National College of Ireland

Customers Attitudes to Insurance and Fraud

MSc Research Project
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MSc Project Submission Sheet

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Customers Attitudes to Insurance and Fraud

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Abstract

Insurance fraud costs businesses billions every year. This is normally passed on to the honest consumer. In Ireland alone the cost of fraud is estimated to be around €200 million. Injury payouts in Ireland are multiples of our European neighbours.

As business has evolved to deal with a more virtual environment, less and less business is now conducted face to face and over the phone. This prevents a close relationship from being built up with their consumers. Changes in regulations have increased the protections in place for the consumer and in doing so had put more onus on the Insurer. An Insurer can now only ask relevant pertinent questions and there is more forgiveness to the consumer for any mistakes that are made.

This study examines the evolving business channels that companies must utilise and how the customer chooses to interact with them. In understanding this and how this experience might affect the customer's perceptions and attitudes to Insurance and fraud. This will extend the current body of knowledge with regard to insurance fraud while also allowing other countries experiences to be compared with Ireland.

Keywords: Insurance Fraud, Consumer Behavior

1 Introduction

In 2020 covid caused a massive shift in how people interact with business. As a result of limiting face to face interactions consumers were forced to find alternative means to purchase goods and services. According to ACI Worldwide (2020), the covid pandemic led to a surge in e-commerce, there was a 28% increase globally in online shopping in June 2020 compared to the same month in 2019.

Insurance for most consumers is a costly and necessary expense as it is a legal requirement for all motor users to have insurance. During covid and continuing afterwards more and more consumers have chosen to interact with their provider in a more virtual environment either over the phone or online. This may have resulted in drastic shifts in a customer's perception and attitudes to insurance. The enhanced level of anonymity afforded to online users may have a negative effect on their attitudes to insurance.

Just prior to Covid there was a new draft of legislation which was called the Consumer Insurance Contracts Act (CICA). The result of this legislation meant a notable change in hoe insurers interact with their consumers. Before CICA most insurance products relied on a duty of disclosure which bound the consumer to divulge all pertinent facts to their provider. Failure to do so would normally result in their policy being cancelled and claims not being paid.

CICA did away with the duty of disclosure and now insurers are only permitted to ask relevant questions in simple English that the consumer must answer to the best of their ability. Where a consumer doesn't divulge all the information or there is inaccurate

information the Insurer can't just void the policy. Depending on the level of the misrepresentation broken down into three categories where it was innocent, negligent, and fraudulent only the fraudulent cases can the insurer void the policy. This in effect has given the benefit of the doubt to the consumer and allows for a fairer and less harsh punishment.
The changes imposed on insurers due to legislative requirements and the aftermath of the restrictions that Covid had imposed has resulted in a very different operating environment for business in the insurance sector.
Understanding a consumer's needs and wants is key for any business. The better the business can cater for their customers the more profit they can potentially make. Being able to understand the preferred method of interacting as well as the level and frequency of contact will help drive sales. Understanding the consumer's perception and attitudes to fraud will impact an insurer in two ways. Firstly by being aware and understanding where and how fraud is committed. Secondly fraud can take place at any point in the process from before a person submits a formal application right through to the claims process and payouts being made. Being aware of the motivating factors and perceptions of and tolerance of fraud will enable the insurance provider to effectively target fraud.

Research Questions.

RQ1. How does the sales channel effect Customers attitudes towards Insurance Companies?
The way a customer chooses to interact with their insurance provider, be it in person, over the phone or in a more virtual environment online may have an important impact in how their attitudes may differ. Does a more anonymous virtual environment affect a person's tolerance or acceptance of fraud, or does the more personal touch of dealing with their provider face to face have a positive factor in their acceptance of fraud. Where due to pandemic reasons the person's method of interaction has changed due to limited face to face interactions does this have any influence in the customer's attitudes? A larger company may be perceived as having less of a personal interaction with their customers where a smaller local company may have a better relationship with their customers. The counter to this would be that potentially larger companies have better tools and technologies to detect and therefore deter those prepared to commit fraud.

RQ2. How does the previous claims experience of the customer effect their attitudes towards Insurance fraud?
It is unlikely that many consumers would know or understand the claims process unless they have made a previous claim on either their own or another person's policy. A claim made on their own policy can result in a financial penalty, in the form of a claims loading or a reduction in the no claims discount given.
When a customer has gone through the process of making claim does this have any effect on the acceptance of fraud and their attitudes toward insurance providers?

RQ3. How does changing premiums effect a customer's attitudes to insurance?
The cost of insurance has always been a contentious issue for most consumers. If the customer's premiums have increased, does this have any effect on their attitudes to insurance? A previous claim will normally have a detrimental effect on a person's premiums but where there has been a claim most consumers would expect an increase in their premiums. Where there has been a reason for the increase does this have any influence in

the consumer's attitudes to insurance? Where the customer's premiums have decreased has this an opposite effect to their attitudes to insurance than those where there were increasing premiums?

RQ4. Does demographic difference effect customer's attitudes to Insurance?
Previous studies have shown that there are differences in attitudes and drivers for both gender and ages. Females were less tolerant of fraud than males and the older generation less tolerant than the younger one. This study aims to investigate if the Irish consumer follows a similar pattern to previous research.

2 Related Work

Insurance is a highly regulated industry which generates millions in revenue each year. For the average consumer there is a perception that insurance companies are making massive profits year on year and try to rip off their consumers (O' Halloran, 2021). With this "incentive" it may be easy to justify committing fraud in some way or other. The result of fraud could be to obtain or reduce the premiums being paid or facilitate the payment of a claim or increase the payout of claims. In Ireland the estimated cost of fraud is in the region of €200 million each year, in the UK that number is over £1.1 billion from 96 thousand suspected fraudulent claims in 2020 (ABI, 2022).

The cost of fraud in insurance will always be passed on to the consumer, rather than hit the insurer's bottom line (Insurance Ireland, 2020, Viaene & Dadene, 2004).

There have been some studies in insurance fraud in the wider market but limited in Ireland. The Irish market has a different claim culture than other territories, this can be due to societal and cultural differences to other countries. The book of Quantum which outlines expected claims costs in Ireland would specify that the average soft tissue injury or whiplash would cost around €14,800 (PIAB 2023). The nearest country to ourselves the UK has a much lower cost with an average settled claim of approximately £5,380 (Willis Towers Watson, 2021).

2.2 Types of Fraud

An insurance contract is undertaken by completing a quotation where all pertinent facts are disclosed. Due to recent legislative changes a catch all duty of disclosure can't be used and direct questions have to be asked to gather information. Fraud can happen through either internal or external factors at any stage of the process (Tonenciuc, 2015). It was found that more honest answers were given when an honesty statement that prefaced all questions was made (Shu et al, 2012). This was also the case when an honesty waiver was requested at the beginning of the claim process, it was a deterrent in falsifying claims information (Leal et al, 2016).

There are two main categories of fraud. These can be referred to as hard fraud or organised fraud and soft fraud or opportunistic fraud (Dionne & Gagne, 2001). Organised fraud as the name suggests is when a claim is arranged to happen or where a claim is completely fabricated. It is much easier to investigate and then prosecute this type of fraud. There have

been some very well-known cases in the media regarding hard fraud, several generations of the same family over ten years fabricated claims costing in excess of one million pounds (Foy 2019).

The other type of fraud, soft or opportunistic fraud is much harder to detect and subsequently prosecute. Soft fraud includes the misrepresentation of facts on a proposal application. An example of soft fraud would be where a consumer changes their occupation to avail themselves of a discount that they ordinarily wouldn't and reducing their premium. The other classic example of soft fraud is known as fronting. This is where the son or daughter is added to a parent's policy when in reality, they are the main driver. This allows the young driver to use their parent's driving experience to discount the premium.

When it comes to claims, most insurance policies have a deductible or excess. This is the first portion of a claim that the consumer must pay. Claims costs can be inflated or padded in order to offset this excess (Lee and Kim, 2015). The extent of injuries can also be exaggerated in order to increase the payout. The Irish courts found that a client in 2022 had exaggerated their injuries and resulted in the case being thrown out and costs awarded against them (RTE, 2022).

2.3 Perception and Tolerance of Fraud

It is estimated that less than 25% of fraud cases are detected (Ishida et al, 2015). In part because it is easier and cheaper for insurers to pay out claims than pay to investigate and then prosecute. Unless the fraud is linked to terrorism or organized crime there is not much desire for the authorities to prosecute (Doig & Levi, 2009). For UK authorities unless there are links to serious fraud there is not much concern (Button, 2011). While it is cheaper for insurers to pay out claims the associated costs are passed on to the honest consumer (Viaene & Dadene, 2004).

In previous studies it was shown that both gender and age have a bearing on the attitudes of consumers to fraud (Tennyson, 2002, Dean, 2014). Males tended to be more tolerant of fraud than females and the younger cohort also were more tolerant of fraud.

The perception of the company that the consumer deals with influences the attitudes to insurance. A larger company would have a higher acceptance of fraud than a smaller one (Ishida et al, 2015). Past experiences of the company also had an effect on the consumer's attitudes, a negative experience would result in a higher acceptance of fraud than one with a positive experience (Tonencuic, 2015, Dean 2004). A sense of fairness would also influence the consumer's attitudes, if the consumer feels that the policy is unfair then the acceptance of fraud would be higher. If the consumer believes that there is justification in committing the fraud, they were more accepting of it (Murphy & Dacin, 2011). Where legislation increased the excess on policies it resulted in the same number of claims but on average a higher cost which offset the increase in excess (Lee and Kim, 2015). Where the excess was already high claim fraud to increase the claim to offset the high excess was considered to be more acceptable (Button et al, 2013, Miyazaki, 2009). It was found that the consumer recognises and understands that fraud is illegal and morally wrong (Dehghanpour & Rezvani 2015). The scale of the fraud results in different tolerance to fraud, where the consumer

gains financially from fraud rather than misrepresents the facts when applying for insurance had different attitudes to each other (Derrig, 2002). In the US it was perceived as being more acceptable to increase the cost of a claim to cover the excess than to falsify receipts to increase the payout (Tennyson, 2002). In the UK it was found that exaggeration of a claim injury was more acceptable than falsifying an injury (Button et al, 2013).

2.4 Honesty and Prevention of Fraud

There have been studies that looked at the honesty statement that a consumer must sign in order to process an application. Previous studies had shown that when the consumer was asked to sign the honesty statement at the beginning of the application it produced more honest responses than one at the end (Shu et al, 2012). The usual process that insurance companies undertake was at the time to have an honesty statement at the end of the process rather than the beginning. Since the initial experiment the process for signing at the beginning was adopted by many agencies both in America and also in other jurisdictions. A number of the same researchers repeated their experiments in 2019 and found that there was no difference between responses when they signed at the beginning as opposed to the end (Kristal et al, 2020).

To try and detect fraud insurers use a system of red flags to categorise claims with potential fraud. Several studies have shown that this system of flagging claims must be updated throughout the life cycle of the claim (Yankol-Schalck, 2022 and Šubelj et al, 2011). Common flags would be time of the accident, remote locations, number of claimants versus the extent of the damage. While fraud can be suspected unless there is a shared resource amongst insurance companies there is very little that is stopping the fraudster from repeating the same tactic with a new company (Tonenciuc, 2015).

The more sophisticated these fraud prevention tools and the more the consumer is aware of them the more they will try to reduce their chances of being in an accident (Okura, 2013).

2.5 Conclusion

There have been many studies on insurance fraud globally but very few on the Irish market. While insurance fraud is common across all markets there are vast differences to acceptance and tolerance of fraud. This is due to differences in legislation, culture and societal makeup (Tonencuic, 2015, Button et al, 2013). Ireland has a very different claims experience than other jurisdictions with significantly higher claim costs than other close European countries.

There have been a number of studies conducted using surveys to gather insights into the consumer's attitudes to insurance (Ishida et al, 2015, Miyazaki, 2005, Dean, 2004,Tennyson, 2002). A changing landscape where more and more consumers are conducting their business virtually rather than face to face. Tied with a legislative change that gives the consumer more latitude for minor discrepancies and much more onus on the insurers. This study aims to investigate the Irish consumer's attitudes to Insurance and fraud. This will give

valuable insight to the stakeholders about their consumers and their attitudes to fraud and insurance.

3 Research Methodology

3.1 Introduction

The focus of this study was to examine the relationship between the consumer's experiences in insurance and their perception and tolerance to fraud. Surveys have been an established method of collecting a user's opinions on insurance (Ishida et al, 2015, Miyazaki, 2005, Dean, 2004,Tennyson, 2002). An initial questionnaire was designed using Google Forms from the researchers own experience in the field. Google Forms was chosen for ease of use and deliverability. The initial survey was delivered to a small cohort of 5 users to gather feedback and the final questionnaire was redesigned using this feedback. The questions were worded in such a way as to ensure simplicity in the questions as well as the survey to be completed within 5 minutes.

3.2 Survey Design

The survey is broken down into four main sections. There are some generic demographic data on the customers, their sales experience including the channel and premium, their perception, awareness and understanding of fraud and finally their tolerance or acceptability of fraud. A sample of the survey can be found in the Appendix as figure 6.

The generic demographic information includes age brackets and gender. The demographic information was kept to a minimum to ensure confidentiality and no personal identifiable information was taken. This ensures that there were no GDPR issues. There was a qualifying question that asks if they had purchased an insurance product. If this was a no then the survey finished at that point.

The second section of the survey looks at the customer's interaction with their provider and their insurance experience.

A The type of product they purchased

B The type of provider they used

C How they interacted with their provider

D How often they made contact with their provider

E If Covid had changed how they interacted with their provider

F Whether their premiums had increased, decreased or stayed the same

G If there was a reason for increasing premiums

H If there should be more or less regulation

I Have they claimed on their own policy

J Had they claimed on another person's policy

K Whether larger insurance companies offered a more professional service

L Whether smaller companies offered a more personal service

The logic behind these types of questions was to examine if the customer had a better relationship with their provider, such as frequent contact they might have an influencing factor in how they perceive and tolerate fraud. The customer was also asked if their premiums have changed either increased or decreased or stayed the same. If they had made a claim on their own policy or against another person's policy. Previous research has shown that if a customer feels that their premiums were unfair they were more tolerant of fraud (Dionne & Gagne, 2001).

The third section of the survey looks at the customer's tolerance and acceptability of fraud. The responses for these questions were based on a 7 point Likert scale to give as much granularity as possible while maintaining accuracy. These ranged from totally unacceptable to being totally acceptable.

A Changing information on an insurance application

B Increasing a claim to cover an excess

C Changing details of a claim to claim for something not covered on the policy

D Changing the details of a claim to increase the overall payout

E Increasing the extent of an injury to increase the payout

The last section looked at the customers perception as to the frequency to the types of fraud listed in section 3. They were asked in the same 7 point Likert scale but the scale would be how common they thought the fraud was. This ranged from being very rare to very common.

3.3 Survey Delivery

The survey was emailed to a group of know participants. In addition to the email there was also a post on social media sites requesting participation in the survey. There was an emphasis on the anonymity of the survey and that no personal information was requested or recorded. All participants were encouraged to forward the survey on to other participants in a snowball non-probability sample technique.

3.4 Ethical Considerations

When making contact with respondents it was emphasized that no personal data would be collected. This ensures both anonymity and also it eliminates any GPDR issues. In emphasising the anonymous nature it also should elicit more honest answers to the questions.

4 Design Specification

The implementation of the project will follow a modified CRISP-DM solution as shown in figure 1.

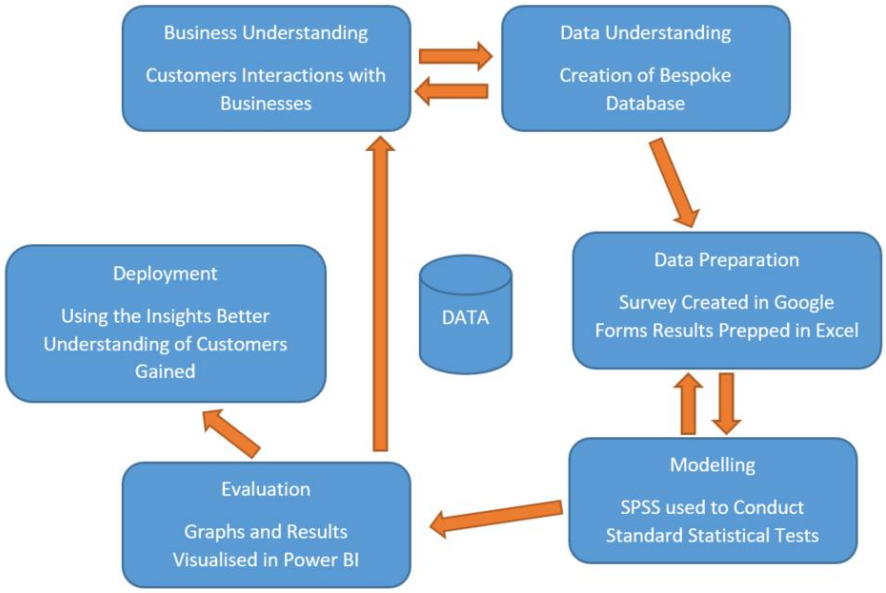

Figure 1 Diagram of modified CRISP DM flow chart

Business Understanding: The study examines the customer's interactions with the business, the type of contact, frequency. In association with this, questions were asked to gather the perception and tolerance of the customer to fraud.

Data Understanding: There is no open-source dataset available so one was created by use of a survey. The survey collected information of the participant including demographic factors, their sales experience and their understanding and experience of fraud. An initial survey was created from analysis of the market and using the researchers own experience in the industry.

Data Preparation: The survey was created in Google forms. This allowed responses to be given in an anonymous form, all results were automatically saved. The results were exported out in a csv format. Initial preparation and cleansing was performed in Excel.

Modelling: SPSS was the preferred software package used to perform statistical tests. There were standard tests that were performed to determine significance such as t-tests and Levene's test. T-tests are used to compare the difference between the means of two different groups as well as the differences between dependent samples to a significant degree. To perform a t-test we would define what the null hypothesis would be, in our case normally that would be that the means of the two groups are identical. The alternative hypothesis would be that the means of the two groups are not identical. The p-value is a calculated number which helps determine if the observed differences are through random

chance alone or if there is enough evidence to reject the null hypothesis. Where the p values is less than 0.05 we reject the null hypothesis and we would conclude that there is a significant difference between the means of the two groups.

Where there are more than two different groups an ANOVA is used in a similar way to the t-test. The ANOVA or analysis of variance examines the difference between the means of more than two groups. It is performed in much the same way as a t-test where we hypothesize that the null value indicates the means of three or more groups are equal, the alternate hypothesis would be that they a different to a significant degree. A p-value of less 0.05 we would reject the null hypothesis that the groups means are identical and conclude that there is significant difference in the means of the groups.

A Levene's test is used to determine if there are equal variances in samples which is a requirement for the analysis of variance and other statistical tests. If the p value for a Levene's test is found to be less than 0.05 we assume that the variances are not equal. Within SPSS where equal variances are assumed we would have different p values than those where equal variances are not assumed.

A Cronbach's alpha is used to measure the internal consistency or the reliability of a set of survey answers. In other words it is used to determine if the answers were consistently measuring the same characteristic. The measurement produced for this statistical test is in a range from 0 to 1 and higher numbers indicate a higher reliability. A level of above 0.7 is the minimum used to determine a high degree of internal reliability.

Evaluation: Results were visualised in excel where tables and graphs were produced. For stakeholders the results can be visualized in Power BI. As Power BI queries the excel sheet directly, the reports and graphs can be modified and changed to address the needs of the stakeholders. An example of this type of interaction can be found in the Appendix as figure 10. This allows the stakeholders a way to visually compare how different categories interact with each other. It also allows them to filter by those categories and have the visual update based on them.

5 Implementation

232 responses were received for the survey. Of these 6 had selected no to having previous insurance so were excluded from the results. 9 were rejected as they had identical answers across all of the tolerance and prevalence questions. This left 217 respondents that were utilised in the statistical analysis. To allow SPSS to interact with the output the answers to all the multiple choice questions were recoded as numeric. For example the age bands were recoded from 25-30 to 1, 31-35 as 2 and so on.

The question on the types of products purchased was a multiple choice which allowed the respondent to pick more than one option. In Excel this was broken out, so each option was given its own column to allow the totals for each product type to be determined.

For the scenarios posed for the tolerance and frequency of fraud a score of the tolerance FT and frequency FF were calculated for each respondent. These would be used to compare different cohorts to each other to determine if there is a statistical difference between them.

The scores calculated for fraud tolerance FT were on a range between 1 and 7 where the low numbers would signify that the individual had low tolerance to fraud, where conversely high numbers would indicate a higher tolerance to fraud. Figure 2 shows the level of fraud scores versus acceptability. A score of 1 would be totally unacceptable and 7 would be totally acceptable.

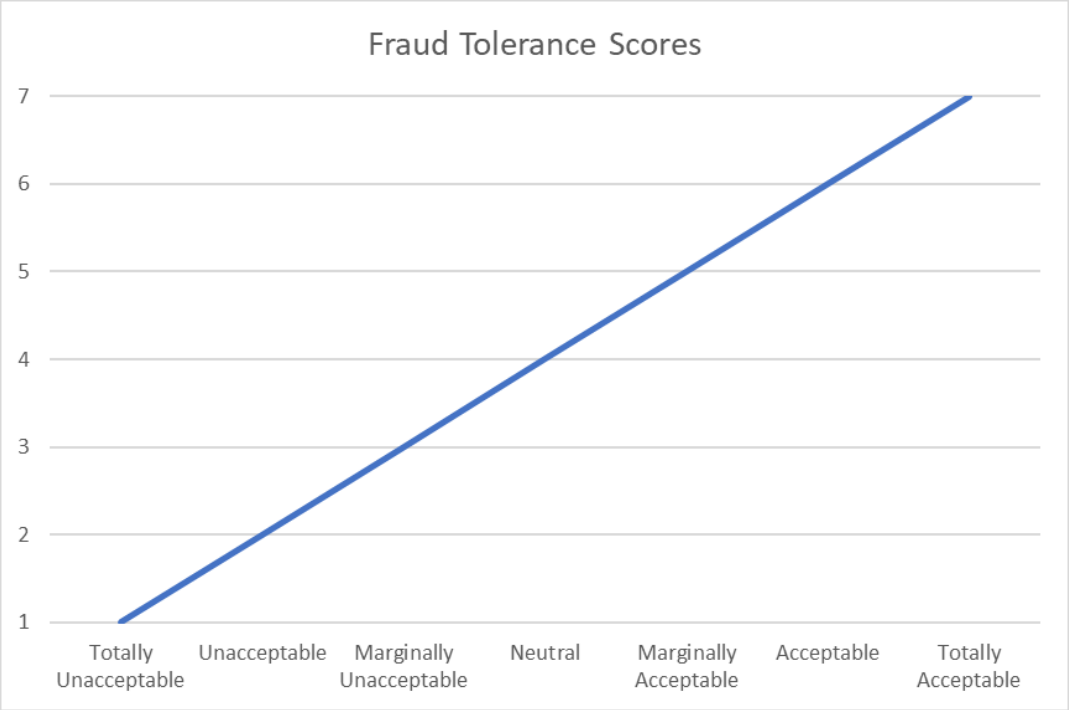

Figure 2: Fraud scores and level of fraud tolerance

For the fraud frequency scores lower values indicate the individual thought the scenario to be less common, higher scores would mean they were more common. Figure 3 shows the frequency scores versus the frequency. Scores below 4 would signify lesser frequency, above 4 would be more frequent.

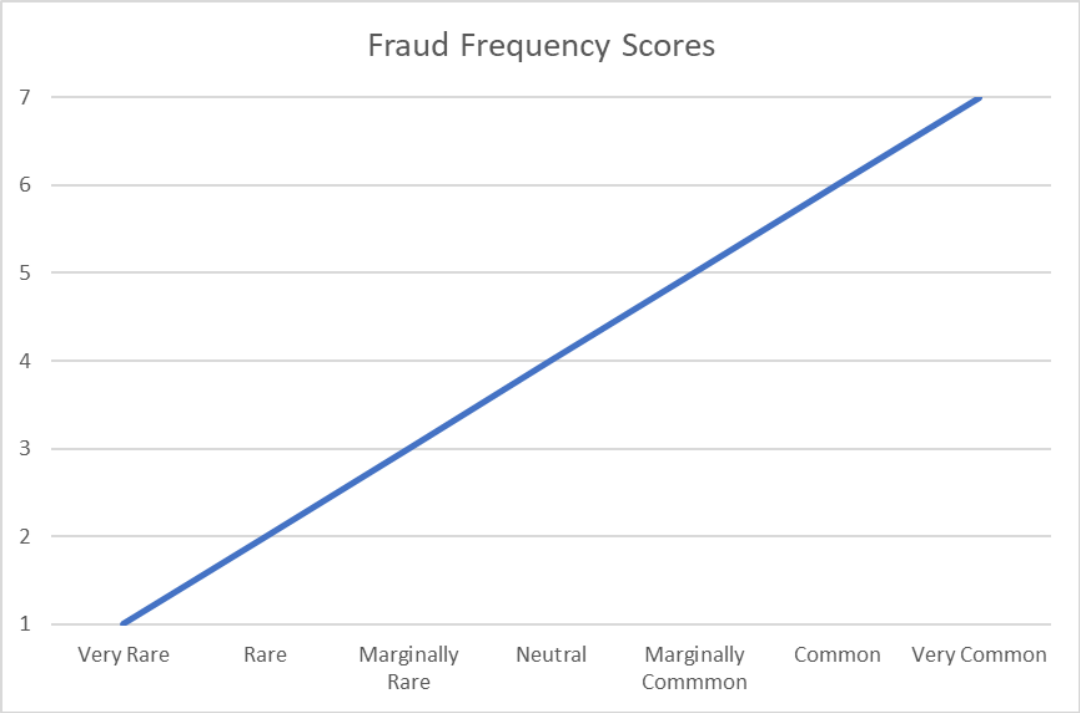

Figure 3: Frequency scores and level of frequency

6 Evaluation

6.1 Introduction

The purpose of this chapter is to use the data collected from the survey and analyse it. The aim is to answer the research questions. In addition to the descriptive statistics, this section includes the results of a number of statistical tests that were carried out using SPSS (Social Package for the Social Sciences), a software platform created to analyse quantitative data (Quinlan, 2011).

6.2 Descriptive Statistics

The sample consisted of 217 respondents of which 50.7% were female and 49.3% were male. Table 1 shows information on the gender of respondents.

Table 1: Gender of Respondents

Gender	Count	Percentage
Female	110	50.69%
Male	107	49.31%

Rather than request the actual age of the respondent it was felt it was easier and quicker to list the ages in brackets. The largest cohort of ages was the 36-40 year olds, the smallest was 25 to 30 year olds. Table 2 shows the full breakdown for all age brackets for the respondents.

Table 2: Age Profile of Respondents

Age	Count	Percentage
25-30	8	3.69%
31-35	17	7.83%
36-40	40	18.43%
41-45	31	14.29%
46-50	29	13.36%
51-55	30	13.82%
56-60	12	5.53%
61-65	20	9.22%
66-70	16	7.37%
70+	14	6.45%

The respondents were asked which type of insurance product they purchased. They were permitted to select more than one type depending on the purchasing history. In table 3 we see that the vast majority of respondents had purchased a private motor product, followed by a home product. The class of Other includes commercial property, health and other insurance products.

Table 3: Types of Insurance Products Purchased

Product Type	Count	Percentage
Home	152	31.40%
Motor	204	42.15%
Van	6	1.24%
Travel	106	21.90%
Other	16	3.31%
Total	484	100.00%

The respondents were asked what type of provider they used. This question was modified based on the initial feedback to include Post Office, Supermarket and Bank as options. This was to ensure that there would be no confusion and to increase the options available to the respondents. Most respondents choose to insure directly with the insurance company with 42% of the book. This was followed closely by the Large National Broker with 36% of the book. Table 4 below shows the full breakdown of the different providers that were used by the respondents.

Table 4: Type of Provider

Provider	Count	Percentage
Direct with an Insurance Company	92	42.40%
Large National Broker	78	35.94%
Local Small Broker	14	6.45%
Through the Post Office or Supermarket	12	5.53%
Through your Bank	21	9.68%

The majority of respondents had chosen to interact with their provider over the phone with just under 50% choosing this method. Less than 7% had chosen to deal face to face with their provider. This suggests that the personal interaction is becoming less and less frequent with the consumer opting to deal in a more virtual method.

Table 5: Contact Type

Contact Type	Count	Percentage
Online Internet or Email	96	44.24%
Over the counter in the office	14	6.45%
Over the Phone	107	49.31%

Over three quarters of the respondent's contact method was the same pre and post covid, 77% the contact method had stayed the same and 22% had changed since covid. So while Covid did have an impact for some consumers there were more consumers whose method of contact had not changed due to the pandemic.

Table 6: Contact Method Changed

Change	Count	Percentage
Yes	48	22.12%
No	169	77.88%

Over 50% of the respondents contact their provider once a year, suggesting that they don't build a rapport or a relationship with them. Less than 2% contact their provider 4 or more times a year.

Table 7: Contact Frequency

Contact Frequency	Count	Percentage
Four or more times a year	4	1.84%
Once a year	111	51.15%
Two or three times a year	102	47.00%

Almost 50% of respondents had noticed an increase in their insurance premium, 35% felt it had stayed the same and 19% that it reduced. Of those that the price increased 15% felt that there was a reason for it for example a claim. This could influence the consumer's sense of fairness when it comes to purchasing their insurance. If their premiums had gone up and there was no reason for this this could cause a feeling of unfairness and injustice.

Table 8: Price Change

Price	Count	Percentage
Decreased	41	18.89%
Increased	101	46.54%
Remained the same	75	34.56%

The respondents claim history where they made a claim on their own policy or on another person's policy were broadly similar. Approximately 60% of respondents made a claim on their own policy and 60% on another policy. The difference in these two scenarios while it allows gives the consumer insight into the claims handling process, claiming on your own

policy normally results in a financial penalty of some sort where claiming on another person's policy doesn't.

Table 9: Claims History

Claim Type	Response	Count	Percentage
Own Claim	No	126	58.06%
	Yes	91	41.94%
Other Claim	No	134	61.75%
	Yes	83	38.25%

The respondents were asked their opinion on 5 different scenarios concerning fraud in Insurance. They were asked how acceptable the scenarios were as well as how rare or otherwise they were. Both of these were asked on a 7-point Likert scale. The acceptability ranged from Totally Unacceptable to Totally Acceptable. The prevalence scores from Very Rare to Very Common. In table 10 the respondent was deemed to find the scenario unacceptable if the response was Totally Unacceptable, Unacceptable or Marginally Unacceptable. If the response was Very Common, Common or Somewhat Common then they were deemed as finding the scenario common.

Table 10: Attitudes to Fraud Scenarios

Scenario	Unacceptable	Common
Changing Information on an Insurance application in order to obtain or reduce an Insurance premium	72.81%	61.29%
Increasing an Insurance claim in order to cover an excess on the policy	72.81%	63.59%
Changing the details of a claim in order to claim for something not covered by the policy	93.09%	44.24%
Changing the details of a claim in order to increase the payout	89.40%	49.31%
Increasing the extent of an injury order to increase the payout	79.72%	69.12%

As we can see from this table all the scenarios the respondents on average thought were unacceptable with changing the details of a claim being the most unacceptable as well as being the least frequent. Increasing the extent of an injury in order to increase the payout was thought to be the most common but was one of the most unacceptable scenarios.

6.3 Reliability Analysis

To determine if the survey responses were reliable and consistent a Cronbach's Alpha was calculated. This is an important measure to ensure that the survey responses consistently measure the same characteristic.

For the tolerance scale which consists of 5 scenarios the Cronbach's Alpha was 0.827.

The prevalence score for the same 5 scenarios had a Cronbach's Alpha of 0.868.

As the Cronbach's Alpha for both of these are above the 0.7 minimum level this indicates that there is high level of internal reliability. This also indicates that the scales used were consistent.

6.4 RQ1. How Does the Sales Channel Effect Customer's Attitudes to Insurance Companies?

Respondents were asked what the type of provider they choose to interact with when purchasing an insurance product. Table 4 above shows that the majority of the respondents had chosen to deal directly with an Insurer. Those that dealt with a small local broker (N=14) had a lower average fraud tolerance score (FT=1.48) and perceived fraud frequency (FF=3.64) than any of the other providers. This indicates that this cohort were the least tolerant of fraud as well as the cohort that thought frequency of fraud was the lowest. The highest was through the Bank (N=21) where the fraud tolerance FT=2.69 and fraud frequency FF=4.83. Table 11 shows the average fraud scores for each of the providers for both tolerance and frequency.

Table 11: Average Scores for Provider Type

Provider	Tolerance	Frequency
Local Broker	1.48	3.64
Large National Broker	2.41	4.69
Direct with an Insurance Company	2.26	4.53
Through Bank	2.69	4.83
Through Post Office/Supermarket	2.60	4.77

To examine if there is any statistical difference between these cohorts an ANOVA was performed. This showed that for the fraud tolerance there was statistical significance between the groups with a P=0.032. For the fraud frequency there was no statistical significance as the P=0.084 was just above the 0.05 range.

To further examine this the Small Broker cohort was compared against all the other providers as a whole. The average scores for the other providers combined was FT=2.38 and FF=4.63. An independent sample t-test was performed. The results of Levene's test F=9.4 with a P=0.002 indicate that the variance of the 2 groups are assumed to be approximately equal and the standard t-test results could be used. The result of the t-test showed that there was a statistical significance for both FT with a P=0.003 and FF with a P=0.008. This result lends itself to the idea that the small Broker has perhaps developed more of a

relationship with their client resulting in that particular cohort being less tolerant of fraud and also perceiving that fraud occurs less frequently. As the type of provider changes from a local to more of a big business corporate one the tolerance for fraud increases as shown by the higher FT scores. Likewise we see a similar pattern in the FF frequency scores where the smaller businesses have lower FF scores than the bigger ones

How the customer chooses to interact with their provider also plays an important part in building the relationship. Respondents were asked how they normally interacted with their provider, either in person face to face (N=14), phone (N=107) or online (N=96). The results of the average fraud scores are shown in table 12.

Table 12: Average Scores for Contact Type

Contact Method	Tolerance	Frequency
Phone	2.14	4.41
Face to Face	2.11	3.71
Online	2.51	4.86

This shows that the more personal the type of contact the less tolerant and less perceived frequency of fraud. Where the contact type is in person the average scores are FT=2.11 and FF =3.71. For those who choose to interact mainly over the phone the scores are slightly higher in both those categories. For the online users the scores are higher again.

To test whether these results are significant an ANOVA was performed. For the fraud tolerance results the P=0.136 which indicates that the results weren't significant. The fraud frequency the P=0.046 which indicates that results are statistically significant.

These results also reinforce the idea that the relationship that is built from more personal contact is an important factor in the tolerance of fraud with the consumer. The more personal the interaction the lower the FT scores were meaning they were less tolerant of fraud. Interestingly like the provider type the cohort that had the lowest FT scores also had the lowest FF scores indicating they felt fraud happened less frequently than the other cohorts.

During Covid there was an enforced ban on travel and social interaction. This resulted in the consumer having to change the way in which they interacted with their provider. They were asked if their method of contact had changed as a result of Covid. Approximately 22% of the respondents (N=48) indicated that their method of contact had changed. The average scores for FT for this cohort was 2.63 compared to 2.24 for those whose method hadn't changed. The FF scores were 4.41 for the same cohort and 4.62 for those that hadn't changed.

An independent t-test was performed to examine the differences in the scores. The results of Levene's test were for the tolerance scores F=0.316 with a P=0.575 meaning that the variances were not assumed to be equal, which was also the case for the frequency scores the F=2.60 and the P=0.108. The tolerance scores were found to be significant with a P=0.028 but the frequency scores were not found to be statistically significant as the P=0.330.

This shows that those that had to change their contact method were slightly more tolerant of fraud than those that didn't with a higher FT score. This may be down to those customers now interacting in a more virtual, less personal manner feeling more anonymous and therefore more accepting of fraud.

6.5 RQ2: How Does the Previous Claims Experience of the Customer Effect Their Attitudes to Insurance?

In previous research there were differences in those consumers that had made a claim compared to those that didn't. It was found that those that had made a claim were less tolerant than those that hadn't (Tennyson, 2002). Respondents were asked about their claims experience in two different scenarios. They were asked if they had made a claim on their own policy or on another person's policy table 9 above. Claiming on one's own policy normally results in a financial impact to the consumer. This is in the form of either a claims loading, a reduction in the no claims discount they may have had or having to pay the first portion of a claim called an excess or deductible.

For those that made a claim on their own policy (N=91) the scores were FT=2.36 and FF=4.61. These were very similar to those that hadn't made a claim on their own policy (N=126) with scores of FT=2.31 and FF 4.54. This shows that the cohort that had made a claim on their own policy were marginally more tolerant to fraud than those that didn't as the FT score was slightly higher. They also felt that the frequency of fraud was higher than those that didn't make a claim. A t-test was performed to determine statistical significance. The result of Levene's test was F=.737 with a P=0.392 for the FT scores which would indicate that equal variances couldn't be assumed. For the FF scores the Levene's test was F=4.85 with a P=0.29 so we could assume equal variances. The significance for both however were not significant with a P=0.75 and 0.746 for the FT and FF scores respectively.

For those that had made a claim on another policy (N=83) the average scores for fraud were FT=2.49 and FF=4.34 compared to the cohort that hadn't made a claim on another policy (N=134) where the scores were FT=2.14 and FF=4.71. In looking at the t-tests results the Levene's test was not significant for either the own claim or third party claim so equal variances couldn't be assumed. For the FT score the P=0.022 and for the FF scores the P=0.047. Both of these would be statistically significant. They show that similar to those that had made a claim on their own policy this cohort that made a claim on another policy were more tolerant than those that didn't as the FT scores were higher for that group. For the frequency where the scores were lower than those that hadn't made a claim, so they felt that fraud happened less frequently. These findings are not in line with previous research. Where they found that consumers that had made a claim less tolerant for these results it was found to be the reverse.

6.6 RQ3: How Does Changing Premiums Effect a Customer's Attitudes to Insurance?

In previous research where the consumer feels that their cost of insurance is unfair there was a higher acceptability of fraud (Murphy & Dacin, 2011). The respondents in the survey

were asked if their insurance costs have risen, lowered or stayed the same results shown in table 8 above. They were then asked if there was an increase in the premium was there a valid reason behind this.

For the cohort that the price increased (N=101) the scores were FT=2.16 and the FF=4.90. The cohort where the price decreased (N=41) the scores were FT=2.67 and FF=4.20. The ones where the premiums had stayed the same (N=75) the FT=2.38 and FF=4.33 shown in Figure 4. These results show counterintuitively that where the price increased there was less tolerance to fraud than those that stayed the same and those that decreased as they had the lowest FT scores than the other two groups. For the frequency of fraud this was reversed with those with a price increase having higher scores than those that decreased and those that stayed the same. An ANOVA was conducted to determine if the means were statistically significant. For the FT scores the significance was P=0.072 and the FF scores P=0.003. The FT scores were not statistically significant but the FF scores are statistically significant.

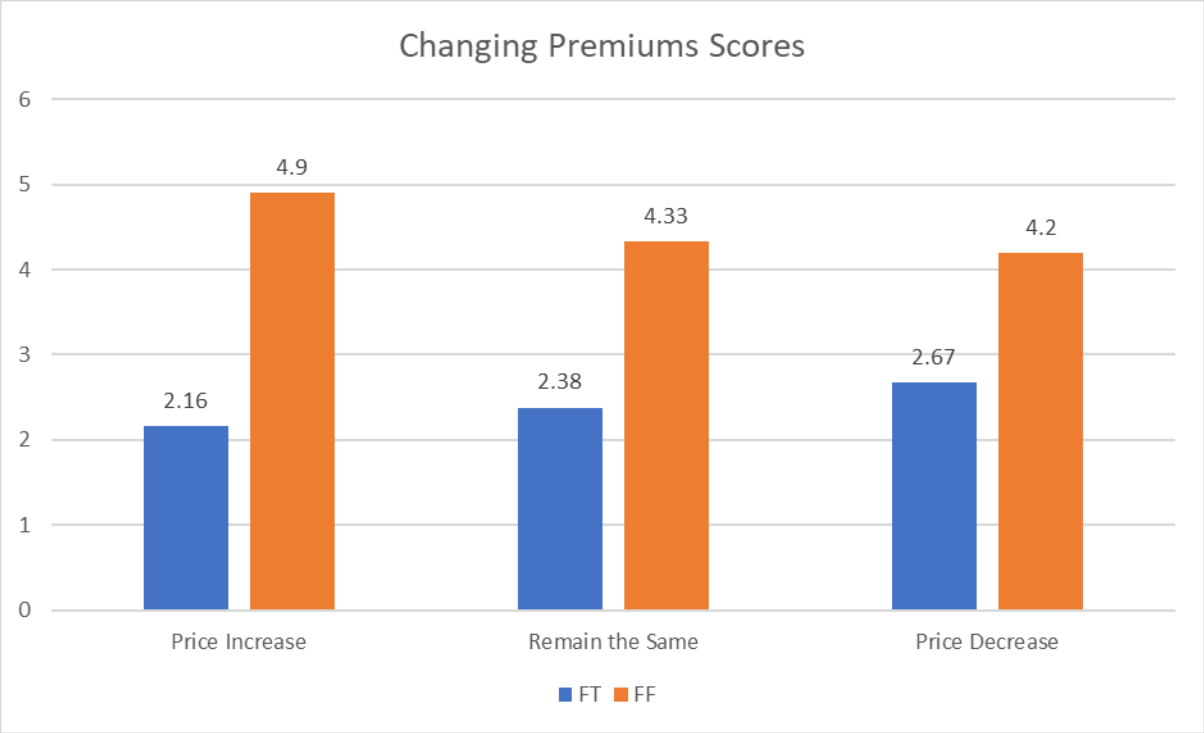

Figure 4: Changing premium scores

For the question if there was a reason for the price increase the cohort that answered Yes (N=16) the scores were FT=2.42 compared to those that answered No (N=201) where it was FT=2.32. The averages for the frequency of fraud for the Yes cohort FF=4.38 compared to the No FF=4.57. For those that there was a reason behind the price increase the tolerance to fraud was slightly higher than those that didn't increase as the FT scores were higher for this cohort. The frequency of fraud followed the same pattern as the price change where the higher tolerance resulted in a lower frequency of fraud score. A t-test was produced to determine if these results were statistically significant, with P=0.63 and P=0.54 for the FT and FF scores respectively these were not statistically significant.

6.7 RQ4: Does Demographic Differences Effect Consumer's attitudes to Insurance?

In previous research it was found that males and females had different attitudes to fraud to each other, with Males being more tolerant of fraud than females (Tennyson, 2002, Dean, 2004). In this study there were 107 males and 110 females. The mean scores for both tolerance and frequency were broadly similar with FT=2.38 for males and FT=2.28 for females. For frequency males the FF=4.46 and females FF=4.68. A t-test was performed and the results of the Leven's test were F=5.46 with P=0.20 so we could assume equal variances. The significance for the FT was P=0.53 and FF P=0.225. Both of these indicate that the results were not significant. This differs to the previous research which noted differences between males and females.

In terms of the different age bands previous studies found that the older generations were less tolerant to the younger ones. Figure 5 shows the average scores for tolerance and frequency for the different age brackets.

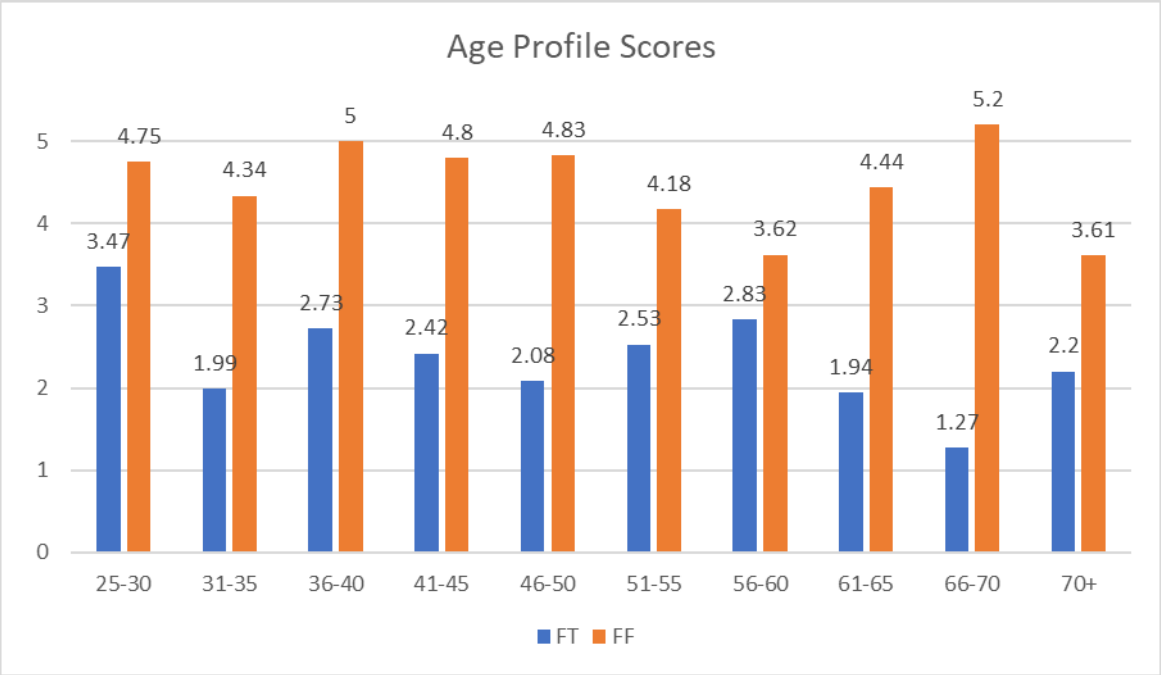

Figure 5: Age profile scores

The results indicate that as per previous research the younger cohort had a higher fraud tolerance score than the older generations with higher FT scores. The older generations 61 years and up have the lowest fraud tolerance scores indicating the lowest tolerance to fraud but interestingly the over 70 group sees the scores go back up.

Running an ANOVA on the results showed that there was statistical significance between the groups with a $p<0.01$.

7 Conclusion and Future Work

7.1 Introduction

This research set out to examine the interaction of consumers with their insurance providers. The results highlight that the different scenarios that were presented to the respondents for unethical behavior had a very high percentage of unacceptability ranging from 72% up to 93%. The frequency of these acts was perceived to be quite common with a score of 44% up to 69%. This is in line with the previous research (Tennyson, 2002). This highlights that the vast majority of people perceive fraud to be unethical. It is interesting to note that the figures presented here a somewhat higher than previous research from the US. This can be down to many factors including legislation, societal differences as well as timing and external factors. This may be an area for future research.

7.2 How Does the Sales Channel Effect Customer's Attitudes to Insurance Companies?

The sales channel that the consumers uses to interact with their provider is an important factor in how tolerant a person is to fraud. This research has found that the more personal that relationship from who the consumer chooses to do business with to the method of contact and frequency of contact are important factors in determining a person's tolerance to fraud. A smaller company, dealing with the consumer face to face or over the phone and contacting them more than once a year produce results that are significantly lower in acceptance of fraud than others.

7.3 How Does the Previous Claims Experience of the Customer Effect Their Attitudes to Insurance?

Previous studies have shown that where the consumer has made a claim they were less tolerant of fraud than those that hadn't (Tennyson, 2002). This study has found the opposite to be true. Those that had made a claim were more tolerant of fraud than those that hadn't. No distinction was made as to the type of claim apart from it having been made on their own policy or on another person's policy. It would be worth further examining this in future research by expanding on the claim's history with more detailed question surrounding this process.

7.4 How Does Changing Premiums Effect a Customer's Attitudes to Insurance?

The premium that the consumer pays for their insurance can cause feelings of unfairness if the price has gone up. In previous research it was found that where the consumer feels a moral justification then fraud was considered to be more acceptable (Murphy & Dacin, 2011). The results of this study were somewhat counterintuitive in that those whose premiums had gone up had the lowest tolerance to fraud than those whose premiums had decreased. Nearly 50% of the test group had an increase in premium yet these had the lowest tolerance to fraud. The cohort that had reduction in premium had the highest tolerance of fraud. As the results in this study were markedly different to research in other

jurisdictions further research could be done in this area concentrating in the fairness aspect and creating a survey with this factor in mind.

7.5 Does Demographic Differences Effect Consumer's attitudes to Insurance?

Previous studies have found marked differences between consumer's attitudes to insurance based on both age and gender (Tennyson, 2002, Dean, 2004). They found that there was a difference in gender as males were more tolerant of fraud than females. This study did not find any statistical difference in the two however.

For the different age cohorts previously it was noticed that the younger generation were more tolerant to fraud than the older ones. This study also found that for the younger age cohort they were markedly higher tolerance scores than the older cohorts.

7.6 Case Usage

Previous studies used natural language processing to assign red flags to potential fraudulent claims (Yankol-Schalck, 2022). While the scenario-based questions may not be appropriate in the initial binding of the contract the claims process is markedly different. There is more interaction between claims handlers, investigators, engineers etc. with the policy holder. Reponses to these scenarios can provide additional flags that an insurer can use in order to flag claims as potentially fraudulent or having a higher likelihood of fraud.

7.7 Limitations to Research

This research methodology involved sampling of respondents through direct email as well as posting on social media sites. Due to time constraints there may have been limitations as to sample size and disparity in respondents. The highest number of respondents were in the same age bracket as the researcher which may have an impact on the results. The limited sample size may also have had an effect on the results and this should be acknowledged.

This survey used purely quantitative methods and with the addition of qualitative methods such as observations and interviews, could have garnered additional insights into the Irish Consumer.

7.8 Future Work

Comparisons between this study and previous ones have shown differences as well as similarities between the results. The type of business as well as the way in which consumers interact with their provider correlates with tolerance to fraud. The more personal the interaction, the type and frequency has shown to have a correlation to a consumer's attitude to a lower tolerance to fraud.

Previous claims history where a claim was made on another individual's policy showed that respondents were more tolerant of fraud than those who hadn't which is the reverse of previous findings by Tennyson (2002). Further research into this area could investigate whether the claims handling process between jurisdictions contributes to this variance. It may also be worth investigating the different processes between making a claim on one's

own policy and a third parties as the differences in tolerance were much less on their own policy.

This study found no difference in tolerance between males and females compared to previous studies which found males were more tolerant to fraud.

There is obvious value to the stakeholders if they can better understand the motivations behind their customer's willingness to commit fraud. The process that insurers use to gather information evolved based on the understanding at the time. However as shown in previous research this can change and needs to be updated to reflect the changing environment (Kristal et al, 2020).

7.9 Conclusion

This research aimed to investigate the attitudes of Irish consumers to Insurance and fraud. Examining how an evolving sales channel in light of both legislation and virtualization can affect the consumer's tolerance of fraud and perception of and the prevalence of fraud.

Overall the acceptability of fraud was low for all factors that were examined and the perceived prevalence was quite high. The findings found in this study for acceptability of fraud are very much in line with studies in other jurisdictions such as the US (Tennyson, 2002) and the UK (Button et al, 2013).

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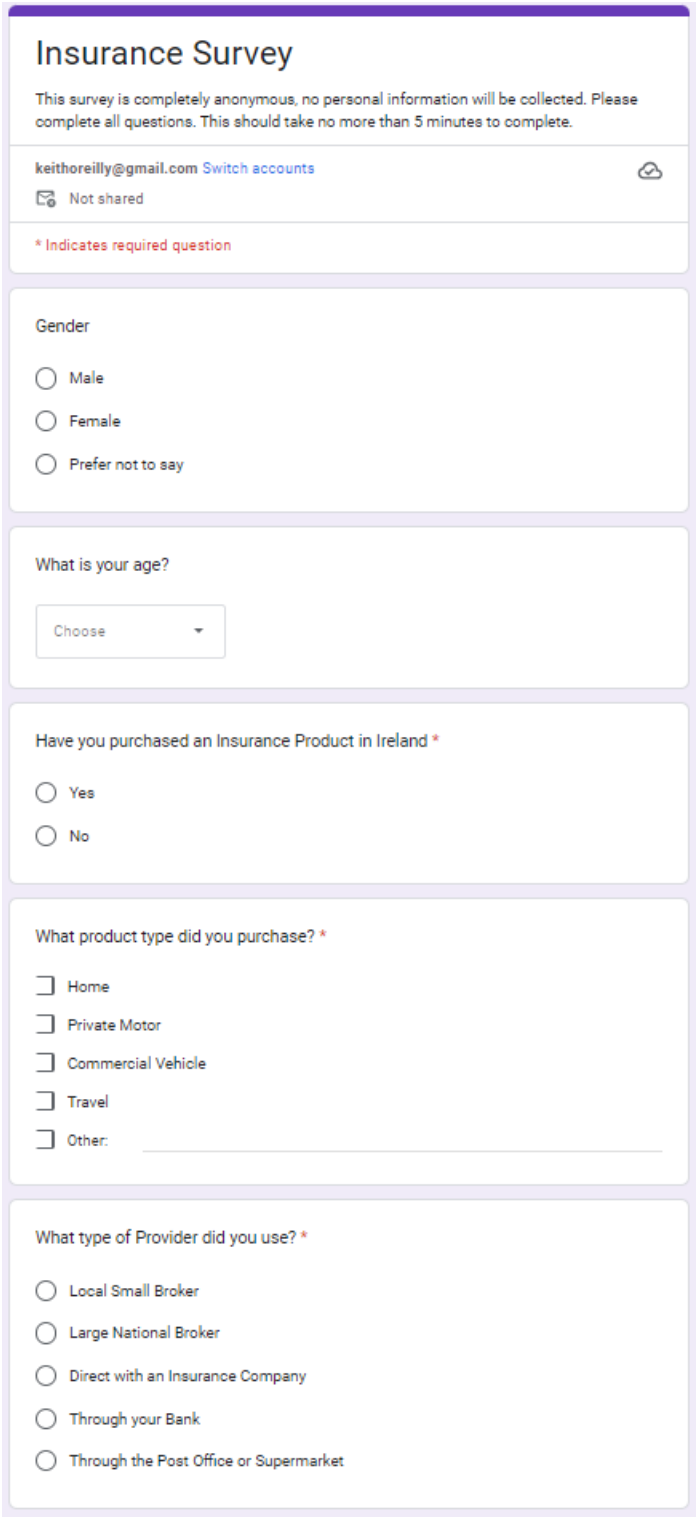
Appendix

A sample of the survey is shown in figure 6. All questions are categorical apart from the ones that were on a Likert Scale. These include the questions on Larger Companies offer a sophisticated and professional service, Smaller Companies offer a more personalized service and all the scenario based questions on fraud frequency and tolerance.



Insurance Survey

This survey is completely anonymous, no personal information will be collected. Please complete all questions. This should take no more than 5 minutes to complete.

keithoreilly@gmail.com Switch accounts

Not shared

* Indicates required question

Gender

- Male
- Female
- Prefer not to say

What is your age?

Choose

Have you purchased an Insurance Product in Ireland *

- Yes
- No

What product type did you purchase? *

- Home
- Private Motor
- Commercial Vehicle
- Travel
- Other:

What type of Provider did you use? *

- Local Small Broker
- Large National Broker
- Direct with an Insurance Company
- Through your Bank
- Through the Post Office or Supermarket

How do you mainly interact with your provider? *

- ◯ Over the counter in the office
- ◯ Over the Phone
- ◯ Online Internet or Email

How often do you interact with your Insurance Provider? *

- ◯ Once a year
- ◯ Two or three times a year
- ◯ Four or more times a year

Has your method of interaction changed since Covid? *

- ◯ Yes
- ◯ No

Has the cost of your insurance increased or decreased or roughly stayed the same over the last three years? *

- ◯ Increased
- ◯ Decreased
- ◯ Remained the same

If your premium increased was there a reason for it? E.G. A claim *

- ◯ Yes
- ◯ No

Do you think Insurance Companies should have more or less regulation? *

- ◯ More Regulation
- ◯ Less Regulation
- ◯ Remain the same

Have you ever made a claim against your own Insurance? *

- ◯ Yes
- ◯ No

Have you ever claimed against someone else's Insurance policy? *

- ◯ Yes
- ◯ No

Larger companies offer a more sophisticated and professional service. *

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

The smaller the company the more personalised service they provide you as an individual. *

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Next Clear form

On a scale of 1 to 7 how acceptable do you believe the following to be?

1 . Totally unacceptable 2. Unacceptable 3. Marginally Unacceptable 4. Neutral
5. Marginally Acceptable 6. Acceptable 7. Totally Acceptable

Changing Information on an Insurance application in order to obtain or reduce an Insurance premium. *

	1	2	3	4	5	6	7	
Totally Unacceptable	○	○	○	○	○	○	○	Totally Acceptable

Increasing an Insurance claim in order to cover an excess on the policy. *

	1	2	3	4	5	6	7	
Totally Unacceptable	○	○	○	○	○	○	○	Totally Acceptable

Changing the details of a claim in order to claim for something not covered by the policy. *

	1	2	3	4	5	6	7	
Totally Unacceptable	○	○	○	○	○	○	○	Totally Acceptable

Changing the details of a claim in order to increase the payout . *

	1	2	3	4	5	6	7	
Totally Unacceptable	○	○	○	○	○	○	○	Totally Acceptable

Increasing the extent of an injury order to increase the payout . *

	1	2	3	4	5	6	7	
Totally Unacceptable	○	○	○	○	○	○	○	Totally Acceptable

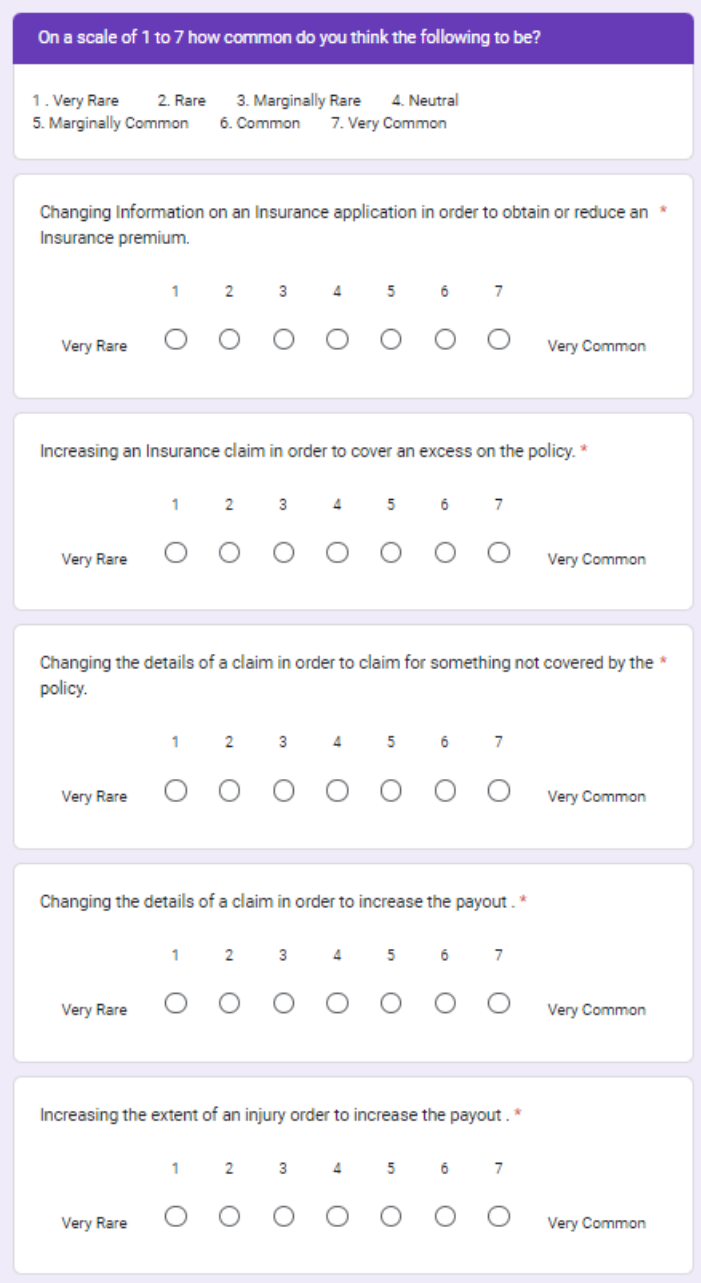


Figure 6: Sample Survey

Where the categorical questions had more than two entries these were recoded to numeric to allow SPSS to interact with them easily. For example, the Type of Provider which had five possible entries were given the values 1 to 5 as a new column in Excel prior to importing into SPSS. Figure 7 shows the list of recoded entries and the new code that was imported into SPSS.

What is your age?	New Code
25-30	1
31-35	2
36-40	3
41-45	4
46-50	5
51-55	6
56-60	7
61-65	8
66-70	9
70+	10

What type of Provider did you use?	New Code
Through the Post Office	5
Large National Broker	2
Direct with an Insurance	3
Through your Bank	4
Local Small Broker	1

How do you mainly interact with your provider?	New Code
Online Internet or Email	3
Over the Phone	1
Over the counter in the office	2

Has the cost of your insurance increased or decreased or roughly stayed the same over the last three years?	New Code
Decreased	2
Increased	1
Remained the same	3

Figure 8:Recoded entries in SPSS

Within SPSS the Likert scale questions were given values within SPSS so the output could be more easily read. For example the question on what type of provider you use was given labels for the coded numbers, 1 – Small broker, 2 – Large National Broker and so on. Figure 9 lists all the relabelled categories.

What type of Provider did you use?	{1, Local Small Broker}...
How do you mainly interact with your provider?	None
Contact Type	None
How often do you interact with your Insurance Provider?	None
Contact Frequency	None
Has your method of interaction changed since Covid?	None
Has the cost of your insurance increased or decreased or roughly stayed the same over the last three ye...	None
Price Increas	None
If your premium increased was there a reason for it? E.G. A claim	None
Do you think Insurance Companies should have more or less regulation?	None
More Regulation	None
Have you ever made a claim against your own Insurance?	None
Have you ever claimed against someone else's Insurance policy?	None
Larger companies offer a more sophisticated and professional service.	{1, Strongly Disagree}...
The smaller the company the more personalised service they provide you as an individual.	{1, Strongly Disagree}...
Changing Information on an Insurance application in order to obtain or reduce an Insurance premium.	{1, Totally Unacceptable}...
Increasing an Insurance claim in order to cover an excess on the policy.	{1, Totally Unacceptable}...
Changing the details of a claim in order to claim for something not covered by the policy.	{1, Totally Unacceptable}...
Changing the details of a claim in order to increase the payout .	{1, Totally Unacceptable}...
Increasing the extent of an injury order to increase the payout .	{1, Totally Unacceptable}...
Changing Information on an Insurance application in order to obtain or reduce an Insurance premium.	{1, Very Rare}...
Increasing an Insurance claim in order to cover an excess on the policy.	{1, Very Rare}...
Changing the details of a claim in order to claim for something not covered by the policy.	{1, Very Rare}...
Changing the details of a claim in order to increase the payout .	{1, Very Rare}...
Increasing the extent of an injury order to increase the payout .	{1, Very Rare}...

Figure 9:Relabelled categories in SPSS

Figure 10 shows a sample Power BI dashboard. This can be designed based on the needs of the stakeholders. In the worked example the interaction between gender averages for the FF and FT scores, cost of insurance and count of individuals, method of interaction and count and the age cohorts and count. By selecting one of the age bands in the lower half of the dashboard the other linked categories then get updated with the selected filtered data. This allows the stakeholder to easily interrogate the data and get an immediate visual change based on the areas that interest them the most. Multiples categories can be selected to further filter the data. As Power BI interrogates the spreadsheet directly the underlying data integrity is preserved.

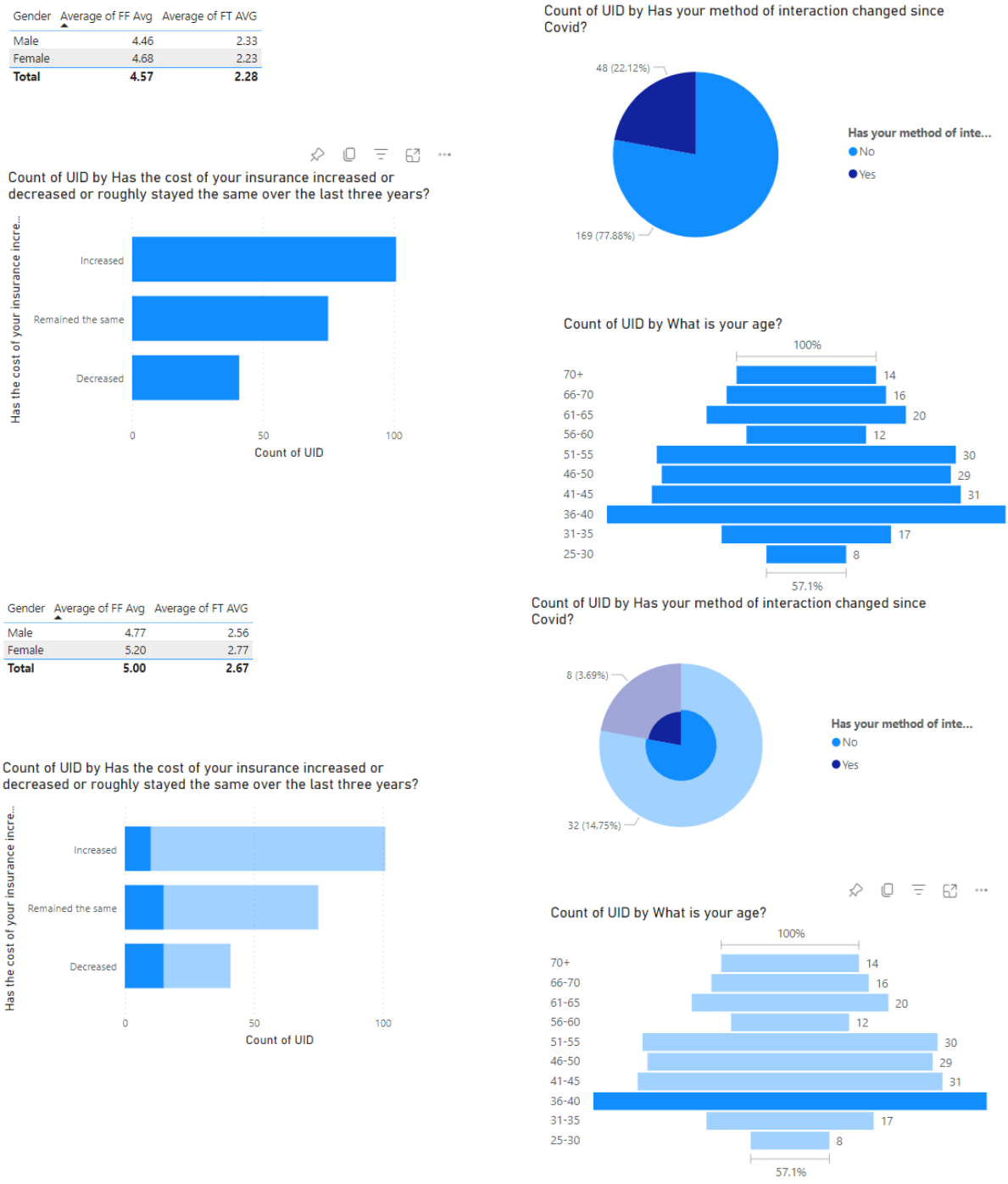


Figure 10:Power BI dashboard