C3 – Assurance.

**Dependent Variable:** Dummy for “Is WiseInsure PLC reliable?” (With Yes as 1; No as 0)

**After removing the outliers and the non-significant factors Beginning Block** – 79.8% correct predictions.

**Block 1** – Cox and Snell  $R^2$  46.8%; Nagelkerke  $R^2$  73.8%

92.4% correct predictions.

**Final Logistic regression equation**

$$Y (\text{Reliability on a scale of 1 to 10}) = -8.28 + 1.58 (C2)$$



(significance  $C2 < 0.001$ )

### Interpretation:

According to this model, if all other factors remain unchanged, a one-point increase in the "Responsiveness" rating will result in a 1.58 increase in WiseInsure PLC's reliability.

This implies that in order to enhance the impact on reliability, WiseInsure PLC should focus on factor C2. It is possible to argue that responsiveness and reliability are directly correlated, meaning that WiseInsure PLC's reliability will rise as their responsiveness does. (Appendix-Section 6)

### 3.4. Comparison of Linear and Logistic Regressions

Linear		Logistic	
$\mu$ (Mean)	5.47	Block 0 (correct percentage prediction)	79.8%
Standard Deviation	1.46	Block 1 (correct percentage prediction)	92.4%
R	87.0%		
R <sup>2</sup>	75.6%	Cox and Snell R <sup>2</sup>	46.8%
Adjusted R <sup>2</sup>	75.3%	Nagelkerke R <sup>2</sup>	73.8%
F-stat	230.49		
Significance	< 0.001		
Outliers	3	Outliers	3
C1 – Annual family income	-1.36 (<0.001)	C1 – Annual family income	Not Significant
C2 – Responsiveness	0.52 (<0.001)	C2 – Responsiveness	1.58 (<0.001)
C3 – Assurance	0.33 (<0.001)	C3 – Assurance	Not Significant
Constant	1.00 (0.001)	Constant	-8.28 (<0.001)

Since the linear regression equation's adjusted R<sup>2</sup> value is higher, the values are also higher, and we have a number of additional factors we can look into to increase our reliability. As a result, the linear regression equation should be the modelling tool that WiseInsure PLC uses.

#### IV. REFERENCE LIST

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## V. APPENDIX

### 1. Demographics (Graphs with summary tables)

		gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	144	50.5	52.2	52.2
	female	132	46.3	47.8	100.0
	Total	276	96.8	100.0	
Missing	System	9	3.2		
Total		285	100.0		

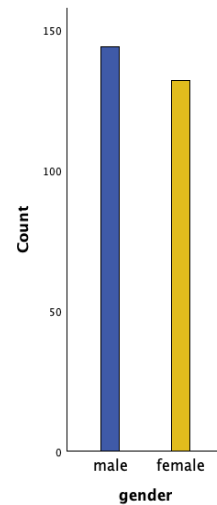
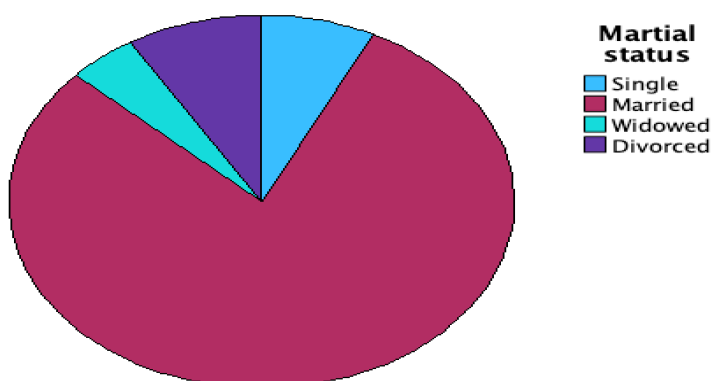


Table 1.1 Distribution of respondents based on gender.

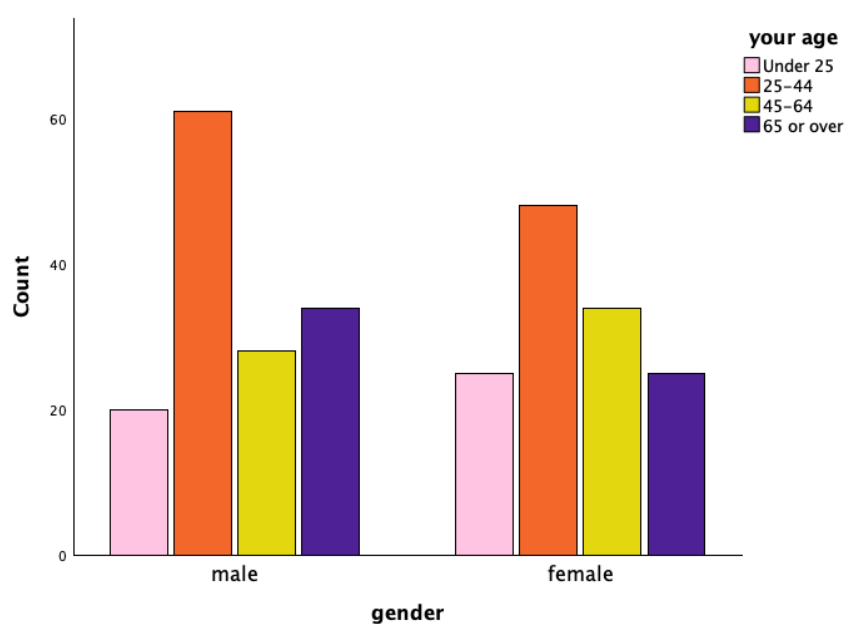
		your martial status			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	20	7.0	7.3	7.3
	Married	219	76.8	79.6	86.9
	Widowed	12	4.2	4.4	91.3
	Divorced	24	8.4	8.7	100.0
	Total	275	96.5	100.0	
Missing	System	10	3.5		
Total		285	100.0		

Table 1.2 Distribution of respondents based on marital status.



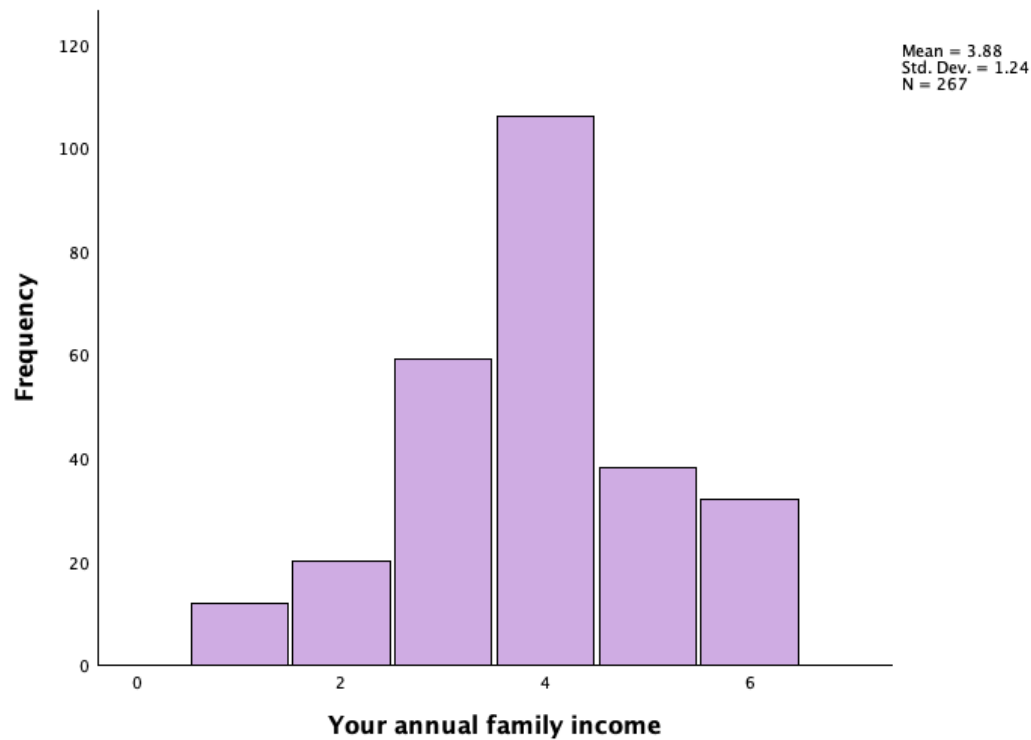
		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 25	45	15.8	16.4	16.4
	25-44	109	38.2	39.6	56.0
	45-64	62	21.8	22.5	78.5
	65 or over	59	20.7	21.5	100.0
	Total	275	96.5	100.0	
Missing	System	10	3.5		
Total		285	100.0		

Table 1.3 Distribution of respondents based on age of respondents.



		Annual family income			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under £10,000	12	4.2	4.5	4.5
	£10,000-£19,999	20	7.0	7.5	12.0
	£20,000-£29,999	59	20.7	22.1	34.1
	£30,000-£49,999	106	37.2	39.7	73.8
	£50,000-£64,999	38	13.3	14.2	88.0
	£65,000 or over	32	11.2	12.0	100.0
	Total	267	93.7	100.0	
Missing	System	18	6.3		
Total		285	100.0		

Table 1.4 Distribution of respondents based on annual family income.



### The highest level of schooling you have completed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary school or less	102	35.8	37.4	37.4
	Some university	86	30.2	31.5	68.9
	University undergraduate	50	17.5	18.3	87.2
	Post graduate education	35	12.3	12.8	100.0
	Total	273	95.8	100.0	
Missing	System	12	4.2		
Total		285	100.0		

Table 1.5 Distribution of respondents based on highest level of schooling.

## 2. Descriptive Statistics

### Report

Your annual family income

gender	Mean	N	Std. Deviation
male	3.99	141	1.180
female	3.73	125	1.285
Total	3.87	266	1.235

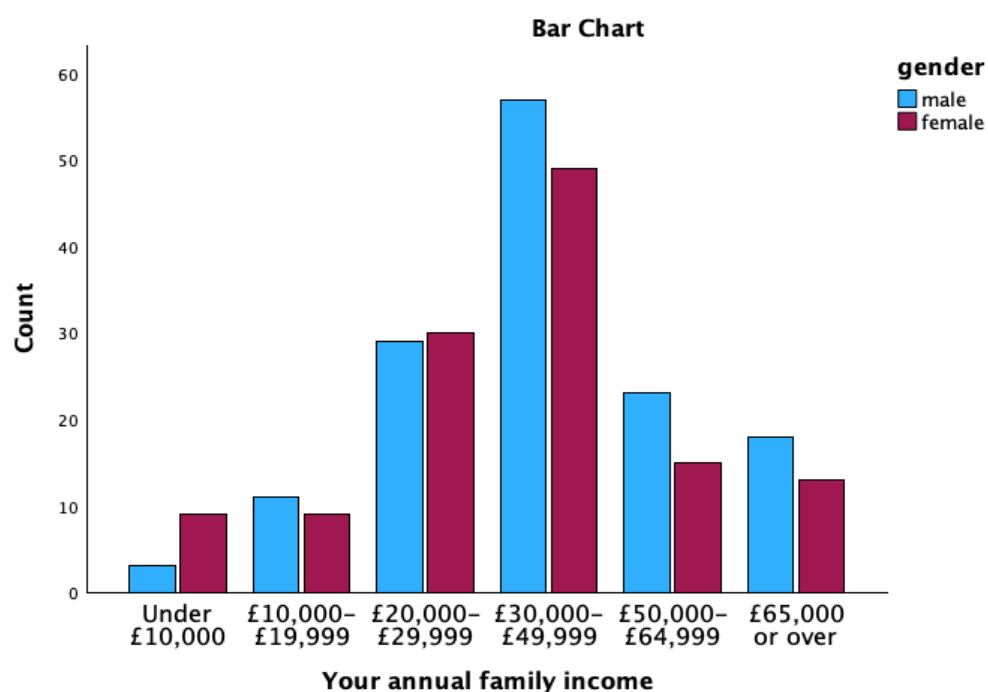
Table 2.1 Descriptive statistics of annual family income vs gender.

### Annual family income \* gender Crosstabulation

Count

		gender		
		male	female	Total
Your annual family income	Under £10,000	3	9	12
	£10,000–£19,999	11	9	20
	£20,000–£29,999	29	30	59
	£30,000–£49,999	57	49	106
	£50,000–£64,999	23	15	38
	£65,000 or over	18	13	31
Total		141	125	266

Table 2.2 Crosstab between annual family income vs gender.

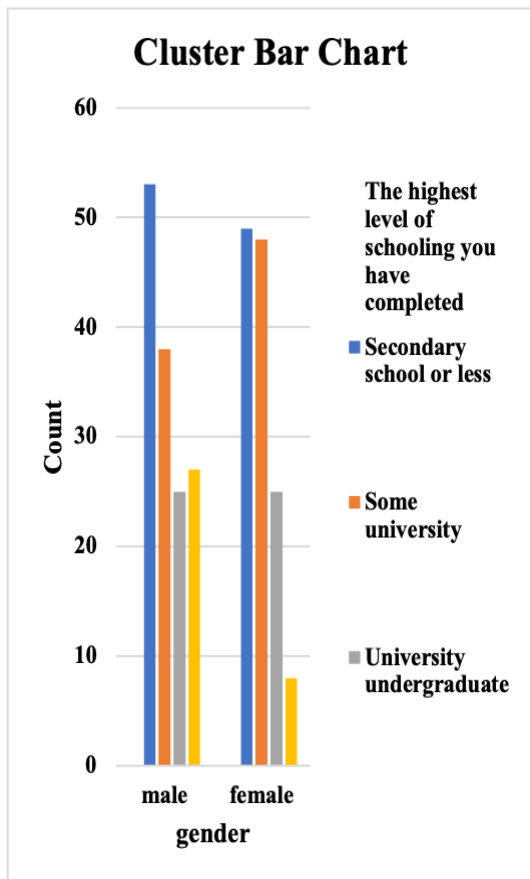


### The highest level of schooling you have completed \* gender Crosstabulation

Count

		gender		
		male	female	Total
The highest level of schooling you have completed	Secondary school or less	53	49	102
	Some university	38	48	86
	University undergraduate	25	25	50
	Post graduate education	27	8	35
Total		143	130	273

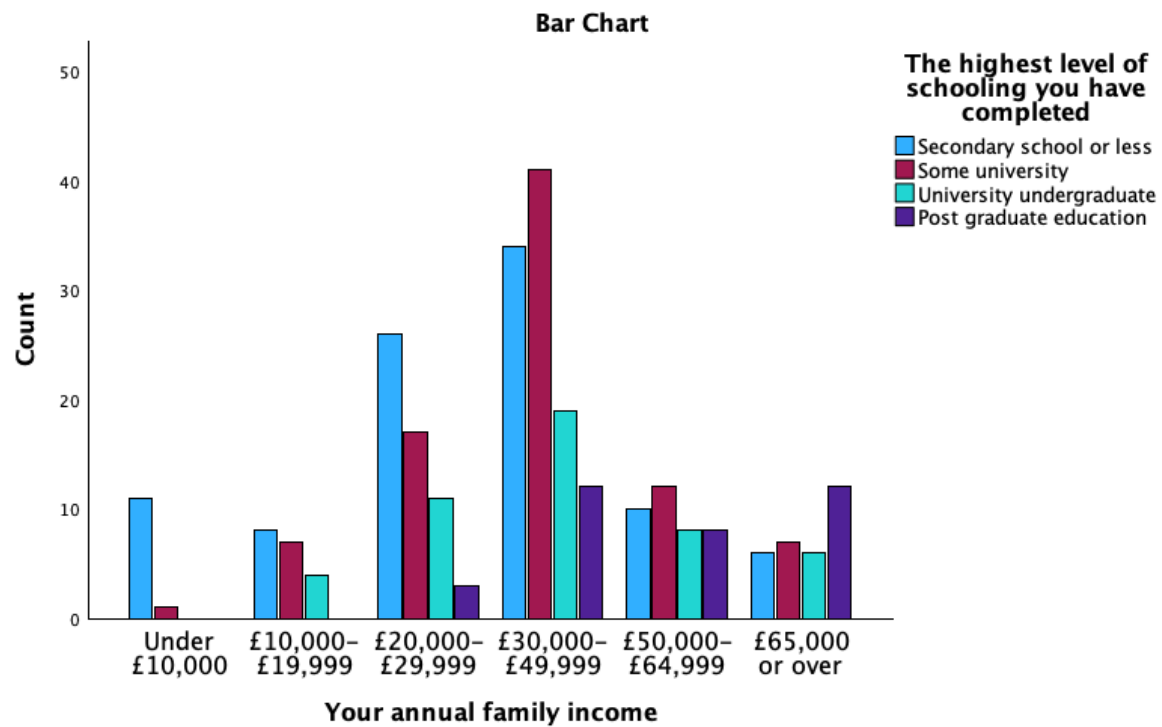
Table 2.3 Crosstab between education vs gender.



**Your annual family income \* The highest level of schooling you have completed**  
**Crosstabulation**

Count		The highest level of schooling you have completed				Total
		Secondary school or less	Some university	University undergraduate	Post graduate education	
Your annual family income	Under £10,000	11	1	0	0	12
	£10,000-£19,999	8	7	4	0	19
	£20,000-£29,999	26	17	11	3	57
	£30,000-£49,999	34	41	19	12	106
	£50,000-£64,999	10	12	8	8	38
	£65,000 or over	6	7	6	12	31
Total		95	85	48	35	263

Table 2.4 Crosstab between annual family income vs education.



Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Reliability	264	1	7	5.43	1.459	-1.176	.150
Empathy	262	1	7	5.56	1.423	-1.151	.150
Tangibles	219	1	7	5.62	1.065	-1.151	.164
Responsiveness	262	1	7	5.61	1.543	-1.232	.150
Assurance	256	1	7	5.75	1.431	-1.353	.152
Valid N (listwise)	208						

Table 2.5 Descriptive Statistics of different perceptions.



### 3. T-tests

#### T-Test

##### One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Tangibles	219	5.62	1.065	.072

##### One-Sample Test

Test Value = 5.6

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
Tangibles	.324	218	.373	.747	.023	-.12	.17

##### One-Sample Effect Sizes

				95% Confidence Interval		
			Standardizer <sup>a</sup>	Point Estimate	Lower	Upper
Tangibles	Cohen's d		1.065	.022	-.111	.154
	Hedges' correction		1.068	.022	-.110	.154

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 3.1 One sample T-test of Tangibles

#### T-Test

##### One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Reliability	264	5.43	1.459	.090

##### One-Sample Test

Test Value = 5.6

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
Reliability	-1.932	263	.027	.054	-.173	-.35	.00

##### One-Sample Effect Sizes

		Standardizer <sup>a</sup>	Point Estimate	95% Confidence Interval	
				Lower	Upper
Reliability	Cohen's d	1.459	-.119	-.240	.002
	Hedges' correction	1.463	-.119	-.239	.002

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation.

Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 3.2 One sample T-test of Reliability

## T-Test

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
Responsiveness	262	5.61	1.543	.095		

One-Sample Test						
Test Value = 5.6						
	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference
			One-Sided p	Two-Sided p		Lower Upper
Responsiveness	.102	261	.459	.919	.010	-.18 .20

One-Sample Effect Sizes					
	Standardizer <sup>a</sup>	Point Estimate	95% Confidence Interval		
			Lower	Upper	
Responsiveness	Cohen's d	1.543	.006	-.115	.127
	Hedges' correction	1.547	.006	-.114	.127

a. The denominator used in estimating the effect sizes.  
 Cohen's d uses the sample standard deviation.  
 Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 3.3 One sample T-test of Responsiveness

## T-Test

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Empathy	262	5.56	1.423	.088

One-Sample Test						
Test Value = 5.6						
	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference
			One-Sided p	Two-Sided p		Lower Upper
Empathy	-.503	261	.308	.615	-.044	-.22 .13

One-Sample Effect Sizes					
	Standardizer <sup>a</sup>	Point Estimate	95% Confidence Interval		
			Lower	Upper	
Empathy	Cohen's d	1.423	-.031	-.152	.090
	Hedges' correction	1.427	-.031	-.152	.090

a. The denominator used in estimating the effect sizes.  
 Cohen's d uses the sample standard deviation.  
 Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 3.4 One sample T-test of Empathy

## T-Test

### One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Assurance	256	5.75	1.431	.089

### One-Sample Test

Test Value = 5.6

	t	df	Significance		Mean Difference	95% Confidence Interval of the Difference	
			One-Sided p	Two-Sided p		Lower	Upper
Assurance	1.656	255	.049	.099	.148	-.03	.32

### One-Sample Effect Sizes

		Standardizer <sup>a</sup>	Point Estimate	95% Confidence Interval	
Assurance				Lower	Upper
	Cohen's d	1.431	.103	-.019	.226
	Hedges' correction	1.435	.103	-.019	.226

a. The denominator used in estimating the effect sizes.  
Cohen's d uses the sample standard deviation.  
Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 3.5 One sample T-test of Assurance

## 4. One-way Annova

### Oneway

### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
gender	Between Groups	3.391	9	.377	1.532	.137
	Within Groups	62.244	253	.246		
	Total	65.635	262			
your martial status	Between Groups	4.752	9	.528	1.313	.230
	Within Groups	101.340	252	.402		
	Total	106.092	261			
your age	Between Groups	2.324	9	.258	.253	.986
	Within Groups	257.141	252	1.020		
	Total	259.466	261			
Your annual family income	Between Groups	45.902	9	5.100	3.626	<.001
	Within Groups	344.647	245	1.407		
	Total	390.549	254			
The highest level of schooling you have completed	Between Groups	29.149	9	3.239	3.231	<.001
	Within Groups	251.609	251	1.002		
	Total	280.759	260			

Table 4.1 One-way Annova with f statistics

### Annual family income

Tukey HSD<sup>a,b</sup>

On a scale of 1 to 10,  
how would you rate the  
overall quality of service  
provided by WISEINSURE

Subset for alpha = 0.05

	N	1	2
Extremely Good	71	3.38	
6	13	3.69	
7	24	3.96	
9	60	3.97	
8	45	4.09	
Extremely Poor	7	4.29	4.29
3	7	4.29	4.29
5	21	4.38	4.38
2	5	5.20	5.20
4	2		6.00
Sig.		.061	.099

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 8.299.
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Table 4.2 Tukey HSD values for Annual family income w.r.t ratings given.

### The highest level of schooling you have completed

Tukey HSD<sup>a,b</sup>

On a scale of 1 to 10,  
how would you rate the  
overall quality of service  
provided by WISEINSURE

Subset for alpha = 0.05

	N	1	2
Extremely Good	72	1.75	
8	45	1.76	
3	7	2.14	2.14
5	24	2.21	2.21
9	61	2.23	2.23
4	4	2.25	2.25
7	23	2.35	2.35
6	14	2.43	2.43
Extremely Poor	6	3.00	3.00
2	5		3.20
Sig.		.130	.331

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 10.324.
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Table 4.2 Tukey HSD values for Education w.r.t ratings given.

## 5. Chi-Square Tests

### Hypothesis

Ho: There is no association between the education and reliability

H1: There is some association.

### Reliability \* The highest level of schooling you have completed Crosstabulation

Count

		The highest level of schooling you have completed				
		Secondary school or less	Some university	University undergraduate	Post graduate education	Total
Reliability	Strongly Disagree	2	2	0	1	5
	2	2	2	2	2	8
	3	4	3	1	7	15
	4	6	12	6	4	28
	5	17	16	14	3	50
	6	33	29	12	9	83
	Strongly Agree	32	17	11	5	65
Total		96	81	46	31	254

Table 5.1 Crosstab

### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.747 <sup>a</sup>	18	.018
Likelihood Ratio	28.030	18	.062
Linear-by-Linear Association	9.307	1	.002
N of Valid Cases	254		

a. 12 cells (42.9%) have expected count less than 5. The minimum expected count is .61.

Table 5.2: chi-square test for reliability vs education

We conclude that there is a significant correlation between education and recommendation because the chi square value is high.

## VI. Regression Models

### Linear Regression

#### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870 <sup>a</sup>	.756	.753	.725

a. Predictors: (Constant), Assurance, Your annual family income, Responsiveness

b. Dependent Variable: Reliability

Table 6.1: Linear Regression Model Summary

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	363.377	3	121.126	230.496	<.001 <sup>b</sup>
	Residual	117.187	223	.526		
	Total	480.564	226			

a. Dependent Variable: Reliability

b. Predictors: (Constant), Assurance, Your annual family income, Responsiveness

Table 6.2: Anova Summary

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	.997	.299		3.334	.001		
	Your annual family income	-.136	.040	-.115	-3.366	<.001	.937	1.067
	Responsiveness	.527	.068	.546	7.725	<.001	.219	4.560
	Assurance	.331	.075	.312	4.400	<.001	.217	4.605

a. Dependent Variable: Reliability

Table 6.3: Linear Regression equation - coefficients

## Logistic Regression

Classification Table<sup>a,b</sup>

Observed		Predicted		Percentage Correct
		RELIABLE 0	1	
Step 0	RELIABLE 0	0	45	.0
	1	0	178	100.0
Overall Percentage				79.8

a. Constant is included in the model.

b. The cut value is .500

Table 6.4: Block 0: Beginning Block

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	83.400 <sup>a</sup>	.468	.738

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Table 6.5: Block 1: Method = Enter

**Classification Table<sup>a</sup>**

			Predicted		Percentage Correct
			RELIABLE 0	1	
Step 1	RELIABLE	0	35	10	77.8
		1	7	171	96.1
	Overall Percentage				92.4

a. The cut value is .500

Table 6.6: Classification table

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	Responsiveness	1.583	.394	16.157	1	<.001	4.869
	Constant	-8.274	1.917	18.635	1	<.001	.000

a. Variable(s) entered on step 1: Responsiveness, Assurance, Your annual family income.

Table 6.7: Logistic regression equation - coefficients