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HEURISTICS EFFECTS ON PHONE INSURANCE PURCHASE

Master Thesis in Behavioral Economics

Minor in Marketing

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Abstract

The study attempts to test biases and heuristic effects on the decision making process of purchasing a smartphone insurance. Through a survey, participants have been tested on framing effects and attitudes toward moral hazard, the endowment effect, and the availability bias. Results confirmed the significant influence of framing on potential policy holders. This comes along with a higher willingness to buy the insurance when they reported higher attitude toward moral hazard. Moreover, in the survey participants reported that they seek insurance mainly to achieve a state of peace of mind. Ultimately, the aim of this study is to provide tools and techniques to overcome the obstacles in the decision making process that set individuals apart from maximizing their outcomes. Both internal and external tools are provided and explained.

Contents

Introduction

The insurance field appears complex and difficult to understand at the eyes of potential policy holders. The decision to purchase an insurance is always accompanied by doubts and uncertainties which do not ease the process of decision making. Moreover, individuals are likely to fail in properly processing and evaluating the probabilities of uncertain events, which is not an easy task for the human mind. Decision making process in the insurance context has been largely studied over the years. The focus of these studies, however, regards mostly health insurances and natural hazards such as floodings and earthquakes. In the context of natural hazards, findings revealed that individuals are more likely to insure high probability events with small losses compared to lower probability events with higher losses (Slovic et al., 1977). On the other hand, under Prospect Theory individuals tend to be risk averse for losses with low probability, and risk seeking for losses with high probability (Tversky & Kahneman, 1992). The aim of these past studies is to provide a better understanding of the reasons that keep individuals from insuring huge losses, departing them from mitigating risks. However, insurance policies can be of any type and not all of them are equally efficient.

This study is motivated by the potential inefficiencies experienced by phone insurance policyholders. Phone insurance may appear as useful and cheap. However, when the attention is moved to a long-term period, it is possible to realize that these types of insurances are not efficient for the policy holder. Abelson (1996) made a list of policies considered to 'offer little value for their money'. This list includes all those insurances that have low expected loss, both because of a very low probability of occurrence or a very small loss in terms of amount of money (Kunreuther, et al., 2013a). This reasoning holds whenever we refer to possessions that individuals can rebuy in case of damage. Smartphones are an example of possession that are not considered as an unbearable expense. It may require some kind of sacrifices for some individuals, but altogether they are not considered "catastrophic financial losses'' (Robert J. Hunter, director of insurance for the Consumer Federation of America, 1996). For these reasons, it is considered that phone insurances are not always the best choice for consumers in terms of utility maximization. However, nonmonetary reasons are often stronger in driving the purchase of an insurance, but they are not always easily predicted by economic models. Despite a decision may be far from the ideal option, it is argued that it still constitutes the best solutions for oneself at that moment (Johnson et al., 1993).

The following study attempts to study the influence of framing effect and heuristics on the decision-making process of buying a phone insurance. Participants are asked to undergo a

specific treatment in which they are offered a phone insurance with premiums and deductibles or a policy with a payback at the end of the contract. In the first case the individual is proposed an offer with a premium at the beginning of the contract and a deductible in case of filing a claim. In the second option the policy holder is asked to pay an initial sum, which will be partially returned if at the end of the contract no file has been claimed. The two offers are identical in terms of monetary value, but they differ in the frame of the proposal. Positive and negative values in the frame of the proposal are expected to change the perspective of the reader. This has been proved in a context of car insurances, where respondents were more likely to purchase the insurance in the case of a rebate at the end of a contract (Johnson et al., 1993).

According to the literature, individuals are expected to buy more likely the insurance with an initial higher sum and a partial payback at the end of the contract. Assigning individuals to one of the treatments aims to understand whether individuals are sensible to framing in a context of phone insurance. This context differs from previous study for the nature of the possession itself. As mentioned, the acquisition of a new smartphone is not considered an unbearable expense, and for this reason individuals may apply a different decision making process compared to high involvement expenses. Multiple personal beliefs, heuristics and biases can have a role in shaping the decisions of a potential policy holder. Therefore, individuals are also tested on common tendency and heuristics to evaluate how these can have an effect on the decision previously made. Moral hazard, the endowment effect, and the availability heuristics are measured. Individuals' tendencies will be captured trough a Likert-scale, measuring the degree of agreement with four statements for each element. It is expected that higher agreement with the statements leads to a higher likelihood of purchasing the phone insurance.

The aim of this study is to have a better understanding of the influential factors of the decision making process strictly related to the purchase of a phone insurance. The findings are used to make people aware of the biases and heuristics that push them toward paying for inefficient coverage. These three factors are only a minimal part of the influences that individuals undergo when taking decisions. During the survey, individuals are also encouraged to think about an advantage and a disadvantage of buying a phone insurance. Answers provide a deeper view on the reasoning and help the author in formulating counterarguments showing more efficient solutions. This paper seeks to have a deeper understanding of the power of these influencing factors. Proving the effects of heuristics on phone insurance purchase decisions provides the tools to assume that specific techniques can

be used to nudge individuals (Wiener et al., 1986). This goal is achieved through the libertarian paternalism approach, creating a situation that is likely to enhance people's welfare (Thaler & Sunstein, 2003). In the discussion section different debiasing tools will be explained. The final goal is not to force people in cancelling or not buying the phone insurance. However, it consists in making people conscious of their future decisions, by showing how heuristics and framing effects distort their decision making process.

Research question

How do framing and heuristics influence the decision making process of phone insurance policy holders?

Literature Review

Expected Utility and rationality

The well-established economic model of Expected Utility predicts human behaviour assuming that they will base their decision process on maximizing their utility function (Machina, 1990). A rational decision-making process follows a few steps that bring individuals to choose the utility maximizing option (Doyle, 1998). Firstly, an individual considers the different options that are available. Then, the options are assessed, and preferences are determined. Given an ordered list of options based on the preferences the decision is taken choosing the option that leads to the optimum result, maximizing the utility of the decision maker. Rational and predictable models lead individuals to exploit the benefits and efficiency that insurances bring to the market. Indeed, the expected utility theory indicate how potential policy holders evaluate the trade-offs between the costs and the expected benefits of the coverage (Kunreuther, et al., 2013a).

The willingness to purchase an insurance coverage comes from the preference to pay a small certain amount to avoid a large uncertain loss (Kunreuther, et al., 2013b). This behaviour is subject to the individuals' attitude toward risk, making them pay more when they are more risk averse. Risk averse individuals are prone to pay more than the expected loss, and the extra amount that they are willing to pay depends on their degree of risk aversion (Kunreuther, et al., 2013a). In real life, the premium is mostly chosen by the insurer, based on different factors. Elements influencing the premium are past trends, habits, and reliability of the policy holder, but also the limits and deductible chosen for the insurance plan. Premiums often result to be higher than the expected loss, turning the deal inefficacious for the

policyholder. The exceeding price of the policy is also due to the additional fees related to administrative costs and profits.

Expected Utility also assumes that the decision maker is always precise and vigilant when taking decisions in their daily life. Individuals being risk averse by nature will buy the insurance to avoid changes in their wealth (Wiener et al., 1986). However, it has been argued that individuals with a full understanding of the expected loss and full information over the insurance will buy it if and only if the nonmonetary dimensions are stronger than the monetary ones (Slovic et al., 1997).

It is proved that multiple factors, such as inertia and poor knowledge, come into action and lead individuals toward inefficient decisions (Liebman & Zeckhauser, 2008). Indeed, the rational decision-making process is often deviated by personality traits, cognitive biases, and habits (Kahneman, 2012). Humans are driven by irrationality which is likely to deviate them from the rational maximization of their utility (Barkovic, 2019). Nonetheless, the rationality that drives the homo economicus toward the best option assumes the non-realistic assumption that the individual has full control over the information regarding the matter. Not only this assumption is highly unrealistic, but it would also be difficult for the decision taker to process all the pieces of information.

Prospect Theory & Irrationality

Prospect Theory enters the field in 1979, filling the gaps the expected utility was unable to fulfil (Kahneman & Tversky, 1979). The model has then been revised in the next years with the contribution of other economists and the addition of cumulative prospect theory (Quiggin, 1982; Schmeidler, 1989; Weymark, 1981; Yaari, 1987). Economists started realizing that expected utility was missing out important aspect of individuals' decision making both under risk and uncertainty. Prospect Theory, on the other hand, is able to predict choices by incorporating more human traits.

The Prospect theory has been created with the aim of explaining patterns that have been observed. Decision takers showed different attitude toward risk depending on the surrounding context (Tversky & Kahneman, 1992). They tended to be more risk averse for medium and large probabilities of receiving a gain, or with a small probability of losing an amount of money. On the other hand, risk seeking attitudes were more common with small probabilities of gaining a sum or medium to large probabilities of losing an amount of money. Based on the position of the outcome compared to the reference point, the decision taker shows different and opposite risk attitudes for gains and losses. For this reason, the effect is also called reflection effect.

Consequently, individuals also proved to be sensible to the framing effect changing the perception of the outcomes based on the negative or positive value in which it is proposed (Arrow, 1982). Further investigating, the psychological effect deriving from decisions also had a role in the process. The psychological impact of a loss has been discovered to be more impactful than a gain of the same absolute value (Tversky & Kahneman, 1986). One of the characteristics of the prospect theory is reference dependence, where reference points become the grounds for decision-making (van Osch et al., 2006). Decision involving risk and uncertainty are based on the evaluation of the outcome compared to the reference point, which is different from person to person (Piñon & Gambara, 2005). The reference point is usually defined as the status quo or the position of current assets. However, it can be any reference point used by the individual, e.g., aspirational level (Kahneman and Tversky, 1979).

To accommodate and explain the previous patterns the model evolves in two main parts: editing and evaluation (Sebora & Cornwall, 1995). The first step is about framing: alternatives are edited by attaching values to outcomes and weights to probabilities. In the editing phase, the decision-maker compare outcomes to the reference point. This is a mental step, processed internally to have a clear and subjective view of the outcomes. The second phase, instead, includes the evaluation of the attainable options (Kahneman & Tversky, 1979). This is done through the value function and probability weighting function. The decision taker evaluates the outcome directly referring them to the reference point. In this way, the outcomes are redefined as a gain, or a loss compared to the subjective benchmark. A comparison among outcome is then processed. Diminishing sensitivity and loss aversion play a role in the second phase. The closer the outcome to the reference point, the more sensitive the individual is in terms of changes in values. Vice versa applies as well, the further from the reference point the least sensitive to changes in values. Loss aversion, instead, characterize the curve with a steeper negative value function, compared to the positive side.

The value function explains the four principles of hedonic framing: the common tendency to organize outcomes in a way that maximize utility (Thaler, 1999). By the concave gain function, we can deduct that multiple gains are preferred when segregated. On the other hand, given the convex loss function, decision makers prefer to look at losses as integrated. Therefore, one larger loss is preferred to two separate losses of the same final amount. Moreover, to compensate losses, small losses are integrated with larger gains. Instead, when there is a small gain and a large loss, these are segregated due to the steepness of the loss function.

The process proceeds with the probability weighting function. The reference points are now translated into probabilities, being zero (no chance that the event happens) to one (the event will happen for sure). The function presents itself as concave for small probabilities and convex for medium and high probabilities. The same principle of diminishing sensitivity applies to the probability weighting function: greater weight is attached to probabilities closer to the reference points (0 and 1) compared to probabilities far from the points.

At this point, it is important to reallocate the Prospect Theory in the insurance context. The insurance field has been studied over the years in the context of catastrophic losses (e.g., natural disasters). This is comprehensible as findings in this context have implications on public policy and social welfare. The tendency in the catastrophic loss insurance market is to underinsure events with a low probability of occurrence but a high loss, and over insure risks with moderate probability (Kunreuther & Pauly, 2006; Sydnor, 2010). However, Prospect Theory predicts the tendency of individuals to be risk averse when losses have low probability of occurrence, and risk seeking when losses have high probability (Tversky & Kahneman, 1992).

Prospect theory is currently studied to be properly applied in the insurance field to provide a behavioural explanation. Nonetheless, the model still presents issues in the definition of reference point adopted by the decision takers. Schimdt (2012), considering the studies conducted in the field, highlights two tested hypotheses showing that individuals opt for no insurance or full coverage. In the first scenario, the reference point is defined as the status quo, meaning that the starting point is the initial wealth of the subject (Sydnor, 2010; Wakker et al., 1997). In the other case, the benchmark used to compare alternatives is one of the alternatives itself. The safe alternative is used as a reference point to evaluate the others, where purchasing full insurance is the safe option (Bleichrodt et al., 2001; Hershey et al., 1982).

Framing

Contrary to expected utility theory, the decision making process is also influenced by valence manipulation. Studies have proved individuals' sensibility to framing effects (Kühberger, 1995). According to Piñon and Gambara (2005), the framing effect is intended as the difference in responses given by subjects when they face the same issue proposed in different terms. Frames can be of different types according to Soman (2004), they can be outcome framing, structure framing or task framing. The former, outcome framing, is strictly referred to the different ways of representing a problem. Structure framing is from the point of view of

the decision maker, based on whether the issue is seen narrowly or as a part of a broader set. The latter is based on the personal interpretation of the decision maker.

This study is mainly interested in the first domain: the outcome framing. Soman (2004) further divides the outcome framing domain into three subsets: gain and losses, aggregate or disaggregate, and scaling in different currency. The Asian Disease problem (Tversky & Kahneman, 1981) is a well-known example of framing under gain and losses, which shifts respondents' attitude from being risk averse to risk-seeking. Indeed, this is explained by prospect theory and its three characteristics: reference dependence, diminishing sensitivity and loss aversion (Kahneman & Tversky, 1979). The second outcome framing domain regards aggregate and disaggregate quantities. The decision to integrate two or more amounts is given by the framing context. Thaler (1985) suggests that the decision is based on the principle of concave gain curve and convex concavity curve. Segregation is preferred in case of multiple gains, but integration is chosen in case of multiple losses. The last outcome effect refers to the face value of money, rather than its real monetary value. Here, individuals make use of mental shortcuts to avoid the costly effort of converting currencies (Raghubir & Srivastava, 2002).

The frame to which individuals are exposed is a function of different factors: the subjective perception of the individual, the perceived alternatives, the consequences of eventual choices and the likelihood that the consequences occur (Tversky & Kahneman, 1981). In the specific case of the purchase of a phone insurance, the subjective perception of individuals is given by their personal evaluation of the situation. Perhaps this is strictly related to their personal experience with insurances or to their beliefs. The perceived alternatives are again the result of the personal evaluation of the possible alternatives to the reported matter. The alternatives are mainly two, buying or not the insurance coverage, which come with several pros and cons each. However, these two may be accompanied by broader alternatives which may differ from individual to individual. These can range from including the phone insurance in a package or deciding to invest the same amount of money that would be spent on the acquisition of the insurance. Finally, the consequences of eventual choices and the likelihood of occurrence is related to attaching weights to events. Consequently, probabilities are evaluated. The individual asks himself how likely it is to lose or break their phone. Based on the answer, he decides whether to buy the insurance or not. At the same time, the choice will also be influenced by the eventual consequences that breaking or losing his phone has on his life.

Bounded Rationality

In 1955 Simon introduced the concept of bounded rationality to explain how the decision-making process has an impact on final decisions. Bounded rationality models take into consideration the cognitive limits, such as the constrained time at disposal, the limited sources of information, and the capabilities of the individual. At the end, the final decision is usually the most satisficing among the available ones (Hoffrage & Reimer, 2004). Indeed, Arrow (2004) suggests that individuals are utility maximisers within the constraints of their bounded rationality. Decision making can be considered an effortful action, which comes at a cost for the decision maker. Different methods are exploited by decision makers to come to a final solution, which results to be the best option given the boundaries, included the effort required.

Heuristics

Heuristics here have a role in easing the decision maker's life. The use of heuristics has been depicted as the *''[assessment of] a specified target attribute of a judgment object by substituting another property of that object – the heuristic attribute – which comes more readily to mind''* (Kahneman & Frederick, 2002). Furthermore, Shah and Oppenheimer (2008), recalling Simon's definition (1955), define heuristics as an act to reduce efforts under one or more terms. Reductions of effort may come under five different domains: i) examining cues, ii) recalling and memorizing the value of the cues, iii) evaluating the importance of each cue, iv) storing information regarding the alternatives, v) comparison of the alternatives (Shah & Oppenheimer, 2008). With the combination of the previous definitions, heuristics can be described as '*'a strategy that ignores part of the information, with the goal of making decisions more quickly, frugally, and accurately than more complex methods''* (Gigerenzer & Gaissmaier, 2011). Gigerenzer & Gaissmaier (2011) better explain the trade-off with two interpretations: rational trade-offs and cognitive limitation. Heuristics can be seen as rational trade-offs when they are applied where the effort is more costly then the obtained accuracy. The trade-off can also be explained by individuals' cognitive limitations: shortcomings in the ability to take conscious and rational decisions that lead us to rely on heuristics. It is assumed that individuals make use of heuristics in everyday life and the results of their decisions is based on the features of the decision frame.

Behaviours have the tendency to be predictably irrational (Ariely, 2008). Biases, indeed, have the tendency to lead toward the same direction, bringing individuals to a common action. The common tendency of acting in the same way makes individuals systematic and therefore predictable. This study considers biases and heuristics that individuals face in their daily life

when approaching the purchase of a smartphone insurance. Among the recurrent biases we may find:

Moral hazard: Generally defined as the action of an agent that aims to maximize his own utility even at the cost of the other party, because consequences are not fully born by the agent itself. Uncertainty and asymmetry of information contribute to the detriment of the other party (Kotowitz, 1989). This behaviour is applicable to different context, especially in the insurance field. It is represented by the tendency of policy holders to act differently when they are covered by an insurance compared to when they are not, especially (un)intentionally increasing the exposure to risk (Hale, 2009). The policy holder is aware that the costs borne by an eventual incident are covered by the insurance company, and the owner does not feel the total weight of the responsibility on the covered good (Shavell, 1979). This is assumed to eventually lead the phone owner to act careless with their phone. At the same time, it is assumed that if the individual considers that owning an uninsured phone is a source of stress and anxiety, the likelihood of buying the insurance is due to the decrease of stress levels. Consequently, this may also induce to less careful behaviour when the phone owner shifts the responsibility to the insurer. Moral hazard is the logic behind the deductible, it constitutes a way for the insurance company to avoid policy holders' careless behaviour. The deductible is an incentive to promote safe behaviour and avoid unfair actions (Kunreuther et al., 2013).

Endowment effect: Individuals are subject to the endowment effect (Kahneman et al., 1990). A possession is valued more than the same object bought from the market, leading to a higher price for selling the possession compared to the willingness to pay the same object (Kahneman et al., 1991). In other words, the owner tends to value more their own possession compared to an equal object that they do not possess, leading to the concept of *''losses loom larger than gains'' (*Kahneman and Tversky, 1979). This personal evaluation brings the individual to insure the possession to avoid losses, especially emotional losses. The value attributed to their own smartphone may not equal the market value. For this reason, the individual may prefer to be insured to avoid losing his phone. We may also assume that the higher the emotional attachment to the possession, the higher the willingness to pay.

Availability heuristic: Craig R. Fox and Robert T. Clemen (2005) show that individuals are systematically biased by their assessed subjective probabilities. The tendency to evaluate the likelihood of an event is based on the vividness of our memories. Phenomena that seem more familiar and easily recalled by our mind, are perceived to have a high

frequency. Different factors may influence this tendency, such as personal experience, imagination and feelings attached to an event. This heuristic leads the individual to purchase an insurance coverage due to a misevaluation of the likelihood of the event (Sum & Nordin, 2018). This can be due to multiple reasons such as the proximity to an identical event or its particular memorability (Tversky & Kahneman, 1973).

Debiasing techniques

According to the libertarian paternalistic approach, individuals are provided with tools to internally improve their decision making process. Methods are not forced by higher levels, but they only suggest useful methods to debias choices. On the basis of the results, debiasing techniques are reported in order to tackle the reported weaknesses in the decision making process. Debiasing does not come easy to individuals, as benefits often arrive late or are minimal. For this reason, it is believed that the willingness to debias oneself has to be intrinsic. Once individuals are aware of their biases, and they are prone to improve their decision making process, debiasing techniques are helpful to accompany the process. Firstly, it is provided a proof for individuals to acknowledge the biases in their reasoning. Consequently, tools are suggested to overcome the specific biases. According to Larrick (2004), debiasing techniques are divided into three categories: motivational, cognitive, and technological.

In the first category we find tools that help individuals in increasing the level of involvement in the decision making process, with the aim of activating *System 2* thinking[1]. Two main strategies are considered, one based on incentives and the second based on accountability. *Incentives* are considered an effective strategy when the individual already possess the cognitive ability to perform the task. However, it does not hold when the individual lacks the necessary skill. When individuals are aware of their own biases, incentives can increase the stake and help the decision maker to go beyond a superficial set of options and alternatives. On the other hand, we find the *accountability* strategy. This process is based on the principle of pre-emptive self-criticism. Knowing that they will be asked to explain their decision, the decision makers try to anticipate and correct the biases. Just like the incentive strategy, accountability exploits a higher exerted effort on the matter, along with more accurate research of information (Huber & Seiser, 2001). Contrary to the incentive

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[1]The slow, conscious, and logical reasoning part of our mind. This is usually opposed to System 1 thinking, characterized by spontaneousness, automatic and low level of effort. Kahneman Daniel. (2012). Thinking, Fast and Slow. *Journal of Risk and Insurance, 79*(4), 1143-1145. 10.1111/j.1539-6975.2012.01494.x

strategy, accountability leverages on the social pression. Decision makers are encouraged to go through a process of pre-emptive self-criticism in order to obtain social approval. This method is effective when the preferences of the audience are unknown. On the contrary, when preferences are known the decision maker tend to accommodate the social preference (Brown, 1999).

In the cognitive category we find the *consider the opposite* strategy. The purpose of this method is to overcome the issue of a narrow sample of evidence. This is done through the consideration of more alternatives that lead to a higher accuracy in decision making. The aim is to include information and evidence that would have been ignored otherwise. An accurate research process goes beyond a satisficing solution, digging deeper for the necessary condition of a better situation. Under the same set of strategies, we also find *trainings in rules*. In a combination of normative rules, logical reasoning, and disciplinary trainings, individuals can be taught and encouraged to improve their decision making process. Especially through examples-training which relied both on enhancing System 2 thinking but also on stimulating a spontaneous application of the method through System 1 thinking. The notions that can be learnt are basic rule of thumbs to tackle inefficiencies in everyday decision-making. Whereas *training in representations* exploits the idea that individuals are more accurate when thinking in terms of frequencies rather than in probabilities (Gigerenzer & Hoffrage, 1995). This weakness can be overcome with external tools that translate probabilities into frequencies. However, according to Sedlemeier (1999) individuals can also be provided with the cognitive tool to internally overcome this weakness after learning how to do it.

Finally, in the technological set we find group decision making and other external computer-based techniques. Group decision thinking is a concrete and available method for potential policy holders. Group thinking brings benefits under different points of view. Interactions among the components function as error-checking. This is true especially in prediction and estimation, where the average of the individual prediction reduces the potential error (Clemen, 1989). On the other hand, there is also the risk that if the participants share experiences and beliefs, the error may be enhanced. Indeed, it is important to consult individuals with different backgrounds in order to increase the sample size in a positive way. An additional technological technique usable by the decision maker is the improper model suggested by Benjamin Franklin in 1772 (Dawes & Corrigan, 1974). This can be defined as the *Pro & Con model*, and it aims to stimulate the decision maker's reasoning. The individual writes down on a paper divided in two sections, the pros and cons, all the characteristics

regarding the matter that can help in the decision process. This activity is spread over few days in order to allow a broader view of the matter at stake and to visualize the available conditions. Often, we struggle to think about all the facets of an issue at the same time, some of them may put out of sight others. Once we have a complete list, each item is assigned a weight based on their importance. The model is defined as improper because of this process of assigning weights to items. The way to perform this step is at the discretion of the decision maker. When all items are weighted, the individual can strike out those that cancel each other out from one side to the other. The choice comes accordingly to the heavier side at the end of the process. According to this process, also called Prudential Algebra, the individual has the opportunity to collect more accurate information, but also to avoid a rushed decision.

This study

In order to test how different framing effects have an impact in a context of phone insurance decisions, participants are presented either a deductible frame or a rebate which are explained in the following sections. According to literature, it is expected that individuals are more likely to purchase an insurance for their smartphone when it does not include a segregated payment: premium plus eventual deductible (Johnson et al., 1993). On the contrary participants are expected to be more likely to buy an insurance plan that promises a rebate at the end of the contract. The unattractiveness of the first option can be attributed to loss aversion, which is toughened by the segregated loss (Thaler 1985). In case the policy holder has to file a claim, the payment of the deductible sums up to the initial loss of the premiums, making the psychological effect even harsher. Despite the equality in monetary terms of the two insurances, the second option appears more appealing because of the rebate at the end of the contract (Johnson et al., 1993). As mentioned, the loss or gain of the same amount has a different perception, where according to loss aversion, losses leave a larger psychological impact. It is important to recall that the second option, even if more appealing, is more advantageous for the policy holder. The rebate policy is more inefficient. The anticipated amount of money corresponding to the deductible is considered as an interest-free deposit to the insurer which can be more wisely reallocated as an investment (Johnson et al., 1993). Accordingly, the following hypotheses are tested:

H1: In the rebate frame, individuals are more likely to buy the insurance for their phone compared to the deductible frame.

Consequently, the study also investigates further on the effects of common tendencies toward moral hazard, the endowment effect, and the availability heuristics. The underlying motives driving individuals in opting for buying a phone insurance are important in order to

have a broader view of the decision making process. The biases tested are expected to be positively correlated with the willingness to buy the phone insurance.

H2: higher bias scores lead to higher likelihood of buying phone insurance.

Methodology

General information

To answer the research question of how framing and heuristics influence the purchase of a phone insurance, respondents are randomly divided into two groups to test whether they are influenced by different types of framing. They are proposed an insurance plan and then asked their willingness to buy it. Consequently, the study also investigates the effects of common tendencies toward moral hazard, the endowment effect, and the availability heuristics. Respondents are asked to rate the degree of agreement with multiple statements to depict their attitude toward certain heuristics and biases. The aim is to exploit these results to test how their likelihood to buy the phone insurance is influenced by heuristics and biases. The underlying motives driving individuals in opting for buying a phone insurance are important in order to have a broader view of the decision making process. Motives are helpful in structuring future arguments to educate people regarding the inefficiencies of phone insurances. Indeed, results are used to propose arguments to support the interviewer's thesis not to purchase phone insurance.

Experimental design

The experimental study is based on a survey conducted on Qualtrics. The survey is structured in four parts and lasted around three/four minutes. Respondents are briefly explained the procedure of the survey and are asked to explicitly state their consent to continue. The survey then continued with exposing the respondents to a specific frame and testing their willingness to buy the smartphone insurance proposed. Consequently, few questions have been asked to test whether there are strong underlying reasons for them to buy the insurance. Then three other independent variables are measured to test the degree of influence of heuristics and biases. The questionnaire ends with few demographics' questions and a debriefing. The following sections will give a deeper view on the survey structure and variables tested.

Firstly, the framing effects on the decision-making process are tested. According to Piñon and Gambara (2005), the framing effect is intended as the significant difference in responses given by subjects' when they face the same issue proposed in different terms. Respondents are assigned to one of the two frames: *deductible* or *rebate*. This is possible by exploiting Qualtrics function of equally randomizing the sample into the two possible treatments. This is done in order to avoid systematic differences in the two groups and to obtain unbiased results. The insurance plan is formulated in two different frames.

Deductible frame. The respondent is asked to imagine that they have just bought a phone for 700€. The respondent will be presented the choice of buying the insurance with a premium equal to 108€. The coverage lasts for one year. The policy holder will cover the damages costs up to 150€. Therefore, the insurance company pays only the costs that exceed 150€.

Rebate frame. The respondent is asked to imagine that they have just bought a phone for 700€. Respondents are proposed a policy in which the upfront payment is equal to 258€. The coverage lasts for one year. This can be interpreted as the sum of the premiums and the deductible of the first frame (108€+150€). At the end of the year, the policyholder will receive back a rebate of 150€ (the deductible) minus any claims paid by the insurance company. If, by the end of the year, the policy holder does not file any claim, he receives a rebate equal to 150€. If a claim with a value lower than 150€ (for example 100€) has been filed, then the policy holder receives the remaining amount (i.e., 150–100 = 50€). If the filed claim has a value higher than 150€, the policy holder does not receive any rebate. The cost to cover the claims strictly depends on the type of damage that the smartphone has incurred, therefore it varies case by case. Here below are reported three tables representing three possible scenarios under both treatments.

Example 1 - if the policy holder does not file any claim

	Deductible	Rebate
premium	-108	-258
cost of filed claim	0	0
deductible	0	0
rebate	0	150
total	-108 €	-108 €

Example 2 - if the policy holder files a claim with damages expense equal to 100€

	Deductible	Rebate
premium	-108	-258
cost of filed claim	100	100
deductible	-100	0
rebate	0	50
total	-208 €	-208 €

Example 3 - if the policy holder files a claim with damages expense equal to 200€ (exceeding 150€ of deductible)

	Deductible	Rebate
premium	-108	-258
cost of filed claim	200	200
deductible	-150	0
rebate	0	0
total	-258 €	-258 €

The costs of the insurance have been taken from a real smartphone insurance in the Netherlands market. The treatment variable is used as an independent variable. This is a categorical variable: it takes value 1 when the respondents have been proposed the insurance under the ''deductible'' version and value 2 when respondents have been assigned to the ''rebate'' version. The complete information provided to respondents can be found in Appendix A.

Willingness to buy the phone insurance

The framing effect is tested on the dependent variable *willingness to buy the phone insurance*. The willingness to buy the phone insurance is an ordinal dependent variable. This is obtained based on the intention to buy a phone insurance, measuring the willingness of the respondent to pay for the insurance coverage. This is measured through a Likert scale from 1 (strongly disagree) to 5 (strongly agree) (Wiener et al., 1986). Independently of the frame, all respondents are asked to choose between buying or not buying the phone insurance for a new smartphone. According to the first hypothesis it is expected that respondents show a higher degree of agreement to buy the phone insurance proposed in the rebate frame compared to the deductible frame.

Second part – Motives open ended

Respondents are presented a question directly asking to list at least one reason in favour and one against phone insurances. The question is open ended to allow respondents to take their time to reflect. Moreover, open-ended questions allow respondents to express their ideas

without limiting the reasoning to pre-established answers. In this way, respondents' answers result to be more spontaneous and not influenced by the interviewer (Reja et al., 2014). As mentioned earlier, phone insurance, as other types of insurances, are purchased for multiple reasons. Reasons driving the decision making process are often not related to the monetary value. Therefore, this is an opportunity to extrapolate more precise driving factors. However, open-ended questions also pose constraints to the study itself, such as missing or not understandable answers (Reja et al., 2014). The information collected is only analysed on a qualitative basis and it is used to build arguments to support the author thesis of inefficient smartphone insurances.

Third part – Biases and heuristics

The underlying motives that pushed individuals to buy the phone insurance are analysed in this section. Respondents are presented a series of recurrent motives. Moral hazard, the endowment effect and the availability heuristics are three of the many biases/heuristics that influence the decision making process. They are considered in a context of phone insurance. These factors deviate the decision maker from taking rational decisions, hence maximizing the results. In the survey, they are asked to rate the statement based on the agreement. These items are measured through a 5-points Likert scale with multiple items (Boone & Boone, 2012). The Likert scale allows to capture the attitude of the respondents toward a more complex and multidimensional value (Johns, 2010). Each factor constitutes a Likert scale composed by four Likert items each, which help in identifying the tendency of the respondents toward that specific factor. It is calculated the mean of the responses given by respondents for each factor. This process produces three independents, interval and between subject variables that are used to calculate how these factors influence the purchase of a phone insurance through an ordered logistic regression. The biases tested are expected to be positively correlated with the willingness to buy the phone insurance: the higher the rate of the bias, the higher the likelihood that the individual buys the phone insurance.

Fourth part – Demographics

Lastly, respondents will be asked some demographics questions to have a general overview of the sample recruited and to control for them. The following variables are tested: age, gender, occupation, and nationality. Furthermore, respondents are asked if they currently own a phone insurance to control for those individuals which may be influenced by the current ownership of an insurance. But also, to understand how frequent it is nowadays to own a phone insurance. Finally, they are asked whether they had to buy a new phone in the last 12 months

because they broke or lost the previous one. This information is used to have an idea of the recurrence of the phenomenon of losing or breaking the smartphone.

Sample

The survey has been disseminated through social platforms and word of mouth. The sample was not restricted by any criteria, however there was the only condition to be elder than 18 for privacy and ethical reasons. A total of 232 respondents have been recruited for the study. All uncompleted observations have been removed, ending up with a total number of observations of 194.

Over 194 respondents, Qualtrics randomly divided the sample into the two treatments: 103 individuals have been assigned to ''deductible frame'' and 91 to ''rebate frame''. From the sample size, we observe 100 female individuals and 90 male individuals. The remaining four individuals have declared to prefer not to state their gender. Since we can only observe four individuals in this category, these observations are removed to avoid altered results. Therefore, the dataset now includes 190 observations. We can observe that 43.16 percent of the sample is aged 18-24, and 22.63 percent is aged 25-34. Then, 15.26 percent of the sample is in the range 45-54 years. According to the young population in the sample, it is also possible to observe that almost 40 percent are students and almost 38 percent is employed. The rest are working students or retired. To add a general overview of the sample, almost 92 percent of the total sample comes from Europe, and the remaining declared to be from Africa, Asia, Australia, or USA. Moreover, the descriptive statistics show that only 37 individuals (19,5%) have bought a new smartphone over the past 12 months because the previous one broke down or have been lost. Over the sample, 78 percent of individuals do not own a phone insurance and only less than 10 percent currently own a smartphone insurance coverage directly paid by them. To this value we will come back later in the following sections. Tables of the descriptive statistics can be found at in Appendix B.

Materials

No compensation has been offered to participants to complete the survey. In the briefing section, at the beginning of the study, respondents have read the conditions and their rights. Participants are clearly explained that they have the right to withdraw in any moment during the survey. No personal information has been asked nor stored. All the data collected for this study will be deleted once the study is concluded. The procedure of the survey itself is linear, and respondents could only move forward from one question to the next. Some questions required a mandatory answer. In case they did not feel comfortable to answer they had right to

leave the survey. At the end, the debriefing includes a statement of appreciation for their time spent filling the survey and contact information to contact the author in case of questions.

Analysis

The first part of the experiment is analysed to test whether the two groups significantly differ from each other. This is done with the Mann-Whitney U test. Four assumptions must hold in order to properly conduct this test. According to the first condition, the observations are randomly drawn from the population. The observations of this study are not selected on any basis, but they respect the random recruitment condition. The sample also respects the second condition, according to which the observations are independent from one another. The is no relation among the observations within the group nor between the two groups (deductible and rebate frame). Participants could only participate once and they are assigned uniquely to one treatment, preserving the independence of observation. The dependent variable is of ordinal nature (Likert scale from 1 to 5) and measures the willingness to buy the phone insurance. Meanwhile, the independent variable consists of two categories, which correspond to the two treatments: deductible and rebate frame.

The second part of the experiment is analysed through an ordered logistic regression. The dependent variable is an ordinal variable measuring the willingness to buy a phone insurance on a Likert Scale from 1 to 5. The independent variables are categorical for the treatment and continuous for moral hazard, the endowment effect, and the availability bias. The control variables are age, gender, employment, the assigned treatment group, the current ownership of a phone insurance and the purchase of a new smartphone in the last 12 months. To test the effect of biases and heuristics on the willingness to buy a phone insurance, for each individual the mean of their answers is taken for each of the three Likert scales proposed. This is done in order to capture the attitude of the single individual toward a specific bias.

To perform an ordered logistic regression four basic assumptions must hold. Firstly, the dependent variable is measured on an ordinal level. Secondly, the independent variables must be either continuous, categorical, or ordinal. Then, the model requires no multicollinearity, therefore there must not be any important correlation among the independent variables. This, indeed, compromises the independence of observations. In order to verify this assumption, the VIF function on STATA is used. The VIF value must results as lowest as possible to show no collinearity among variables. As a rule of thumb, a value lower than 5 shows no multicollinearity. The VIF value of this dataset results to be lower than 2, therefore we may assume no multicollinearity among independent variables. The last assumption, the proportional odd assumption, requires that the relationship between all pairs

of groups is the same, meaning that the relation between the lowest and all higher categories is the same as the relationship between the second highest and all higher categories. To verify this assumption, we run the Brant function on Stata. The null hypotheses states that there is no significant difference in coefficients between models. An overall insignificant chi squared value make us fail to reject the null hypotheses and the last assumption is satisfied. Lastly, the Cronbach Alpha is calculated to verify the internal consistency of the Likert-items that have been proposed to participants. As general rule, a Cronbach Alpha value higher than 0.7 and below 0.9 is a validation of internal consistency. Testing the Likert-items of the survey, moral hazard, availability heuristic and endowment effect, show a scale reliability coefficient approximately equal to 0.7. More information regarding assumptions can be found in Appendix C.

Results

Framing effect

The first hypothesis expects the rebate frame to be more appealing to consumers compared to the deductible frame. This hypothesis is tested conducting the Mann Whitney U test to analyse the effect of framing on the willingness to buy the smartphone insurance. The results show that framing effects have a significant effect on the purchasing process. With a p-value lower than 1% the null hypothesis stating that the two treatments do not differ in distributions, is rejected. Therefore, it is possible to state that framing effects have a significant influence on the willingness to purchase the smartphone insurance. Investigating further, results show that the rebate frame has a significant higher effect on the individuals, as they are more likely to buy the smartphone insurance under this frame. Visual representation of the results is in Appendix C.

Heuristic effect

In order to answer the second part of the research question, the analysis tests the hypothesis that heuristics have an effect on the decision making process of potential policy holders. In specific, it is expected that the more an individual agrees with moral hazard, the endowment effect, and the availability bias, the more they are likely to purchase a smartphone insurance. The results of the ordered logistic regression show that moral hazard has a positive correlation with the willingness to buy a smartphone insurance. In specific, we can say that higher attitude toward moral hazard increases the likelihood of agreeing to buy the insurance for the smartphone by approximately 16 percentage points. This effect is significant at 1 percent significance level. Moreover, it is also clear that owning a smartphone insurance highly increases the likelihood of agreeing with the statement of wanting to buy a smartphone insurance by 23 percentage points. A comprehensive overview of the ordered logistic regression can be found in Appendix C.

Open motives

Respondents are asked to explicitly state a reason for buying a smartphone insurance and one against it. This step is used to qualitatively analyse the most recurrent reasons that push individuals toward the purchase. Unsurprisingly, out of 190 respondents, 67 of them mentioned peace of mind as main reason to purchase an insurance. These results are in line with findings of the study conducted by Hudson et al. (2019). Indeed, decision making in risky context are influenced by emotion-related goals, together with the influence of anticipated emotions (Krantz & Kunreuther, 2007; Loewenstein et al., 2001). Owning a

coverage gives policy holders a feeling of safety toward their smartphone. Moreover, 65 people mentioned that they would proceed in buying a smartphone insurance because of its efficiency. Among the answers, it is possible to notice references to different sources of efficiency. Participants preferred to have at their disposal a tool that will help them to cover unexpected losses, such as expensive maintenance or reparation cost.

Another smaller portion of the sample is in favour of buying the smartphone insurance to cover up the initial expense of the smartphone. Almost 15 individuals mentioned that they want to be extra careful because they perceive their smartphone as highly expensive. Therefore, they are willing to spend extra money to avoid the inconvenience of having to rebuy it. Some of them have mentioned that they could not afford to buy a new one. Not being able to purchase a new phone may constitute a strong reason to be in favour of an insurance. Especially keeping in mind, the additional value that a smartphone can provide to everyday life. Not many individuals in the sample perceived the probability of incidents as a reason strong enough to buy the smartphone insurance. In fact, the probability has been mentioned only 6 times. Some of them have referred to their tendency to be clumsy or not enough careful. The probability of breaking their phone has also been mentioned as a reason not to buy it. Individuals apparently perceive the probability of this event as low.

Discussion

Implications

With an overview of the results, it is now possible to draw conclusions and implications. The results of the test of framing on potential policy holders clarify and strengthen the literature regarding the framing effect that potential policy holders are subjected to. This contributes to further knowledge of framing effects into the smartphone insurance context.

Framing implications

It is important to highlight how individuals are subject of framing influences to provide them with a tool to overcome this leverage. This is especially important when information is framed by sellers in their advantage, which may also represent an unethical practice. Few studies have proved that individuals may be able to vanquish these influences by encouraging a deeper reasoning on the matter proposed. Participants proved to be less likely to be victims of framing effects when they were asked to justify their choices by explaining their reasoning (Tetlock, 1992). Indeed, encouraging participants to write down the decision-making process results in the attempt to increase involvement. This can be done through accountability,

respondents are asked explicitly to be accountable for their own choices (Larrick, 2004). As Larrick (2004) explains, this is achieved through a mechanism of pre-emptive self-criticism, where decision makers self-anticipate and try to avoid their own mental flaws.

Individuals being more involved, are more prone to systematically process the information given by the sender (Lord & Putrevu, 1993). Results supported by past studies have demonstrated that low levels of involvement lead to low level of exerted efforts, which also lead to not enough research of information and inaccurate processing (Cardozo & Bramel, 1969). It has been argued that this is due as a consequence of the exerted effort. When the level of involvement is high, the information presented are evaluated by the individual both in a negative and a positive point of view (Donovan & Jalleh, 1999). The external framing, imposed by the sender of the information, is internally processed and framed by the reader when the decision maker feels more involved. My suggestion is based on the assumption that being aware of the humans' tendency of being framed is a useful input to encourage a higher involvement, which it eventually leads to a deeper reasoning. This implication can also lead to the concept of not taking an immediate and spontaneous decision. The decision to buy a phone insurance right after the purchase of a medium/high expensive smartphone, may seem reasonable to the potential policy holder. However, this context can conduct the individual to take immediate and not well thought decisions. The warning for future potential policy holder is then to postpone the decision of buying the smartphone insurance and to take the adequate time to process the information, also by collecting further notions.

Low involvement is recurrent especially in non-expensive purchases. Whereas insurance policies for natural disasters or car accidents are recognized as high involvement purchases, smartphone insurance may fall under the low involvement realm. The policy holder spontaneously buys the smartphone insurance because the monthly fees do not appear to be expensive, but rather efficient. However, the accumulated monthly fees for the coverage will eventually lead to a larger unexpected but foreseeable sum.

With a prescriptive point of view, Arkes (1991) suggested to increase the awareness and to encourage the receiver of the information to process the matter more deeply, with the aim of improving the outcome of the decision by debiasing the process. However, it is to consider that the cost of exerting the effort of researching and elaborating the information is high. It is therefore tempting for the individual to turn to the spontaneous use of heuristics.

Heuristic implication

The analysis of the heuristic attitude shows that higher propensity toward moral hazard has an impact on the willingness to buy a smartphone insurance. To recap, we refer to moral hazard in the insurance context as the positive feeling that policy holders gain from shifting responsibility from them to the insurance company. With the aim of coping with uncertain future outcomes, individuals with higher attitude toward moral hazard purchase the insurance to gain peace of mind. However, as explained by Hale, (2009), this shift increases the risk of exposure to risk of the policy holder. This source of tranquillity is a pushing factor to buy the smartphone insurance. However, this shift of responsibility is capped and comes along with a cost. Indeed, insurance company are aware that policy holders may incur in careless behaviour and prevent this issue by charging the deductible on the policy holder.

Moreover, it is also worth mentioning the higher likelihood of buying the smartphone insurance if they already possess one. This tendency may also escalate into confirmation bias. The owner of a smartphone insurance will find it difficult to contradict a previous decision. Therefore, it is avoided to questioning past actions and it is confirmed the willingness to buy it. This category of policy holders is the most appealing for this study. Reminding, that the aim is to prove them that their decision is likely to be distorted and to provide them with the tools to take a more careful decision, and eventually revaluate their choices.

Motives implication

The elicited motives by participants further confirm the findings of the tendency toward moral hazard. One of the main reasons to buy the smartphone insurance is the willingness to preserve peace of mind. This is mainly due to the shift of responsibilities to the insurance company. Individuals feel alleviated from stress and highly evaluate this mental state. Consequently, it is expected that individuals who worry more about a negative event are willing to pay more for an insurance coverage (Kunreuther & Pauly, 2006). The willingness to pay for an expensive smartphone insurance may be explained by a high negative perception of the anxious state of mind of the individual living without insurance. Therefore, this factor is purely subjective and depends individual by individual. This attitude may also lead to careless behaviour. However, as already mentioned, this behaviour is well known by insurance companies and policy holders pay a price for this. This is also the reason why the cost of smartphone insurances is very high. This is true especially for those who still pursue an attentive behaviour when under coverage, which will find themselves paying for a disproportionate high price compared to their riskless behaviour.

The second most quoted motive is related to the perceived efficiency of the insurance coverage. The reasoning elicited by participants show that they prefer to pay the deductible and to be covered for higher expenses rather than having to spend a higher unexpected sum without coverage. In terms of monetary value this may not be true. In the long term the policy holder may end up in spending a higher sum to insure the smartphone compared to repairing or buying a new one in case of accident.

Intervention

The primary goal is to raise awareness among potential policy holders, giving more accurate information regarding the purchase of smartphone insurance coverages. However, it is also important to expose individuals to their own biases and heuristics. Acknowledging is the first step toward taking an action. However, this is not enough. The following suggestions are based on the principle of educative nudges (Sunstein, 2016). Indeed, they aim to improve individuals' decision making process by increasing autonomy. This is done through strengthening *System 2 thinking*, allowing people to pursue their judgements and agency via a consolidated decision process. Multiple factors suggest that individuals struggle to debias themselves (Kahneman, 2003). Prescriptive strategies have to be taught to individuals in order for them to internalize the concepts and being able to apply them to broader contexts. According to Larrick (2004), prescriptive strategies for debiasing adapt to human's limited abilities but represent efficient tools to overcome decision-making errors. Prescriptive strategies are divided into two categories, those that are directly applicable from the decision maker and those that require external aid. The three sets of strategies explained in the literature section are now taken into consideration in light of the results found.

The first set, motivational strategy, includes accountability and incentive. The accountability strategy, as already discussed in the previous section, can be used to tackle the framing effect. This is done by increasing the involvement in the decision making process and by helping the individual to elaborate a more thoughtful reasoning. Also, the incentive strategy exploits the level of involvement. Consistently with the high involvement theory, individuals exert more effort if the stakes are adequate. This theory holds true whenever the individual already possesses the cognitive capital to perform the task, but not when they lack the skill (Camerer & Hogarth, 1999). Moreover, incentives can be effective when the individual is able to recognize the the framing effect (Stapel et al., 1998). Consequently, individuals first need the tools and cognitive ability to recognize when they are being framed. Then, potential policy holders should be encouraged to shift the attention to the long-term period in which monthly fees sum up to a substantial amount. This shift of focus can be the

key to increase the stake and therefore committing to enlarge the set of alternatives and sources of information. In the short term the smartphone insurance may appear cheap and useful. Therefore, the individual may pursue a low involvement attitude. This leads the potential policy holder to conduct a superficial and inaccurate evaluation of the purchase.

In the second set, the cognitive strategies, we find the consideration of the opposites and the training techniques. The former is meant to address the inaccurate search of alternatives. Indeed, the strategy encourages individuals to ask themselves whether their initial choice is right and whether there are other options (Arkes, 1991). This plan can be effective in helping the individual in assessing the right value of the options. If buying the insurance is only compared to not buying the insurance, the evaluation can be misleading. Listing a broader set of options is helpful in assessing the right weight to each option. Moreover, this strategy has been proved effective in reducing overconfidence, which may also help in tackling the related confirmatory bias (Arkes, 1991). This strategy alone does not lead to a better decision making process, but it helps in collecting a more accurate list of options. The training techniques include normative rules and training in representations (Nisbett, 1993). Through example training, individuals are provided the notions to automatically apply simple rules that improve the decision making process. Abstract principles are combined with real experience in order to help individuals in applying the learned notions to specific contexts.

The last set considers external approaches. Firstly, we consider the benefits provided by the group decision-making technique. Group thinking works as error-checking mechanism and enhance synergies in combining the expertise of different people. Groups also increase the sample size of experience exploited to take the decision. In this vision, individuals should not limit themselves to asking for advice to family and friends. The larger the group size and diversity of the individuals the more effective the improvement is. Weaknesses of this approach include the choice of the individuals being in the group. When the participants are similar among each other and have shared past experiences, the effect obtained is the opposite from the desired: the error in the decision making process is enhanced (Hogarth, 1978). Accordingly, it is also considered the debiasing method given by seeking for credible advice (Druckman, 2001). Individuals are encouraged to ask for expert advice. In situation in which individuals are unsure about the right decision, advice from experts will influence their decision making process. This holds true when advice come from experts and credible sources (Druckman, 2001).

In the technological set we also find the Pro and Con strategy, along with the concept of decomposing a complex issue into smaller parts (Dawes & Corrigan, 1974b; Raiffa, 1969). The strategies simply encourage the individual to list all pros and cons regarding the purchase of a smartphone insurance. This process should be conducted in some days to have the chance to articulately think about the purchase. When a pro and a con have the same absolute weight, then they can be cancelled from the list. At the end, either the pro or the con side is heavier, and the decision is conducted toward that option.

The simplification of the matter at stake also allows the individual to take into consideration the possible alternatives. One plausible alternative can be the investment of the capital. The individual can consider investing the same amount that would be spent on the insurance. This option can result in a more efficient allocation of capital, as the amount of money is expected to grow over the years, and it also provides the means to cover an unexpected expense in case of accidents. In an optimistic scenario the individual can boast a gain in monetary terms from the investment. This alternative may also tackle the common tendency of moral hazard and peace of mind. As the insurance plan and the investment have a common purpose, the latter can similarly, but more efficiently, function as a back-up plan. Another plausible option sees the smartphone insurance as an addition to an already owned insurance package. It is common to own insurances covering the household or other properties. In this case, the addition of the coverage for a smartphone may be included for free or for a very small increase in the cost.

The spread of debiasing techniques encounters different obstacles. Identifying biases is not enough to overcome them, but it is necessary to take actions. In order to achieve this, it is fundamental that individuals internalize the techniques (Larrick, 2004). Internalization includes the deep understanding of the practices and of the adaptability of techniques. This, indeed, is also represented by intrinsic motivation. The spontaneous willingness to overcome our own bias is the key to apply these techniques. It is understandable, however, that this is not immediate especially because of delayed or apparently small benefits.

Limitation

The findings reported here are subject to some possible limitations. Firstly, the Likert-items measuring the attitude of individuals toward biases and heuristics have not been proved by literature. Especially in the case of smartphone insurance, literature is lacking important and significant finding. With a broader view, the shortage is noticed for all types of insurances which are not efficient from the point of view of the policy holder. Despite the consistency value of the Cronbach Alpha, due to this deficiency in the literature, we must acknowledge

the weakness of the statements proposed to participants. Indeed, for future studies it is recommended to firstly understand which role heuristics take in the decision making process of a policy holder strictly related to the smartphone insurance market. This will allow to capture a more accurate attitude toward a specific bias.

Secondly, we should acknowledge the sample size limitation. The limited access to a pool of participants led the sample to be constituted by a majority of students and young professionals. This may lead to biased results. Moreover, this may also cause a misrepresentation of the older population which may have changed the results. Indeed, older professionals may have a different wealth level or attitude toward insurances, which could have pushed toward a higher or lower exposure to heuristics.

In addition to this, the external validity of this study may also be weak. The results are based on an online survey, which can bring to several downturns. Firstly, the questions in the survey do not accurately represent real life. Individuals usually have a broader set of options, more time at disposal to decide, and are influenced by different factors. As laboratory experiment, the survey may create a fictional situation and impose it to the participants. The situation may not result as realistic. In our case, the policy holder may own a smartphone with a different market value and therefore find it hard to relate to the reported case. Secondly, it has been proved that survey participants may have the tendency to behave according to what they think the experimenter is expecting (Orne, 1959). All these factors may lead to the elicitation of an intention which may not materialize in actual behaviour.

The multifaced process of decision-making is not easily assessed and controllable. It is acknowledged that besides the heuristics and biases captured in this study, the decision are influenced by several other stimuli. These can be both induced by the environment, the individual itself, and the context. It is unrealistic to try to collect all of these. However, I suggest constructing an experiment to better capture the steps and process that bring individual to take certain choices. Only once the there is a broader view of this process, it is possible to intervene more concretely.

Conclusion

Theories and models are evolving to depict individuals' behaviour in the complex insurance market. The insurance field includes thousands of possible products, however here we only focused on smartphone insurances. Indeed, this product has been taken as representative of the small items' insurances. The focus is on the insurance product that covers affordable expenses. The belief behind this study supports the idea that individuals would be better off if they decide not to insurance their smartphone. Smartphones are a bearable expense which can be born even in absence of an insurance plan. Indeed, it is understandable that this benchmark can be subjective. In an attempt to start filling a gap in the literature regarding small items' insurances, the aim of this study is to contribute to the smartphone insurance decision making field.

As suggested by the research question, the author tries to dig deeper into the biases and heuristics that deviate potential policy holders from taking the best choice for themselves. As the results of this study prove, individuals tend to be subjected to different influential factors that may lead them to purchase an insurance plan. We firstly confirmed that also in the smartphone insurance market potential policy holders are victims of framing effects. This distortion in the reasoning process highlights the low level of evaluation of the matter itself, as information is not properly collected and evaluated. This can be due to low level of exerted effort that leads the decision maker to take instantaneous and lightly thought decisions. To tackle this issue by enhancing deeper evaluation process, it is suggested to encourage a higher involvement in the purchase of a smartphone insurance. This can be done through a shift of the focus toward a long term period, instead of focusing on the single monthly fee. Looking at the long-term picture increases the stake and may lead to higher involvement.

Regarding the heuristics effects, results showed a positive influence of moral hazard on the willingness to buy a smartphone insurance. This tendency may be rooted in the willingness to shift responsibilities and their negative consequences to the insurer. Whereas this tendency is comprehensible, it is suggested to evaluate more options that provide the same benefits of an insurance. The most appealing one is the investment of a sum of money that will be used to cover up the expenses of a potential incident. Indeed, with this option , the invested money will provide a tool to cover unexpected expenses but will also be fruitful in the future. This may not be the only alternative. Individuals are encouraged to apply cognitive and technological strategies to broaden their thinking and enlarge their options list.

Debiasing processes can lead individuals to a better situation. The methods, however, are not straight forward and require the acknowledgement of the biases themselves, along with cognitive abilities. The benefits provided by the debiasing techniques may not be clear and immediate, and individuals may be disincentivized to follow the process. Nonetheless, this can only be a starting point from which it is possible to further develop and construct a more accurate theory of debiasing in this context.

References

Ariely, D. (2008). *Predictably Irrational*. New York: HarperCollins.

Arkes, H. R. (1991). Costs and benefits of judgment errors: Implications for debiasing. *Psychological Bulletin*, *110*(3), 486–498. https://doi.org/10.1037/0033-2909.110.3.486

ARROW, K. J. (1982). Risk Perception in Psychology and Economics. *Economic Inquiry*, *20*(1), 1–9. https://doi.org/10.1111/j.1465-7295.1982.tb01138.x

BARKOVI, D. (2019). Rational Decision Versus Irrational Decision. *Researchgate.Net*. https://www.researchgate.net/profile/Drazen-Barkovic/publication/336240023_RATIONAL_DECISION_VERSUS_IRRATIONAL_DECISION/links/5d9610af458515c1d3919dab/.pdf

Bleichrodt, H., Pinto, J. L., & Wakker, P. P. (2001). Making Descriptive Use of Prospect Theory to Improve the Prescriptive Use of Expected Utility. *Management Science*, *47*(11), 1498–1514. https://doi.org/10.1287/mnsc.47.11.1498.10248

Boone, N. H., & Boone, A. D. (2012). Analyzing Likert Data. *Journal of Extension*, *50*(2). http://www.joe.org/joe/2012april/tt2p.shtml

Brown, C. L. (1999). "Do the Right Thing:" Diverging Effects of Accountability in a Managerial Context. *Marketing Science*, *18*(3), 230–246. https://doi.org/10.1287/mksc.18.3.230

Camerer, C. F., & Hogarth, R. M. (1999). The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework. *Journal of Risk and Uncertainty*, *19*(1/3), 7–42. https://doi.org/10.1023/a:1007850605129

Cardozo, R., & Bramel, D. (1969). The Effect of Effort and Expectation on Perceptual Contrast and Dissonance Reduction. *The Journal of Social Psychology*, *79*(1), 55–62. https://doi.org/10.1080/00224545.1969.9922387

Clemen, R. T. (1989). Combining forecasts: A review and annotated bibliography. *International Journal of Forecasting*, *5*(4), 559–583. https://doi.org/10.1016/0169-2070(89)90012-5

Dawes, R. M., & Corrigan, B. (1974). Linear models in decision making. *Psychological Bulletin*, *81*(2), 95–106. https://doi.org/10.1037/h0037613

Donovan, R. J., & Jalleh, G. (1999). Positively versus negatively framed product attributes: The influence of involvement. *Psychology and Marketing*, *16*(7), 613–630. https://doi.org/10.1002/(SICI)1520-6793(199910)16:73.0.CO;2-F

Doyle, K. J. (1998). Rational Decision Making. *Journal of Tertiary Education Administration*, *3*(2), 133–143. https://doi.org/10.1080/0157603810030204

Druckman, J. N. (2001). Using Credible Advice to Overcome Framing Effects. *Journal of Law, Economics, and Organization*, *17*(1), 62–82. https://doi.org/10.1093/jleo/17.1.62

FETHERSTONHAUGH, D., SLOVIC, P., JOHNSON, S., & FRIEDRICH, J. (1997). Insensitivity to the Value of Human Life: A Study of Psychophysical Numbing. *Journal of Risk and Uncertainty*, *14*(3), 283–300. https://doi.org/10.1023/a:1007744326393

Fox, C. R., & Clemen, R. T. (2005). Subjective Probability Assessment in Decision Analysis: Partition Dependence and Bias Toward the Ignorance Prior. *Management Science*, *51*(9), 1417–1432. https://doi.org/10.1287/mnsc.1050.0409

Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. Annual review of psychology. *Annual Review of Psychology*, *62*(1), 451–482.

Gigerenzer, G., & Hoffrage, U. (1995). How to improve Bayesian reasoning without instruction: Frequency formats. *Psychological Review*, *102*(4), 684–704. https://doi.org/10.1037/0033-295x.102.4.684

Hale, B. (2009). What's so Moral about the Moral Hazard? *Public Affairs Quarterly*, *23*(1), 1–25. http://www.jstor.org/stable/40441514

Hershey, J. C., Kunreuther, H. C., & Schoemaker, P. J. H. (1982). Sources of Bias in Assessment Procedures for Utility Functions. *Management Science*, *28*(8), 936–954. https://doi.org/10.1287/mnsc.28.8.936

Hoffrage, U., & Reimer, T. (2004). Models of Bounded Rationality: The Approach of Fast and Frugal Heuristics. *Management Revu*, *15*(4), 437–459. https://doi.org/10.5771/0935-9915-2004-4-437

Hogarth, R. M. (1978). A note on aggregating opinions. *Organizational Behavior and Human Performance*, *21*(1), 40–46. https://doi.org/10.1016/0030-5073(78)90037-5

Huber, O., & Seiser, G. (2001). Accounting and convincing: the effect of two types of justification on the decision process. *Journal of Behavioral Decision Making*, *14*(1), 69–85.

Hudson, P., Botzen, W. W., & Aerts, J. C. (2019). Flood insurance arrangements in the European Union for future flood risk under climate and socioeconomic change. *Global Environmental Change*, *58*. https://doi.org/10.1016/j.gloenvcha.2019.101966

Johns, R. (2010). Likert items and scales. *Survey Question Bank: Methods Fact Sheet*, *1*(1), 11.

Johnson, E. J., Hershey, J., Meszaros, J., & Kunreuther, H. (1993). Framing, probability distortions, and insurance decisions. *Journal of Risk and Uncertainty*, *7*(1), 35–51. https://doi.org/10.1007/bf01065313

Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, *58*(9), 697–720. https://doi.org/10.1037/0003-066x.58.9.697

Kahneman, D. (2013). *Thinking, Fast and Slow* (1st ed.). Farrar, Straus and Giroux.

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1990). Experimental Tests of the Endowment Effect and the Coase Theorem. *Journal of Political Economy*, *98*(6), 1325–1348. https://doi.org/10.1086/261737

Kahneman, D., & Frederick, S. (2002). Representativeness revisited: Attribute substitution in intuitive judgment. *Heuristics and Biases: The Psychology of Intuitive Judgment*, *49*(81).

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. *Journal of Economic Perspectives*, *5*(1), 193–206. https://doi.org/10.1257/jep.5.1.193

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, *47*(2), 263. https://doi.org/10.2307/1914185

Kotowitz, Y. (1989). Moral Hazard. *Allocation, Information and Markets*, 207–213. https://doi.org/10.1007/978-1-349-20215-7_21

Krantz, D., & Kunreuther, H. (2007). Goals and Plans in Decision Making. *Judgment and Decision Making*, *2*, 137–168.

Kühberger, A. (1995). The Framing of Decisions: A New Look at Old Problems. *Organizational Behavior and Human Decision Processes*, *62*(2), 230–240. https://doi.org/10.1006/obhd.1995.1046

Kunreuther, H. C., Pauly, M. V., & McMorrow, S. (2013a). Contrasting Ideal and Real Worlds of Insurance. *Insurance and Behavioral Economics*, 1–2.

Kunreuther, H. C., Pauly, M. V., & McMorrow, S. (2013b). *Insurance and Behavioral Economics: Improving Decisions in the Most Misunderstood Industry* (0 ed.). Cambridge University Press.

Kunreuther, H., & Pauly, M. (2006). Insurance decision-making and market behavior. *Foundations and Trends® in Microeconomics*, *1*(2), 63–127. https://doi.org/10.1561/0700000002

Larrick, R. P. (2004). Debiasing. *Blackwell Handbook of Judgment and Decision Making*, 316–338.

Liebman, J. B., & Zeckhauser, R. J. (2008). Simple Humans, Complex Insurance, Subtle Subsidies. *National Bureau of Economic Research (NBER)*. https://papers.ssrn.com/abstract=1267561

Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, *127*(2), 267–286. https://doi.org/10.1037/0033-2909.127.2.267

Lord, K. R., & Putrevu, S. (1993). Advertising and publicity: An information processing perspective. *Journal of Economic Psychology*, *14*(1), 57–84. https://doi.org/10.1016/0167-4870(93)90040-r

Machina, M. J. (1990). Expected Utility Hypothesis. *Utility and Probability*, 79–95. https://doi.org/10.1007/978-1-349-20568-4_11

Nisbett, R. E. (1993). Rules for Reasoning. *Psychology Press*. https://doi.org/10.4324/9780203763230

Orne, M. T. (1959). The demand characteristics of an experimental design and their implications. *American Psychological Association*.

Piñon, A., & Gambara, H. (2005). Piñon, A., & Gambara, H. (2005). A meta-analytic review of framing effect: Risky, attribute and goal framing. Psicothema, 17(2), 325–331. *Psicothema*, *17*(2), 325–331.

Quiggin, J. (1982). A theory of anticipated utility. *Journal of Economic Behavior & Organization*, *3*(4), 323–343. https://doi.org/10.1016/0167-2681(82)90008-7

Raghubir, P., & Srivastava, J. (2002). Effect of Face Value on Product Valuation in Foreign Currencies. *Journal of Consumer Research*, *29*(3), 335–347. https://doi.org/10.1086/344430

Raiffa, H. (1969). Decision Analysis: Introductory Lectures on Choices Under Uncertainty. *The Statistician*, *19*(2), 180. https://doi.org/10.2307/2987280

Reja, U., Lozar Manfreda, K., Hlebec, V., & Vehovar, V. (2014). Open-ended vs. close-ended questions in Web questionnaires. *Semantic Scholar*.

Schmeidler, D. (1989). Subjective Probability and Expected Utility without Additivity. *Econometrica*, *57*(3), 571. https://doi.org/10.2307/1911053

Sebora, T. C., & Cornwall, J. R. (1995). Expected Utility Theory Vs. Prospect Theory: Implications For Strategic Decision Makers. *Journal of Managerial Issues*, *7*(1), 41–61. https://www.jstor.org/stable/40604049

Sedlmeier, P. (1999). Improving statistical reasoning: Theoretical models and practical implications. *Psychology Press*.

Shah, A. K., & Oppenheimer, D. M. (2008). Heuristics made easy: An effort-reduction framework. *Psychological Bulletin*, *134*(2), 207–222. https://doi.org/10.1037/0033-2909.134.2.207

Shavell, S. (1979). On Moral Hazard and Insurance. *The Quarterly Journal of Economics*, *93*(4), 237. https://EconPapers.repec.org/RePEc:oup:qjecon:v:93:y:1979:i:4:p:541–562.

Simon, H. A. (1955). A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics*, *69*(1), 99. https://doi.org/10.2307/1884852

Slovic, P., Fischhoff, B., Lichtenstein, S., Corrigan, B., & Combs, B. (1977). Preference for Insuring against Probable Small Losses: Insurance Implications. *The Journal of Risk and Insurance*, *44*(2), 237. https://doi.org/10.2307/252136

Soman, D. (2004). Framing, Loss Aversion, and Mental Accounting. *Blackwell Handbook of Judgment and Decision Making*, 379–398. https://doi.org/10.1002/9780470752937.ch19

Stapel, D. A., Martin, L. L., & Schwarz, N. (1998). The Smell of Bias: What Instigates Correction Processes in Social Judgments? *Personality and Social Psychology Bulletin*, *24*(8), 797–806. https://doi.org/10.1177/0146167298248002

Sum, R. M., & Nordin, N. (2018). Decision Making Biases in Insurance Purchasing. *J.Adv.Res.Soc.Behav.Sci*, *10*, 165–179.

Sunstein, C. R. (2016). People Prefer System 2 Nudges (Kind Of). *Duke Law Journal*, 121–168. https://doi.org/10.2139/ssrn.2731868

Sydnor, J. (2010). (Over)insuring Modest Risks. *American Economic Journal: Applied Economics*, *2*(4), 177–199. https://doi.org/10.1257/app.2.4.177

Tetlock, P. E. (1992). The Impact of Accountability on Judgment and Choice: Toward A Social Contingency Model. *Advances in Experimental Social Psychology*, *25*, 331–376. https://doi.org/10.1016/s0065-2601(08)60287-7

Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, *12*(3), 183–206.

Thaler, R. (1985). Mental Accounting and Consumer Choice. *Marketing Science*, *4*(3), 199–214. https://doi.org/10.1287/mksc.4.3.199

Thaler, R. H., & Sunstein, C. R. (2003). Libertarian Paternalism. *American Economic Review*, *93*(2), 175–179. https://doi.org/10.1257/000282803321947001

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, *5*(2), 207–232. https://doi.org/10.1016/0010-0285(73)90033-9

Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. *Science*, *211*(4481), 453–458. https://doi.org/10.1126/science.7455683

Tversky, A., & Kahneman, D. (1986). Rational Choice and the Framing of Decisions. *The Journal of Business*, *59*(4), S251–S278. https://doi.org/10.1086/296365

Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, *5*(4), 297–323. https://doi.org/10.1007/bf00122574

van Osch, S. M. C., van den Hout, W. B., & Stiggelbout, A. M. (2006). Exploring the Reference Point in Prospect Theory: Gambles for Length of Life. *Medical Decision Making*, *26*(4), 338–346. https://doi.org/10.1177/0272989x06290484

Wakker, P., Thaler, R., & Tversky, A. (1997). Probabilistic insurance. *Journal of Risk and Uncertainty*, *15*(1), 7–28.

Weymark, J. A. (1981). Generalized gini inequality indices. *Mathematical Social Sciences*, *1*(4), 409–430. https://doi.org/10.1016/0165-4896(81)90018-4

Wiener, L. J., Gentry, J. W., & Miller, R. K. (1986). The Framing of the Insurance Purchase Decision. *Advances in Consumer Research*, *13*, 251–256. https://www.acrwebsite.org/volumes/6498

Yaari, M. E. (1987). The Dual Theory of Choice under Risk. *Econometrica*, *55*(1), 95–115. https://doi.org/10.2307/1911158

Appendix A - Experiment

Part I - Deductible	Imagine that you have just bought a new smartphone for 700€. You are offered the following insurance. The insurance coverage for one year costs 108€. The policy has a deductible of €150 borne by you. If you file any claim, you will cover the costs up to 150€. The rest will be covered by the insurance company. If your claims exceed 150€, the company will pay all of the amount above 150€. Scenarios: 1. I buy the insurance. I will pay 108€ upfront. If I break my phone, I will pay 150€ of deductible and the rest will be covered by the insurer. 2. I do not buy the insurance. If I break my phone, I will pay to fix it or buy a new one for 700€.
Part I – Rebate	The policy for one year coverage costs 258€. A rebate of €150 minus any claims paid will be given to you at the end of the year. You will receive 150€ if you do not file any claim. You will not receive a debate if costs of damages exceed 150€. Here you can see three examples. In the first row the examples f three eventual costs of the damages that the insurer covers. In the second row the rebate you will receive. Scenarios: 1. I buy the insurance. I pay 258 € for one year coverage. The company will pay the costs of eventual damages. At the end of the year, I will be reimbursed 150€ minus the damages covered by the insurer. 2. I do not buy the insurance. I personally cover all the costs or buy a new one for 700 € . <table><tr><td>DAMAGES</td><td>0</td><td>60 €</td><td>200 €</td></tr><tr><td>REBATE</td><td>150 €</td><td>90 €</td><td>0</td></tr></table>
Dependent Variable	Based on the information just received, rate the degree of agreement with the following statement from 1 (strongly disagree) to 5 (strongly agree)? *I am likely to purchase the phone insurance.*
Part II	List at least one reason why you would buy phone insurance
Part II	List at least one reason why you would not buy a phone insurance

Part IV – **Moral Hazard**	1. Being covered by a phone insurance makes me more relaxed. 2. Without a phone insurance, I am more careful about my phone. 3. With a phone insurance, I am not worried about what could happen to my phone. 4. Owning a phone insurance makes me feel like I have less responsibilities.
Part IV - **Endowment** **Effect**	1. I would not switch my phone for a new identical one. 2. The nonmonetary value of my phone is higher than the monetary value. 3. My phone has a high emotional value. 4. The idea of breaking my phone is associated to negative emotions (sadness, anger, ..)
Part IV - **Availability** **Heuristic**	1. I know a lot of people that have broken or lost their phone. 2. The probability of breaking or losing my phone is very high. 3. I recall a lot of events in which people have broken their phone. 4. It often happens that people lose their phone.
Part V	Demographics

Appendix B – Descriptive Statistics

Table 2.1: Summary statistics - gender

Gender	Frequency	Percent	Cumulative
Female	100	52.93	52.63
Male	90	47.37	100

Table 2.2: Summary statistics - age

Age	Frequency	Percent	Cumulative
18-24	82	43.16	43.16
25-34	43	22.63	65.79
35-44	10	5.26	71.05
45-54	29	15.26	86.32
55-64	17	8.95	95.26
65 +	9	4.74	100.00

Table 2.3: Summary statistics - employment

Employment	Frequency	Percent	Cumulative
Student	75	39.47	39.47
Working student	27	14.21	53.68
Employed	71	37.37	91.05
Unemployed	3	1.58	92.63
Retired	9	4.74	97.37
Other	5	2.63	100.00

Table 2.4: Summary statistics - nationality

Nationality	Frequency	Percent
Italy	98	51.58
Netherlands	34	17.89
Spain	9	4.74

Appendix C - Assumptions & Regression results

Table 3.1: Assumptions - VIF

Variable	VIF
Age	2.63
Employment	2.4
Endowment effect	1.28
Availability bias	1.25
Gender	1.23
Moral Hazard	1.28
Treatment	1.09
New Phone	1.07
Insurance	1.06
Mean VIF	**1.46**

Table 3.2: Assumptions - proportional odds

Dependent Variable	Coeff.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Moral Hazard	1.22	0.23	5.23	0.00	0.76	1.67
Endowment Effect	-0.23	0.17	-1.36	0.17	-0.56	0.1
Availability Bias	0.43	0.18	2.44	0.015	0.09	0.78

chi2(9)=   6.59

Prob>chi2= 0.68

Table 3.3: Mann-Whithney U test

Treatment	Obs	Rank Sum	Expected
Deductible	102	8690	9741
Rebate	88	9455	8404

H0: the deductible frame and rebate frame
are equal in distribution

z =   -2.921
Prob > |z| = 0.0035
Exact Prob = 0.0033

Table 3.4: Mann-Whithney U test - mean

Treatment	Mean
Deductible	2.255
Rebate	2.739

Table 3.5: Ordered Logit Regression

Variable	Coeff.	Std. Err.
Moral Hazard	1.19***	.25
Endowment Effect	-.19	.19
Availability Heuristic	.43	.19
Rebate treatment	.93**	.29
Age		
25-24	-.011	.4
25-34	.59	.83
45-54	.14	.63
55-64	-.19	.72
65+	-.33	1.21
Gender		
Male	-.5	.31
Employment		
Working student	-.09	.43
Employed	.09	.51
Unemployed	-.09	1.04
Retired	.02	1.19
Other	-.25	1.18
New Phone	-.29	.38
Phone Insurance		
Yes	1.62**	.52
Insurance Package	.05	.59
Someone pays	1.45**	.74

Note: *** for p<0.001; ** for p<0.05; * for p<0.1

Table 3.6: Ordered Logit Regression - Margins

Margins outcome 1 - strongly disagree		
Variable	Coeff.	Std. Err.
Moral Hazard	-.15***	.03
Availability Heuristic	-.05**	.02
Rebate treatment	-.12***	.04
Phone Insurance		
Yes	-.15***	.52
Someone pays	-.14***	.05

Margins outcome 4 - agree		
Variable	Coeff.	Std. Err.
Moral Hazard	.16***	.03
Availability Heuristic	.056**	.02
Rebate treatment	.12***	.04
Phone Insurance		
Yes	.233***	.07
Someone pays	.21**	.11

Margins outcome 5 - strongly agree		
Variable	Coeff.	Std. Err.
Moral Hazard	.03**	.01
Availability Heuristic	.01*	.006
Rebate treatment	.02**	.01
Phone Insurance		
Yes	.067*	.04

Note: *** for $p<0.001$; ** for $p<0.05$; * for $p<0.1$
Only significant effects have been considered.