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# Insurance against fraud: customers fraudulent behavior toward insurance companies

Mohamad Khalid Najjar

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Research Dissertation

**Insurance Against Fraud**  
**Customers' Fraudulent Behavior Toward Insurance**  
**Companies**

**Presented By: NAJJAR Mohamad Khalid**

**University Advisor: Prof. ENJOLRAS Geoffroy**

**Master Degree**  
**M2 Advances in Finance and Accounting**  
**2021 - 2022**

Research Dissertation

# **Insurance Against Fraud**

## **Customers' Fraudulent Behavior Toward Insurance Companies**



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## ABSTRACT

### SUMMARY

Insurance is applied to cover unforeseen losses for policyholders at a fixed cost, or premium. It is used by individuals, social groups, and corporations as part of their risk and complexity management strategies. Insurance fraud affects all types of insurance policies. It can be committed by a policyholder or third party making a claim on an insurance policy. Claims resulting from fraudulent activity have an impact on insurers' profitability and accuracy. Insurance fraud is not a new phenomenon and has been extensively studied. Information asymmetry is one of the most influential theoretical concepts in explaining market dynamics. The resultant asymmetry creates opportunities for strategic behaviors such as adverse selection and moral hazard. Insurance fraud is most commonly related to policyholders' misreporting the size of their losses or reporting an accident that never happened. People's ethical attitudes regarding insurance fraud have been shown to be influenced by their social or cultural environment. Customers with negative impressions toward insurance companies appear to be more accepting of insurance fraud. There are two types of insurance fraud: opportunistic and planned insurance fraud. This research's main objective is to examine consumers' attitudes toward insurance companies. A statistical analysis of the data using SPSS (Statistical Package for the Social Sciences) software was conducted on the basis of 212 voluntary responses to a questionnaire. The significant results obtained constitute the cornerstone from which we can draw conclusions and recommendations. Respondents with recent claims experience are more likely than others to accept insurance fraud. Women are less likely to commit insurance fraud than men, and the majority of respondents accept insurance fraud. Transparency between insurance companies and policyholders will reduce insurance fraud.

### RÉSUMÉ

L'assurance est une prestation servant à couvrir les pertes imprévues des assurés moyennant la perception d'une cotisation ou prime. Elle est utilisée par les individus, les groupes sociaux et les entreprises dans le cadre de leurs stratégies de gestion des risques et de la complexité. La fraude à l'assurance touche tous les types de polices d'assurance. Elle peut être commise par le titulaire de la police ou un tiers faisant une réclamation sur une police d'assurance. Les réclamations résultant d'une activité frauduleuse ont un impact sur la rentabilité et la fiabilité des assureurs. La fraude à l'assurance a fait l'objet de nombreuses études. L'asymétrie d'information est l'un des concepts théoriques les plus influents pour expliquer la dynamique des marchés. L'asymétrie qui en résulte crée des possibilités de comportements stratégiques tels que la sélection adverse et l'aléa moral. La fraude à l'assurance est généralement liée au fait que les assurés déclarent mal le montant de leurs pertes ou déclarent un accident n'ayant jamais eu lieu. Il a été démontré que les attitudes éthiques des gens concernant la fraude à l'assurance sont influencées par leur environnement social ou culturel. Les clients ayant une impression négative à l'égard des compagnies d'assurance semblent davantage accepter la fraude à l'assurance. Il existe deux types de fraude à l'assurance : la fraude opportuniste et la fraude planifiée. L'objectif principal de cette étude est d'examiner l'attitude des consommateurs envers les compagnies d'assurance. Une analyse statistique des données à l'aide du logiciel SPSS (Statistical Package for the Social Sciences) a été réalisée sur la base de 212 réponses volontaires à un questionnaire. Les résultats significatifs obtenus constituent la pierre angulaire à partir de laquelle nous pouvons élaborer des conclusions et des recommandations. Les personnes interrogées ayant une expérience récente des sinistres sont plus susceptibles que les autres d'accepter la fraude à l'assurance. Les femmes sont moins susceptibles de commettre une fraude à l'assurance que les hommes, et la majorité des répondants acceptent la fraude à l'assurance. Une meilleure transparence entre les compagnies d'assurance et les assurés pourrait permettre de réduire les cas de fraude à l'assurance.

**KEYWORDS:** Insurance, Insurance Fraud, Information Asymmetry, Opportunistic Fraud, Planned Fraud, Policyholders, Customer Attitude.

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**FOREWORD**



## CHAPTER 1 – INTRODUCTION

Today's insurance sector is a reflection of the international society in which it operates. The expansion of business into countries and regions involve risks that must be insured, and a large number of insurers are expanding their operations to meet these needs (Insurance Europe, 2019). With an expanding number of risks insured, insurers can more precisely estimate losses while diminishing the chance of big losses by geographically spreading their exposures. Risk can be associated with the event being insured. Furthermore, underwriters use the phrase "on risk," which means that the site or thing is insured by an insurance company.

Insurance covers risks that are insurable under the terms and conditions of each treaty type, and the policyholder is protected from the financial impact of any loss if the appropriate policy is obtained. The insured has no way of knowing when, where, or how much a particular claim may cost. As a result, insurance is applied to cover unforeseen losses for policyholders at a fixed cost, or premium. So, based on the law of big numbers, the insurer accepts these risks in exchange for an agreed premium. The simple definition of "insurance" is the transfer of unknown risk from people or policyholders to the insurance company by the payment of an agreed-upon premium (Insurance Europe, 2019). Being insured provides financial stability and peace of mind to policyholders because it replaces the uncertainty of a possible future loss with the certainty of the agreed-upon premium.

Through mutual benefits meant to protect against significant but unknown losses, the insurance sector has positioned itself as a major supporter of policyholders and our modern society (Insurance Europe, 2019). Insurance is used by individuals, social groups, and corporations as part of their risk and complexity management strategies. Because of their primary activities of collecting, accumulating, and managing contractual capital savings. Insurance companies have become extremely important institutional investors and key players in global financial markets.

Despite the success of the insurance sector, issues do occur in the industry, especially insurance claim fraud. Insurance fraud is an ongoing problem in the insurance industry. Insurance fraud weakens this system as fraudulent applications and claims diminish the money paid in by the many honest policyholders to cover genuine claims. It has an effect on both insurers and their policyholders, which has an impact on society as a whole. Insurance fraud is neither a victimless crime nor a minor crime. The great majority of honest policyholders end up paying higher insurance rates to compensate for the few dishonest customers. This is why the industry is committed to doing all possible to reduce the problem.

In reference to Insurance Europe (2019) report, member associations showed that there were approximately €13 billion of fraudulent claims in Europe in 2017, and it shows that around €2.5 billion of fraudulent claims were detected. In the United Kingdom, detected non-life claims fraud totaled €1.5 billion; undetected fraud is estimated to cost around €2.275 billion; and the average value of a fraudulent claim in a motor is €13 500, in property is €5 200, in general liability is €23 725, and across all non-life businesses is €13 175. Also, in Insurance Europe, (2019) report and according to France's agency against insurance fraud (Agence de lutte contre la fraude à l'assurance or ALFA), there was €127 million of detected fraud in motor insurance and €125 million in property. ALFA estimates that undetected fraud in motor vehicles is worth €125 million and property fraud is worth €150 million. The average fraudulent claim in the motor industry is €5 096 and, in the property, industry is €11 437. As well reported by the German Insurance Association (GDV) in (Insurance Europe, 2019) report, estimates that fraud accounts for 10% of all claims expenditure since they don't have official data for the German market. Insurance fraud is estimated to cost the Belgian insurance industry more than €500 million a year, or €125 per household, and almost 1% to 3% of claims are investigated for fraud, varying by business line. Likewise, the total cost of insurance fraud in the US for non-health insurance is estimated by the FBI to be more than \$40 billion per year. That means insurance fraud costs the average U.S. family between \$400 and \$700 per year in the form of increased premiums as declared on FBI.gov internet page. In fact, the second largest white-collar crime which takes place in the United States after tax evasion is insurance fraud (Dean, 2004). This became a world-wide problem, billions of dollars' annual losses caused by insurance fraud is expected to occur in the financial world (Dean, 2004).

Insurance fraud affects many types of insurance policies, including non-life insurance, life and protection insurance, and health insurance. Insurance fraud is a significant problem. It can be committed by a policyholder or a third party making a claim on an insurance policy. Claims resulting from fraudulent activity have an impact on insurers' profitability and, potentially, their financial accuracy. The concept of claim fraud is similar in many definitions. Derrig & Krauss (1994) proposed that fraud be reserved for criminals' acts, provable beyond a reasonable doubt, that violate statutes making the willful act of obtaining money or value from an insurer under false pretenses or material misrepresentations a crime. Insurance fraud has been widely studied. Some of the studies focus on the fraud detection systems in the insurance market (Caudill et al., 2005); (Schiller, 2006); and (Tennyson, 2002) other studies focus on information asymmetry (Picard, 1996); (Kim et al., 2009); and (Rowell & Connelly, 2012).

Derrig & Zicko (2002) found that previous research has explained the existence of fraud due to information being asymmetrically distributed between policyholder and the corresponding insurance

company. Information asymmetry is one of the most influential theoretical concepts in explaining market dynamics. Asymmetric information is problematic because it allows players to manipulate and defraud one other, resulting in market inefficiency or even failure. In insurance markets, information asymmetry arises when hiding information exist between an insured and an insurer. The resultant asymmetry in risk assessments creates opportunities for strategic behaviors such as adverse selection and moral hazard (Rothschild & Stiglitz, 1976); and (Arnott & Stiglitz, 1988). The insured transfers risk (of loss) to the insurer, who promises to compensate the insured for losses incurred in exchange for a fee (premium). Due to the asymmetry of information between the parties, both are disposed to moral hazard, which occurs when any party fails to believe honestly or in good faith at any stage during the agreement (Ericson & Doyle, 2003).

Dean (2004) determined that to make the concept of insurance fraud clearer, researchers should start studying policyholders' attitudes toward fraudulent behavior. People's ethical attitudes regarding insurance fraud have been shown to be influenced by their social or cultural environment (Tennyson, 1997). Customers with negative impressions toward insurance companies appear to be more accepting insurance fraud, whereas customers with more positive perceptions toward insurance companies appear to be less accepting insurance fraud (Tennyson, 1997). Insurance fraud is most commonly related with policyholders misreporting the size of their losses or reporting an accident that never happened, but it can also occur when a policyholder gives asymmetric information when the policyholder takes out the policy or when he creates additional damage to inflate the claim's size. Lastly, insurance fraud may result from the autonomous decision-making of opportunistic individuals, but often it goes through involvement with a third party. However, based on previous studies, there are two types of insurance fraud: opportunistic insurance fraud and planned insurance fraud (Tennyson, 2002). Opportunistic fraud attempts to get additional compensation for a legitimately covered incident. Claim exaggeration (build-up) is the most common kind of opportunistic fraud, and it may be committed by any claimant who has been involved in an accident. It is a personal gain by providing false information about an event to an insurance company to get a legal benefit from an event. The immediate cause of opportunistic fraud is perceived opportunity, while planned insurance fraud refers to a careful attempt to invent a risk event that would be covered under the insurance policy (Derrig & Zicko, 2002). Also, professionals may be committed to planned fraud, which is a systematic attempt to get insurance funds by fabricating an accident or injury. Previous studies have shown that opportunistic insurance fraud is more frequent than planned insurance frauds (Tennyson, 2002). Also, fraud types are an important aspect in policyholders' attitude toward insurance fraud.

Our main objective of this study is to examine consumers' attitudes toward insurance companies. Also, to answer the following question: Which characteristics of policyholders and insurance policies influence the propensity to fraud?

Accordingly, enhanced fraud detection and higher fines for fraud may help to limit its occurrence and manage unethical customer behavior. As a result, the deeper cause of opportunistic fraud is a claimant's desire to engage in such action when the opportunity presents itself. Therefore, opportunistic fraud is directly tied to customer attitudes. Tennyson (2002) has found a high level of acceptance of the correlation between opportunistic fraud and consumer attitudes. The most important thing is that combating insurance fraud nowadays is a major concern of most insurance companies.

Section 2 of this paper provides the existing literature regarding consumer insurance fraud and fraudulent behavior; Section 3 includes research problem; Section 4 discusses the survey, methodology analysis; Section 5 includes hypothesizes testing and the results; and Section 6 gives an overall conclusion of this study and major contributions as well.

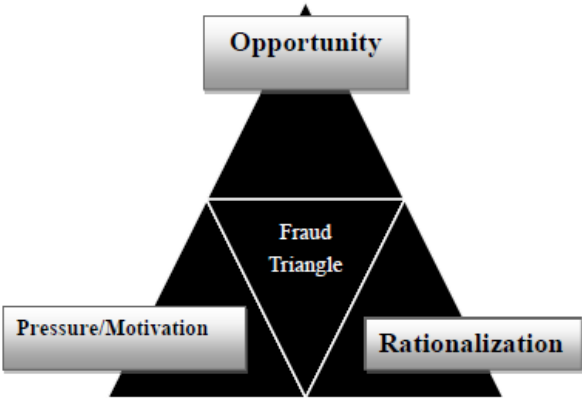
PART 1 :  
-  
LITERATURE REVIEW

# CHAPTER 2 – LITERATURE REVIEW

## I. DEFINITIONS OF INSURANCE FRAUD

The well-known meaning of insurance fraud in literature was given by (International Association of Insurance Supervisors, 2011) as "an act or omission intended to gain dishonest advantage for the fraudster or for the purpose of other parties". This happens due to a) dishonesty of assets, b) planned misrepresentation or material facts pointing to a financial decision, c) abuse of responsibility. Derrig & Zicko (2002) defined insurance fraud as a criminal act that involves obtaining financial gain from an insurer or insured using misrepresentation of facts or false pretenses. Insurance fraud has been grouped into four, namely: internal fraud, policyholder fraud, intermediary fraud, and external fraud (Yusuf, 2011), but in this study we will focus on fraud against policyholders fraudulently.

Clinard (1954) reviewed the book by Cressey, who created a fraud triangle diagram to illustrate what drives people to commit fraud.



Fraud triangle (Cressey, 1971)

Figure 1 Fraud Triangle

Pressure/ Motivation: is when an individual (employee, customer, or intermediary) is driven to act illegally against the insurer by pressure or compensation. Financial pressures, vices, job-related stressors, and other pressures, such as a desire for materialistic items that reflect their wealthier competitors, are all examples of pressure (Anand et al., 2005).

The opportunity to commit fraud, which can be from weak internal controls to a failure punish abusers, is the second essential reason that drives people to commit fraud against an insurer. (Anand et al., 2005).

The lack of feelings or indifference shown by criminals arising from a number of justifications or rationalizations to absolve themselves of the guilt resulting from abnormal activity is a common feature of insurance fraud and all white-collar crime (Anand et al., 2005); and (Derrig & Zicko, 2002).

Okura (2013) examined the links between moral hazard and insurance fraud. The study explored how policyholders' mental tendency to avoid accidents changes once they are covered, as well as the implications for insurers that invest heavily in fraud detection. According to the study's findings, (Okura, 2013) found that insurance fraud fell slightly as insurers invested in preventing fraud. As a result, moral hazard and insurance fraud are positively correlated. Tseng & Su, (2013) evaluated how customer orientation affects sales toward customer misbehavior in the context of two types of fraud (optimistic and planned fraud). According to the study (Tseng & Su, 2013) conclude that high customer orientation does not improve salespeople's tolerance for customer claim fraud, and perceived fraud size and social acceptance have the largest influence on unethical decisions. Customers with a higher customer focus have a lower tolerance for customer insurance fraud.

## II. THE EFFECT OF ASYMMETRIC INFORMATION ON THE PROBABILITY OF CLAIMS

In economics, the study of asymmetric information began in the early 1960s. In a classic paper published in the American Economic Review in 1963, Kenneth Arrow brought the two most well-known concerns, moral hazard and adverse selection, to the literature in a classic paper (Dionne, 2013). Rothschild & Stiglitz (1976); and Shavell (1979) developed the first simple theoretical model of adverse selection and moral hazard in insurance sector. Specifically, Dionne & Lasserre (1987) noted the significance of information transparency in avoiding both adverse selection and ex ante moral hazard concerns. Throughout the last few decades, researchers have provided access to policyholder-level insurance company claim data, which has allowed them to conduct empirical studies regarding the presence of asymmetric information (Gao et al., 2017).

The existence of asymmetric information in several insurance markets has been positively correlated between risk and insurance cover, since (Puelz & Snow, 1994) and this positive correlation continued over the years and was confirmed by (Fong, 2002); (Finkelstein & Poterba, 2004); (Cohen, 2005) and finally by (Gao & Wang, 2011). The majority of empirical literature on asymmetric information in the insurance market shows a significant correlation between insurance coverage and ex post risk insights controlling for the insurance company's risk classification (Gao et al., 2017). While the regular model of adverse selection and moral hazard is based on one-dimensional private information with a positive correlation (Shavell, 1979). Moreover, Finkelstein & Poterba (2014) argue that if asymmetric information exists on several characteristics, such as risk aversion, rejecting the

hypothesis of non-dependence between insurance coverage and risk may not be indicative of the presence of asymmetric information.

Richaudeau (1999) studied the preference between third-party coverage and all-inclusive insurance. He got his data from a survey of French drivers, in addition to information about each policyholder, their cars, how many miles they drive per year and their loss history. At first, all-inclusive and basic insurance are tested and positively correlated. Richaudeau (1999) realized that the error term in this equation measures the policyholder's riskiness after controlling for observed variables that explain the choice of insurance plans. The results were used as an explanatory variable in a second equation that explains the number of accidents in which the policyholder was involved, fitted by a negative binomial model. Richaudeau (1999) finds that the surplus from the insurance equation does not significantly explain the number of accidents, which is a test for asymmetric information. He comes to the conclusion that a modified version of adverse selection is as follows: individuals who drive more are more likely to get all-inclusive insurance, even though they are not at a higher risk per mile travelled; this is called moral hazard due to insurance-induced risky behavior.

Cardon & Hendel (2001) used data from the National Medical Expenditure Survey (NMES) from 1987, which included all health insurance policies by employers to each of their employees, and the policy chosen per the employee. Employees from the same company are given the same coverage, whereas employees from other companies have different options. Cardon & Hendel (2001) study identical employees who confront the same set of choices to see if they are subjected to adverse selection. They look at comparable employees who have different coinsurance rates to see if there is moral hazard, and price sensitivity is determined by the coinsurance variability between individuals. They found negative pricing elasticities that are similar to those observed in the RAND survey, while seeing no evidence of adverse selection. They concluded that moral hazard, rather than adverse selection, is likely to be the main importance of asymmetric information in data.

Stiglitz (2009) said that people who buy life insurance policies are more aware of their health conditions than the insurance companies. This will lead to a negative attitude shown by unethical policyholders by declaring on claims that have not even occurred, which causes displeasure among insurers. Stiglitz (2009) realized that one of the factors of insurance claim fraud is that policyholders do not feel guilty about defrauding insurance companies because they have bad intentions toward them. Moreover, the request of claims for noncovered damages will depend on several policyholders who think that they are in charge of it.



Cohen & Siegelman (2010) concluded that adverse selection occurs when policyholders and insurers have asymmetric information about the risk types of policyholders. Over time, both policyholders and insurers may learn information about policyholders' risk types.

### III. CUSTOMERS' ATTITUDE TOWARD SOCIO-DEMOGRAPHIC, MORALITY AND ENVIRONMENTAL FACTORS

The social and cultural environment, as well as moral and other socio-demographic characteristics, have a significant impact on attitudes toward insurance fraud. Fullerton et al. (1996) analyzed consumers' judgment of ethically uncertain actions in different situations and found that the tolerance for unethical behavior increases as an individual gets older. Moreover, and based on vehicle claims in Spain (Artís et al., 2002) found that young people have a more significant fraud possibility. Fullerton et al. (1996) said that people with a high level of education and a high level of income are related to greater acceptance of unethical behavior. Tennyson (2002) found that individuals with the highest income category are less likely to accept fraud than those that have lower incomes. Also, a specified individual's personal satisfaction with their financial condition is more significant than their income level. Individuals who are dissatisfied with their financial conditions are more likely to commit insurance fraud.

H1. Higher income reduces the propensity of policyholders to commit fraud.

Other research suggests that the living environment and the surrounding field may have an impact on an individual's behavior (ELLIOTT et al., 1996). In this regard, people learn certain behaviors from their surroundings. Tennyson (1997) shows that if insurance fraud is more popular in an individual's environment, then individuals are more likely to approve of this attitude. After several years (Tennyson, 2002), also shows the effect of residential areas, revealing that suburban residents are less willing to accept insurance fraud than urban residents. Tennyson (2002) found that males are more familiar with insurance fraud behaviors than females. Croson & Gneezy (2009) confirm this when they discover that women are more risk averse than men. Also, (Tennyson, 1997) found a positive relation between dishonesty and the possibility of practicing insurance fraud, as well as determinants of attitudes toward insurance fraud. The ethical climate and consumers' perceptions of insurance companies were examined, and the attitudes toward insurance fraud were significantly influenced by consumers' ethical beliefs.

H2a. Women are less likely to commit insurance fraud than men.

H2b. People living in rural areas are less likely to commit insurance fraud than people living in urban areas.

Customers who have reported fraudulent insurance claims are considered unethical. The insurance company's knowledge of dishonest and unethical customers would help the insurance company reduce the fraud and better deal with the issue of heterogeneity. Brinkmann & Lentz (2006) confirmed that heterogeneity affects the fact that the same message from insurance companies regarding ethics can be interpreted differently by different customers. While a given message can support an attitude towards fraud for one group, the same message might provoke opposing attitudes in another group of customers. Brinkmann & Lentz (2006) mentioned that different ethical philosophies and different interpretations of the message due to cultural interpretations are responsible for this phenomenon. Kish-Gephart et al. (2010) found either null or a weak relationship between age, gender, education, and customers' unethical intentions or behaviors.

A lack of understanding of insurance mechanisms can cause distrust and a negative attitude toward the industry. Nonetheless, the insurance sector may have the same feeling among the customers, and they may not have sufficient trust in their education to provide them with a better understanding of the products. These factors may contribute to the insurance fraud environment, as mentioned by (Hoyt, 1990). Also, (Tennyson, 1997) thought that individuals who are worried about their insurer's financial status are more likely to defraud. Artís et al. (2002) demonstrate that policyholders with more claim's history are riskier to defraud.

H3. A high loss history has a significant positive impact on a customer's fraudulent insurance.

Attitudes towards fraud and the extent to which social norms are affected and active are important elements in detecting the intention to commit insurance fraud (Tennyson, 2008). Insurance customers can have different attitudes towards insurance fraud, which can differ from whole rejection to acceptance under certain conditions. Previous research on insurance fraud shows that customers that have a favorable impression of fraud are more likely to commit it (Tennyson, 2002). In the United States, 18% of the general population agrees that a customer should file a larger claim amount to compensate for the premium paid, and 24% agree that a customer should file a higher claim amount to compensate for deductible payments (Corum, 2013). Brinkmann & Lentz (2006) found that in Norway and Germany, insurance fraud is too high in the form of information asymmetry to insurers.

Salleh et al. (2018) found that due to economic fluctuation, customers aim to fake claims and are forced into committing insurance claim fraud, faking car accidents to file claims on their automobile policies, causing damage to their own property in order to declare a claim and for extra funds or to recover the premium that they paid to the insurance company and to cover the expenses. Moreover, Salleh et al. (2018) thought that insurance claim fraud is committed by managers who set fire to the company building to obtain compensation from the insurance company for their business loss.

H4. Recovering money from insurance companies has a significant impact on customers' fraudulent insurance claims.

#### IV. INDIRECT EFFECTS OF INSURANCE CONTRACTS ON FRAUD

The strength of insurance fraud may depend on the awareness of unfair behavior on the part of insurance companies. Dionne & Gagné (2001) did his study on data from Quebec that the volume of the deductible in automobile insurance is a significant factor of the reported loss, at least when there are no other vehicles concerned in the claim, and there is no presence of witnesses in the time of claim. Dionne & Gagné (2001) show that the higher the deductible, the more likely drivers are to make false claims. Although a deductible is a contractual term that cannot be interpreted as an insurer's bad faith, Dionne & Gagné (2001) findings support the notion that the bigger a policyholder's share of an accident's cost, the greater the desire he feels to defraud. Also, the conclusion of (Miyazaki, 2009) of an experimental study "some degree of perceived corporate unfairness, wherein consumers feel that the imbalance in favor of the firm has to be balanced by awarding the claimant a higher dollar amount." Higher deductibles lead to a diminished awareness that faking claims is an unethical behavior.

H5. Policy deductibles have a positive impact on customers' fraudulent behavior.

Regardless of the consequence on the moral standards of insurance fraud, the companies should take into consideration the behaviors of unethical policyholders in the design of the wording of the insurance policies. For example Dionne & Gagné (2001), through their analysis of replacement cost endorsement in automobile insurance, a replacement cost endorsement enables the policyholder to obtain a new car in the case of theft or if the car is verified to be completely damaged as a result of a car accident, typically during the first two years of ownership of a new car. Such endorsements increase the insureds' depreciation protection while simultaneously increasing the chance of fraud by fabricating a fraudulent theft. For endorsements increase the insureds' depreciation protection, but they also increase the incentives to defraud, by creating a fake theft. In an adverse selection condition, a person may decide to add a replacement cost endorsement to his policy because he is aware that he will be at higher risk. Moreover Dionne & Gagné (2001), when policyholders carry an all-risk policy, people may drive less carefully or pay less attention to the threat of theft than when coverage is partial, and therefore, replacement cost endorsements may increase insurance losses due to moral hazard. As a result, the fact that policyholders with a replacement cost endorsement have more accidents or thefts may be due to fraudulent activity, but it might also be due to adverse selection or moral hazard. Dionne & Gagné (2001) statistical tests ex ante moral hazard and adverse selection, and they interpret their results as the effect of replacement cost endorsement on the tendency of fraudulent behavior.

In addition to that, another illustration of the effects of contracts on the tendency for fraudulent behavior with respect to property insurance coverage. Following the claim declaration and the accident of the assets (such as buildings, inventories, and plants), the policyholder must decide whether to restore such assets to their original state, and the contractual indemnity often varies depending on whether the assets are restored or covered. In this context, (Bourgeon & Picard, 2000) characterized the best fire insurance cover as when the insured knows private information about the economic worth of the destroyed assets. Bourgeon & Picard (2000) indicate that the indemnity should be higher in the case of restoration than when the insured receives a reimbursement amount, but that partial coverage should be provided as well. When economic losses are less than the insurance premium, the type of indemnity payments is selected to limit the rent that enterprises receive while also preventing inefficient repair. In this instance, fraud may take place as arson. Dishonest companies may decide to commit arson in order to obtain reimbursement money by setting unprofitable equipment on fire. Bourgeon & Picard (2000) demonstrate that, due to the risk of arson, the insurer may be led not to offer the insured insurance money and only reimburse restoration costs.

Moreno et al. (2006) suggest that adding conditions to the contract may encourage policyholders to be more cautious in order to avoid having claims that will benefit them in following years. It is also known as bonus-malus pricing, and it is generally viewed as either a risk-type learning process under adverse selection or as an incentive device under moral hazard because it decreases the chance of opportunistic policyholders defrauding. When no loss occurs, the policyholder has the opportunity to fraudulently report a loss to the insurer. The insurer does not conduct claims audits and just pays out on any claim made. The insurer, however, modifies the premium in the period after a claim based on whether or not a claim was filed. However, filing a fraudulent claim results in a present benefit to the policyholder, but it costs them a higher future premium.

## V. CUSTOMERS' COLLUSION WITH AGENTS AND SERVICE PROVIDERS

Insurance fraud is frequently committed through collusion between policyholders and a third party. For example, an opportunist policyholder may be able to falsify his claims by collaborating with vehicle mechanics, physicians, or attorneys. Crocker & Morgan (1998) expect that policyholders may spend resources to defraud the actual magnitude of their claims in an environment where verification of claims is impossible. The coverage pattern has an impact on the reasons for falsifying claims, but the cost of falsifying insurance claims varies depending on the actual level of loss sustained by policyholders. At equilibrium, these differential costs allow loss contingent insurance payouts to be implemented with some degree of claims falsification. So, the policyholders are in a position to misrepresent their actual losses by engaging in costly falsification activities.

Won-Joong Kim et al. (1996) stated that agents offer promotional services that affect the demand for the policies offered by the insurer, but this effort cannot be verified by the insurer. Because of minimal promotional efforts, certain agents may be willing to give unreasonably beneficial terms to some policyholders. So, the issue of how an insurer should provide incentives to their selling agents—be the exclusive or independent—is important independently of insurance fraud. However, if the insurer does not handle the relationship with the agents precisely, there will be some collaboration between the agents and the policyholders, resulting in insurance fraud. For example, the agent may be aware that the policyholder is providing inaccurate or misleading information, but he overlooks this abuse in order to sell more policies and raise his incentive. As a result, in this situation, the defrauder is the policyholder and the agent's collaboration.

Mayers & Smith Jr. (1981) stated that the cooperation between independent agents and policyholders happens during the claim settlement phase, and they are frequently allowed more claim administration discretion than exclusive agents who work on behalf of the insurance company. Because independent agents who successfully threaten to switch their customers' business to another insurer are more likely to influence claims settlement in the best interests of their consumers. Fraud can be committed not just by customers, but also by agents, brokers, and other non-policyholder drivers. This means that businesses must be aware of both external and internal fraud (Viaene & Dedene, 2004). Insurance fraud can be classified as either internal or external. Internal fraud is performed by employees of the insurance firm (agents, brokers, managers), whereas external fraud is committed by policyholders, claims, or third parties involved. Fraud can also be committed during the underwriting process or when a claim is filed. Furthermore, fraud can be "soft" when performed by normally honest people who see an opportunity to profit unfairly, or "hard" when planned or deliberated (Viaene & Dedene, 2004).

H6. Insurance agents have a significant positive impact on fraudulent behavior.

Insurance fraud can also be done in partnership with policyholders and in collusion with service providers such as car repair shops, hospitals, and so on. Bourgeon et al. (2008) analyzed the risk of provider-policyholder collaboration and how service provider networks could be leveraged to combat claims fraud. They used two insurance companies and two service providers as examples. The first is a nonexclusive affiliation in which customers of both insurance firms have the freedom to choose their service provider, as shown in the diagram below. In this situation, the policyholder may, for example, cooperate with a car repairer to enable fraudulent claiming by certifying that a policyholder actually needed a repair, despite the fact that this was not the case.

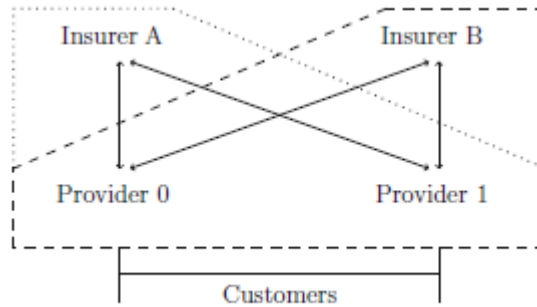


Figure 2 Bourgeon et al. (2008) analysis

While in the second one (Bourgeon et al. 2008), exclusive affiliation, insurance companies are attached to their own providers, as mentioned in the below diagram.

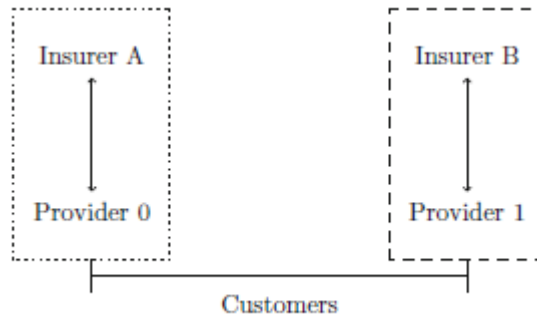


Figure 3 Bourgeon et al. (2008) analysis

In such case, indicating that exclusive affiliation is the most likely structure arise in such a case, with client fraudulent behavior, and it increase profits for insurers.

According to Derrig & Zicko (2002), repair businesses may participate in some fraudulent activities without the insured's awareness or by mutual agreement between the policyholder and the corresponding repair shop. The incentive for service providers to engage in fraudulent acts against the insurance company may come from the desire to gain the favor of policyholders. As a result, the latter may request their services again at a later date.

Hubbard (2002) stated that service providers in general have a reputational incentive to act in the best interests of their clients because satisfied customers are more likely to return. These findings are consistent with statements made by insurance company professionals who have proven that when trying to charge too much for specific services, repair shops focus on the actual damage amount. In this way, even exaggerated claims appear legitimate, and they are less likely to be exposed to an auditing system that results in direct indemnification.

H7. The involvement of service providers has a significant positive impact on fraudulent behavior geared toward insurance.

## VI. FRAUD DETECTION

Insurance companies change how they detect fraud as fraudsters adapt their strategies to avoid detection. In fraud detection, idea drift refers to the phenomenon in which new types of fraud arise along the process and become more unpredictable. When fraudsters change their techniques, behaviors such as the size of claims made in the previous month can be easily influenced. Labeling the various claims can help predict where fraud is occurring.

Liang et al. (2019) study presented that labelling deploys rule-based fraud detection system outputs by using a risk tag for each account, these can be labelled 'high risk' and 'no observable risk'. Liang et al. (2019) Close monitoring would be required for "high risk" accounts, but it is unknown if "no observable risk" accounts are at risk or not because no patterns have yet appeared. Óskarsdóttir et al. (2021) thought that due to time limitations and a lack of resources, only a small number of claims are audited and that not all claims are adequately investigated. As a result, many fraudulent claims will probably go undetected. Dionne et al. (2009) showed that an optimal auditing technique takes the form of a red-flags approach, which includes referring a claim to the auditing unit when certain fraud indications are identified. Warren & Schweitzer (2018) commented that investigators can obtain information from a variety of sources, including witnesses, databases, and physical evidence, claimant interviews have been shown to be the most crucial step in determining whether a claim is paid or refused. Because organizations rarely have the time or resources to evaluate all questionable claims, fraud investigators use their knowledge to make decisions.

Recently insurance companies adopted systems to detect fraud, and these systems are the following:

Karen Ann Gill (2014) talked about Video spectral comparator (VSC): This method, which is most typically used on invoices, estimates, and receipts, uses light rays ranging from ultraviolet to infrared to identify changes to a document. Changes to the paper made with a different ink than the original will stand out because different inks shine more or less fiercely under different light rays.

Also, Karen Ann Gill (2014) indicated Electrostatic detection apparatus (ESDA): This technique can identify handwriting indentations. When a note is written on a pad, the pressure of the pen generally imprints the papers beneath it. This indentation is easily picked up and read by ESDA.

Finally, Insurance Firm to Use Phone Lie-Detector to Expose Fraud (2009) mentioned vocal stress monitor, which has proven useful in insurance companies such as Halifax Bank of Scotland, is

meant to detect speech patterns such as considerable pauses between responses to queries (HBOS). Since 2010, Irish insurers such as Aviva have utilized voice detection technology to evaluate whether a claimant is lying about their claim. However, voice detection technology is not perfect for detecting fraud, and only roughly 80% to 90% of fraudulent utterances are properly caught.

The Association of British Insurers (ABI) revealed that insurers uncovered 130,000 fraudulent claims in 2015, the equivalent of 2,500 a week. The ABI estimates that fraud adds on average an extra £50 to the annual insurance bill for UK policyholders.

Ayboga & Ganji (2021) suggested the following techniques for insurance companies that, as trustees, should take actions to prevent and identify fraud:

- Ayboga & Ganji (2021) said that creation of a special investigation office within insurance companies: To combat insurance fraud, insurance companies should take steps to establish this unit within the company. Insurance companies must recruit top research workers to construct and establish this office. The department investigates and conducts field investigations into instances recognized by fraud assessors and damage specialists to determine the veracity of the incident and other cases suspected of fraud, and provides the necessary evidence for litigation by the firms' legal divisions.

- Ayboga & Ganji (2021) indicated that using damage assessment experts with insurance knowledge and expertise, one of the most important aspects of the claims settlement procedure is the investigation of the case by claims experts. Unfortunately, due to a shortage of skilled and experienced damage assessment experts, insurance companies are unable to detect all cases of suspected fraud and dishonesty. As a result of Ayboga & Ganji (2021), many false claims are declared payable, which not only hurts insurance companies but also encourages fraudsters to fabricate false claims and receive fraudulent damages.

- Ayboga & Ganji (2021) shown that experts and damage surveyors must receive the following training: Firms require the required training and continuing training workshops due to the inexperience of some specialists and damage surveyors, as well as the dynamic nature of fraud and new tactics created over time.

- Ayboga & Ganji (2021) specified the formation of a legal department with legal specialists and understanding of insurance regulations in insurance companies: Insurance companies should form a legal department comprised of insurance law legal professionals. Many insurance claims necessitate the use of insurance law experts to defend insurance companies' rights based on evidence, records, and insurance laws.



There is a 'cheat line' in Ireland where members of the public can phone the Insurance Confidential hotline and report persons, they feel are committing fraud. It is used thousands of times every year, and more than 90% of insurance fraud claims are reported anonymously. By the end of 2017, 11 351 of the cases had been determined to be acceptable of being referred to insurers for investigation (Insurance Europe, 2019). With an aging workforce, insurers are finding it difficult to hire staff with specialized experience in areas such as special investigations and claims adjustment. Despite the fact that it raises premiums, customers have become increasingly tolerant of fraud, and some research demonstrate that consumers believe it is acceptable to defraud insurance firms in certain circumstances. Some people see it as a chance to recover some of the money they have spent on premiums over the years (Deloitte, 2016).

Because fraud can be committed through collaboration involving more than one person, insurers must employ a comprehensive strategy to identify, measure, control, and monitor fraud risk and, as a result, apply proper risk management policies and procedures throughout the company. Tian, (2017) specified that insurance industry is aware of the issue, the lack of a comprehensive and integrated system to control fraud risk remains a priority. Honest customers must bear the cost of fraud losses. Every year, the insurance industry suffers losses due to fraud, causing rates to rise. Despite the fact that the insurance industry and corporations employ agent investigations, adjuster inspections, and internal audits to combat fraud (Tian, 2017).

## VII. IMPACT OF AUDITING ON INSURANCE FRAUD

Insurance companies are very sensitive to fraud activities. Picard (1996) points out that the noncommitment challenge can be fixed by establishing a common agency composed of all insurance companies that does not audit but is in control of audit expenditures and is financed by the entire market through tuition fees. While Schiller (2006) presented in his article Melumad and Mookherjee's suggestion in the case of audit tax, the authorities can delegate the auditing job to an independent investigation agency because they believe there will be no moral hazard issues between the insurance company and the audit agency, and the insurance company has an incentive to renegotiate the contract with the audit agency after the audit contract is publicly signed. Misrepresentation is possible because the insured may have confidential information about the exact amount of the claim. Based on this approach, (Picard, 2000) state that insurance companies can reliably choose to audit income claims in order to determine their accuracy. Some insurance contracts include in its wording using forfeiture clause which means that, if the insured hides evidence or presented fake or false information or lied about the truth of his claim or even if he uses any plans or strategies or any devices in order to fraud and take benefits from what the policy offers, in case the insured is caught or anyone acting on

his behalf, the policy and all its benefits will be considered canceled without any refundable premium or recovery of claims. According to Viaene & Dedene (2004) anticipated that policyholders would have an opportunistic attitude toward insurance fraud as a result of their negative experiences with the insurance business. Underpaid claims or long wait times for indemnity payments may encourage fraud in the future. An opposing strategy to reduce the occurrence of insurance fraud involves the implementation of bonus-malus systems, which make policyholders more careful to avoid claims and avoid defrauding claims in order to receive their discounts from the bonus-malus system due to their satisfactory loss history rather than charging them higher premiums in the coming years due to their bad loss history.

Fagart & Picard (1999) stated that they do not establish an auditing technique that totally avoids or deters insurance claim fraud, despite the fact that we frequently set up the problem of optimizing insurance contracts in such a way that policyholders always report loss amounts correctly in the equilibrium state. From a macroeconomic standpoint, both the approach and the outcome are good. However, this is not always the case when looking at a single corporation. Dionne et al. (2009) goal was to reduce the insurer's overall fraud costs, which include paying a percentage of fraudulent claims, expending expenses to detect and resolve fraud, and dealing with the reputational impacts of investigations. Indeed, they show that for low costs per audit process, the insurance companies' net present value increases in the presence of fraud compared to the case where no fraud exists, and their findings are in line with the assumption of (Watt, 2003).

As evidence, a study of (Dionne et al., 2009) reported that more than 20% of Germans consider insurance fraud to be a 'gentlemen's offense' which is committed by almost everyone at least once, and this perspective can be found by people from all socio-demographic groups. Allowing for the probability of certain fraudulent actions explains the general perception of insurance as an investment which will provide a return. (Duffield & Grabosky, n.d.) collected different approaches and found that policyholders will always find a way to defraud and to justify the reason of doing the fraud. Insurance fraud is assumed to cause no significant harm; insurers are accepted targets which can afford it; buildup is a way to recover past premium payments as mentioned by (Miyazaki, 2009). For this reason, there will always be policyholders trying to defraud by inflating their magnitude of loss. So, auditing processes can help to minimize the share of fraudulent activities among the policyholder.

Müller et al. (2016) considered insurance fraud in the form of built-up; if there is a loss, some policyholders will decide to file a fraudulent claim if it appears profitable. If a person decides to commit fraud, the buildup will be treated as a percentage 'surcharge' on the actual loss amount rather than filing a number that is significantly different from the actual loss amount. This method enhances the possibility that an insurance company will consider a fraudulent claim legitimate, so insurance

companies will avoid an audit process. Viaene & Dedene (2004), policyholders who engage in soft fraud often make claims with small fraud amounts. Because people evaluate the consequences accompanied by losses more heavily than the implications of a gain of the same size.

Müller et al. (2016) concluded that the ideal auditing range from the insurer's perspective provides some constant cost per audit, making it optimal to verify the accuracy of claims in the mid-value sector. Indeed, it is impractical for the insurer to investigate minor claims because the additional costs outweigh the possible savings in the event of fraud detection. Not confirming high-value claims is based on the notion that fraud-prone policyholders do not overstate the extent of their losses above a personal threshold value because they are afraid of being caught in this segment. While a fraudulent strategy based on signals from service providers and other third parties would be beneficial to the policyholder.

PART 2  
-  
RESEARCH PROBLEM

## CHAPTER 3 – RESEARCH PROBLEM

### I. MAIN POINT OF THE STUDY

This section outlines the theoretical framework used to determine the aims of policyholders' fraudulent behavior toward insurance companies. The main goal of this review of related literature is to identify the most important hot research programs in the first phase. Then to find a problem and create an empirical study whose findings could help further the study. From this literature I have examined seven hypotheses as stated below:

H1. Higher income reduces the propensity of policyholders to commit fraud.

H2a. Women are less likely to commit insurance fraud than men.

H2b. People living in rural areas are less likely to commit insurance fraud than people living in urban areas.

H3. A high loss history has a significant positive impact on a customer's fraudulent insurance.

H4. Recovering money from insurance companies has a significant impact on customers' fraudulent insurance claims.

H5. Policy deductibles have a positive impact on customers' fraudulent behavior.

H6. Insurance agents have a significant positive impact on fraudulent behavior.

H7. The involvement of service providers has a significant positive impact on fraudulent behavior toward insurance.

These hypotheses are tested by questionnaires to see if they have impact on customers' fraudulent behavior, and to be compared with the previous studies. Social and cultural environment, as well as moral and other socio-demographic characteristics, have a significant impact on attitudes toward insurance fraud. Tennyson (2002) individuals with the highest incomes are less likely than those with lower incomes to accept fraud. Furthermore, a person's personal satisfaction with their financial situation is more important than their income level, and these factors effect on the customers' fraudulent behavior toward insurance companies. Also, (Tennyson, 1997) showed previously that if insurance fraud is more popular in an individual's environment, individuals are more likely to approve of this attitude. After several years, suburban residents are less willing to accept insurance fraud than urban residents. He found that males are more familiar with insurance fraud behaviors than females because women are more risk averse than men.

Artís et al. (2002) stated that policyholders with more claims' history are riskier to defraud, and those who are worried about their insurer's financial status are more likely to cheat. Uncertainty about insurance mechanisms can breed distrust and a bad attitude toward the sector. Customers in the insurance industry may think the same way, and they may lack confidence in their knowledge to offer them with a better understanding of the products and services. Salleh et al. (2018) stated that insurance claim fraud occurs when customers aim to fake claims or cause damage to their property in order to declare a claim and for extra funds or to recover the premium that they paid to the insurance company. Also, it is committed by managers who set fire to the company building to obtain compensation from an insurance company for their business loss. The strength of insurance fraud may depend on the awareness of unfair behavior on the part of insurance companies. Dionne & Gagné (2001) found that the higher the deductible in automobile insurance is, the more likely drivers are to make false claims. Higher deductibles lead to a diminished awareness that faking claims is an unethical behavior.

According to Viaene & Dedene (2004) Internal and external insurance fraud can be distinguished. Internal fraud is done by employees of the insurance firm (agents, brokers, and managers). In this research, we are focusing on the unethical agent/broker cooperation with policyholders to defraud. While policyholders, claims, or third parties are involved in external fraud, fraud can also be committed during the underwriting process or when a claim is filed. Insurance fraud can also be done in partnership with policyholders and in collusion with service providers such as car repair shops, hospitals, and so on. Bourgeon et al. (2008) analyzed the risk of provider-policyholder collaboration and how service provider networks could be leveraged to combat claims fraud. Repair businesses may engage in some fraudulent activities without the insured's awareness. The incentive for service providers to engage in fraudulent acts against the insurance company may come from the desire to gain the favor of policyholders (Derrig & Zicko, 2002).

PARTIE 3  
-  
METHODOLOGY

# CHAPTER 4 – METHODOLOGY

## I. THEORETICAL FRAMEWORK

The conceptual framework is an illustration that shows the display of both dependent variables and independent variables and connects or links those variables to form a test on this study. The framework below adjusted from the literature review; there are seven independent variables (Age, Gender, Income, Area of Living, Policyholder Satisfaction, Claims Frequency, and Insurance Agents & Service Providers Impact) that are developed to identify their relationship with dependent variable (Insurance Fraud).

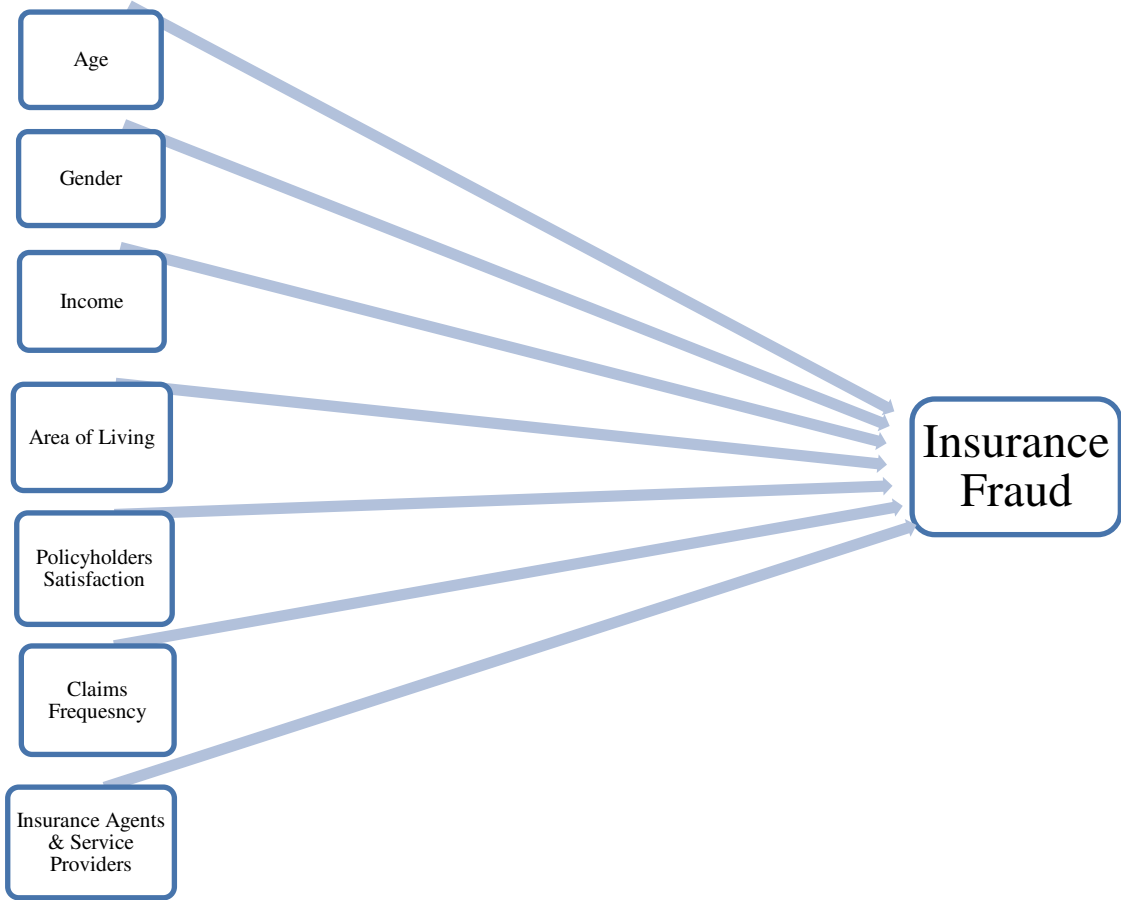


Figure 4 Proposal Framework

## II. RESEARCH SAMPLE

To reduce the sampling error, the largest the sample is the more the data can be generalized and representative of the population. As a non-probability sample is used, the sample size is a more or less subjective judgment made by the researcher. For this study, it will be relevant to be able to obtain a sample of around 212 respondents. The survey was representative focused on Customers in France,



Lebanon and a small number of other countries. Data collected on May 2022. The sample type was a judgmental sample. During the survey 212 questionnaire were distributed, and completed.

### III. DATA COLLECTION

A quantitative approach was adopted for the study by using a questionnaire and the sampling method used is a key point in the research process. A questionnaire is a formalized framework consisting of a set of questions and scales designed to generate primary data. A self-completion questionnaire seems to be the best approach for the quantitative method. There are 38 questions separated in four sections. Followed by the scale and ranking information. The first and second sections contain questions concerning the insurance covers and their claims that are with the customers, the third section contains questions related to the independent variables (Age, Gender, Income, Area of Living, Policyholder Satisfaction, Claims Frequency, and Insurance Agents & Service Providers Impact) and the dependent variable (Insurance Fraud). Finally, the demographic part is in the last section, and it is composed of questions about the gender, age, marital status, education level, income, and area of living which includes the type of people that we are studying the topic on them.

# CHAPTER 5 – HYPOTHESIS TESTING AND RESULTS

## I. DATA ANALYSIS AND HYPOTHESIS TEST

The findings and the data obtained calculated statistically using SPSS, and the findings recorded into table form.

### A. Descriptive Statistics

Descriptive statistics test conducted to calculate the averages, frequency distributions and percentage distributions are the most common form of summarizing. This test is done for all the items that are answered (demographic factors: gender, age, marital status, education level, career situation, income, country of live and area of living) in the questionnaire. The results are shown in the table below:

Gender of the Respondents			
	Frequency	Percent	Cumulative Percent
Male	118	55.7	55.7
Female	94	44.3	100.0
Total	212	100.0	
Age of the Respondents			
	Frequency	Percent	Cum. %
0_20	9	4.2	4.2
21_40	174	82.1	86.3
41_60	22	10.4	96.7
61 & above	7	3.3	100.0
Total	212	100.0	
Marital Status of the Respondents			
	Frequency	Percent	Cum. %
Single	137	64.6	64.6
Married	75	35.4	100.0
Total	212	100.0	
Education Level of the Respondents			
	Frequency	Percent	Cum. %
Bachelor	67	31.6	31.6
Master	110	51.9	83.5
PhD	35	16.5	100.0
Total	212	100.0	

Figure 5 Demographic Statistics Part 1

<b>Career Situation of the Respondents</b>			
	<b>Frequency</b>	<b>Percent</b>	<b>Cum. %</b>
<b>Student</b>	54	25.5	25.5
<b>Employed</b>	144	67.9	93.4
<b>Unemployed</b>	8	3.8	97.2
<b>Retired</b>	6	2.8	100.0
<b>Total</b>	212	100.0	
<b>Gross Monthly Salary Scale in Euro</b>			
	<b>Frequency</b>	<b>Percent</b>	<b>Cum. %</b>
<b>0_500</b>	40	18.9	18.9
<b>501-1,000</b>	44	20.8	39.6
<b>1,001-1,500</b>	43	20.3	59.9
<b>1,501-3,000</b>	66	31.1	91.0
<b>3,001&amp;More</b>	19	9.0	100.0
<b>Total</b>	212	100.0	
<b>Country of Live</b>			
	<b>Frequency</b>	<b>Percent</b>	<b>Cum. %</b>
<b>France</b>	104	49.1	49.1
<b>Lebanon</b>	77	36.3	85.4
<b>Others</b>	31	14.6	100.0
<b>Total</b>	212	100.0	
<b>Area of Living</b>			
	<b>Frequency</b>	<b>Percent</b>	<b>Cum. %</b>
<b>Rural</b>	59	27.8	27.8
<b>Urban</b>	153	72.2	100.0
<b>Total</b>	212	100.0	

Figure 6 Demographic Statistics Part 2

Two-hundred-twelve surveyed between France 49.10 %, Lebanon 36.30 % and some other countries 14.60 %, these respondents distributed between rural areas 27.80 % and urban areas 72.20%, and they gave self-administered questionnaire. The sample characteristics consist of 55.70 % males, and 44.30 % females. 82.10 % of them are between 21-40 years, 64.60 % of them are single, most of them hold Master degree 51.90 %, employed with 67.90 % their income range between 1,501 Euro – 3,000 Euro per month around 31.10%.

	Mean	Median	Mode	Std. Deviation	Range	Min.	Max.	Percentiles		
								25.000	50.000	75.000
No. of Policies	2.684	3.000	3.000	1.135	4.000	1.000	5.000	2.000	3.000	3.000
Influencer	2.684	2.000	2.000	1.231	4.000	1.000	5.000	2.000	2.000	4.000
Car Insurance	1.382	1.000	1.000	0.487	1.000	1.000	2.000	1.000	1.000	2.000
Home Insurance	1.448	1.000	1.000	0.498	1.000	1.000	2.000	1.000	1.000	2.000
Health Insurance	1.132	1.000	1.000	0.339	1.000	1.000	2.000	1.000	1.000	1.000
Life Insurance	1.557	2.000	2.000	0.498	1.000	1.000	2.000	1.000	2.000	2.000
Other Insurance	1.830	2.000	2.000	0.376	1.000	1.000	2.000	2.000	2.000	2.000
Claim Car Insurance	1.901	2.000	1.000	0.811	2.000	1.000	3.000	1.000	2.000	3.000
Claim Home Insurance	2.052	2.500	3.000	0.975	2.000	1.000	3.000	1.000	2.500	3.000
Claim Health Insurance	2.245	2.000	2.000	0.672	2.000	1.000	3.000	2.000	2.000	3.000
Claim Life Insurance	1.873	1.000	1.000	0.987	2.000	1.000	3.000	1.000	1.000	3.000
Claim Other Insurance	1.316	1.000	1.000	0.715	2.000	1.000	3.000	1.000	1.000	1.000
Resolved Claim	2.764	3.000	3.000	1.303	5.000	1.000	6.000	2.000	3.000	4.000
Insurance agent claim process	2.807	3.000	3.000	1.297	5.000	1.000	6.000	2.000	3.000	4.000
Rate Exp.	2.156	2.000	2.000	1.075	5.000	1.000	6.000	1.000	2.000	3.000
Stat_1	2.259	2.000	2.000	1.073	4.000	1.000	5.000	1.000	2.000	3.000
Stat_2	2.259	2.000	2.000	0.915	4.000	1.000	5.000	2.000	2.000	3.000
Stat_3	2.830	3.000	2.000	1.097	4.000	1.000	5.000	2.000	3.000	4.000
Stat_4	2.925	3.000	3.000	0.990	4.000	1.000	5.000	2.000	3.000	4.000
Stat_5	2.410	2.000	2.000	0.967	4.000	1.000	5.000	2.000	2.000	3.000
Stat_6	2.854	3.000	2.000	1.022	4.000	1.000	5.000	2.000	3.000	4.000
Stat_7	3.127	3.000	3.000	1.025	4.000	1.000	5.000	2.000	3.000	4.000
Stat_8	2.146	2.000	2.000	0.822	3.000	1.000	4.000	2.000	2.000	3.000
Stat_9	2.599	3.000	2.000	0.971	4.000	1.000	5.000	2.000	3.000	3.000
Stat_10	2.259	2.000	2.000	0.867	4.000	1.000	5.000	2.000	2.000	3.000
Stat_11	2.712	3.000	2.000	0.962	4.000	1.000	5.000	2.000	3.000	3.000
Stat_12	2.269	2.000	2.000	0.784	3.000	1.000	4.000	2.000	2.000	3.000
Stat_13	2.708	3.000	2.000	0.988	4.000	1.000	5.000	2.000	3.000	3.000
Stat_14	2.255	2.000	2.000	0.838	4.000	1.000	5.000	2.000	2.000	3.000

Figure 7 Descriptive Statistics

Table 2 shows descriptive statistics about the main questions of our questionnaire. We have calculated the mean and the median of these questions to measure the central tendency that gives an

indication of the average value of a distribution of figures. We have also calculated the standard deviation of these questions to show how much variation there is from the average (mean). A low SD indicates that the data points tend to be close to the mean, whereas a high SD indicates that the data is spread out over a large range of values. Based on our records, we find that an average of three policies are held by each policyholder based on the mean that is equal to 2.864 and on its median that reads 3, while one policy is the minimum number per policyholder, and five is the maximum based on our survey results. Since mean is the average of the values of the data set, and the median is the middlemost value. Thus, when they are approximately close which mean our data has a symmetrical distribution. Additionally, these data show that most of the respondents are closer to accepting fraud due to the frequency of mean between 2 and 3 between Stat\_1 and Stat\_14 that are mentioned in my questionnaire survey and are scaled from 1 to 5, where 1 is strongly agree, 2 agree, 3 neutral, 4 disagree and 5 strongly disagree.

After calculating the descriptive statistics for the whole sample, we studied the statements in our questionnaire that were mandatory to be answered by the respondents. To get a general idea of the results, we reduced the scale to agree, neutral, and disagree and we got the following results:

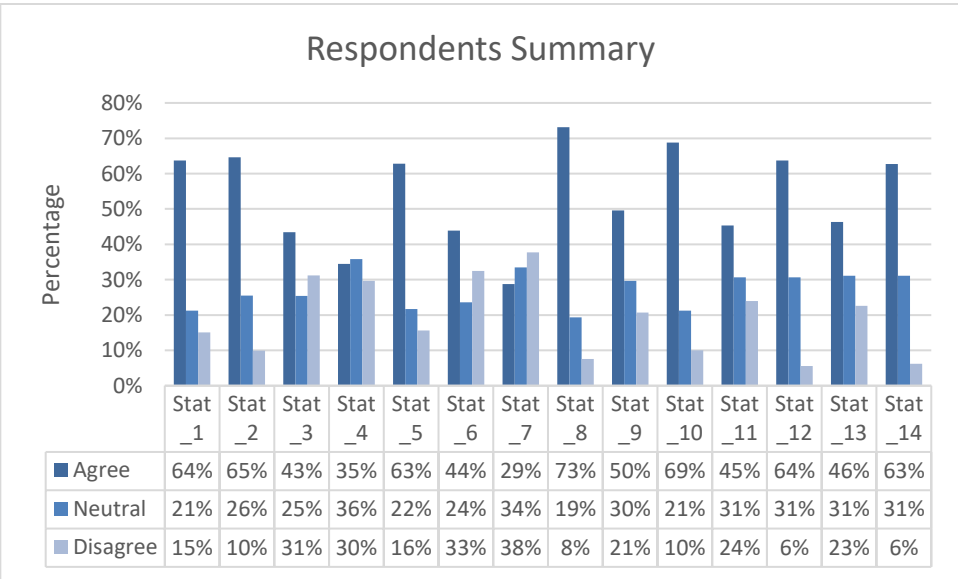


Figure 8 Respondents Graph Summary

These statements talk about how the customers feel toward insurance fraud and represent the following: Stat\_1 Customers do not feel guilty about cheating on the insurance companies due to bad intentions towards them got 64% agreed by the respondents, 21% were neutral, and the remaining 15% disagreed with the idea. Stat\_2 Insurance companies cheat on customers to not pay the indemnity in case of a claim. They almost have the same percentage as Stat\_1 revealed that 65% agreed, 26% were neutral, and 10% disagreed with the statement. Stat\_3 Customers who fake accidents to recover policy premiums and gain money from insurance companies represent 43% of agreed respondents,

25% of neutral respondents, and 31% disagreed with the statement. Stat\_4 Customers with higher incomes reduce the tendency of policyholders to commit fraud 35% agreed, 36% neutral, and 30% disagreed answers. Stat\_5 Customers that are personally satisfied with their financial condition are less likely to accept insurance fraud than those who are dissatisfied with their financial conditions. This includes 63% agreed responses, 22% neutral responses, and 16% disagreed responses. Stat\_6 Customers with a bad economic situation are likely to accept insurance fraud; it contains 44% agreed feedback, 24% neutral, and 33% disagreed. Stat\_7 Rural residents are less willing to accept insurance fraud than urban residents, with 29% agreeing, 34% neutral, and 38% disagreeing. Stat\_8 Being dishonest helps you to do insurance fraud is accepted by 73% agreed responses, 19% neutral, and 8% disagreed. Stat\_9 Customers with a high loss ratio are more likely to accept insurance fraud. They received 50% agreed answers, 30% neutral responses, and 21% disagreed. Stat\_10 Customers whose purpose is to recover the money paid to insurance companies are more likely to accept insurance fraud. They received 69% agreed responses, 21% neutral responses, and 10% disagreed. Stat\_11 As the policy deductibles increased, the customers' insurance fraud increased to 45% agreed, 31% neutral, and 24% disagreed. Stat\_12 Customers take more precautions in order to benefit from Bonus-Malus pricing when it exists. This statement is accepted by 64% of agreed responses, 31% of neutral responses, and 6% of disagreed responses. Stat\_13 A good relationship between an insurance company, a service provider, and an insured facilitates insurance fraud. They received 46% agreement, 31% neutral, and 23% disagreement. Finally, Stat\_14 Applying fraud detection systems and auditing the claims will reduce insurance fraud. Furthermore, 63% of agreed responses, 31% of neutral responses, and 6% of disagreed responses.

After that, we have calculated the descriptive statistics only for the 14 Statement and we have received the following:

<i>Agreed Percentage</i>		<i>Neutral Percentage</i>		<i>Disagree Percentage</i>	
Mean	0.536571429	Mean	0.271785714	Mean	0.191714286
Standard Error	0.036463698	Standard Error	0.01403613	Standard Error	0.028705099
Median	0.5615	Median	0.276	Median	0.1815
Mode	0.637	Mode	0.212	Mode	#N/A
Standard Deviation	0.136434664	Standard Deviation	0.05251839	Standard Deviation	0.107404647
Sample Variance	0.018614418	Sample Variance	0.002758181	Sample Variance	0.011535758
Kurtosis	-1.0559961	Kurtosis	-1.3582346	Kurtosis	-1.280731
Skewness	-0.34573129	Skewness	-0.01217293	Skewness	0.2810187
Range	0.443	Range	0.165	Range	0.321
Minimum	0.288	Minimum	0.193	Minimum	0.056
Maximum	0.731	Maximum	0.358	Maximum	0.377
Sum	7.512	Sum	3.805	Sum	2.684
Count	14	Count	14	Count	14

Figure 9 Statements Descriptive Statistics

Table 3 shows that customers are more likely to commit insurance fraud and don't trust the insurance companies because most of our statements ask if you are with insurance fraud and if you are against insurance companies. Regardless of our last statement, it was asking about the fraud detection and auditing process. The majority of the respondents, around 54%, are concerned with insurance fraud. 27% of them are neutral, and the remaining 19% are against insurance fraud. As mentioned previously, the mean and median are close to each other because our data has a symmetrical distribution, and it is confirmed by the small standard deviation 0.13, 0.05, and 0.10 which means that the values in a statistical data set are close to the mean (or average) of the data set. Since the Kurtosis is lower than -1, so the indication distribution is too flat. In the agree and neutral cases the skewness value of any distribution is showing a negative skew. The skewness of the given distribution is on the left; hence, the mean value is less than the median and moves towards the left, and the mode occurs at the highest frequency of the distribution. While in the disagreed case they show a positive skewness. It is also known as the right-skewed distribution, where the mean is generally there to the right side of the median of the data which means right tail of the distribution is longer than the left.

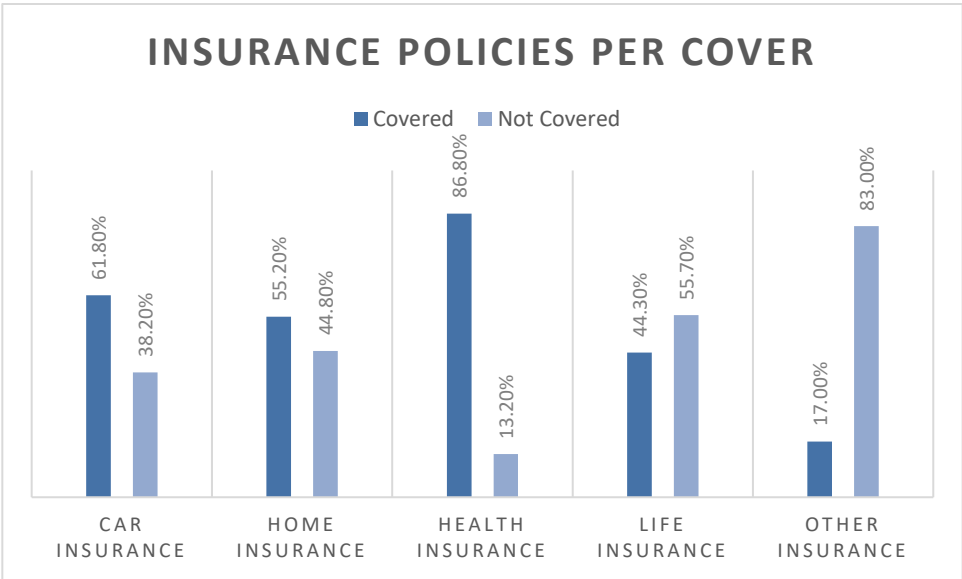


Figure 10 Insurance Policies Per Cover Graph

Figure 6 shows that most of the respondents are more interested in health insurance with 86.60% coverage, followed by car insurance with 61.80%, home insurance 55.20%, and last but not least life insurance with 44.30%.

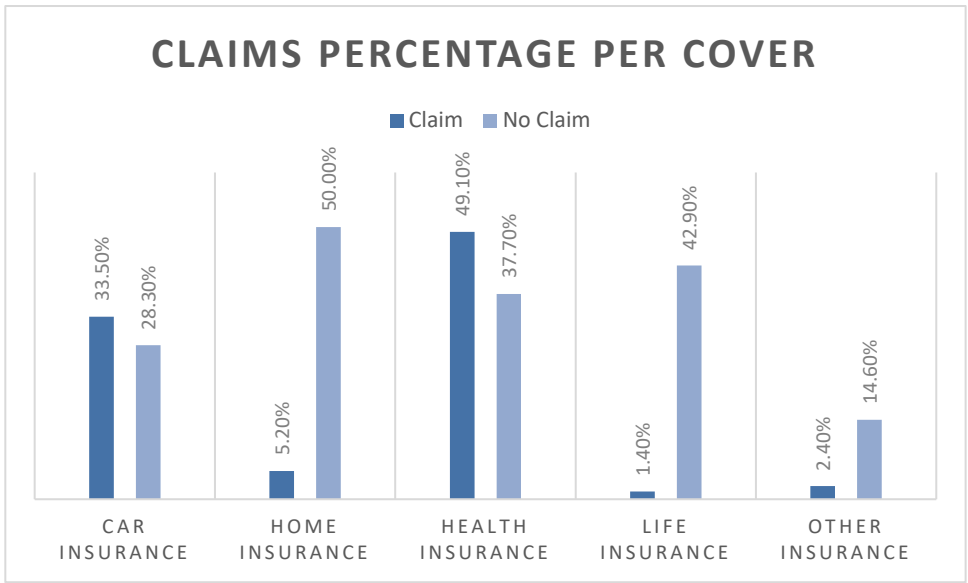


Figure 11 Claims Per Cover Graph

Figure 7 shows the respondents' claim percentage per cover, 86.60% health insurance coverage distributed as follows: 49.20% have claims, the remaining 37.70% are clean of claims. 61.80% car insurance coverage break down as follows: 33.50% have claims while 28.30% don't have any accidents. In addition to the 55.20% home insurance coverage that is distributed as 5.20% claims and the remaining 50% have a clean loss record. Last but not least, 44.30% for the life insurance coverage is distributed as 1.4% losses and the remaining 42.90% is clean of claims. The above graph shows that most of the claims are focused on health and auto insurance policies due to the large scale of production of these types of insurance. So, as production increases, the risk of claim loss increases too, due to the positive relationship between the risk and the production line.

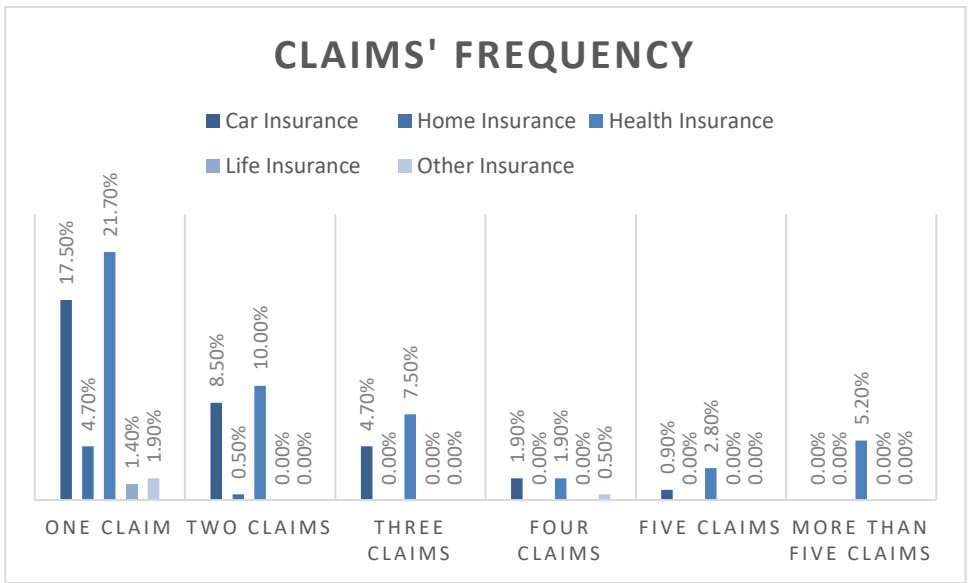


Figure 12 Claims' Frequency

Figure 8 shows the respondents' claim frequency percentage per cover. In this study, we asked the respondents about the number of claims that they have had in the last 5 years for each coverage, and



we have received the following results. Concerning health insurance 21.70% of the respondents have 1 claim, 10% have 2 claims, 7.50% have 3 claims, 1.90% have 4 claims, 2.80% have 5 claims, and 5.20% have more than 5 claims. Also, in car insurance, the respondents have 17.50% with 1 claim, 8.50% have 2 claims, 4.70% have 3 claims, 1.90% have 4 claims, and 0.90% have 5 claims. Moreover, 4.70% of the home insurance respondents have 1 claim, and 0.50% have 2 claims. Last but not least, 1.40% have 1 claim on life insurance policies. Finally, 1.90% of the respondents have 1 claim on other policies and 0.5% have 4 claims too.

**B. Hypothesis Testing**

Based on the questionnaire results that we have collected previously; in this part we are going to see if the 7 hypotheses are positively significant with insurance fraud or not.

*H1: Higher income reduces the propensity of policyholders to commit fraud.*

To test this hypothesis, we constructed a crosstabulation and chi-squared tests between income and customers. Customers that are personally satisfied with their financial condition are less likely to accept insurance fraud than those who are dissatisfied with their financial condition. The P-value was greater than 0.05 and it appeared to be 0.154, so the above hypothesis is not positively significant, but we expect that if our sample has a greater size, this hypothesis will be positively significant because this test compares the size of any discrepancies between the expected results and the actual results. The crosstabulation results showed the following:

			Customer-Satisfaction			Total
			Agree	Neutral	Disagree	
Gross Monthly Salary Scale	0-500 Euro	Count	30	8	2	40
		% Within Gross Monthly Salary Scale	75.00%	20.00%	5.00%	100.00%
	501-1000 Euro	Count	24	9	11	44
		% Within Gross Monthly Salary Scale	54.50%	20.50%	25.00%	100.00%
	1001-1500 Euro	Count	27	13	3	43
		% Within Gross Monthly Salary Scale	62.80%	30.20%	7.00%	100.00%
	1501-3000 Euro	Count	40	13	13	66
		% Within Gross Monthly Salary Scale	60.60%	19.70%	19.70%	100.00%
	3001 Euro & above	Count	12	3	4	19
		% Within Gross Monthly Salary Scale	63.20%	15.80%	21.10%	100.00%
	Total	Count	133	46	33	212
		% Within Gross Monthly Salary Scale	62.70%	21.70%	15.60%	100.00%

Figure 13 Crosstabulation Income vs Customer Satisfaction

As shown in the crosstabulation table, customers with different scales of monthly salary agree with personal satisfaction that their financial condition is less likely to accept insurance fraud than those who are dissatisfied with their financial condition. The results show that the overall average of those who agree with personal satisfaction is 63%, while the average of those who disagree with it is almost 16%.

Chi-Square Test			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.947 <sup>a</sup>	8	0.154
Likelihood Ratio	12.879	8	0.116
Linear-by-Linear Association	1.416	1	0.234
N of Valid Cases	212		

a. 2 cells (13.3%) have expected count less than 5. The minimum expected count is 2.96.

Figure 14 Chi - Square Test

Since cells that have an expected count of less than 5 have an average percentage of 13.30%, which is less than 20%, so the Chi-square hypothesis test is applicable to use its P-value. The chi-square statistic compares the size of any discrepancies between the expected results and the actual results, given the size of the sample and the number of variables in the relationship.

*H2a: Women are less likely to commit insurance fraud than men.*

To test this hypothesis, we constructed a crosstabulation and chi-squared tests between gender and customers who don't feel guilty about cheating on the insurance companies due to bad intentions toward them. The P-value was lower than 0.05 and it appeared to be 0.008, so the above hypothesis is positively significant based on the results of the crosstabulation Chi-square test.

		Customer Don't Feel Guilty			Total	
		Agree	Neutral	Disagree		
Gender	Male	Count	85	22	11	118
		% Within Gender	72.0%	18.6%	9.3%	100.0%
	Female	Count	50	23	21	94
		% Within Gender	53.2%	24.5%	22.3%	100.0%
Total		Count	135	45	32	212
		% Within Gender	63.7%	21.2%	15.1%	100.0%

Figure 15 Crosstabulation Gender vs Customer Don't Feel Guilty

Chi-Square Test			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.628 <sup>a</sup>	2	0.008
Likelihood Ratio	9.656	2	0.008
Linear-by-Linear Association	9.582	1	0.002
N of Valid Cases	212		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.19.

Figure 16 Chi - Square Test

Since the cells' expected count is less than 5 then the expected count percentage is less than 20%, the Pearson Chi-square hypothesis test is applicable to use its P-value, and since the P-value is less than 0.05, the hypothesis tested positive.

*H2b: People living in rural areas are less likely to commit insurance fraud than people living in urban areas.*

To test this hypothesis, we constructed a crosstabulation and chi-squared tests between areas of living customers who don't feel guilty about cheating on the insurance companies due to bad intentions towards them. The P-value was greater than 0.05 and appeared to be 0.224, so the above hypothesis is not positively significant, but we expect that if our sample has a larger size, this hypothesis will be positively significant because this test compares the size of any discrepancies between the expected results and the actual results. The crosstabulation results showed the following:

		Customer Don't Feel Guilty			Total	
		Agree	Neutral	Disagree		
Area of Living	Rural	Count	42	8	9	59
		% Within Area of Living	71.2%	13.6%	15.3%	100.0%
	Urban	Count	93	37	23	153
		% Within Area of Living	60.8%	24.2%	15.0%	100.0%
Total		Count	135	45	32	212
		% Within Area of Living	63.7%	21.2%	15.1%	100.0%

Figure 17 Crosstabulation Area of Living vs Customers Don't Feel Guilty

Chi-Square Test			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.989 <sup>a</sup>	2	0.224
Likelihood Ratio	3.188	2	0.203
Linear-by-Linear Association	0.796	1	0.372
N of Valid Cases	212		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.91.			

Figure 18 Chi - Square Test

Since the cells' expected count is less than 5 are less than 20%, the chi-square hypothesis test is applicable to use its P-value. The chi-square statistic compares the size of any discrepancies between the expected results and the actual results, given the size of the sample and the number of variables in the relationship. The hypothesis tested was negative since the P-value was greater than 0.05.

*H3: A high loss history has a significant positive impact on a customer's fraudulent insurance.*

			Rating Experience					Total
			No Claim	Very Satisfactory	Satisfactory	Neutral	Very Dissatisfactory	
Have you received any Claim in your Health Insurance?	Yes	Count	13	50	24	15	2	104
		% Within Health Claims	12.5%	48.1%	23.1%	14.4%	1.9%	100.0%
	No	Count	37	26	11	5	1	80
		% Within Health Claims	46.3%	32.5%	13.8%	6.3%	1.3%	100.0%
Total		Count	50	76	35	20	3	184
		% Within Health Claims	27.2%	41.3%	19.0%	10.9%	1.6%	100.0%
			Rating Experience					Total
Have you received any Claim in your Car Insurance?	Yes	Count	11	32	16	11	1	71
		% Within Car Claims	15.5%	45.1%	22.5%	15.5%	1.4%	100.0%
	No	Count	30	20	7	3	0	60
		% Within Car Claims	50.0%	33.3%	11.7%	5.0%	0.0%	100.0%
Total		Count	41	52	23	14	1	131
		% Within Car Claims	31.3%	39.7%	17.6%	10.7%	0.8%	100.0%

Figure 19 Crosstabulation Health Claims; Car Claims vs Customers Don't Feel Guilty

To test this hypothesis, we constructed 2 crosstabulation and chi-squared tests between health claims and the rating experience of the customer during the claim process. Also, between car claims and the rating experience of the customer during the claim process. We chose these two lines of business because they have the highest claims frequency, as mentioned previously.

Health Claims Chi-Square Test				Car Claims Chi-Square Test			
	Value	df	Asymptotic Significance (2-sided)		Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.583 <sup>a</sup>	4	0.000	Pearson Chi-Square	19.884 <sup>a</sup>	4	0.001
Likelihood Ratio	27.098	4	0.000	Likelihood Ratio	20.884	4	0.000
Linear-by-Linear Association	15.532	1	0.000	Linear-by-Linear Association	16.291	1	0.000
N of Valid Cases	184			N of Valid Cases	131		
a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.30.				a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is .46.			

Figure 20 Chi - Square Test

The P-value was lower than 0.05 and appeared to be 0.000 for health claims and 0.001 for car claims, and the percentage of cells that have an expected count of less than 5 is 20%, so the above hypothesis is positively significant.

*H4: Recovering money from insurance companies has a significant impact on customers' fraudulent insurance claims.*

			Rating Experience					Total
			No Claim	Very Satisfactory	Satisfactory	Neutral	Very Dissatisfactory	
Resolved Claims	Agree	Count	15	75	7	3	1	101
		% Within Resolved Claims	14.9%	74.3%	6.9%	3.0%	1.0%	100.0%
	Neutral	Count	0	5	31	3	1	40
		% Within Resolved Claims	0.0%	12.5%	77.5%	7.5%	2.5%	100.0%
	Disagree	Count	0	0	1	18	1	20
		% Within Resolved Claims	0.0%	0.0%	5.0%	90.0%	5.0%	100.0%
Total		Count	15	80	39	24	3	161
		% Within Resolved Claims	9.3%	49.7%	24.2%	14.9%	1.9%	100.0%

Figure 21 Crosstabulation between Resolved Claims and Rating Experience

Chi-Square Tests						
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	192.979 <sup>a</sup>	8	0.000	0.000		
Likelihood Ratio	164.102	8	0.000	0.000		
Fisher-Freeman-Halton Exact Test	153.074			0.000		
Linear-by-Linear Association	85.396 <sup>c</sup>	1	0.000	0.000	0.000	0.000
McNemar-Bowker Test			. <sup>b</sup>			
N of Valid Cases	161					
a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .37.						
b. Computed only for a PxP table, where P must be greater than 1.						
c. The standardized statistic is 9.241.						

**Figure 22 Chi - Square Test**

To test this hypothesis, we constructed crosstabulation and chi-squared tests between resolved claims and the rating experience of the customer during the claim process. Because the resolved claims reflect the frequency of the total number of claims across all lines of business. So, as this number increases, the recovery of money also increases. For this reason, we chose to test the resolved claims in terms of rating experience. First, we use the Pearson Chi-square test, but the number of cells with an expected count of less than 5 is 46.70%, which means the Chi-square test is not applicable nor the McNemar Bowker Test. For this reason, we tried the Fisher-Freeman-Halton Exact Test. The P-value was lower than 0.05 and appeared to be 0.000, so the above hypothesis is positively significant.

*H5: Policy deductibles have a positive impact on customers' fraudulent behavior.*

Since in our questionnaire we don't have 2 variables related to the policy deductibles to construct crosstabulation, we studied the respondents' expectations of the policy deductibles. 45.30% agreed that as the policy deductibles increase, the customers' insurance fraud increases. While 24.00% disagreed with this statement, the remaining 30.70% said it was neutral. The below graph represents each percentage amount.

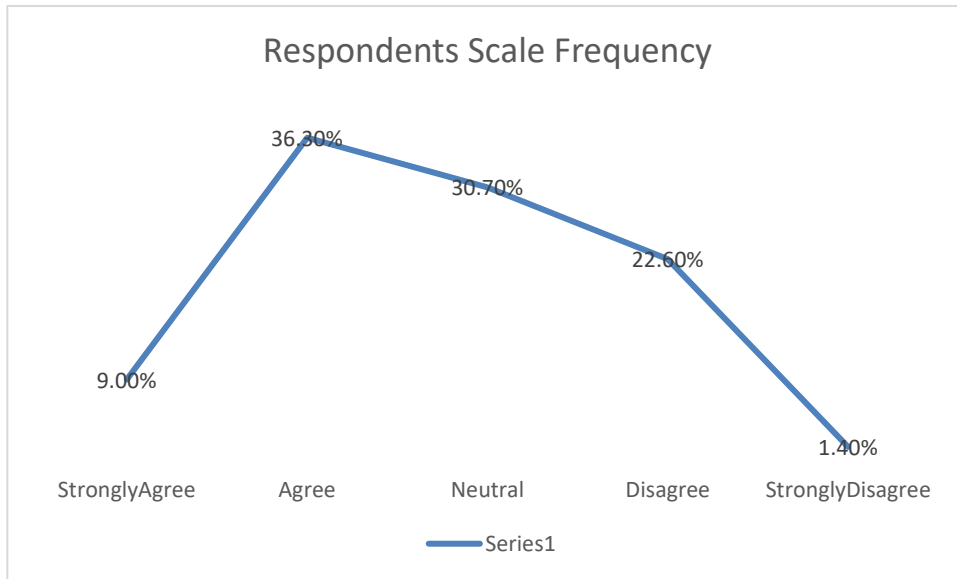


Figure 23 Policy Deductible Impact

*H6: Insurance agents have a significant positive impact on fraudulent behavior.*

*H7: The involvement of service providers has a significant positive impact on fraudulent behavior toward insurance.*

In the 6th and 7th hypotheses we have tested the agency and service provider impact in the case of a claim on the rating experience of the customers when the claim is settled. So, we have constructed a crosstabulation between the two variables related to the agency and service provider who produce the overall rating experience and make the claim processes easier, and we got the following:

			Rating Experience					Total
			No Claim	Very Satisfactory	Satisfactory	Neutral	Very Dissatisfactory	
Agent and Service Providers	Agree	Count	10	50	15	13	1	89
		% Within Agent and Service Provider	11.2%	56.2%	16.9%	14.6%	1.1%	100.0%
	Neutral	Count	5	25	23	6	0	59
		% Within Agent and Service Provider	8.5%	42.4%	39.0%	10.2%	0.0%	100.0%
	Disagree	Count	0	5	1	5	2	13
		% Within Agent and Service Provider	0.0%	38.5%	7.7%	38.5%	15.4%	100.0%
Total		Count	15	80	39	24	3	161
		% Within Agent and Service Provider	9.3%	49.7%	24.2%	14.9%	1.9%	100.0%

Figure 24 Crosstabulation between Agents, Service Providers and Rating Experience

Chi-Square Test						
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	31.944 <sup>a</sup>	8	0.000	0.001		
Likelihood Ratio	25.053	8	0.002	0.002		
Fisher-Freeman-Halton Exact Test	22.503			0.001		
Linear-by-Linear Association	8.780 <sup>c</sup>	1	0.003	0.003	0.002	0.001
McNemar-Bowker Test			. <sup>b</sup>			
N of Valid Cases	161					
a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is .24.						
b. Computed only for a PxP table, where P must be greater than 1.						
c. The standardized statistic is 2.963.						

**Figure 25 Chi - Square Test**

First, we use the Pearson Chi-square test, but the number of cells with an expected count of less than 5 is 40.00%, which means the Chi-square test is not applicable nor the McNemar Bowker Test. For this reason, we tried the Fisher-Freeman-Halton Exact Test. The P-value was lower than 0.05 and appeared to be 0.001, so the above hypothesis is positively significant.



## CHAPTER 6 – CONCLUSION

### CONCLUSION

There is no single standard definition of fraud, and it differs between insurers and the insurance institute. Based on our questionnaire spreading, insurance claim fraud was found to be a grave issue worldwide due to the adverse impacts posed by consumer's attitudes. Insurance fraud is a problem that everyone, not just insurance companies, should be concerned about. Fraud is extremely costly, costing the economy millions of euros each year. In order to account for the losses incurred as a result of fraud claims, insurers charge a higher premium to their other policyholders. This effectively means that policyholders bear the cost of fraud. Insurance fraud is not a new phenomenon; it has been around for decades. This research examines customers' fraudulent behavior toward insurance companies. It can be concluded in this study that there is a positive association between consumers' attitudes and the influences they pose on insurance claim fraud. Our survey results focused on claims handlers, claim process experience, and the effect on insurance fraud, asking if they have the possibility to defraud insurance companies.

This study examined responses to an attitude toward insurance fraud questionnaire to examine the relationship between insurance experience and an acceptable attitude toward fraud. According to the study, survey respondents with recent claims are significantly more likely than others to accept fraud. The results of this study support the five of the hypotheses regarding determinants of attitudes toward insurance fraud that are positively significant: (1) Women are less likely to commit insurance fraud than men. (2) A high loss history has a significant positive impact on a customers' fraudulent insurance claim. (3) Recovering money from insurance companies has a significant impact on customers' fraudulent insurance claim. (4) Insurance agents have a significant positive impact on fraudulent behavior. (5) The involvement of service providers has a significant positive impact on fraudulent behavior. As mentioned previously, due to the sample size, the other hypotheses are not positively correlated, but if we have a larger sample size the results may change. Our overall result is that the majority of respondents accept insurance fraud based on our questionnaire. For this reason, insurance companies must improve their fraud detection systems and must invest more in the auditing process to limit customers' insurance fraud. Otherwise, it will stay costing them millions of euros on a yearly basis.

The goal of this research is to focus on customers' insurance fraud toward insurance companies and to implement new procedures to reduce and prevent such fraudulent activities. As fraudulent behavior decreases, the insurance companies' profitability will increase. In this case, the services will

be improved too. In addition to that, premiums may be studied more and decreased based on the profile of the customers. These days, insurance companies are increasing their premiums to protect themselves from some customers' unethical and fraudulent behavior, and loyal customers are paying for the mistake that was made by the unethical customer.

Further research should include a more qualitative and quantitative approach, including more in-depth interviews and a larger sample size for quantitative questionnaires. In addition, interviews would be especially useful for further research and would provide an explanation for some of the responses received to the questions posed for this research report. According to the participants' comments, the researcher would propose asking for more information about how they are now obtained and how the procedure of receiving claim documents could be improved. In this case, customers may change their mind, especially on the 2nd statement that we mentioned in our questionnaire, "Insurance companies cheat on customers to not pay the indemnity in case of claim." Because in the customer mentality of our sample, 65% agreed on this statement, 26% were neutral, and 10% disagreed with the respondents. By improving the claim process and being more transparent with customers, they may change their impression of the insurance companies, and this will help to decrease fraud too.

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### APPENDIX 1: QUESTIONNAIRE

Dear Participant,

My name is Mohamad Khalid Najjar, and I am currently a M2 Advances in Finance & Accounting student at Grenoble IAE. This survey forms part of my dissertation project and I would be extremely grateful if you could participate in my study. You are being asked to take part in a research study on Insurance Against Fraud. This research aims to find out policyholders' fraudulent behavior toward insurance companies.

This study is for academic research with the aim of expanding the researcher's knowledge. This online questionnaire is anonymous, all information and data collection will be treated in the strictest confidence and will be stored safely. This information will be used for the dissertation purposes only and will not identify any individual. You are not at any stage required to identify yourself.

In this study, you will be asked to answer questions which should take less than ten minutes to complete. Once completed the participant will have no further requirements. Your help with filling in this questionnaire will be most appreciated.

Your sincerely,

Mohamad Khalid Najjar

**First, I would like to ask you some questions about your insurance strategy.**

- 1- How many insurance policies do you have?  
 One  Two  Three  Four  Five
- 2- Who influenced you to get insurance policy?  
 Family & Friends  Insurance Agent  Government  Work  Others
- 3- Please mention your current insurance policies (You can choose more than one cover):  
 Car  Home  Health  Life  Others
- 4- What is the period of cover of your current insurance policy/ policies that you selected above?  
 1 Year Policy  2 Years Policy  3 Years Policy  4 Years Policy  5 Years Policy and more
- 5- Based on the above insurance cover selections, have you received any claim/ indemnity with these policies over the last 5 years? Please give the answer for each of your covers separately.
  - Car insurance  
 Yes  No
  - Home insurance  
 Yes  No
  - Health insurance  
 Yes  No
  - Life insurance  
 Yes  No
  - Other insurance

Yes  No

- 6- Based on the above insurance cover selection, how many claim/ indemnities did you receive
- Car insurance  
 1 claim  2 claims  3 claims  4 claims  5 claims  more than 5 claims
  - Home insurance  
 1 claim  2 claims  3 claims  4 claims  5 claims  more than 5 claims
  - Health insurance  
 1 claim  2 claims  3 claims  4 claims  5 claims  more than 5 claims
  - Life insurance  
 1 claim  2 claims  3 claims  4 claims  5 claims  more than 5 claims
  - Other insurance  
 1 claim  2 claims  3 claims  4 claims  5 claims  more than 5 claims

**Second, I would like to ask you some questions regarding your recent experience with insurance claims (you can skip this if you are not concerned)**

- 7- What is your latest type of insurance claim?  
 Car  Home  Health  Life  Other type
- 8- When was the last time you had a claim?  
 1 week ago  1 month ago  6 months ago  1 year ago  3 years ago  more than 3 years
- 9- How did you report the claim to the insurance company?  
 Phone Call  Office Visit  Mail  Website  Letter
- 10- Did an expert come to expertise the damages?  
 Yes  No
- 11- How long did it take for the claim to be settled?  
 Less than 1 week  1-2 weeks  2-4 weeks  1-2 months  over 2 months
- 12- Was the claim resolved in a timely, efficient and effective manner?  
 Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree
- 13- Did working with an insurance agent or agency made the claim process easier?  
 Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree
- 14- How would you rate your overall experience during the claim process?  
 Very Satisfactory  Satisfactory  Neutral  Unsatisfactory  Very Unsatisfactory

**Third, I would like to take your opinion on the following statements:**

- 15- Customers do not feel guilty of cheating on the insurance companies due to bad intentions about them.  
 Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree
- 16- Insurance companies cheat on customers to not pay the indemnity in case of claim.  
 Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

17- Customers fake accidents to recover policy premium and gain money from insurance companies.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

18- Customers with higher incomes reduce the tendency of policyholders to commit fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

19- Customers that are personally satisfied with their financial condition are less likely to accept insurance fraud than those who are dissatisfied with their financial conditions.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

20- Customers with bad economic situation are likely to accept insurance fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

21- Rural residents are less willing to accept insurance fraud than urban residents.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

22- Being dishonest helps you to do insurance fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

23- Customers with high loss ratio are more likely to accept insurance fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

24- Customers whose purpose to recover the money paid to insurance companies are more likely to accept insurance fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

25- As the policy deductibles increases, the customers insurance fraud increases.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

26- In addition to the insurance policy, customers take more precautions to not face claims to benefit from Bonus-Malus Pricing when it exists.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

27- Good relationship between insurance agent, Service Provider and Policyholder makes insurance fraud easier for all of them.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

28- Applying fraud detection systems and auditing the claims will reduce the insurance fraud.

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

**Finally, I would like to ask you some questions about yourself.**

29- What is your gender?

Male  Female

30- How old are you?

Between 0-20  Between 21-40  Between 41-60  61 and above

31- What is your marital status?

Single  Married

32- Your education level:

Bachelor  Master  PhD

33- Are you:

Employed  Student  Unemployed  Retired

If employed, please state your occupation:

Farmers  Artisans, merchants and business leaders  Executives and higher intellectual professions  Intermediate Professions  Employees  Workers  Other persons without professional activity

34- What is your gross monthly salary scale?

0 – 500 €  501 € – 1,500 €  1,501 € – 3,000 €  3,001 € and above

35- What country do you live in?

France  Lebanon  Other Countries

36- For people living in France, what is your Département number? (Please State)

37- Please tick your area:

Urban  Rural

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