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Finding a Link between the Status Quo Bias and Indecisiveness in Ambiguous Decision-Making

Abstract. The aim of this research is to establish an explanation of a relationship between the Status Quo Bias and Indecisiveness on general decision-making. With the use of a survey, based on the work of Sautua (2017), participants play a hypothetical ambiguous lottery with a chosen or assigned colored ticket, either red or blue, and value their confidence levels and likelihood of success that their ticket has on winning the hypothetical cash prize. To test the status quo bias a surprising switch option is shown to the participants, where switching the ticket is the most optimal option. The results show a strong tendency to stick with the original ticket and significant difference of confidence and likelihood between treatments based on the status quo. To measure indecisiveness the Indecisiveness Scale by Frost and Shows has been used resulting in a majority of indecisive individuals. Along with the scale, preferences and ambiguity and uncertainty are taken into account. The results show slight significant influence between both terms and high gender differences between both terms. These results are discussed along each common factor that influence both the Status Quo bias and Indecisiveness.

Keywords: status quo bias, indecisiveness, preferences, ambiguity, uncertainty, lottery, indecisive

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Contents

- 1. Introduction 4
- 2. Literature Review 8
 - 2.1 Indecisiveness..... 8
 - 2.2 Status Quo Bias 9
 - 2.3 The role of preferences..... 10
 - 2.4 The role of ambiguity and uncertainty 11
 - 2.5 Research questions 12
- 3. Empirical methodology 17
 - 3.1 Experimental Design 17
 - 3.2 Empirical Analysis 18
 - 3.2.1 Methods of Analysis..... 19
- 4. Results 21
 - 4.1 Descriptive Statistics 21
 - 4.2 Status Quo Bias 21
 - 4.3 Indecisiveness..... 23
 - 4.4 Status Quo Bias linked with Indecisiveness..... 25
 - 4.5 Robustness Checks 30
 - 4.5.1 Gender 30
 - 4.5.2 Time related indecisiveness..... 31
 - 4.5.3 Adding Boundaries to the Status Quo Bias 31
- 5. Discussion 33
 - 5.1 Status Quo Bias 33
 - 5.2 Indecisiveness..... 33
 - 5.3 The inconclusive link 34
 - 5.3.1 Preferences 34
 - 5.3.2 Ambiguity and Uncertainty 35
- 6. Conclusion..... 36
- References 38
- Appendix 41
 - Appendix 1: Survey Details 41
 - Appendix 1A – Lottery..... 41
 - Appendix 1B - Both switch options 42
 - Appendix 1C - Frost and Shows Questions and scale..... 43
 - Appendix 1D - Demographic Questions 44
 - Appendix 2: Additional Results 46

Appendix 2A Status Quo by Indecisiveness.....	46
Appendix 2B: Completeness of preferences on the Status Quo	46
Appendix 2C: Robustness check on gender, time and boundaries	48

1. Introduction

Decision-making has been a subject of study in economics for decades. Throughout one's life decisions will be presented and made on both major life altering decisions as well as everyday-life smaller decisions. They can be either easily made or provide some difficulty. They could be dealt with confidence with strong complete preferences and beliefs, or they could be complicated. The complexity of certain choices also leads to experiences where the choices can lead to stress and even result in no definitive decision made at all. Indecisiveness explains this complexity problem as it refers to the extent to which an individual experiences decision or choice difficulty chronically and also delays their decision-making (Crites, 1969; Milton et al., 2010).

Intertwined with psychology, decision-making behavior in behavioral economics and finance gets analyzed mostly in multiple domains at an individual level. Economic principles such as economic rationality and Pareto efficiency are being violated as individuals are being disaggregated into a set of agents acting at different times or in different frames (Mandler, 2014). Each individual behaves according to its preferences and beliefs which ultimately influences decision-making. Based on rationality and rational behavior one of the violations is the status quo bias explained by Samuelson and Zeckhauser (1988). This bias implies the tendency of people preferring the current state of affairs (status quo) in a set of alternatives, of which those alternatives would be an improvement. In this case preferences are complete and people act accordingly. Although this statement seems relatively easy to make on the notion that preferences and beliefs of each individual is complete, this statement is extremely hard to verify in economic models and measurements.

One of the fundamental problems is the notion of completeness as individual decision-making is based on preferences that are incomplete (Eliaz and OK, 2006). Individual preferences can play a role to the extent that decisions can be experienced as discomfoting, which makes it harder to choose. Literature describes this phenomenon of discomfort choices and difficulties in two distinctive ways: 'Indecision', which resembles decision difficulties in one specific area and 'Indecisiveness', which covers choice difficulties in all possible areas (Rassin et al, 2007; Germeijs and De Boeck, 2002). What is clear to derive from this distinction is the lack of a solid definition for both of these terms, especially indecisiveness. Unfortunately there is no clear definitions of indecisiveness (Rassin, 2007).

Due to incompleteness of these preferences and beliefs, the attention of the literature also shifted from the outcome of a decision to a research approach on the process towards the decision. What is meant with this is the creation of decision-making styles that are theorized as trait-like patterns based on personality. These styles are to be associated with attitude and behavior towards life-choices, economic choices and all other sorts of choices along the way (Leykin and DeRubeis, 2010). As decision-making styles are personal trait-like patterns, decision-making in general can also be considered as a personal trait. Some individuals find it harder to make decisions than others, which increases even more if there is a lack of information or apparent uncertainty (Rassin et al., 2007). Due

to the subjective nature of analyzing personal traits it is almost an impossibility to research on this subject. Frost and Shows (1993), however, created an Indecisiveness scale that was a 15-item Likert-type questionnaire in which each item was in a form of a statement. One of their crucial elements was the amount of time it took to answer the questionnaire. People who tend to be indecisive between choices take some time on their option of choice and are showing possible signs of procrastination (Rassin, 2007). People could also delay their time purposely to avoid making a decision at all. Decision avoidance is commonly known and can be seen as conserving energy for the consequences (potential cost or losses) of a decision. Familiar of avoiding potential costs or losses by deferring choices from a current state towards a new alternative is the status quo bias.

The link of indecisiveness and the status quo has been found occasionally in the literature but as far as I am aware only tested in the proposed “Core Indecisiveness Scale” by Potworowski (2010). Potworowski explains this link by arguing that individuals who exhibit the status quo bias either do not experience indecisiveness because they choose the present state quickly and purposely stick with this choice. When they do experience indecisiveness it can result into two possibilities: ending up with choosing the status quo or fail to decide and end up at the status quo all the same. Results shows significant correlation with both sides of the argument. Sautua (2017) has also shown that the relationship is established in the opposite direction. He showed that inertia (which he defined as the tendency to maintain or adhere the status quo), based on the work of Samuelson and Zeckhauser (1988), is jointly driven by regret aversion and indecisiveness. Indecisiveness in this sense is driven by ambiguous outcomes that are less preferred, due to high levels of uncertainty, in comparison with the status quo.

Both relationships are established, but literature lacks the additional explanation of each position to each other. What do these terms have in common to be able to show its relevance. Which one of these common factors is most deterministic in this relationship in general decision-making. Is there a missing link between preferences and is there a possibility to reveal incomplete preferences associated with indecisiveness and the status quo bias? What, if both the status quo and indecisiveness are visible between choices in a stochastic setting at the same time, determines the particular choice the most? This leads to the following research question along with sub questions:

What is the relationship between indecisiveness in choices and the status quo bias?

- *What are the common factors that can link indecisiveness and the status quo bias together?*
- *Which common factor is considered to be the most determinant to both indecisiveness and the status quo bias?*

To answer these proposed research questions, this thesis distributed a constructed survey based on the work of Sautua (2017). This survey is conducted among 142 participants on which it offers each subject to participate in a hypothetical ambiguous lottery with a lottery ticket of either the color red or blue. Divided into two treatments, each participants get a ticket assigned or they could choose their preferred color. The participants answered their perception of likeliness and confidence levels on a scale of 1 to 10 that their ticket would win the price. The lottery is ambiguous as the subjects only know the division of a certain amount of balls in a bag, but not which color has the most balls. After answering those valuation questions, the subjects were offered a surprise switch of their ticket option for a ticket of the other color, that could earn them an extra bonus if the switched ticket turned out to be the winning color. Switching is considered to be the most optimizing choice, because of the additional bonus a participant could receive and in both cases they lose nothing. After the switch option has been answered, confidence levels on their valuation will be asked again to judge if there is any change. The participants will be suddenly invited to play a second larger lottery that is similarly to the first lottery only there is a larger winning price. When both lotteries are hypothetically played, to optimize indecisiveness, status quo bias tendencies and avoiding regret aversion, the lotteries will not be carried out and the participants do not know whether they had received the price or not. The second part of the survey consists of 15 statements from the Frost and Shows scale (1993) on general decision-making. The participants judge their own decision making capabilities by answering on a 7 point Likert scale ranging from “strongly disagree” to “strongly agree”.

Experimental results have shown a significant presence of a Status Quo bias. A majority of the participants choose to stick with their original ticket instead of switching the ticket and have a chance to receive a bonus on their winning price. This significance increases along with confidence levels when participants could choose their ticket color (treatment 2). An implication could be an increase of perceived control on the ambiguous lottery. According to the Indecisiveness Scale of Frost and Shows (1993), which is also proven to be reliable, there are more indecisive participants than decisive participants. However no significant differences between these two groups are found on likelihood of success valuations and confidence levels on their lottery ticket and winning chances. Indecisiveness is also measured by looking at the role of preferences. These contradict the notion that indecisiveness is based on inconsistent or incomplete preferences as the majority of the participants show consistent preferences. The majority of the participants choose the same option, to either keep or switch their original ticket, in both lotteries. The aim of this thesis is establishing an explanation on the certain relationship between the Status Quo bias and indecisiveness. The results show slight significance of influence that indecisiveness has on the status quo option in the small lottery, indicating that in the first treatment decisive participants show more tendencies to stick with the status quo. These results implicate differences within treatments that show a clear division of psychological indecisiveness and its connection with choices. However, when taking the whole sample of subjects no significance is found,

implying no clear relationship between both terms. However, the main influence on both terms are the confidence boundaries after introducing the option to switch. Especially in the second treatment and the confidence levels in the bigger lottery. This implicates larger differences between confidence levels showing less certainty whether their ticket could win the price or not. This could mean the increase in behavior related indecisiveness that arises when people are offered larger prices. Additionally major gender differences on both the Status Quo bias and indecisiveness are found with female participants showing less confidence and more indecisiveness on both occasions.

This study contributes to academic literature, by investigating a direct link between Indecisiveness and the Status Quo bias in stochastic decision-making. It also analyzes common factors between both terms on their determinacy, which as far as I am aware has not been analyzed before. It also implements psychological branches in forms of the Indecisiveness Scale on general decision-making.

This Master's Thesis will continue with further literature on frameworks and previous literature on indecisiveness and the status qua bias along with connections through the role of preferences and ambiguity. The last part of the literature review section will present possible hypotheses to be tested. The third section covers the methodology applied for this research along with its variables that are tested and what tests are used. The results are covered in the fourth section along with several robustness checks. The fifth and sixth section of this thesis offer a discussion on the results and the comparison with other existing literature and it ends with a conclusion on this research along with limitations and suggestions of further research.

2. Literature Review

2.1 Indecisiveness

Indecisiveness is a term that is very broadly defined throughout academics. Unfortunately this is all fragmented across different and unconnected literatures and sciences (Potworowski, 2010). One of the earliest works that defined indecisiveness was Crites in 1969 with a psychological approach. According to him indecisiveness can be defined as a difficulty or a delay in making all kinds of life decisions. It does not matter whether they are significant life-altering decisions such as educational program choices or decisions that have little significant impact on life. This difficulty or delay still endures even when all conditions for choosing, such as incentives, choice supply and freedom of choice are provided. In line with the presence of the necessary conditions to decide, Chartrand et al. (1990) also add that high indecisiveness, as a result of the inability, also represents a lack of competence in formulating decisions afterwards. More psychological definitions on the ability to decide are based on emotional conflicts (getting stuck through emotions) (Elyadi, 2006), the difficulty in making personal decisions (Cooper et al., 1984) and even chronic problems individuals might have in making their decisions (Gati et al., 1996). Indecisiveness occurs when individuals are facing difficult decisions that are considered hard in the sense that there is no easy or clear choice between the options and there is evidence of delay in the deciding process (Elyadi, 2006). Psychologically, difficult decisions are mostly emotionally driven difficulties in which an emotional prison best exemplifies indecisiveness (Elyadi, 2006).

Besides a psychological perspective, indecisiveness can also be found from a decision theoretical standpoint. Although the choices provide difficulties and are perceived as difficult, there is no universal definition of a difficult or an easy choice. In line with the psychological view, perceptions, values, preferences and emotions influence the type of choice to either be easy or difficult. Ok et al. (2012) have made an important distinction in types of indecisiveness based on two main sources, in the context of uncertainty and a decisional theoretic approach. The first type suggest a person or individual that finds it impossible to compare the desirability of choices or acts across different states, because the individual cannot formulate a particular or precise guess about the likelihood of those two acts. This is called indecisiveness in beliefs (Ok et al., 2012). The second type is indecisiveness in tastes. This type of indecisiveness is based on incomplete preferences concerning the inability to compare outcomes. Both types of indecisiveness come forth in this study. Due to ambiguous events both indecisiveness in beliefs relative to likelihood of both acts as well as the inability to compare outcomes are taken into account. Lastly a psychological division of indecisive and decisive characters is made, which will be thoroughly explained in the third section.

2.2 Status Quo Bias

In the original model of decision-making under certainty, individuals choose a particular alternative in a set of known choices with outcomes that are certain. In other words they have a transitive ranking of these alternatives as they are equipped or endowed with certain preferences that satisfy these choice axioms (Samuelson & Zeckhauser, 1988). Changing by removing or adding a certain aspect per choice should not affect the basic choice of individuals as they are perceived irrelevant, and in the rational choice model only preference-relevant features in the alternatives should influence decision-making. Rationally they will always choose the highest ranked choice in these ranked alternatives. However practically speaking the alternatives mostly come with influential 'labels', which one alternative inevitably gets labeled as the 'status quo'. This implies that either doing nothing or maintain an individual's current position or one of the previous decisions always tend to be a certain possibility of choice (Samuelson & Zeckhauser, 1988).

In their work Samuelson and Zeckhauser tested this status quo label by using a questionnaire that consisted of a series of decision problems, which in each required a choice among a fixed set of alternatives. The authors provide strong evidence of their subjects adhering to a status quo position in the sense that the status quo choice is more frequently chosen in comparison with the prediction of the rational choice model. In reality the bias is also visible. In the early 1990's both the states of New Jersey and Pennsylvania inadvertently conducted a large-scale experiment on the status quo bias. It involved certain automobile insurance policies on which a cheaper policy restricted by limited suing rights and a more expensive policy are put together. In the state of New Jersey the cheaper one was represented as the default option (status quo) and an opportunity to switch to the more expensive one. 83 percent of the automobile drivers chose the default option. The state of Pennsylvania presented the more expensive policy as the default option, which resulted in 53 percent retaining the more expensive policy (Kahnemann et al., 1991). Both these states show evidence of the status quo bias, but on the contrary values of the suing rights between the state automobile driver members is not compared and could be differing in weights.

Explanations for the status quo bias effect can be regarded as a consequence of rational decision making when there are transition costs or uncertainty aspects involved. The effect can be a result of cognitive misperceptions or psychological misperceptions (Samuelson & Zeckhauser, 1988). A strong relation with the status quo bias is the loss aversion that individuals experience when choosing alternative options opposite to their status quo. In line with the Prospect Theory losses loom larger than gains, which are observable for the status quo but not for the improved alternative (Kahnemann et al., 1991). Another explanation of the bias is the role of preferences being complete. People choose the status quo and choose to stick with it in future periods (Mandler, 2004). These explanations result that the status quo bias is based on psychological insecurities regarding decision-making and the expectations of better alternatives could be perceived as threatening in forms of loss. The other argument is that the status quo choice coincides with one's preferences and is purposely chosen.

In general the status quo bias refers to the tendency of preferring the current situation even a presented alternative will be an improvement, due to unobserved aversion of potential loss, costs, cognitive misperceptions and psychological misperceptions.

2.3 The role of preferences

Indecisiveness in both beliefs and tastes are taken into account in this study. Mentioned as a factor of determining indecisiveness, preferences are involved on decision-making and are also influencing indecisiveness and the Status Quo tendency. In case of indecisiveness, preferences can either be complete or incomplete, but for both they are unobservable. The main link for preferences to be either complete or incomplete has been subject to research for a couple of years (Eliax & Ok, 2006; Mandler, 2004; Mandler, 2014).

The starting point of preference research is the classical rationality theory, which implies the motivation of people to always search of possibilities to make a profit. The theory is built on the premise that behavior can be predicted if all actions and decisions have a 'rational' character that is based on the calculation between the costs and the benefits (Scott, 2000). This also implies that the agents, due to rationality, must have transitive psychological preferences that can be revealed and are assumed to be complete (Mandler, 2004). In short transitivity is the determination that if options $A \geq B$ and options $B \geq C$, the relation between A and C must also be $A \geq C$. In this case preferences are complete as A is strictly preferred to B and therefore also for C when it is assumed that agents are "outcome-rational". With complete preferences rankings between options are revealed as A is ranked highest and C lowest, based on the previous example.

However when preferences are incomplete these rankings are difficult to establish. To illustrate incomplete preferences and transitivity say we have two bundles x and y with each two goods; good 1 and good 2 (Mandler, 2004). Consider an individual with incomplete preferences and only prefers bundles that contain the most of both goods 1 and 2. The individual cannot rank a trade-off between the two goods. Suppose bundle X has more goods 1 and less goods 2 and bundle Y has less goods 1 and more goods 2. The individual gets presented a series of choices in which each period it chooses between a set of options and alternatives to its preferred bundle. In case of transitivity with incomplete preferences there is no dominating bundle so either x or y can be chosen. When the individual selects x than $x \geq y$. A third bundle, z, is also an option of choice in which has more goods 2 than x but less goods 2 than y. As the individual is unable to rank y from z she chooses y, which makes $y \geq z$. In the first period bundle x is preferred above bundle y meaning that in that current position more of good 1 is preferred over good 2. In the second period bundle y is preferred over z revealing that more of good 2 is preferred over the same amounts of good 1. While bundle z offers the best division of both goods which was the ultimate preference in the first place, namely a bundle with the most goods. This violates

dominance, which makes incomplete preference vulnerable to manipulation in series of choices (Mandler, 2004).

Both complete and incomplete preferences are factors on indecisiveness and the status quo bias. When these are complete future choices are in line with previous ones that enlighten favorability for a certain decision. On the one hand continuity of these choices could suggest clear decision-making and people are sticking with it throughout the respective period. On the other hand continuity could implicate that people are not able to choose differently as they cannot compare both situations. Out of fear they stick with their first choice that is preferred. This shows continuity in preferences. Both arguments could implicate the status quo bias.

Incomplete preferences are logically the opposite and resemble the inability of comparing likelihood of outcomes and people do not know what to choose in the first place. This is indecisiveness in beliefs that is a consequence of incomplete preferences. Mandler (2004) shows also evidence for the status quo bias on incomplete preferences, by arguing that the status quo maintainers would be immune of manipulation since they would not switch after the first period. To test this the status-quo maintenance is based on the assumption that each period of choice is linked to their immediate predecessors, allowing the agents to reserve a status-quo option. The author shows evidence that holding a status quo illustrates that both rationality and intransitivity of choice show mutual consistency with incomplete preferences (Mandler, 2004).

The role of preferences shows influence on both terms in decision-making. Earlier a status-quo bias was already determined where preferences are complete, but in line with the incompleteness that leads to indecisiveness the status quo bias can also be considered a consequence of incomplete preferences.

2.4 The role of ambiguity and uncertainty

Preferences are by themselves hard to predict even if they are complete and consumer behavior is open to observation. This becomes even more difficult when these are incomplete, close to feelings and emotions and therefore even harder to reveal. This makes indecisiveness research particularly difficult and very broad throughout different unconnected sciences. Next to that is the irrationality of an individual's behavior that also complicates in revealing preferences. In line with irrationality is the status quo bias, because people still prefer the status quo over possible improving alternatives based on loss aversion and several other misperceptions. However in both cases there is a fundamental link that sparkles both indecisiveness and the status quo bias, which is ambiguity and uncertainty. Ambiguity or uncertainty for unknown probabilities is first seen in indecisiveness.

As already mentioned indecisiveness is based on preferences that are either complete or incomplete. The baseline for these incomplete preferences is the premise that ambiguity might have induced these preferences (Sautua, 2017). The Knightian Decision Theory by Bewley (2002) is based

on the premise of ambiguity induced indecisiveness. This theory proposes a choice theory that removes preferences completeness by deriving the choice theory under the assumption of uncertainty. This uncertainty and the aversion towards it can make very simple programs or alternatives in decision-making 'undominating' (Bewley, 2002). This increases indecisiveness in tastes and therefore the ability to compare outcomes. It also has increased significantly the inertia assumption of choosing the status quo unless an alternative is preferred over this status quo. However such an alternative, even improving, can be misperceived and the status quo is therefore still chosen.

In line with the statements of Sautua (2017) and the Knightian Decision Theory, the assumption under ambiguity shows clear influence in choice behavior and shows excess inertia, equal to the status quo bias, in first stage decision-making (Sautua, 2016). First stage decision-making is presented in forms of an ambiguous and uncertain lottery with a ticket that can either be kept or switch right before the lottery is actually carried out. According to Sautua (2016) this ambiguity and unknown probability distributions of lottery alternatives induces people to be indecisive on the decision to keep or switch their original lottery. This finding serves as a basis of this study, which is explained thoroughly in the third section. Ambiguity or uncertainty aspects in first stage decision making serve as a vital link to exploit a relationship between the status quo bias and indecisiveness. This ambiguous lottery setup is an outline for the rest of this study, to really capture ambiguity and preference influence on both indecisiveness and the Status Quo Bias.

2.5 Research questions

As far as I am aware there has been little academic work that has been able to find a link between both the Status Quo bias and Indecisiveness in decision-making let alone the search for common factors that could explain such a link. The start is to determine if there can be evidence found that show the Status Quo bias introduced by Samuelson and Zeckhauser (1998). As the proposed lottery, fully described in the third section of this thesis, also offers an option to switch their original ticket, for a ticket that has the other color competing in the lottery. The original ticket color is either assigned or chosen. This option is considered an improving alternative comparing to keeping the original ticket as it offers a bonus that can be earned if the switched ticket indeed matches the correct color compared to the color drawn in the lottery (Sautua, 2017). Because of this bonus people can earn more and is considered an improving alternative towards the current state of affairs which resembles the original lottery ticket. Therefore the first hypothesis will be:

H1: The participants will keep their original ticket and show a Status Quo bias.

In line with the findings of Samuelson and Zeckhauser (1988) and the work of Langer (1975) is the possible illusion of control. This illusion of control resembles the manipulative effect of a controlled

choice on an ambiguous situation that people experience and value accordingly. This means that when people choose their respective lottery ticket the choice manipulates the participant's feelings and confidence in its chosen ticket. Within this research this manipulative choice is also visible by offering two treatments, which differ in getting a lottery ticket assigned or choosing one of two competing colors to be their ticket. The extra choice in the second treatment could provide the participants the feeling of more control in the lottery. This could lead to an increased feeling of resentment towards switching the ticket for a ticket of the other color and an increased confidence in the chosen colored ticket in similar ambiguous situations. This leads to the following hypothesis

H2: When the status quo choice results from active choice, participants choose to keep their original ticket more often.

The second vital part to determine a possible link is the role and measure of indecisiveness. As this term is both highly subjective based on characteristics as well as incomplete preferences in decision-making, this research takes both into account. Research has found that when all relevant information is presented and therefore known to every person there is a difference in confidence levels between decisive individuals and indecisive individuals (Ferrari & Dovidio, 2001; Patalano & LeClair, 2011). Decisive and indecisive individuals are separated with the use of the psychological Indecisiveness Scale composed by Frost and Shows (1993). As mentioned in the introduction, the scale shows 15 subjective statements on general decision-making which is fully displayed in the appendix. Confidence in information and their lottery position might be evaluated differently between participants. In line with this is again the extra information delivered between treatments; the extra illusion of control. This control shows more confidence in their chances of winning, because it is their own choice. Patalano & LeClair (2011) show also that indecisive individuals show lower confidence levels in their own choice and question their quality of choice. This could also be verified in this research, leading to the following two hypotheses.

H3.1: Indecisive individuals show less confidence levels in their lottery chances than decisive individuals in both treatments

H3.2: Due to higher perception of control confidence levels will be higher with individuals in treatment 2 than with individuals treatment 1.

Another aspect that coincides with confidence in this research is the likelihood of success valuations. People value their chances of success in an ambiguous lottery that does not have clear probabilities to either lose or win the price. In line with confidence the same expectations are made between indecisive individuals and decisive individuals as well as the difference between treatments.

H3.3: Indecisive individuals show less likelihood of success valuations than decisive individuals in both treatments.

H3.4: Individuals in treatment 2 show more likelihood of success valuations than individuals in treatment 1.

A second aspect of indecisiveness, in line with the theory described earlier, is the role of preferences. Presenting preferences has been difficult in academic research but can be shed to light. This research also attempts to shed some light in determining the consistency of preferences. Consistency of preferences can be measured through answers that are given in two similar situations, but they differ in outcome. However different circumstances could defer one's preference, while the situation is linear to the original situations (Mandler, 2004). What is meant with this is the inconsistency of preferences that might occur when people are presented in similar ambiguous situations but with different outcomes. This inconsistency implies preferences not being complete if people behave or decide differently in similar situations. In case of indecisiveness this inconsistency arises even stronger, because they do not know what to choose and revert to something else entirely. By playing two lotteries, each participant is tested by looking at their preferences and its consistency along with a subjective scale to judge their (in)decisive character. This arises preferences incompleteness as a foundation of indecisiveness. Again the difference between treatments is taken into account, leading to the following hypotheses:

H4.1: Incomplete preferences are stronger with indecisive individuals than decisive individuals.

H4.2: Incomplete preferences are stronger with participants in treatment 1 than participants in treatment 2.

Since the two terms have been carefully evaluated a possible link could be found between them. In the introduction both links have already been established in previous work. Potworowski (2010) established a link between indecisiveness within characteristics that influences people's choices in either choosing the status quo default option or incapable of deciding at all and sticking with the current state of affairs. The second link, established by Sautua (2017), is that ambiguity induced indecisiveness drives inertia, implying that ambiguous and uncertain situations as well as provided information drives people to keep their original situation. As both terms are predicted in the previous paragraphs, difference can be found between individuals where both terms can be considered as dependent variables. The Status Quo bias will be disintegrated firstly, by looking at differences between decisive and indecisive individuals. Secondly the ambiguous lottery comes into play along with a regression relating to

indecisiveness, which is complemented by adding the role of preferences. This leads to the following section of hypotheses:

H5.1: Indecisive individuals show more status quo tendencies than decisive individuals.

H5.2: The status quo option in both lotteries is influenced by indecisiveness and the ambiguous lottery.

H5.3: The status quo option in both lotteries is influenced by indecisiveness and the completeness of preferences.

Opposite to the previous research expectations on the link between the Status Quo bias and indecisiveness, now the indecisiveness variable is taken as the dependent variable. With indecisiveness now being the dependent variable, in line with the research of Potworowski (2010) the expectation is made that there is a positive influence of indecisive people on the status quo option. Indecisive individuals stick with their current state as they do not know what to choose or decide in the end. Confidence levels do show a negative influence as indecisive people tend to be less secure and confident on their decision, which is also a one of the statements on the Indecisiveness Scale. On the other hand less confidence can imply less secure of their perceptions on the ambiguity in front of them leading to a larger gap of confidence levels between their maximum level of confidence and their minimum confidence level. As confidence levels are subjective in nature a Likert-scale measurement will be used to analyze this. The more precise their confidence on their ticket, the smaller the boundary gap is, as it reflects their estimations more precisely and individuals are more sure of themselves. This leads to the following two hypotheses:

H6.1: Indecisiveness is positively influenced by the status quo options in both lotteries.

H6.2: Indecisiveness is negatively influenced by confidence levels and confidence boundaries.

These research expectations attempt to confirm previous literature on both the psychological aspects as well as ambiguity induced decision-making. The extensions to previous literature lies the gap on determining each position to each other in decision-making. In form of a lottery which term of the status quo and indecisiveness, along with ambiguity, uncertainty and preferences, turns out to be the highest determinant in this relationship. This is the final step in this research, by researching which term mostly decides each choice in behavioral decision-making when people are confronted in statutory ambiguous event that induces the possibility of choosing the default option and is looking for a psychological understanding of indecisiveness. As mentioned in the literature preferences are hard to

identify and measure. This research will be no different in determining the slightest idea of the preferences; only consistency can be measure. Additional to this aspect is the variety of the which the literature defines and assumes the preferences to be when it comes to indecisiveness and the Status Quo bias. Therefore preferences are expected to be less of significant determinant in this link. Ambiguity related questions and mostly confidence however, show highest promising influences in literature, because of its role in the process of making the decision (Ferrari & Dovidio, 2001; Patalano & LeClair, 2011). This mostly relates to the process leading up to the decision, and in case this process is perceived to be difficult indecisiveness can be detected on the individual. Confidence also leads to the choice of a default option. as you have confidence in your current state, other improving alternatives can be perceived as less favorable towards a certain goal in mind. The only discrepancy with the role of confidence is that it depicts a positive influence on the status quo and a negative influence on indecisiveness; less confidence leads to more indecisiveness. Nevertheless confidence is expected to be a significant determinant factor in establishing a link between both terms.

H7: Confidence and confidence levels show the most influence on indecisiveness and the Status Quo bias.

These research expectations already introduced means of research and proposed variables with the use of a proposed lottery. This is extensively described in the following methodological section.

3. Empirical methodology

Based on the framework of Sautua (2017) this research consists of two treatments. In each treatment every participant will either receive or choose a lottery ticket of a particular color (RED or BLUE) to play a lottery with a small stake of prices and a lottery of high stake of prices. After playing the lotteries the participants are confronted with a subjective natured Indecisiveness Scale that is retrieved from the work of Frost and Shows (1993) concluding with 6 demographic questions. The survey is formed and distributed through the program Qualtrics.

3.1 Experimental Design

There are two treatments in which they differ from each other by the option to choose a certain color for the ticket (either red or blue) or getting a random ticket color assigned to them (also either red or blue). Participants of treatment 1 will randomly get assigned either a red or a blue ticket. Participants of treatment 2 will be first presented with option: "Please pick your lucky color." Both treatments will be randomly and evenly distributed between the participants sorted by Qualtrics.

With that assigned or chosen ticket they get to play a hypothetical lottery where a black bag is placed in front of them. The survey will explain to them that there are either two colors of a certain amount of balls in that bag. In total there will be hypothetical 30 balls in the urn, with 24 balls being color 1 (which could be either red or blue) and 6 balls being color 2 (which could also be either red or blue). This is the ambiguous aspect, that in reference to the literature section can be seen as a basis which could lead to status quo biases and indecisiveness in decision making. After facing this short summary of the lottery and the mentioning of the winning price (€10,-), the participants are asked questions related to their valuation of the lottery. They are presented with the hypothetical prize when their ticket color (either red or blue) matches the color of the ball drawn from the bag. The questions regarding their valuation point out their perception on the likelihood that their lottery ticket color matches the color of the ball drawn from the urn, on a scale of 1 being "highly unlikely" to 10 being "highly likely" and their confidence level that this is a match of colors, again on a scale of 1 being "not confident at all" to 10 being "very confident". Additional to these valuation questions is a question that checks if the participants understood the summary of the Lottery by asking the following: "To check, given the information about the bag we can determine that...". The subjects can either answer with a majority of red balls in the bag, a majority of blue balls in the bag, or that they do not know which color has the majority as they only know the probabilities. This question therefore checks whether they understood the lottery and especially the ambiguity of it correctly. The same lottery will be presented again to the participants only the second one will offer a larger winning price of €1000,-. By presenting a second similar lottery, changes of preferences can be measured when participants are confronted with a larger sum of winning with comparable chances.

In between lotteries the participants are faced with a surprising switch option, where they can choose, right before hypothetically drawing a ball from the bag, either to keep their original ticket or to switch their ticket for a ticket that has the other color. So for example, when a participant gets assigned a red colored ticket (treatment 1) or choose red as his/her lucky color (treatment 2), he/she can choose to keep their red colored ticket or switch their ticket for a blue colored ticket. To provide incentive to switch a hypothetical bonus can be earned when he/she switches their ticket which turns out to be a match with the ball drawn from the bag (Sautua, 2017). The bonus can only be earned when the colors match. This is made clear to the participants by explicitly mentioning this in option. In case of lottery 1 with the smaller winning price the bonus equals €0.50 and in case of lottery 2 with the larger winning price the bonus equals the percentage of lottery 1, which becomes €50,-. This bonus incentive is portrayed as the better alternative if people rationally play both of these lottery. In both cases the possible earnings are higher than the original state that the participants start with (Sautua, 2017; Samuelson & Zeckhauser, 1988). By choosing the original ticket the participant show the tendency of the status quo bias, by perceiving the swap less profitable to their winning chances.

The second part of the survey is more subjective natured as the participants answer questions about their own capabilities, strengths and weaknesses regarding decision-making in general and especially if the participants show evidence of indecisiveness. As indecisiveness has led to difficulties determining it and even define it, the Frost and Show Indecisiveness Scale (1993) is used that confronts the participants with 15 statements regarding decision-making in general, which is fully shown in the appendix. Each statement will be answered with a 7-point Likert-scale ranging from “strongly disagree” to “strongly agree”. This differs from the original 5-point Likert Scale by Frost and Shows to offer the participants more answer possibilities that might capture their attitude towards decision-making and their capabilities towards decision-making better. Multiple studies have tested the validity of this scale including the founders (Rassin et al., 2007; Frost and Shows, 1988; Gayton et al., 1994). Validity is tested by showing participants the scale twice in a test interval of four weeks resulting in correlation between the two scores of a mean of 28.4 in the first period (SD = 5.2; $\alpha = 0.79$) and a mean score of 27.6 (SD = 5.4; $\alpha = 0.84$) four weeks later (Rassin et al., 2007). To test whether this scale still shows consistency with a 7-point Likert Scale a principal component analysis is conducted based on the work of Rassin et al.

The survey concludes with 6 demographic questions on gender, age, employment status and their decision-making confidence compared to others based on the questionnaire of Strucks and Zeisberger (2017). The survey is fully shown in the appendix.

3.2 Empirical Analysis

This thesis mostly focuses on the status quo bias, indecisiveness and especially the possibility of a link between the two terms. When the survey data is gathered in the Qualtrics program, it will be

imported to Excel. The data will be put together and sorted in Excel, along with the correction of the reversed score questions on the Indecisiveness Scale. The data will be converted into Stata for the purpose of empirical testing and analysis.

3.2.1 Methods of Analysis

To test the status quo bias, with the use of the answers on the question regarding the possibility of the switch in the lottery, both treatments as well as the whole sample will be tested with the z-test and the proportion test. Both these tests are binomial tests on one sample that determine equality of means, when variances are known, on the original hypothesis and the null hypothesis. Hypothesis 1 describes that the participants in this research do adhere to a status quo bias. To perform this test a status quo variable for the small lottery and a status quo for the large lottery have been generated that provide values of 1 to the subject who did keep their original tickets and values of zero to the ones who did switch. The null hypothesis mean value is 0, which implies the mean value if each participant would be optimizing and rational. For the proportion test an equal proportion of, both the individuals that show the Status Quo Bias and the individuals that do not, is assumed to be the null hypothesis (0.5).

To test differences between treatments, in support of the previous method, is the use of the Mann-Whitney U test, which is based on a comparison of every observation between groups on non-parametric data (Nachar, 2008). As both of these status quo variables are assumed to not be normally distributed this test would fit on the basis of a null hypothesis that suggests equal treatment scores on both the small and the large lottery.

Next to the status quo bias, indecisiveness is tested. Indecisiveness is measured with a link between both the psychological side as well as a result of incomplete preferences. The psychological side is measured with the use of the Indecisiveness scale, which credibility is tested with the use of the Principal Component Analysis. This scale has shown validity in previous research, but due to the increase in answer possibilities in this research the Cronbach's alpha could lose its consistency. The answers the participants filled in on these statements are put into a score of 1 to 7 and added up to come to a total of each participant. Questions 2, 3, 5, 6, 8 and 9 are reversely scored, because of the way they are asked (Frost and Shows, 1993). The mean of these total scores is taken as a benchmark and the people who scored lower than this benchmark are considered to be decisive individuals and the participants that scored higher are considered to be indecisive (Rassin et al., 2008). These two groups in one dependent variable (decisive) are compared to each other on the dependent variables of the likelihood and confidence levels asked on the lottery with the use of a Mann-Whitney U test. As is explained in the theoretical sections of this thesis, indecisiveness coincides with incomplete preferences. The difficulties, however, is to shed these incomplete preferences to light. This research only has one way to compare preferences and that is the switching option between lotteries. When participant shows complete preferences they either keep their original ticket in both lotteries or switch tickets in both cases.

When preferences are complete participants would stick by their preference and the bonuses differences (both 5% of the winning prices) should not affect their choices. When these preferences are incomplete, participants do change their perception and change their switching options between lotteries. To test this an extra variable to show these preferences is added with 0 meaning complete preferences and 1 implying participants that show incomplete preferences. As is done earlier a z-test on one sample will be performed by indecisiveness groups and treatments to see whether the subject do show signs of incomplete preferences where the null hypothesis is equal to the percentage of indecisive participants on the Indecisiveness scale. This null hypothesis is taken as the first assumption is made that the decisive individuals show complete preferences and the indecisive individuals shows incomplete preferences.

The last stage of the results are regarding a possible link between both variables. Both variables are dichotomous, meaning they have either only a value of zero or a value of one. Searching for a relationship between these two variables along with the variables that influence either the status quo bias and indecisiveness can be found through a logistics regression analysis. A logistic regression analysis is well suited for testing hypotheses and describing relationships between an dependent categorical variable and other independent categorical variables (Peng et al., 2002). This approach has been done on the status quo variable on both lotteries against decisiveness and the likelihood and confidence questions that are asked before the switching option. For indecisiveness each question along with preferences and boundary differences are taken for both lotteries as they might have influenced the subjective answered questions of the participants. Both null hypotheses expect no particular relationship between the two dichotomous variables.

4. Results

The fourth section will cover the results of this research. It shortly covers some descriptive statistics on the research on which it continues on the status quo bias and indecisiveness between treatments and among participants within treatments. It concludes with the possibility of finding a link between the two terms and some robustness checks related to confidence boundaries, time related indecisiveness and gender differences.

4.1 Descriptive Statistics

This experiment has been conducted among 142 participants of which 60 participants are male and 82 are female participants. Most of the subjects are within the age group of 18-24. As the questionnaires were randomly and evenly distributed the final division has resulted in 67 participants being assigned treatment 1 and 75 assigned treatment 2. A large proportion of 126 participants are currently students and having finished secondary education. Table 1 shows the highest option along with the proportion of each variable.

Variable	Biggest group	Frequency	Percentage
Gender	Female	82	57.75
Age	18-24	119	83.80
Education	Bachelor's degree	81	57.04
Employment	Student	126	88.73
Decision confidence	Average	42	29.58
Understandability of the survey	Understood well	45	31.69

Table 1: Descriptive statistics.

Table 1 shows all control questions and the groups with the most answers. Overall the questionnaire has been perceived as understandable and not leading to any difficulties when answering it. The lotteries are mostly understood as 89% of the participants answered the check question correctly. The decision confidence variable was asked in way that the participants had to compare their own confidence in general decision-making against the rest of the population. This question along with the understandability question were mostly spread out, but representative in further results.

4.2 Status Quo Bias

Finding the possibility of a Status Quo Bias, the subjects answered whether they would switch their Lottery ticket to the other color before the lottery would play out. If they switched they could earn a bonus on the winning price if that ticket turned out to be a match. Switching this ticket would be maximizing option as it would give a larger winning price without a loss in both situations. To determine any significance of a status quo bias a sample z-test has been conducted along with a proportion test.

The expectation in the one sample z-test is the mean zero, as status quo choosers are valued as one and switching participants are valued as zero in the variables. For the proportion test the null hypothesis is based on an evenly proportionated division (0.5) of both status quo tendencies and maximizing participants. Table 2 shows the results of both tests along with the proportions of the participants that kept their original lottery ticket.

Tests & Proportions Status Quo Option	Z-test On Switch Options		Proportion Test		Proportions in percentages	
	Small Lottery	Big Lottery	Small Lottery	Big Lottery	Small Lottery	Big Lottery
Whole Sample	.000*** (.0839)	.000*** (.0839)	0.000*** (.0371)	.001*** (.0406)	73.24	62.68
Treatment 1	.000*** (.1221)	.000*** (.1221)	.000*** (.0542)	.196 (.0608)	73.13	55.22
Treatment 2	.000*** (.1155)	.000*** (.1155)	.000*** (.0511)	.000*** (.0532)	73.33	69.33

Table 2: Z-test, proportion test and proportions on the whole sample and both treatments. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ Std. error in parentheses

From table 2 we can conclude that in the whole sample and in both treatments people tend to adhere to the status quo bias as the results are significantly differing from the null hypothesis. In the whole sample 73.2% participants chose the default option of keeping their original lottery instead of switching in the small lottery. Within the treatments the 73.1% participants chose the status quo in the first treatment and 73.3% participants in the second treatment. In the lottery with the larger price 62.7% participants in the whole sample kept their original ticket, of which within treatments 55.2% in the first treatment and 69.3% in the second treatment chose the status quo. This is reflective in the table above as treatment two shows significance in both the z-test as well as the proportion test. These results show that there is indeed a tendency of the status quo bias in the whole sample. In line with the second hypothesis of the possible illusion of control by picking a color table 2 also offers support, by showing significance in both test in the second treatment and higher z-values indicating stronger significance on the Status Quo Bias.

As table two shows support of the second hypothesis an additional Mann-Whitney U test is performed between the treatments on both lotteries. This leads to the following results:

Mann-Whitney U	Small Lottery	Big lottery
Treatment 1&2	.979 (-0.027)	.084* (-1.729)

Table 3: Mann-Whitney U test between treatments. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, z-value in parentheses

Unlike the support of table 2 on the possible control illusion, table 3 does not support the second hypothesis by not showing any significance above 95% confidence interval. Slight significance can be detected in the large lottery. This concludes that the null hypothesis cannot be rejected in the sense that there is no significant difference in status quo bias tendency between treatments. In general the status quo bias has been found in this research in both treatments but between them only the large lottery shows somewhat of a difference that is considered relevant.

4.3 Indecisiveness

As explained, this thesis regards indecisiveness in the broadest term as it includes an indecisiveness scale, that determines an individual on his/her (in)decisive capabilities and characteristics, and in its beliefs as well as tastes. On the contrary to the work of Frost and Shows (1993) this research used a 7-point Likert scale to capture the subjective natured decision capabilities more precise. The score approach remained the consistent that the higher the score (with strongly disagree being the lowest score) the more indecisive an individual seems to be. The mean of the scale results is 51.49296 (SD 14.19, $\alpha = 0.88$). Individuals who scored above this mean are considered indecisive and those who scored below the mean are considered decisive (Rassin et al., 2007). In total 73 participants (51.41%) scored above the mean and are considered indecisive and 69 subjects (48.59%) are considered decisive individuals. The standard deviation is higher in comparison with previous work, due to the increased amount of answering possibilities as indicated earlier in this thesis. This could imply a less sufficient scale model, but the scale validity coefficient (α) shows a consistent value of 0.88 compared to previous literature. Within treatments there is majority of indecisive individuals in treatment 1 and a majority of decisive individuals in treatment 2. Although the survey consisted of two parts treatment 2 shows again an illusion of control leading up to be less indecisive. Are these individuals in the more controlled treatment simply more confident compared to the participants in treatment 1 or does this controlled aspect of a separate lottery does influence they decision making perceptions? This relationship is hard to establish in this survey form.

After determining the indecisive and decisive participants, evaluations on the likelihood an confidence questions are performed. These likeliness and confidence variables are for both lotteries and resemble the subjective perception questions on their possible lottery success that their ticket has the potential of. This leads to the results shown in the following table:

Mann-Whitney U	Difference between Treatments	Decisive vs Indecisive
Confidence small lottery	.130 (-1.514)	.861 (0.175)
Confidence large lottery	.028** (-2.193)	.275 (1.092)
Likelihood small lottery	.009*** (-2.594)	.914 (-0.108)
Likelihood large lottery	.001*** (-2.581)	.662 (0.438)

*Table 4: Mann-Whitney U test on confidence and likelihood questions on equal values between treatments and decisive versus indecisive individuals. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, z-value in parentheses*

Table 4 shows Multiple Mann-Whitney U tests on both lotteries regarding each participants valuation and likelihood that their tickets matches the ball drawn from the bag winning them the hypothetical price. The null hypothesis is that in both lotteries each question is equal between treatments and the answers given by (in)decisive participants. The results show that on both lotteries the valuations show no significant difference between decisive and indecisive participants. The treatments do show inequality between them regarding the confidence levels in the large lottery and likelihood questions in both lotteries. Especially on the likelihood question both lotteries show high degree of significant difference. By adding the porder command the test can be made whether the chance that a value on these questions is higher for the first treatment than the second treatment. What is interesting for this research is the causality of the control illusion participants tend to have in the second treatment leading to higher likeliness of lottery success thinking and higher confidence levels in their tickets. Both tests show a 62.2% chance of treatment 1 scoring better than treatment 2. This offers strength to the argument of control illusion. Proven with this is that there is high significant difference between treatments, however both null hypothesis 3.1 and 3.3 cannot be rejected as there is no significant difference found between decisive and indecisive individuals. Null hypothesis 3.2 and 3.4 can be rejected, because there are significant differences between treatments, where treatment 2 shows the highest values.

In line with confidence, the participants also answered their upper confidence level and lowest confidence level after knowing the option to switch on both lotteries. As mentioned these boundaries would be further apart when there is evidence for indecisiveness. However after computing an extra variable calculating the differences between the boundaries and perform an Mann-Whitney U test on these differences based on the decisive variable, results showed no significance implying a great degree of equality between the two groups.

Literature also has shown that indecisiveness correlates with preferences that are incomplete. These incomplete preferences are hard to determine, however the switching option does enlighten the consistency in preferences. Both lotteries are presented with the same ambiguous situation, but differ in

the winning price amount. This means also a difference in bonus, but percentage wise (5%) the bonus does not change. Therefore the implication can be made that once participants decided to keep their original ticket in the smaller lottery, they would also keep their lottery in the bigger lottery. The preferences are consistent and therefore indicated as being complete, leading to the following results.

Z-test	Incomplete Preferences
Whole sample	.999 (.084)
Treatment 1	.961 (.122)
Treatment 2	.998 (.115)

*Table 5: Preferences inconsistency by the use of a z test, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Std. error in parentheses.*

Table 5 describes a z-test on the expected mean against the mean of incomplete preferences and the chance that an indecisive person relates to indecisiveness. The null hypothesis in this test is the percentage amount (.5141) of the indecisive individuals against the whole sample. The results show no significance as in the whole sample only 23.2% participants show sign of incomplete preferences. Within the treatments 29.9% of the participants show incomplete preferences in the first treatment and 17.33% within the second treatment. This implicates that null hypotheses regarding incomplete preferences (4.1 and 4.2) cannot be rejected as incomplete preferences are in the minority and no difference is found between decisive and indecisive individuals.

Indecisiveness has been a difficult term to determine, which is also relatable to these results. On the basis of the psychological scale more people tend to be indecisive than decisive in nature. Indecisiveness based on incomplete preferences or confidence levels cannot be found entirely. The likelihood or confidence in one's lottery ticket does show inequality between treatments, but it does not imply indecisiveness in the sense there is no real difference between these answers on a psychological basis.

4.4 Status Quo Bias linked with Indecisiveness

Both terms are researched separately in previous sections. A status quo bias is significantly determined as well as inequality between treatments on the questions regarding the ambiguous lotteries and a majority of indecisive individuals has been found. This section will answer the possibility of a link between both terms by using a Logistics regression on the status quo bias variable, for both lotteries, and the indecisiveness variable for the whole sample and both treatments separately. Firstly, both status quo variables are compared between decisive individuals and indecisive individuals to check whether there is a significant difference of indecisive people choosing the default option more often in line with

the reasoning of Potworowski (2010). With the large lottery this seems to be the case, but for the small lottery small chances of equality appear in both treatments shown in the appendix. Treatment one shows an almost 95% confidence interval differences between the two groups in favor of the indecisive groups choosing the default option. Treatment 2 however shows a negative skewed relationship between the two groups of indecisive individuals showing less status quo option choices. Although not significant the price differences could be key for these developments. Therefore the null hypotheses of 5.1, which is equality between individuals, cannot be rejected as only the smaller lottery of the first treatment shows somewhat significant difference. As mentioned logistic regressions are performed to determine influences of indecisiveness and the status quo biases on each other. This leads to the following results shown in the next two tables.

Status Quo logistic regression	Small Lottery			Large Lottery		
	(1)	(2)	(3)	(4)	(5)	(6)
	Whole sample	Treatment 1	Treatment 2	Whole Sample	Treatment 1	Treatment 2
Indecisiveness	.353 (-0.20)	.190* (-1.90)	1.345 (1.54)	.408 (0.36)	.459 (-0.23)	1.048 (1.17)
Likelihood of ticket match	.199 (0.64)	.259 (-0.12)	.457 (1.21)	.173 (-0.32)	.187 (-0.69)	.394 (0.29)
Confidence on ticket	.138 (-0.08)	.208 (0.24)	.221 (-0.60)	.244* (1.74)	.296 (1.37)	.429 (0.85)
_cons	1.277 (0.71)	6.416 (1.46)	.647 (-0.49)	.286 (-1.22)	.502 (-0.51)	.368 (-1.31)
<i>N</i>	142	67	75	142	67	75
<i>Pseudo R</i> ²	0.0037	0.0532	0.0512	0.0376	0.0275	0.0599

Table 6: Logistic regression of the status quo bias for both lotteries on indecisiveness, likelihood valuations and confidence z statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6 shows no sign of significant influence that indecisiveness may have in the status quo, where the standard error is given along with z-statistics in parentheses. It shows a little significance on the first treatment but not significant enough to determine a link between the status quo and indecisiveness based on both psychological and lottery related questions on the small lottery. Similar conclusions apply to the large lottery, where confidence shows slight positive significant influence on the status quo, but not significant enough to take into account. Table 6 shows that the null hypothesis of 5.2 cannot be rejected and the ambiguity related question based on both lotteries show no significant influence on the status quo bias.

Indecisiveness and the status quo bias are based on the assumption that preferences do play a role and in case of the status quo bias these are assumed to be complete (Samuelson & Zeckhauser, 1988). In the previous results the preferences are only used on the matter of indecisiveness of the participants. As they also play a role for the Status Quo Bias a complete preference variable is formed and tested towards both the status quo lotteries with the use of a logistic regression found in the appendix. On the status quo option for the smaller lottery little significance is detectable. On the larger lottery and its status quo option high positive significance is found indicating a strong relationship between complete preferences and the choice of the status quo bias. This results complements the assumption formed in the literature that the status quo bias is assumed to be based on preferences that are complete. To explain the differences, first the argument can be made that the second lottery is the biggest determinant. Preferences are only considered complete or consistent when the two switch choices are aligned. Another explanation of this difference is the significant increase of the Pseudo R^2 , implying a significant boost in explanatory power of the regression analysis. Combining this with the indecisiveness variable, the smaller lottery shows little significance, but not sufficient enough to full reject null hypothesis 5.3. In combination with indecisiveness complete preferences show a positive significant relationship with the status quo, but a direct link with the status quo and indecisiveness is still not found.

A short temporary conclusion is that both terms show no significant influence towards each other. There is no direct link to be found that indecisiveness influence the status quo choice in this research. It does however exist in an ambiguous situation, which can also be found in the work of Sautua (2017). Explanation to this result will be looked into in the next discussion section. A temporary conclusion is no significant influence of indecisive on the status quo option of choice, and not rejecting null hypotheses 5.2 and null hypotheses 6.1.

To determine the factors that show most influence indecisiveness a logistic regression of likelihood valuations for both lotteries as well as confidence level valuations and intervals is performed on the general psychological indecisiveness scale variable. In line with the status quo variable both treatments are also tested separately, leading to the following results shown in table 7.

Indecisiveness Logistic regression	(1) Whole Sample	(2) Treatment 1	(3) Treatment 2
Likelihood small lottery	.202 (0.01)	.261 (-0.52)	.608 (1.35)
Likelihood large lottery	.252 (1.06)	.480* (1.75)	.396 (-0.06)
Confidence small lottery	.173 (0.41)	.245 (-0.09)	.274 (0.05)
Confidence large lottery	.140* (-1.75)	.236 (-0.59)	.191* (-1.84)
Boundaries small lottery	.105 (-1.52)	.273 (1.06)	.140*** (-2.63)
Boundaries large lottery	.151 (1.51)	.167 (-1.45)	.935** (2.55)
Preferences incompleteness	.462 (0.21)	.237 (-1.55)	1.275 (0.62)
_cons	1.052 (0.49)	1.232 (0.14)	3.978 (0.80)
<i>N</i>	140	66	74
<i>Pseudo R</i> ²	0.0334	0.0852	0.1950

Table 7: Ambiguous induced confidence and likelihood valuations on indecisiveness, *z* statistics in parentheses* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Indecisiveness is tested by putting both lotteries together. The reason is that indecisiveness is measured by the scale answered in the second part of the survey, which could be influenced by all previous answers. The table shows high significance in boundary differences in the second treatment for both lotteries, implying that the larger these boundary heavily significantly influence an individual's indecisiveness. Therefore the expectation of ambiguity and uncertainty influencing people's indecisiveness cannot be accepted in all cases. It shows negative significant influence of confidence on indecisiveness, which partially rejects null hypothesis 6.2. Although positive influence can be found of boundaries of the small lottery. This contradicts the prediction entirely. For all logistic regression analyses the goodness of fit and the explanatory power (Pseudo R^2) is relatively low, implying that the

model can be used, but both dependent variable outcomes are not explained highly by both ambiguous induced valuations variables and preferences. Indecisiveness in the second treatment shows the most promising goodness of fit. Although this opens subject to debate, low explanatory can be expected when it is dealt with a survey.

Referring to the last paragraph of the second section, this thesis attempts to uncover the significance of the ambiguity based lottery and its questions on both indecisiveness and the status quo bias. These questions regarding likelihood of ball matching and confidence levels on the lottery ticket are tested within treatments against both indecisiveness and the status quo bias. The results are shown in table 8.

Mann-Whitney U	Status Quo Bias			Indecisiveness		
	Whole Sample	Treatment 1	Treatment 2	Whole Sample	Treatment 1	Treatment 2
Likelihood small	.367 (-.902)	.878 (.153)	.133 (-1.504)	.914 (-.108)	.401 (-.839)	.881 (.150)
Likelihood large	.078* (-1.753)	.913 (-.109)	.043** (-2.023)	.662 (.438)	.165 (-1.389)	.110 (1.597)
Confidence small	.691 (-.397)	.818 (-.230)	.654 (-.449)	.861 (.175)	.633 (-.478)	.835 (.213)
Confidence large	.008*** (-2.648)	.264 (-1.118)	.022** (-2.290)	.275 (1.092)	.393 (-.855)	.058* (1.903)

Table 8: z statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

For both the status quo bias as well as indecisiveness, the ambiguity induced lottery questions show similar values between the participants that do show the status quo bias and do not show the bias and similar values between the participants who do show indecisiveness and those who do not on both lotteries in the first treatment. Treatment 2 does show some diversities between the groups, especially on the likelihood. This is a negative significant relationship implying that participants that do not have the tendency to adhere to a status quo show lower values of confidence and likeliness than the participants who do in their ticket in the large lottery. For indecisiveness slight significance can be found on the confidence levels of the large lottery. So from table 8 can be concluded that the ambiguous induced questions do show inequality on status quo bias tendency on the large lottery.

In general both terms are found in this research, but a direct link has not been concluded. The ambiguity of the lottery turned out to be a significant decider for the status Quo Bias and confidence seems to a vital element in both terms. Confidence may not be fully determined in the whole sample, but differs strongly between and within treatments. This shows support for the last hypothesis being the regarded as the strongest determinant that could link both terms together, while other factors such as preferences show promising results on only one of the terms being the Status Quo Bias.

4.5 Robustness Checks

4.5.1 Gender

Besides the distinction of treatments between participants, gender can also play a role in general decision-making. Research has shown that women tend to be more indecisive than men, found with the use of the Frost and Shows scale (Rassin & Muris, 2005). As mentioned the survey has been conducted among 60 male participants and 82 female participants. Gender differences are tested on both indecisiveness as well as the status quo bias. When it comes to the status quo tendencies, women tend to have a strong reliance on their original situation, because on both lotteries the huge majority of women show status quo tendencies (69 to 13 in the first lottery and 58 to 24 in the second lottery). In comparison to men the differences between both groups is lower (35 to 25 in the first lottery and 31 to 29 in the second lottery). To test the equality between treatments on the Status Quo Bias a Mann-Whitney U test is conducted, leading to the following results found in table 9.

	Status Quo Bias		Indecisiveness		
	Small Lottery	Big Lottery	Indecisiveness	Cronbach's alpha	
				Male	Female
Whole sample	.001*** (-3.420)	.021** (-2.312)	.048** (-1.980)	.85	.90
Treatment 1	.054* (-1.929)	.004*** (-2.867)	.100 (-1.644)	.88	.88
Treatment 2	.007*** (-2.701)	.551 (-0.597)	.243 (-1.168)	.79	.90

Table 9: Status Quo bias by gender, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z statistics in parentheses

In all cases female participants show a significant majority of Status Quo adherence tendencies within both lotteries although they differ between treatments. In the whole sample there is a significant difference between gender on the Status Quo Bias, implying that female participants tend to stick with the familiar circumstances and perceiving obstacles to choose the better alternative stronger than male participants. In line with the finding of Rassin and Muris (2005) female participants also tend to be more indecisive than male participants, which seems to be more likely in the first treatment compared to the second treatment. The scale determining people's indecisiveness shows in all cases high reliability ranging from 0.79 to 0.90. To determine any influence of the other ambiguous aspects of the experiment a logistic regression is also performed and can be found in the appendix. The regression shows significant influence of the status quo tendencies along with difference of confidence levels on the large lottery, implying that female participants tend to have a large range of confidence levels and indicating more indecisiveness about their lottery chances.

Concluding these results female participants show higher levels of indecisiveness along with stronger tendencies to stick with the current state of affairs, which increases when the tickets are randomly assigned to them.

4.5.2 Time related indecisiveness

The last source of measuring indecisiveness is the time it takes for people to make decisions. Time is hard to assess decision-making of individuals and in case of this survey even harder. Regarding this research, time is only indicated in the duration of each participant in taking this survey. By taking this time indication and split it into two groups separated by the mean, these groups can be checked against indecisiveness. In total 36 out of 142 participants filled in this survey longer than the average time of which 20 participants showed indecisiveness on the Indecisiveness Scale. These 36 participants were firstly tested against each other with the null hypothesis is equality between the times. With the use of a Mann-Whitney U test no significant different times were found between these two groups. Lastly a regression analysis is performed including all indecisiveness related aspects on the time it took the participants to fill in the survey shown in the appendix. This regression analysis show high positive significant influence of the indecisiveness related to time, but a negative significant influence from the decisive variable itself. On the one hand these results indicate the strong increase of time when there is indecisiveness found in participants whom took longer than average in answering the survey, and on the other hand being indecisive is not a guarantee of longer time indications. These contradicting results are somewhat in line with the low amount of participants that took a large amount of time to fill in this survey. The average amount of time this groups needed to have to fill in the survey was almost double the time of the overall average. Therefore time is considered to be an inadmissible factor for measuring indecisiveness in this research.

4.5.3 Adding Boundaries to the Status Quo Bias

In section 4.4 the ambiguous aspect of the lottery is examined to complement a possible relationship between indecisiveness and the Status Quo Bias. However an additional question is asked on their confidence levels after receiving information that there is a possibility to switch. This could influence the relationship between the two terms if these boundaries variables are added in the logistic regression.

This has been done for both lotteries and for the whole sample and both treatments. The tables can be found in the appendix. Adding the boundaries into the regression increases the goodness of fit and finds a negative significant influence of indecisiveness in the status quo. With this finding tendencies to adhere to the current state of affairs increases when the matter of indecisiveness decreases. Logically this contradicts the findings introduced in the introduction section, which explains that the matter of indecisiveness only encourages the choice to stick to a status quo. When it comes to the large lottery the

exact opposite can be determined. The boundaries show high positive significance in all cases, implying the larger the range of the confidence levels the higher the Status Quo option is chosen. This is in line with Potworowski (2010), which found that the higher people show indecisiveness or unable to make a decision along with confidence in that decision stick with the Status Quo. So both lotteries show different relationships with confidence levels and therefore indirectly indecisiveness with the default option. This difference can be explained to some degree by looking at the results on the difficulty of both lotteries compared to each other, which show a majority of difficulty answering the lotteries (59.86%) of which 26.06% answered that answering the large lottery showed most difficulty. These results could reflect the difference of relationships by showing signs of increased difficulty in deciding for the large lottery.

5. Discussion

When it comes to decision-making, either in general or financially based, the Status Quo bias and indecisiveness are terms that coincide with uncertainty and behavioral aspects that could limit progression in one's life. Although this research is not directed to life determinant choices, the same concept is applied here, where people tend to choose their current situations above a better alternative. This research has been based on the work of Sautua (2017) and shows similar results in the sense that an ambiguous lottery along with an unexpected option to switch results strongly in a chosen default status quo option, while switching is considered the optimizing option. This research also finds strong significance of the status quo bias for both lotteries. Similarly this research the ambiguous lottery also attempts to contribute to a conflict of decision-making in the sense that it attempts to deviate individuals from rational better options driven by indecisiveness. To determine indecisiveness a branch to psychology has been made with the presence of the Indecisiveness Scale by Frost and Shows (1993).

5.1 Status Quo Bias

The tendency to stick with the default option or the current state of affairs, the lottery ticket in this case, has been proven to be strongly significant. In line with the research of Sautua (2017) a vast majority of the participants show this tendency in both lotteries. The ambiguous induced lottery shown to the participants influenced their perception on lottery valuations to win the price and even showed stronger relationship when people could choose their lucky color (and so have an increased control perception). As mentioned in the literature, the bias has a strong connection with loss aversion, which in this case has been eliminated as the participants could not lose anything. Only the projection of winning a cash price based their decision to either switch or keep their ticket. This research therefore differs from the founders of the bias in decision-making (Samuelson and Zeckhauser) as loss aversion should not be a factor of winning chances evaluations. The results also shows alignment with the Knightian Decision Theory. This theory describes that alternatives who are seen as better become 'undominating' under the assumption of uncertainty and ambiguity. When the decision maker is indecisive the surprise effect of switching the ticket has no preferred dominance anymore (Sautua 2017; Bewley, 2002). Knightian Decision Theory therefore predicts, in line with the work of Sautua (2017) and this research, that indecisive individuals stick to their original ticket. However this argument does not hold for decisive people who still show signs of the bias. In general strong signs of the bias are to be found in this research with consistency between decisive and indecisive individuals.

5.2 Indecisiveness

Indecisiveness has been investigated in multiple ways. There has been influence of ambiguity and uncertainty, preferences and branches to psychology with the use of the Indecisiveness Scale. This has led to two groups that do not show significant differences on their valuations and confidence levels

on decisive capabilities. Results have shown no significant differences between decisive and indecisive individuals on their answers towards confidence and likelihood of their ticket matching the lottery winning color. Strangely high significance is found between treatments. This contradicts the results found by Rassin and Muris (2005), who concluded in their work that indecisive individuals, distinguished with the use of the Frost and Shows Indecisiveness Scale, do show strong significant correlation with ambiguous situations. According to them indecisive individuals perceive ambiguous situations more threatening than decisive individuals. The results in this research show otherwise. However, the argument can be made that by choosing one of two colors an increase in responsibility and power could be perceived misleading a possible threat of not winning the lottery. Participants in the second treatment could lay some blame to themselves as they have specifically chosen for one of the two colors. This argument can also be partially misleading, because participants got introduced to the lottery after picking the color but they did not know through the introduction of the survey. In complement to this is the fact that there was not really a threat of loss in this ambiguous situation; they could only win in the lottery.

5.3 The inconclusive link

This research is centered on establishing a link between indecisiveness and the Status Quo bias and determine a relationship between both variables by looking at the role of several factors that have shown influence in previous literature.

5.3.1 Preferences

Mentioned before-hand preferences are hard to reveal in decision-making literature. Consistency of preferences, however, are less difficult to find. In this research consistency plays a role in the sense that the participants shows completeness or consistency when the choice of switching or keeping the ticket are the same for both lotteries. When it comes to the status quo preferences are assumed to be complete as there is dominating preference and out of fear of losses or other costs. These threats are perceived as dominating factors that can be avoided if people stick to their default option. This is also visible in this research as a vast majority shows consistent and complete preferences. However research has also shown that the status quo bias can also be considered a consequence from incomplete preferences (Mandler, 2004). Indecisiveness is based on preferences that are incomplete. This would mean a link can be found that indecisive individuals show incomplete preferences and stick to the status quo option, because of not knowing what to choose they stick with the current option. This consequence of incomplete preferences can hardly be found in this research as consistency is key when it comes to the participants in this research. The majority of the participants show complete preferences on either switching with both lotteries or keeping their original ticket with both lotteries. Although it can be argued that for these status quo options indecisive individuals were not able to choose between

the choices and took the easy way out by playing with the same ticket. However establishing this notion is extremely difficult in this research as it is a distributed closed questions anonymous survey, where feelings and emotions cannot be captured towards making the switching decision. This is where the work of Sautua (2017) offers more clarification as it is a laboratory experiment visible for the researchers to analyze decisions and emotions. However the difficulty of assessing emotions still remains.

5.3.2 Ambiguity and Uncertainty

Lastly the ambiguous and uncertain aspect that links Indecisiveness and Status Quo Bias together, which are the lotteries in this case. The lotteries show on both occasions a strong tendency to the status quo and differences in confidence levels and likelihood of success valuations between participants and treatments. This is again in line with the inertia findings of Sautua (2017). However one aspect in his work is ambiguity driven indecisiveness. This is explained as a logical cause of choosing to stick with the original ticket making the connection between the Status Quo and Indecisiveness. The manner in how these lotteries are presented could lead to indecisiveness in decision-making, but they do not explain indecisive characteristics. However psychological research argues similarly on ambiguity and uncertainty aspects on decision-making (Frost & Shows, 1993; Elaydi, 2006). Although academically labeled as 'aversion' in both standpoints ambiguity in decision-making leads to certain misperceptions that influence people's decisions. By influencing this indecisiveness can be a consequence. Through misperceptions the lotteries can be linked with indecisiveness in characteristics. Ambiguity and Uncertainty can be regarded as the bases for all these answers on which confidence seems highly reliable on both subjective terms in this study.

6. Conclusion

Decision-making has been subject to an extensive range of economical and psychological academic research, in which a status quo bias has been found in the late 80's along with multiple forms of defining indecisiveness in general decision-making. These two terms have been the main subjects in this thesis, tested with the use of a survey conducted among 142 participants. The survey is based on the work of Sautua (2017) that confronts people with playing an ambiguous hypothetical lottery in which a surprising switch possibility is implemented that is considered the better alternative than the status quo. Along with the two different price lotteries, the participants judged their own decision-making capacities and abilities on series of statements according to the Frost and Shows scale (1993).

The results show an overall tendency to stick with their original Status Quo option in both the controlling treatment as well as the first treatment that gets their options assigned. When it comes to indecisiveness, a majority of the participants shows indecisive characteristics based on the scale. Along with the scale indecisiveness between treatments is also shown in the results implying a significant difference of confidence levels when people tend to get their status quo option assigned compared to the possible illusion of more control picking their original option. In line with the theory, female participants show significant larger amounts of indecisiveness on both occasions. However the role of preferences explained in the theoretical section cannot be confirmed in this research as incomplete preferences are hardly discovered in this research and do not link with indecisive characteristics. The main object of this thesis is to establish a possible link between both terms and complement little existing literature that found both one-sided relationships. This research lacks the discovery of such a direct link and it can only establish a heavily linked preference completeness with the Status Quo biases and offer support of confidence being based on ambiguity as the most determinant factor in both the bias and indecisiveness.

This research has its limitations. Decision-making literature is mainly concerned on describing decision-making patterns of individuals or groups of individuals that can explain certain phenomenon. This survey can only catch a glimpse of practical use, which is judging the characteristics of people and possible setting a relationship that people in ambiguous situations tend to stay with their current situation. Only this survey does not apply to a dynamic situation and has explanatory power on decision-making patterns in general. Next to reflection on reality, the term indecisiveness in this research has been broadly defined. It is not only based on characteristics and abilities, but also based on preferences inconsistencies and as a results of an ambiguous decision process in form of the lottery. This contradicts each other as shown in the results. Preferences seem to be complete, although the majority of the sample shows indecisiveness characteristics. These are tested together, which can be considered as an inconsistency resulted from a broadly defined indecisiveness. A final limitation is the lack of the practical definition of the Status Quo bias. The default option in this research is to stick with the chosen or received colored ticket. In general a Status Quo option is chosen by the Decision Maker (Sautua, 2017). For example, career or life altering decision are chosen by the decision maker at hand as it

involves their future and development in life. If they cannot choose or tend to be hesitant towards change a status quo or default situation is mostly taken to avoid making decisions that they are not comfortable with. The same goes for policies by policy makers. They will adhere to a status quo policy that satisfies most people or move on with another policy, mostly compared to the status quo policy. In both career or life decision as well as policy decision there are costs and possible losses involved in making this decision. In this research the only influence participants have is in treatment 2 by choosing a color between red or blue and as mentioned there is no loss to influence the tendency towards the bias. Therefore the practical sense of a status quo option is limited and not reflective to reality.

This research has attempted to provide and explain a relationship between indecisiveness and the Status Quo bias in decision-making where both are independent variables and psychological influences are key in predicting this connection. Although it has mostly reality reflective limitations, this research could be a basis for future research. Loss aversion could be central in further research as well as analyzing the bias and indecisiveness when it comes to policies or life altering decisions. Does indecisiveness increase when individuals have to make decision on their future, for example schooling or job related? What if there is added information given regarding new policy measures prior to government elections? Do people stick with their default option, because of increasing information that has a positive effect on indecisiveness? All these proposals can define a relationship where two dependent variables, the bias and indecisiveness, can play a central role in decision-making in reality.

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Appendix

Appendix 1: Survey Details

Introduction

First of all thank you for participating in this survey! This survey consists of two parts.

In the first part questions will be presented regarding your valuation and confidence on a lottery that you are about to play. This part consists of 7-8 questions.

The second part of this survey covers a more subjective evaluation of your abilities in making decisions in general. This part consists of 15 questions of which each present a statement involving decision making. The answer possibilities of each statement range from 'strongly disagree' to 'strongly agree'. The survey concludes with 6 short informational questions.

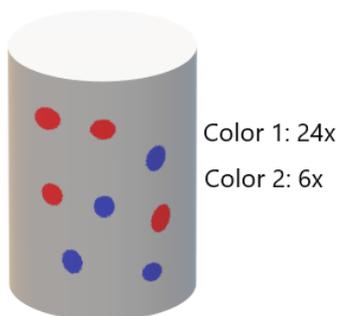
Again thank you for participating in this survey. It will only take around 10 minutes of your time and there are no right or wrong answers. Be assured that your answers are also strictly confidential and anonymous!

Kind regards,

Willem van Ruth

Appendix 1A – Lottery

You have received a free lottery ticket and you are invited to play in a short lottery. You have received a ticket that has the color RED. In front of you there is a black bag which contains 30 balls that are either RED or BLUE. You also know that 24 balls are of one color (RED or BLUE) and 6 balls are of the other color (RED or BLUE).

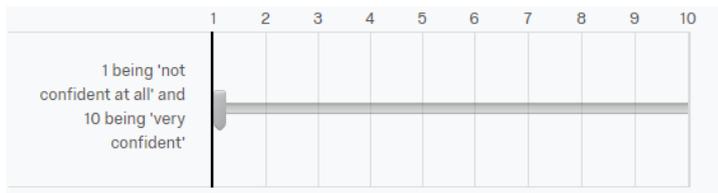


You receive a price of €10,- if your color of the Ticket (RED) matches the color of the ball drawn by an independent lottery host. If the ball drawn does not match the color of your ticket you win nothing.

On a scale of 1 to 10, how likely do you think the color of the ball drawn from the bag matches your lucky color RED?



On a scale of 1 to 10, how confident are you that your ticket matches the color of the drawn ball from the lottery bag?



To check, given the information about the bag we can determine that...

- There are more RED balls in the bag
- There are more BLUE balls in the bag
- We do not know which color has the most balls in the bag, only the probabilities

Appendix 1B - Both switch options

Small Lottery

You are getting closer to the drawing of one ball and knowing if you have won the price or not. However the lottery host offers you a chance to switch your Lottery Ticket for a Ticket that has the other color against a bonus of €0.50 when the colors match. Keep in mind that the winning price is €10,-

Do you want to switch your Ticket?

- No, I would like to keep my Original Ticket
- Yes, I would like to switch my Ticket and earn €0.50 bonus

Large Lottery

You are getting closer to the drawing of one ball and knowing if you have won the price or not. However the lottery host offers you a chance to switch your Lottery Ticket for a Ticket that has the other color against a bonus of €50,- when the colors match. Keep in mind that the winning price is €1000,-

Do you want to switch your Ticket?

- No, I would like to keep my Original Ticket
- Yes, I would like to switch my Ticket and earn €50,- bonus

Confidence Boundaries after each switch option.

Based on your confidence level and your answer on whether you would switch or not switch your ticket, on a scale from 1 to 10, how confident are you now in valuating your winning chances on the lottery? Provide your answer by pointing out an upper bound of the maximum level of your confidence and a lower bound of the minimum level of your confidence.

	1	2	3	4	5	6	7	8	9	10
The maximum level of your confidence on the lottery										
The minimum level of your confidence on the lottery										

Appendix 1C - Frost and Shows Questions and scale

This is the second part of this survey, where you are presented with 15 statements relating your attitude towards making decisions. These statements can be judged by answering options ranging from 'strongly disagree' to 'strongly agree'

- I try to put off making decisions

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

- I always know exactly what I want

- I find it easy to make decisions

- I have a hard time planning my free time

- I like to be in a position to make decisions

- Once I make a decision, I feel fairly confident that it is a good one

- When ordering from a menu, I usually find it difficult to decide what to get

- I usually make decisions quickly

- Once I make a decision, I stop worrying about it
- I become anxious when making a decision
- I often worry about the wrong choice
- After I have chosen or decided something, I often believe I have made the wrong choice or decision
- I do not get assignments done on time because I cannot decide what to do first
- I have trouble completing assignments because I cannot prioritize what is most important
- It seems that deciding on the most trivial thing takes me a long time

Appendix 1D - Demographic Questions

What is your gender?

- Male
- Female

What is your age?

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 64 years or older

What is your highest level of education that you have completed?

- No education
- Primary education
- Secondary education
- Bachelor's degree
- Master's degree
- Doctorate

What is your employment status?

- Employed by an employer
- Employed independent
- Unemployed
- Student
- Retired

Rate your decision-making confidence compared to the average population.

- Far below average
 - Moderately below average
 - Slightly below average
 - Average
 - Slightly above average
 - Moderately above average
 - Far above average
-

How well did you understand and how much were you able to answer this questionnaire?

- Did not understand or answer at all
- I had quite some difficulties
- Understood
- Understood well and was able to answer well
- Everything was clear to me

Appendix 2: Additional Results

Appendix 2A Status Quo by Indecisiveness

Status Quo by Indecisiveness	(1) Whole sample	(2) Treatment 1	(3) Treatment 2
Status Quo small lottery	.861 (0.176)	.051* (1.954)	.110 (-1.598)
Status Quo large lottery	.932 (-0.085)	.791 (0.266)	.476 (-0.713)

Table 10: Status Quo Bias by indecisiveness * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z statistics in parentheses

Appendix 2B: Completeness of preferences on the Status Quo

Status Quo Small Lottery	(1) Whole Sample	(2) Treatment 1	(3) Treatment 2
Indecisiveness	.372 (-0.10)	.190* (-1.89)	1.981* (1.94)
Preferences complete	.442 (-0.07)	.363 (-0.93)	2.110 (1.51)
Likelihood small	.210 (0.65)	.268 (-0.20)	.519 (1.21)
Confidence small	.146 (-0.08)	.222 (0.20)	.255 (-0.36)
Boundaries small	.099* (1.75)	.155 (1.42)	.166 (1.36)
_cons	.922 (0.14)	8.408 (1.47)	.123 (-1.63)
<i>N</i>	140	66	75
<i>Pseudo R</i> ²	0.0244	0.0918	0.1108

Table 11: Logistic regression with complete preferences, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z-statistics in parentheses

Status Quo Large Lottery	(1) Whole Sample	(2) Treatment 1	(3) Treatment 2
Indecisiveness	.431 (0.19)	.371 (-0.84)	1.154 (1.06)
Preferences complete	2.853*** (3.91)	7.074*** (3.18)	2.750* (1.85)
Likelihood large	.207 (-0.20)	.263 (-0.16)	.433 (0.13)
Confidence large	.293 (1.34)	.402 (1.03)	.502 (0.76)
Boundaries large	.112** (2.42)	.179 (1.39)	.153* (1.82)
_cons	.065*** (-3.21)	.076** (-2.48)	.092** (-2.08)
<i>N</i>	142	67	75
<i>Pseudo R</i> ²	0.1821	0.2274	0.1505

Table 12: Logistic regression with complete preferences, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z-statistics in parentheses

Appendix 2C: Robustness check on gender, time and boundaries

	(1) Gender
Indecisiveness	.401** (2.05)
Status Quo small	.496** (2.17)
Status Quo large	.487* (1.78)
Boundaries small	.144 (1.22)
Boundaries large	.143** (-2.10)
Likelihood small	.242* (1.82)
Confidence small	.195 (-1.38)
Likelihood large	.246 (1.28)
Confidence large	.239* (-1.92)
_cons	.874 (-1.63)
<i>N</i>	142
<i>Pseudo R</i> ²	0.1891

Table 13: Logistic regression on gender * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z-statistics in parentheses

Status Quo Small Lottery	(1)	(2)	(3)
	Whole Sample	Treatment 1	Treatment 2
Indecisiveness	.372 (-0.10)	.181** (-1.97)	1.621* (1.77)
Likelihood small	.210 (0.65)	.259 (-0.26)	.501 (1.23)
Confidence small	.146 (-0.07)	.225 (0.26)	.242 (-0.43)
Boundaries small	.099* (1.75)	.152 (1.28)	.156 (1.31)
_cons	.882 (0.14)	5.329 (1.25)	.312 (-1.12)
<i>N</i>	140	66	74
<i>Pseudo R</i> ²	0.0243	0.0801	0.0848

Table 14: Adding boundary differences: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z statistics in parentheses

Status Quo Large Lottery	(1)	(2)	(3)
	Whole sample	Treatment 1	Treatment 2
Indecisiveness	.394 (0.15)	.519 (-0.08)	.928 (0.85)
Likelihood large	.190 (-0.32)	.203 (-0.75)	.470 (0.45)
Confidence large	.285 (1.63)	.350 (1.15)	.469 (0.74)
Boundaries large	.109*** (2.98)	.170** (2.26)	.155** (2.08)
_cons	.186* (-1.94)	.336 (-1.08)	.150* (-1.78)
<i>N</i>	142	67	75
<i>Pseudo R</i> ²	0.0917	0.0929	0.1132

Table 15: Adding boundary differences * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ z statistics in parentheses

Time Regression Analysis	Time Indecisiveness
Indecisiveness	.082* (-1.75)
Time indecisive	.004*** (2.93)
Boundaries small	.773 (-0.29)
Boundaries large	.940 (0.08)
_cons	.000*** (4.50)
<i>N</i>	140
<i>Adj R</i> ²	0.0348

Table 16: Time related indecisiveness logistic regression * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ *t* statistics in parentheses