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Financial decision-making on behalf of another

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Abstract: Financial decisions that concerns us are not always made by ourselves. In real life, many situations arise when the decisions are taken for us by a third person. Examples of this are when policy makers decide for us and when brokers handle our investments. Others are estimating the risks for us and makes financial decisions from their perception of the situation and perhaps their own risk preferences. This field has scarcely been studied, even though the constellation appears in our everyday life. By establishing the basis of a financial decision, one can conclude whether or not it makes more sense to either make the decisions individually or to let someone else make them for you. This paper is examining this decision-making process on behalf of another when an individual stand in front of lotteries with negative expected value. It is shown that the decision-makers does not act according to expected value maximization when deciding on behalf of someone else. This could depend on the fact that many estimated the preferences of their partner and acted accordingly. Many of the decisions were presumably influenced by skewed perception of the prospect, which was also affecting the choices. Thus, according to this study, one should decide for themselves when facing a lottery with negative expected value.

Keywords: Decision framing • Instant state lottery tickets • Self-other differences • Peanuts effect • Gambling • Myopic behaviour • Risk preferences

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1. Introduction

Various financial decisions taken today are not done by yourself, but taken by someone else. Policy makers take decisions on the behalf of us frequently. Moreover, if you have invested parts of your liquidity in for example funds, bonds or stocks, the future yield lies in someone else's hands (Dolan et al., 2014). O. Andersson, Holm, Tyran, and Wengström (2016) examined the process of decision-making when deciding on behalf of strangers. By a two-by two factorial design, they found that one is acting more in line with expected value maximization when a prospect is presented in the frame of losses. The authors explained the change in behaviour with a decrease in loss aversion amongst the decision-makers. It has also been proven that the relationship plays a role when making decisions on behalf of others. If the investment decisions are taken on the behalf of e.g. a friend, the decision-maker acts more according to expected value maximization (Montinari & Rancan, 2013).

The vast majority of the populace exhibit risk aversion (Von Gaudecker, Van Soest, & Wengström, 2011a). Pursuant to the prospect theory, people seek risk when they decide in the loss domain and are averse to risk when they are situated in the gain domain (Kahneman & Tversky, 1979). The connotation of being risk averse is that the impact of losses is perceived more vividly than gains. According to this definition, a risk averse individual who is maximizing utility over expected value would never invest in a risky asset with an expected assessment that is less than the unit price of the asset, such as an instant state lottery ticket. Despite this, many people buy these kinds of lottery tickets. The most popular state lottery ticket in Sweden is Triss (AB Svenska Spel, N.D.-b). Out of other gambling options, in 2014, Triss possessed the second largest turnover with 1 643 million SEK after tax deduction (Lotteriinspektionen, 2014). The low-income part of the population spend a significant amount of their liquidity on gambling compared to high earners (Kearney, 2005). Thus, it is of utter importance that this skewed encumbrance is evened out.

Benartzi and Thaler (1993) examined the loss aversion when the assessment of decisions occurred separately. One is more loss averse when a lottery with positive expected value is said to occur once than if it would occur several times. This due to the overweighting of losses comparative to the gains. This phenomenon is called myopic loss aversion.

Haisley, Mostafa, and Loewenstein (2008) conducted a study of myopic risk seeking[1] targeting the low-income part of the population. They found that people spend different amount of money

[1] Myopic risk seeking means that one is seeking risk when gambling options are being presented individually.

on lottery tickets depending on how they are presented. An increased amount of lottery tickets were acquired when they were presented individually, myopically, rather than if they were presented in a bunch of five. They named the individual presentation of the lottery tickets the myopic condition. When they presented the tickets in bundles, the setting was termed the all-or-nothing condition.

This paper examines the risk taking of a third part when that person makes decisions on behalf of someone else. The individual that is making the decisions is asked if someone else's money should be invested in lottery tickets or not. In contrast to previous studies in the same field, this study is utilizing prospects with negative expected value instead of prospects with positive expected value. Furthermore, the prospect used holds probabilities more according to reality. Namely, the lottery tickets used in this experiment and the probabilities of these are not computed for the study alone. The participants in the study done by Haisley et al. (2008) failed most likely to account for the long-term cumulative cost of playing the lottery when they decided to buy the lottery tickets themselves. For the low-income takers, the absence of ability to account for the cumulative cost of participating in lotteries could be dire. It has been observed that households with low-income spent a smaller amount on provisions, rent etc. with the establishment of instant state lotteries (Kearney, 2005). This study is examining if the gambling behaviour could be reduced if the decision of participating is assigned to someone else. The gambles are presented according to the extreme conditions presented in the study by Haisley, Mostafa and Loewenstein (2008), that is, the myopic condition and the all-or-nothing condition. Specifically, the research question that the study aims to answer is the following:

"How is an individual risk taking when s/he is taking a financial decision on someone else's behalf?"

The data used in the thesis was collected through field studies conducted at low-cost grocery stores, where presumably people with low-income are more likely to shop. People travelling in groups or pairs were approached and asked if they wanted to participate in the experiment. In exchange, one of the participants received a reward of 50 SEK by filling in a survey. This survey was unrelated to the study (see Appendix B). The other participant was determining how to invest the newly earned money on the behalf of the other participant. That is, the agent was asked whether or not to purchase instant state lottery tickets for the money.

The data was managed in the statistical software Stata. This software was used to compute regressions to examine the level of significance from the information obtained from the field studies. The results from this study are analysed with previous relevant research presented in Section 2.

1.1. Purpose

The aim of the essay is to shed light on the risk one takes when making decisions on behalf of another regarding prospects with negative expected value. The goal is also to find out if the presentation of the financial investment choices will alter the adoption of risk.

1.2. Delimitation

This essay is extending the previous research of Haisley, Mostafa and Loewenstein (2008) where they examined the gambling behaviour when risky decisions were broadly bracketed. This study is replicating two of the conditions implemented in their research, that is the all-or-nothing condition and the myopic condition. The participants were asked to take choices on behalf of someone else rather than for themselves. Due to time limitations, the data of the study is restricted to a sample of 32 pairs. Individuals with low-income were targeted for this study. This since a large percentage of their expenditures consist of gambling (Kearney, 2005).

1.3. Disposition

The following Section, Section 2, presents various findings and models that succours in explaining the result of the study. Section 3 follows with a presentation of the chosen method for the data collection. The criticism of the study is conferred in the same Section. The results from the field study emanates after this in Section 4 and are presented by both regressions and descriptive statistics. The analysis of the data is presented hereafter by comparing the results of this study with previous established theories and relevant research. The paper is concluded by a summary which encapsulates the paper as well as recommendations for further research. Lastly, the definition of the variables, the surveys as well as the report sheets, statistics of peak hours, Spearman's correlation test, tests for heteroscedasticity, goodness-of-fit tests, regressions, the profit plan of the prospect used in the experiments and the results are reported under the Appendix Section.

2. Previous research

This Section is presenting theories, models and research relevant to the experiment conducted. The chapter is divided into four Subsections. In Subsection 2.1. different models are presented explaining the risk taking behaviour when one is standing in front of a gamble. Section 2.2. provides an explanation of myopia and a discussion of why it might affect investment decisions. Subsection 2.3. treats information of the chosen lottery for the experiment and discuss why this category of gambling might be popular. Subsection 2.4. explains how one's preferences may affect the gambling behaviour. Section 2.4. review previous research regarding the behaviour when deciding for someone else.

2.1. Risk attitude

The majority of the population exhibit risk aversion (Von Gaudecker et al., 2011a). That is, one would rather accept a certainty equivalent rather than gamble with the same expected value. It is notorious that investment in lottery-like assets are non-profitable in the long-run (Kumar, 2009). Despite the above statements, many people spend a quantum of their disposable income on instant state lottery tickets, such as Triss. Figure 2.1 below present the proposed utility function by Khaneman and Tversky (1979). The utility function is built on the assumptions of prospect theory. According to prospect theory, individuals are averse to risk when gains are involved and risk seeking when losses are in the picture. This since the proposed function has an elevated incline in the domain of losses than in the domain of gains. Due to reference points, one retains larger responsiveness towards losses than towards gains.

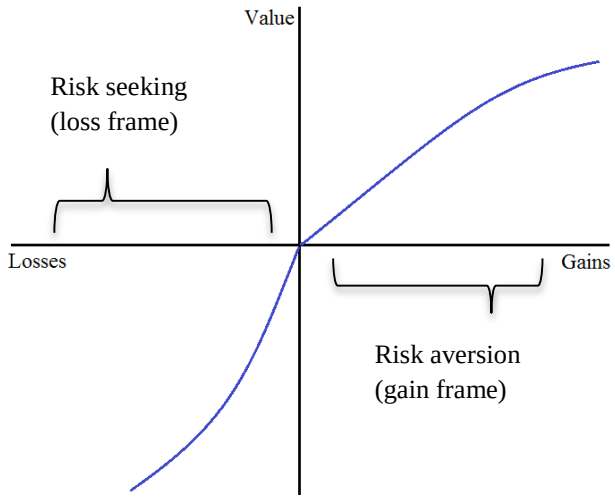

Figure 2.1: Proposed utility function of prospect theory

The action of buying lottery tickets even if one is risk averse could be clarified by Kahneman's and Tversky's (1979) theory. They argue that people who participate in unfavourable gambles overvalue low probability events. This thesis is also supported by Edwards (1962), Quiggin (1982) and Tversky and Kahneman (1992). This overvaluation encourages investment in state lottery tickets since people might prescribe high probability to the low probability outcomes, such as winning a high stake on an instant state lottery ticket. The authors call this weighting bias "the $\pi(p)$ weighting function[2]". Simultaneously, people who participate in disadvantageous gambles underestimate the cost of participating, such as the cost of buying an instant state lottery ticket. It is probable that this over- and underweighting will occur even when deciding on behalf of someone else. Kahneman and Tversky (1979) assume indifference to small changes in probability, that is, people are less responsive to changes in probability as their options are being positioned further away from the sure outcomes. By this theory, it is feasible to assume that this effect will persist even when deciding on behalf of someone else.

Markowitz (1952) explained the inconsistent behaviour by proposing a different utility function. When the amount lost from a gamble is small, the function is concave and when the amount won is high, the function is convex (see Figure 2.1). By this utility function and in the frame of losses, Markowitz (1952) disputes that individuals are risk averse when it comes to small losses and risk seeking when it comes to large losses. This phenomenon is termed the peanuts effect (Prelec & Loewenstein, 1991). This might be perceived as peculiar, but let us put it into an example. Imagine that you are facing two gambles. In each gamble you have two choices. In gamble one, you are given two alternatives; you can choose to buy an insurance for 1 SEK (i.e. you will lose 1 SEK for sure) or choose the option where there is a 10 % chance to lose 10 SEK. In gamble two, you can either choose to buy an insurance for 1 000 SEK (i.e. you will lose 1 000 SEK for sure) or choose the gamble where there is a 10 % chance that you lose 10 000 SEK. The proportions of the stakes and the chances of losing the equivalent in both gambles. If one were to predict your choices according to the theory by Markowitz (1952), one would guess that you would choose to buy the insurance of 1 SEK in gamble one while you would adopt the risk of losing 10 000 SEK with a 10 % chance in gamble two. If you would be consistent, you would have chosen either the certain or risky alternative in both gambles.

[2] The agent knows the actual probability in "the $\pi(p)$ weighting function" but gives the event a different weight.

From the theory by Markowitz (1952), it can be predicted that people would buy less lottery tickets if they are offered in bundles. Haisley, Mostafa and Loewenstein (2008) proved this in their study of myopic risk seeking. They found that people tend to adopt more risk when

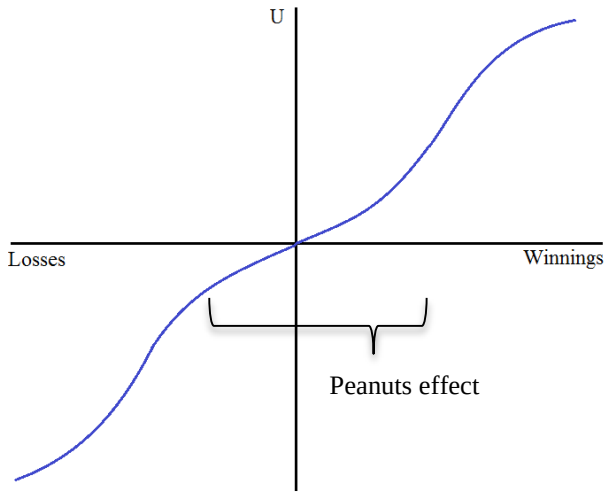

Figure 2.2: Markowitz's utility function.

investing in gambles myopically. That is, spend a larger fraction of their disposable income on instant state lottery tickets when the lottery tickets are presented individually rather than if they are presented in a bunch of five. This finding is in line with the peanuts effect and indicates difficulty in considering the long-term cost when purchasing lottery tickets for oneself (Haisley et al., 2008). When presenting the lottery tickets in a bundle, the marginal disutility would upsurge as the cost rises with increased number of lottery tickets (see Figure 2.2). Thus, pursuant to the peanuts effect, when buying several tickets at once, one will end up on a part of Markowitz's (1952) utility function where the disutility derived from the increased cost of the lottery tickets will surpass the small increase in the chance of winning on five lottery tickets. From this effect, it can be projected that less tickets will be acquired even if the decision is taken by another.

2.2. Myopic approach

Many rational people suffer from the bias identified as 'myopic loss aversion'. Myopia implies short-sightedness. Myopic loss aversion indicates thus that one is loss averse, i.e. more sensitive to losses than to gains, when beneficial gambles are being presented individually. This concept was coined by Benartzi and Thaler (1993) who examined the equity premium puzzle together with loss aversion. When suffering from this bias, there is a high probability that unfounded investment choices will occur when they are presented myopically. These substandard

decisions are made since people provisionally fail to comprehend the entire perspective (Benartzi & Thaler, 1993). A situation where this is applicable is in the stock market. People uneducated of the area might hastily sell stocks when the yield rapidly decreases. If one is unaware of the bias, it is plausible that it will persist even if financial decisions are taken by someone else.

DeKay and Kim (2005), Gneezy, Kapteyn, and Potters (2003), Gneezy and Potters (1997), Thaler, Tversky, Kahneman, and Schwartz (1997) and many others demonstrate results in line with myopic loss aversion. Samuelson (1963) demonstrated loss aversion to myopic bets by asking some of his colleagues to join in a one-time gamble of tossing a coin. If participating in this bet, one could either win approximately 1 600 SEK or lose approximately 800 SEK with the same probability. Samuelson (1963) found a rejection to participating in such a gamble, even if the expected value was positive. If the gamble would be considered in the long-run, the bet would be decent in line with the law of large numbers (Hsu & Robbins, 1947).

2.3. The prospect in thus study

The most popular instant state lottery ticket in Sweden is Triss (AB Svenska Spel, N.D.-b). Triss ended up in second place with 1 643 million SEK, after tax deduction, in an index over gambles with the largest turnovers done by Lotteriinspektionen (2014) in 2014. The low-income part of the population spend a significantly larger amount of their disposal income on lotteries than what the high-income earners do (Brinner & Clotfelter, 1975). This study is using the instant state lottery ticket MiniTriss. The price of a MiniTriss is 10 SEK and the expected value is 4.9 SEK, see Equation 1 below.[3]

$$EV = \frac{1}{1\,000\,000} * 100\,000 + \frac{60}{1\,000\,000} * 5\,000 + \frac{3\,000}{1\,000\,000} * 100 + \frac{30\,0000}{1\,000\,000} * 30 + \frac{110\,000}{1\,000\,000} * 20 + \frac{110\,000}{1\,000\,000} * 10 = 4.9\ kr \qquad \textit{(equ. 1)}$$

The big winnings of gambling are often highlighted by media. For example, the Swedish news program Nyhetsmorgon have a feature almost every morning where a person scratches the popular instant state lottery ticket, Triss. These people always win large amount of money. The lottery tickets that are scratched in the news program have 100 % chance of winning. The smallest amount you can win is 50 000 SEK and the largest amount is 5 000 000 SEK (AB

[3] The expected value is calculated with the information from the profit plan of MiniTriss (AB Svenska Spel, N.D.-c). The profit plan can be found in Appendix H.

Svenska Spel, N.D.-a). The news focus only on people winning from the lottery. They are not providing statistics regarding the range of people who have lost. Thus, winning high stakes on instant state lottery tickets becomes available to people. Some might fail to understand that the occurrence is non-representative. In this case the availability heuristic transform into an availability bias. Heuristics provides the possibility to save energy when thinking and deciding. When using heuristics, one prescribes a weight to an event according to the information that is accessible for that person at that time for that particular category (Kahneman, 2011). According to the theory of bounded rationality, the weighting is also dependent on the mental capacity of the individual (Baron, 2008). The weighting will influence the behaviour accordingly (Kahneman, 2011). In this case, people will prescribe higher weight than what is accurate on the occurrence of winning. The misalignment of the weighting distribution is a probable factor in encouraging investment in instant state lottery tickets, even if the decision of participating in a prospect lies with someone else.

2.4. Preferences

Preferences assist us in choosing between alternatives. On the basis of one's preferences, an agent can chose e.g. option *a* over option *b* on the basis of increased utility. The consistency sense says that the preferences should be ordered according to the local non-satiation axiom, that they should be transitive and that the agent should uphold decisiveness, i.e. completeness axiom. The local non-satiation axiom states that one should prefer bundle *a* over bundle *b* if bundle *a* contains 0.00001 more goods than bundle *b*[4]. If agents have consistent preferences, they will act consequently according to the decision sense. However, one might have consistent preferences without acting pursuant to them (Baron, 2008). One could be aware of the fact that participating in the lottery is not profitable in the long run but chooses to gamble anyway. That person could suffer from weakness of will. Weakness of will implies that one is succumbing to temptation, e.g. choosing the alluring unhealthy alternative over the healthy, perhaps slightly unappealing, option (Baron, 2008). If one derives utility from gambling, it could be hard to resist from playing the lottery. If this person has a representative who stands in front of the ultimatum of buying lottery tickets or not, they might end up with the better (healthier) alternative, i.e. not participating in a gamble.

[4] However, this can advance to Zeno's paradox by infinite division.

Bounded rationality is identified to affect the choice of entering gambles. It is acknowledged that bounded rationality impinges expected utility (Conlisk, 1989; Harless & Camerer, 1994; Sopher & Gigliotti, 1993). The philosophy of bounded rationality was initiated with the thought that rationality was not only affected by contiguous aspects such as time, resources and information but that it furthermore was influenced by the mental capacity. Given the existence of bounded rationality, one must disembarrass space amongst one's own mental resources. This is accomplished with the assistance from heuristics and habits. However, if the environment changes, one might commit inaccuracies (Baron, 2008).

Utility can be gained from the gambling itself. This topic has been assiduously discussed (Golec & Tamarkin, 1998; Harsanyi, 1978; Schlee, 1992; Vickrey, 1945). In this study, the utility derived from participating in the gamble should not affect participants who decides whether or not to buy the instant state lottery tickets. This since the decision-makers are not the ones who will consume or take part of the outcome of the lottery tickets, in theory. However, the knowledge of that the counterpart derives utility from scratching lottery tickets might affect the choice the decision-maker will conceive. Furthermore, there exists a possibility that the participants in this study may have shared economy or might share the lottery tickets since they have a relationship to one another. If so, the decision-makers might decide according to their own preferences (Hsee & Weber, 1997).

2.5. Decision-making on behalf of others

The relationship between the decision-makers and the persons the decision-makers decides for has been shown to affect the process of risk-adoption. Agents seem to act more accordingly to expected value maximization when the payoff affects friends rather than if the outcome would affect a stranger (Montinari & Rancan, 2013).

When deciding on behalf of strangers, O. Andersson et al. (2016) found with a two-by-two factorial design that the decision-makers makes the same decision regardless of whether the decision affects themselves or the other participant when the options are presented in the frame of gains. If the alternatives are presented in the frame of losses, it seems that one adopts more risk when deciding on behalf of strangers. However, this increased adoption of risk has been proven to assist in meliorating the expected payoff. O. Andersson et al. (2016) argue that loss aversion is a bias rather than a preference. They dispute that this bias will be dampened when deciding on the behalf of others and thus rationalize the decisions which will lead to a higher expected payoff.

It has been observed that women tend to be more risk- and loss averse than men. The researches done by Charness and Gneezy (2012) as well as Von Gaudecker, Van Soest, and Wengström (2011b) have all found results supporting this difference. It has been discussed that the dissimilarity in preferences between the genders could depend on the difference in emotional stance (Croson & Gneezy, 2009). O. Andersson et al. (2016) established previous research treating this difference in gender. They found that women tend to assume less risk amongst prospects with positive expected value when deciding for someone else. It has also been concluded that individuals tend to buy fewer instant state lottery tickets with age. Furthermore, high educated individuals and high-income earners have been observed to purchase less tickets (Clotfelter & Cook, 1991; Clotfelter, Cook, Edell, & Moore, 1999; Kearney, 2005).

Loss aversion is a motivation that is driven by the amygdala activity in the brain. Sokol-Hessner, Camerer, and Phelps (2012) discovered this relationship by using functional magnetic resonance imaging, fMRI. The amygdala is regulating the processing of emotions and is active in decision-making (Amunts et al., 2005). A decrease in the amygdala activity is noticeable when the loss aversion is modified (Sokol-Hessner et al., 2012). This correlation is supported by the findings of Albrecht, Volz, Sutter, Laibson, and Von Cramon (2011). By fMRI, they found a decrease in the amygdala activity when the decisions were made on the behalf of someone else. The decision-makers were also observed having an increased patience when deciding for someone else (Sokol-Hessner et al., 2012). Hsee and Weber (1997) observed an overestimation of other people's risk preferences in their sample. They explained this bias by suggesting that one's own risk preferences are dependent on the feelings towards risk. When one then predicts the risk preference of another, the prediction will be based on one's own feeling towards risk. If the agent had impaired emotions concerning risk, the prediction would also be influenced by risk neutrality.

3. The experiment

This Section is explaining the method of the data collection as well as the choice of questions for the surveys. The segment is divided into three Subsections. Subsection 3.1. presents the method of the experiment with an explanation of how and where the experiment was conducted as well as the analysis of the data. It is also presenting the design of the surveys. Subsection 3.2. explains how the target group was reached. Subsection 3.3. clarifies how the quality of the data is maintained. Subsection 3.4. discuss criticism to the investigation.

3.1. Method

The data used for this study was collected by conducting experiments at supermarkets in Sweden known for offering cheap goods. People walking in pairs and groups were approached and asked if they wanted to participate. In return for their participation, one of them earned 50 SEK. The other participant was compensated with a small gift. If they approved to participate, the instructions of the experiment were explained to them.

The participants in the experiment were randomly assigned one of two roles each. These roles had different tasks. The passive role (the survey-responder) was asked to fill in a questionnaire. In return, the survey-responder earned 50 SEK. The active role (the decision-maker) was asked whether or not to invest the survey-responder's recently earned money in instant state lottery tickets. The experiment was performed in two conditions; the myopic condition and the all-or-nothing condition. When performing the experiment of the myopic condition, the survey-responder received the reward of 50 SEK in segments. Thus, the decision-maker was shown a fifth of the survey-responder's earnings, i.e. 10 SEK, and was asked whether or not the money should be spent on an instant state lottery ticket. This procedure was repeated until the decision-maker had made decisions for the entire earning of 50 SEK, viz. the procedure was repeated five times. When performing the all-or-nothing condition, the decision-maker was shown the entire payment of 50 SEK in coins of 10 SEK each. The agent was then asked once if the money should be spent on five instant state lottery tickets or none. When the decisions were taken in both conditions, the decision-maker was also asked to fill in a small survey treating demographical questions, gambling habits and attitude towards risk. As a reward, the decision-maker was offered a small gift of own choosing in the form of pens, post-its and erasers. In both conditions above, the two participants were not allowed to communicate during the experiment. In order to keep the information constant through the different stages of the experiment, the

participants were not allowed to scratch the lottery tickets throughout the experiment of both conditions above.

During the performance of the experiments, report sheets were filled in by one of the conductors where the choices of the decision-maker were noted as well as any related comments made regarding the experiment. Some examples of these comments are remarks regarding preferences, desires or comments regarding gambling. The report sheets used for both conditions can be found in Appendix B. The results from the surveys and the field studies are presented in Section 4. The complete surveys can be found in Appendix B. The responses from the surveys are presented in Appendix I.

The lotteries that were chosen in the experiment were 10 SEK instant state lottery tickets named MiniTriss. Lotteries with an instant gain or loss was the best alternative amongst lotteries since the participants only visit the store for a limited time. Furthermore, this type of lottery is very popular. The profit plan of 1 000 000 lottery tickets can be found in Appendix H. The profit plan changes proportionally with changing amount of lottery tickets (AB Svenska Spel, N.D.-a).

3.2. The survey

The way the experiment is modelled differs from reality. It is not usual that people shopping groceries in pairs are given an amount of money to spend on lottery tickets. Also, if they would have been given the money without any quid pro quo, there would exist a possibility that the decision-makers take the experiment frivolous and adopt higher risk than usual. This effect is called the house money effect (Ackert, Charupat, Church, & Deaves, 2006; Thaler & Johnson, 1990). To decrease this effect, the survey-responders had to earn the money by answering an unrelated survey. This way, the earnings may be perceived as a small compensation for the time spent.

The time to participate in the experiment was taken into account. Long surveys and time-consuming experiments might result in misleading data since the participants might get unfocused and unmotivated. The participation in the experiment was kept anonymous. The anonymity was pointed out at each new experiment conducted. The anonymity in a survey minimizes the loss (B.-E. Andersson, 1994).

The survey handed out to the survey-responder contained questions unrelated to the experiment regarding the store where the experiment was conducted. It was concluded with demographical questions and questions treating gambling- and risk-taking behaviour. There are various factors that can affect the risk-taking. In order to control for these factors, both the survey-responder and the decision-maker answered a final survey with demographic questions and questions treating gambling and risk[5]. The demographic fragment of the survey contained questions regarding gender, age, income, place of residence[6], occupation and education. The demographical questions were also important in the process of distinguishing the characterization of the participants. These were followed by questions regarding gambling habits where the participant was asked to estimate the frequency of his/her gambling, the self-perception of how s/he is risk-averse etc. The decision-maker was handed the final survey after all the required decisions was made.

The collected data from the experiment was analysed with the theories and models presented in Section 2, Previous Research. The relationship of the data was examined with regression analysis. The data was also controlled for any multicollinearity.

3.3. The examined sample

The low-income part of the population was targeted for this study since they are known to gamble frequently (Kearney, 2005). In order to reach the low-income populace, the data collection was conducted at supermarkets offering cheap goods. The store managers, or the person in charge at the time, were asked for permission to perform the experiments before implementing the field study at the stores. If permission was granted, the data collection was conducted at that store. The supermarkets visited were Willys in Eslöv and Hemköp in Kävlinge. Four sessions of data collection were executed in total. The locations of the stores have relatively low Gross Regional Product[7], GRP, which increases the chance of obtaining low-income participants (Statistiska centralbyrån, 2015). The data collection was performed during peak hours (see Figure 1 and Figure 2 in Appendix C) at the stores in order to efficiently collect data.

[5] See Appendix B
[6] Where the individual has resided the biggest part of the life.
[7] GRP, Gross Regional Product, is an implication of the economic development within a region. It is a counterpart to the GNP measure (T. Andersson & Golovlev, 2015).

The response rate of the myopic condition and the all-or-nothing condition was kept equally through the field studies. The result from the study is presented more thoroughly in Section 4 as well as in Appendix I.

The individuals approached were people shopping in pairs or groups. Disabled people (not physically impaired), people talking in phones, underage individuals or people travelling with underage individuals were not approached[8]. All other people travelling in pairs were approached in order to avoid different types of biases in the sample such as selection bias (Investopedia, 2016). To obtain a satisfactory set of samples, the field study had to be made four times.

3.4. The quality of the data collection

In order to maintain qualitative and trustworthy data, the roles of the experiment were explained to the participants. All who participated did it freely which is one of the foundations for valid empirical data. It is of utter importance that the participants apprehend what is expected from them and acknowledge the procedure. However, if the participants are provided with excessive information, their answers could be biased which could result in a misrepresented image of the reality. If insufficient information would be provided, then the participants might make choices on the wrong basis or interpret the questions of the survey incorrectly. The participants were not allowed to communicate during the experiment. This ensures that they do not alter their answer or choices in consonance with the preferences of the other participant. When the participants were fully informed, they were asked if anything was unclear and if they had any questions. This too to guarantee the validity of the data (B.-E. Andersson, 1994). When the choices in the myopic condition were presented to the decision-maker, it was very important that the coins of 10 SEK each were presented individually to keep the procedures constant between conditions. Furthermore, it was vital that the aggregate earnings of the survey-responder were not pronounced throughout the stages of the myopic condition. That is, the executer of the experiment should not inform the decision-maker that the survey-responder has earned 10 SEK after the first stage, 20 SEK after the second stage etc. If this information would have been given, there would exist a possibility that the decision-maker mentally would have decided upon 150 SEK instead of 50 SEK.

[8] In this context, underage individuals are people under 18 years old who are not allowed to gamble.

It is important that the data collected from the field studies hold internal validity. This means that the responses should be as minimally influenced by the participant's own perception as possible and contain as few methodological errors dependent on the individual's own views as possible (Jacobsen, Sandin, & Hellström, 2002). Thus, the execution of the experiments was simulated and piloted before the real field studies were performed.

3.5. Criticism to the field studies

The main critique to the field studies refers to their external validity. One risk, indeed, is that the findings from the field studies are solely applicable to the sample examined (Hedlin, Isaksson, Orusild, & Svensson, 2008). The results of this study could be misguiding due to the small sample of 32 pairs (i.e. 64 participants) which have resulted in statistically insignificant regressions. Furthermore, the sample is not to be considered representative since some dimensions of the sample does not have the same proportion as the general population. Even if all pairs were asked if they wanted to participate, there might exist some selection effects since the individuals were free not to participate. Furthermore, it can be discussed if the decision-makers may have made different choices if they would have received feedback regarding the outcome of the lottery tickets in the myopic condition. The decisions may moreover be different if they would have decided upon a larger amount of money.

4. Results

This Section is presenting the results from the experiments as well as the regression results obtained from the statistical software Stata. The results are exhibited by descriptive statistics and with comments to the regressions.

In total, 32 pairs participated in the experiment. The median gross income of the sample was reported within the salary range of 10 000 – 24 999 SEK and 25 000 SEK – 34 999 SEK[9]. 50 % of the sample reported a gross income of 0 – 24 999 SEK. 16 % reported an income range of 0 – 9 999 SEK and 34 % stated an income within the range of 10 000 – 24 999 SEK. 56 % of the sample indicated a high frequency of gambling. More than 47 % of the participants that reported a high frequency of gambling earned below the average income of Sweden[10].

Demographic information of the active participants
(All-or-nothing) [Myopic]

Variables N = 32 (17) [15]	% of sample	Mean	Median	Range	N
Age		46.81	48.00	18 – 76	32 (17) [15]
Income		2.56	2.50	1 – 6	32 (17) [15]
GRP		386.15	322.25	170 – 788	32 (17) [15]
Adults in household		1.94	2	1 – 4	32 (17) [15]
Children in household		0.66	0	0 – 3	32 (17) [15]
Race (%)					
Swedish	90.60				29 (15) [14]
Other	6.25				2 (1) [1]
N/A	3.13				1 (1) [0]
Gender (%)					
Male	37.50				12 (6) [6]
Female	62.50				20 (11) [9]
Occupation (%)					
Student	9.38				3 (2) [1]
Employed	56.25				18 (8) [10]
Self-employed	9.38				3 (2) [1]
Retired	18.75				6 (3) [3]
Other	6.25				2 (2) [0]

[9] The income group is denoted as 2.5 in Table 4.1. See the variable definition in Appendix A for further reference.
[10] The net median income of the population of 20 years and up were 257 121 SEK in 2014 (Statistiska Centralbyrån, 2016).

Education (%)		
Elementary school	21.88	7 (4) [3]
Upper secondary school	21.88	8 (8) [0]
Post-secondary school, 1 year	6.25	2 (1) [1]
Post-secondary school, 2 years	12.50	4 (1) [3]
Post-secondary school, 3 years	15.63	5 (3) [2]
Post-secondary school, 4+ years	21.88	7 (1) [6]

Table 4.1: Demographic information of the active participants. The definition of the variables is presented in Appendix A. The values for the all-or-nothing condition are stated in parenthesis and the values for the myopic condition are presented in brackets.

The demographic information is presented in Table 4.1. The variables are displayed in means, medians, ranges from the minimum- to the maximum value. The demographic information is presented in percentages where it was assumed reasonable. The definitions of the variables are presented in Appendix A.

Figure 4.1 is presenting a histogram of the lottery ticket purchases across the conditions. As seen from the figure, the data from the all-or-nothing condition has a bimodal, slightly negatively skewed, distribution while the data from the myopic condition is negatively distributed. 47 % of the active participants that were assigned the all-or-nothing condition chose not to buy any lottery tickets. The participants in the myopic condition did always buy some tickets for their partner in each experiment.

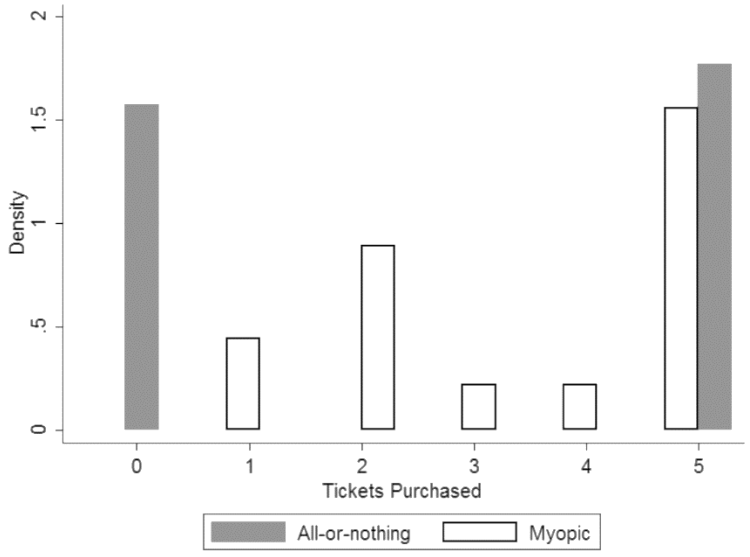

Figure 4.1: Lottery tickets purchased in the different conditions

Due to the distribution of the sample discussed above, a nonparametric Mann-Whitney test was used in the process of analyzing the data. The equation of the test follows:

$$U = N_A N_M + \frac{N_\gamma(N_\gamma+1)}{2} - Z_\gamma \qquad \textit{(equ. 2)}$$

Where N_A and N_M are the number of observations in the conditions examined. N_γ is the bigger number of observations in the two conditions. Z_γ is the maximum rank value out of the rank sums in the conditions. The Mann-Whitney test allows to analyze the deviation in lottery ticket acquisitions between the two conditions. The null hypothesis when testing the tickets bought in the different conditions is:

$$\text{H0: Y(gender} == 0) = \text{Y(gender} == 1)$$

Where Y is the examined condition (i.e. the myopic- or the all-or-nothing condition). The gender variable takes the value 1 when female and 0 when male. Statistical significance is examined on the probability levels $P < 0.01$, $P < 0.05$ and $P < 0.10$. If the P-value is below these levels, the null hypothesis is rejected.

Condition	Mean tickets acquired (standard deviation)	Mann-Whitney test
Myopic (n=15)	3.47 (1.64)	z = 0.251 Prob > |z| = 0.8017
All-or-nothing (n=17)	2.65 (2.57)	z = - 0.174 Prob > |z| = 0.8618

Table 4.2: Mean acquired tickets and Mann-Whitney test of the conditions

The test was not statistically significant. However, it cannot be excluded that the limited number of observations is not affecting the result. Nevertheless, the results should be observed with caution. One can discern from Table 4.2 that fewer tickets were bought in the all-or-nothing condition. In the myopic condition, the mean number of tickets bought were 3.47 while the mean was 2.65 number of tickets bought in the all-or-nothing condition. That is, the participants in the myopic condition purchased approximately 31 % more tickets than those assigned the all-or-nothing condition.

Regression analysis was utilized in the interpretation of the relationship between the dependent (i.e. the amount of instant state lottery tickets bought in the different conditions) and the independent variables. This method allows to examine whether the result of acquired lottery tickets holds or not when it is controlled for the independent variables of the sample. The data

violates the basic assumptions of OLS since it is discrete and discontinuous. As previously discussed, the distribution is bimodal and negatively distributed. Since the data moreover is a count of number of tickets purchased, Poisson regression was used in the analysis of the variables.

The mathematical statement of the Poisson regression is as follows:

$$log(E[y|x]) = \beta_0 + \beta_i x_j \qquad \textit{(equ. 3)}$$

Where the intercept $\beta_0 \in \mathbb{R}$ and slope $\beta_i \in \mathbb{R}^n$. $x_j \in \mathbb{R}^n$ is a vector of the independent variables of the sample. As can be discerned from Equation 3, the output of the Poisson regression is log-linear which can make the coefficients difficult to interpret. To facilitate the analysis, the variables were exponentiated:

$$E[y|x] = e^{\beta_0 + \beta_i x_j} \qquad \textit{(equ. 4)}$$

That is, the coefficients will be presented in incidence rate ratios.

The all-or-nothing condition has a binary dependent variable, that is, five when the participants chose to buy the bundle of tickets and zero otherwise. Since the myopic condition holds a range of 1 – 5 lottery tickets purchased, the conditions are analyzed separately in two regressions.

There is a possibility that resistance against temptation, difficulties of breaking bad habits, the self-discipline, the impulsiveness or the patience of the decision-maker affects the tickets purchased. However, these variables were not proven to affect the purchases, see Appendix G. Furthermore, the variables did not improve the estimated models in the study and have thus been excluded from the models.

Table 4.3 and Table 4.5 are presenting the outcome of the Poisson regressions in incidence rate ratios. In these tables, if the independent variable increases with one point, the rate of the dependent variable will increase with the incidence rate ratio. The estimated model reported in Table 4.3 is the following:

$$E[y|x] = e^{\beta_0 + \beta_1 frequency\_lottery\_high + \beta_2 age + \beta_3 age^2 + \beta_4 income + \beta_5 education + \beta_6 gender} \qquad \textit{(equ. 5)}$$

Where β_0 is the intercept. *frequency_lottery_high* is a dummy variable for those who reported high frequency of gambling. The variable is coded 1 for those who report gambling of once a month or more and 0 otherwise. The *age* variable denotes the age of the participants examined.

The variable *age*^{2} takes the square of the variable age. This to examine if there is a non-linear relationship between lottery tickets purchased and age. *income* is a range of the gross income of the participants examined. *education* holds information regarding the highest level of education. This variable is coded from 1 to 6 where 1 is elementary school and 6 is post-secondary school for 4 or more years. The variable *gender* is coded 1 for female and 0 for male. The null hypothesis is no significant relationship. The hypothesis is examined on the probability levels $P < 0.01$, $P < 0.05$ and $P < 0.10$. The relation is not significant if the P-value is below these levels.

The standard deviations reported in Table 4.3 and Table 4.5 are measures of dispersion of the different variables. An explanation of regressions 1 – 6 in Table 4.3 follows. Regressions 1 – 3 refer to the myopic condition. The remaining regressions in the table refers to the all-or-nothing condition.

Poisson regression analysis

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variables	M	M	M	A	A	A
Independent variables						
Frequency in gambling	1.067 (0.304)		1.090 (0.390)	2.450 (1.964)		4.912 (5.168)
Age		0.922 (0.072)	0.926 (0.074)		0.997 (0.202)	0.914 (0.184)
Age^2		1.001 (0.001)	1.001 (0.001)		0.100 (0.002)	1.001 (0.002)
Income		0.948 (0.187)	0.936 (0.191)		0.693 (0.512)	0.727 (0.634)
Education		0.981 (0.090)	0.986 (0.093)		1.241 (0.432)	1.224 (0.478)
Gender		1.070 (0.342)	1.008 (0.397)		0.648 (0.642)	0.630 (0.623)
_cons	3.333* (0.745)	22.959 (33.439)	21.325 (31.701)	0.286*** (0.202)	1.146 (3.345)	3.074 (8.629)
McFadden's pseudo R^2	0.001	0.044	0.045	0.001	0.020	0.113
N	15	15	15	17	17	17

*Table 4.3: Poisson regression on both conditions with outcomes in incidence rate ratios. M indicates the myopic condition and A indicates the all-or-nothing condition. The standard errors are stated in parenthesis. *p<0.01, **p<0.05, ***p<0.10*

Regression 1 displays a regression of the myopic condition when it is controlled for frequent gambling. The frequency in gambling variable did not reach significance. The ratio indicates that participants who report frequent gambling are purchasing more tickets for their partner in the experiment. It is also observed that the decision-maker chooses to purchase fewer lottery tickets if that person estimates their partner in the experiment, or themselves, to be one unit more risk taking, see the regressions in Appendix G. These relations did not display statistically significant results.

Regression 2 displays the influence of the demographic control variables. The regression indicates that the amount of ticket purchases are negatively related to age. This relation was not statistically significant. However, the incidence rate ratio indicates that if the variable age increase with one point, the tickets bought in the myopic condition will decrease with the rate of 0.922 units. Age^2 shows a positive effect on the ticket purchases. The negative ratio of age and the positive ratio of age^2 means that as the participants gets older, the influence of age increases the ticket purchases. However, the variable age^2 was not statistically significant. The relation between ticket purchases and income as well as education was negative but not significant. The gender variable (female = 1, male = 0) indicated that females purchase slightly more tickets than men. This ratio was not statistically significant.

Regression 3 combine the frequency of gambling and the demographic variables in the myopic condition. Due to the size of the sample, the incidence rate ratios did not reach significance. A tendency can be discerned to purchase more lottery tickets for their partner if frequent gambling is reported. If one is gambling frequently, that individual is purchasing 1.090 times more than one who does not usually play. The negative ratio of age and the positive ratio of age^2 specifies that as one gets older, more tickets are bought. The ratio of income shows that the participants that reported a high pay bought less tickets than participants who reported lower earnings. Education exhibit a negative relation towards lottery ticket purchases. When holding all other variables constant, it can be discerned that the highly educated participants purchase fewer tickets than those with lower education. Gender generated an incidence rate ratio of 1.008 which indicates that the females in this sample have a tendency to acquire slightly more lottery tickets than men.

Regression 4 refers to the all-or-nothing condition when it is controlled for frequent gambling. The variable frequency in gambling did not reach significance. The ratio indicates that participants who report frequent gambling are purchasing more tickets for their partner in the experiment.

Regression 5 displays the influence of the demographic control variables. The regression indicates that the ticket purchases are negatively related to the variable age and age^2. This could be interpreted as when one gets older, the ticket purchases are declining. These variables were not statistically significant. The income variable displays a negative, non-significant, relationship. The incidence rate ratio indicates that if income increases with one point, the tickets bought in the all-or-nothing condition will decrease with the rate of 0.693 units. The relation between ticket purchases and education was positive, however, this could not be proven significant. The gender variable indicates that females purchase fewer tickets than men in the all-or-nothing condition. This ratio was not statistically significant.

Regression 6 combine the all-or-nothing condition, the frequency in gambling variable and the demographic variables. The incidence rate ratios did not reach significance. The variable frequency of gambling shows a tendency to increase the number of lottery tickets bought. The ratio could be interpreted as if one is gambling frequently, that individual is purchasing more tickets with a rate of 4.912 than one who does not play as much. Age^2 has the same effect here as in regression 3 where the tickets purchased in the myopic condition was examined. The ratio of income shows that if the wage increases with one unit, the lottery ticket purchases decreases with a rate of 0.727. Education exhibit a positive relation towards the lottery ticket purchases in the all-or-nothing condition. When education increases, more lottery tickets are bought. Gender generated an incidence rate ratio of 0.630 which indicates that the females in this sample have a tendency to purchase fewer lottery tickets than men.

Gambling habits	Mean tickets acquired (standard deviation)	Range
All-or-nothing condition		
Frequent gamblers (n = 10)	3.50 (2.42)	0 – 5
Infrequent gamblers (n = 7)	1.43 (2.44)	0 – 5
Myopic condition		
Frequent gamblers (n = 9)	3.56 (1.59)	1 – 5
Infrequent gamblers (n = 6)	3.33 (1.86)	1 – 5

Table 4.4: Mean tickets acquired between frequent and infrequent gamblers in the different conditions. The standard deviations are stated in parenthesis.

Table 4.4 reports the average number of tickets acquired by frequent and infrequent gamblers in the different conditions. By observing the means, one can discern that the presentation of the tickets is affecting the number of tickets purchased. Table 4.4 reveals that a frequent gambler acquires more tickets than an infrequent gambler. A frequent gambler purchases approximately 145 % more tickets than a sporadic gambler in the all-or-nothing condition. However, the number of lottery tickets the frequent gamblers purchased for their partners between the conditions differed only by 0.06 tickets. The big difference in tickets purchased is evident amongst the infrequent gamblers. All the active participants in the experiment chose to purchase at least one ticket in the myopic condition.

The lottery ticket purchases in relation to the Gross Regional Product, GRP, of the active participants who reported frequent gambling was also examined. The following model is estimated in Table 4.5:

$$E[y|x] = e^{\beta_0+\beta_1 chronic\_GRP+\beta_2 age+\beta_3 age^2+\beta_6 gender} \qquad \textit{(equ. 6)}$$

Where β_0 is the intercept. *chronic_GRP* is a dummy variable that withdraws the GRP for those who reported high frequency of gambling. The variable is extracting the GRP value for those who report gambling of once a month or more and 0 otherwise. The dummy was generated in order to examine the relationship between the GRP and the gambling habits. The remaining variables of Equation 6, *age*, age^2 and *gender*, are also used in Equation 5. Thus, the description of these can be found in the explanation of the independent variables in Equation 5. The income as well as the education is affecting the GNP and thus the GRP (Björklund & Lindahl, 2005).

Therefore, due to multicollinearity, the variables education and income have been excluded from regressions 1.1 - 6.1 in Table 4.5. The null hypothesis is no significant relationship. The hypothesis is examined on the probability levels $P < 0.01$, $P < 0.05$ and $P < 0.10$. The relation is not significant if the P-value is below these levels.

Poisson regression analysis

	(1.1)	(2.1)	(3.1)	(4.1)	(5.1)	(6.1)
Dependent variables	M	M	M	A	A	A
Independent variables						
GRP of frequent gamblers	0.999 (0.001)		0.999 (0.002)	0.998 (0.003)		0.998 (0.003)
Age		0.907 (0.061)	0.872 (0.085)		0.979 (0.098)	1.024 (0.148)
Age^2		1.001 (0.001)	1.001 (0.001)		1.000 (0.001)	0.100 (0.001)
Gender		1.056 (0.327)	0.686 (0.292)		0.974 (0.779)	0.825 (0.683)
_cons	4.999* (2.303)	25.600 (35.950)	205.795 (517.597)	1.134 (1.002)	0.916 (2.026)	1.552 (5.047)
McFadden's pseudo R^2	0.018	0.041	0.010	0.020	0.004	0.054
N	15	15	15	17	17	17

*Table 4.5: Poisson regression on both conditions with outcomes in incidence rate ratios. M indicates the myopic condition and A indicates the all-or-nothing condition. The standard errors are stated in parenthesis. *p<0.01, **p<0.05, ***p<0.10*

Below follows interpretation of the regressions 1.1 – 6.1. in Table 4.5. The regressions 1.1 – 3.1 refer to the myopic condition. The remaining regressions refer to the all-or-nothing condition.

Regression 1.1. accounts for the GRP of the frequent gamblers in the myopic condition. This regression result was not significant. One can discern that the number of lottery tickets bought might be related to the GRP of where the participants have resided the biggest part of their lives. By interpreting the incidence rate ratios, it can be distinguished that if the GRP of the gambler increases with one point, the number of lottery tickets bought will decrease with the rate of 0.999.

Regression 2.1 displays the influence of the demographic variables in the myopic condition. These variables did not display any statistical significance. The negative incidence rate ratio of age and the positive ratio of age^2 indicates that as one gets older, more lottery tickets are bought. The gender variable shows that females have a tendency to purchase more tickets than males. No variable in this regression was significant.

Regression 3.1 includes the GRP of the frequent gamblers as well as the demographic variables in the myopic condition. The variables in this regression did not reach statistical significance. It can be discerned that frequent gamblers have lower GRP even in this regression. The age and age^2 variables indicates that less tickets are bought up until a certain age. After this point, as one gets older, more lottery tickets are bought. The gender variable (males = 0, females = 1) exhibit an incidence rate ratio of 0.686. When holding all other variables constant, males have a tendency to purchase more lottery tickets than females.

In regression 4.1., referring to the all-or-nothing condition, the GRP of the frequent gamblers is the only independent variable. This regression result was not statistically significant. Even here, one can discern that the number of lottery tickets bought might be related to the GRP of where the participant has resided the most part of his or her life. By interpreting the incidence rate ratios, it can be distinguished that if the GRP of the gambler increases with one point, the number of lottery tickets bought will decrease with the rate of 0.998.

Regression 5.1 displays the influence of the demographic variables. These variables did not display statistical significance. The incidence rate ratio of age is negative indicates that fewer lottery tickets are bought with age. Age^2 displayed no effect on the lottery ticket purchases. The gender variable shows that females have a tendency to purchase fewer tickets than males.

Regression 6.1 includes the GRP of the frequent gamblers as well as the demographic variables in the all-or-nothing condition. The variables in this regression did not reach significance. It can be discerned that frequent gamblers have lower GRP even in this regression. Age displayed a positive ratio while age^2 displayed a negative ratio. This means that age have a positive effect on the lottery tickets purchased up until a certain point and that as one gets older, age influences the purchases negatively after that point. The gender variable (males = 0, females = 1) exhibit an incidence rate ratio of 0.825. When holding all other variables constant, males have a tendency to purchase more lottery tickets than females.

GRP for Frequent gamblers	Mean GRP (standard deviation)	Range
All-or-nothing condition		
GRP for frequent gamblers (n = 10)	337.55 (186.81)	170 – 788
GRP for infrequent gamblers (n = 7)	437.14 (210.86)	220 – 788
Mypoic condition		
GRP for frequent gamblers (n = 9)	341.83 (143.92)	170 – 532
GRP for infrequent gamblers (n = 6)	474.17 (248.65)	220 – 788

Table 4.6: The mean GRP between frequent and infrequent gamblers in the different conditions. The standard deviations are stated in parenthesis.

In the all-or-nothing condition, the mean GRP for frequent gamblers in Table 4.6 is approximately 30 % lower than the GRP for non-frequent gamblers in the same table. It can be discerned that the infrequent gamblers across the conditions live in regions with higher GRP.

51.67 % $\left(\frac{15.5}{30}\right)$ of the participants said that they purchased the number of lottery tickets that they thought their partner in the experiment would have wanted. 20 % $\left(\frac{6}{30}\right)$ of the decision-makers chose to purchase lottery tickets since they perceived it to be a good investment with a high chance of winning. A quote from a participant in the experiment is presented below. The citation is from a man who decided to purchase all lottery tickets for his wife's earned money.

"I have to satisfy my partner's desire for lottery tickets, even though the possibility of winning is small."

–quote from a decision-maker in the myopic condition.

8.33 % $\left(\frac{2.5}{30}\right)$ of the decision-makers made the decision based on their own preferences. 10 % $\left(\frac{3}{30}\right)$ founded their choice upon logic. Below is a citation from a participant who chose to give her partner the earnings instead of the lottery tickets as an example of a logic choice:

"He can decide over the money himself."

–quote from a decision-maker in the all-or-nothing condition.

Goodness-of-fit tests (see Appendix F) were computed in order to examine if the data fitted the chosen regression model as hypothesized. The null-hypothesis for this test was that the sample did not fit the model. The tests did not exhibit statistical significance which means that the hypothesis is rejected and the Poisson regression suits the relevant data. A likelihood-ratio test was also computed which displayed no significance when testing if regression 2 was nested in regression 3[11] as well as when testing regression 5 and regression 6[12] in Table 4.3. This means that no significant overdispersion of the data is present. The regressions would be nested if one regression could be modeled by manipulating the restrictions of another regression. This test was also made on regression 2.1 and regression 3.1 as well as regression 5.1 and regression 6.1[13] presented in Table 4.5[14] which also reported no significance.

A test of correlation was also computed. Spearman's test of correlation was considered the most suitable correlation test due to the qualities of the data examined. An alternative correlation test is Pearson's test. This was not utilized since the test is tailored for normally distributed data at a continuous plane. Spearman's test is a nonparametic correlation test that allows testing data measured in ordinal scales. Ordinal scales are e.g. likert scales or other classification scales. These types of measurements are used in the surveys which amplifies the use of the Spearman test. If the test reported a correlation value over 0.7, the correlation would be considered high. The correlation values of the data examined did not report values over 0.7. The test is presented in table format in Appendix D.

Tests for heteroskedasticity were also computed. The follwing test results for heteroskedasticity are compiled in Appendix E. The tests used were Breusch-Pagan / Cook-Weisberg test, White's test, Bartlett's test and Levene's test. Breusch-Pagan / Cook-Weisberg test and White's test are examining the null-hypothesis of constant variance. Both tests reported heteroskedastic data. The P-value for the all-or-nothing condition tested against the demographic variables in the Breusch-Pagan / Cook-Weisberg test was 0.9181. When testing against the remaining independent variables, the P-value reported 0.5626. When running the myopic condition against the demographic variables, the same test stated a P-value of 0.6580. The P-value for the remaining independent variables for the myopic condition was 0.2110. Thus, the null-hypothesis of constant variances is rejected. White's test reported heteroskedastic data as well.

[11] LR chi2(1) = 0.06, Prob > chi2 = 0.8102
[12] LR chi2(1) = 2.72, Prob > chi2 = 0.0991
[13] LR chi2(1) = 0.55, Prob > chi2 = 0.4582
[14] LR chi2(1) = 1.83, Prob > chi2 = 0.1758

Bartlett's test and Levene's test are complimentary tests to strengthen the results from the first two heteroskedasticity tests. The null-hypothesis of both tests was equal variance across the variables examined. Bartlett's test reported P-values > 0.05 which means that the null-hypothesis is rejected for all variables. Levene's test is less sensitive to departures from normal distribution compared to Bartlett's test. Even this test supported the outcome of heteroskedastic data. In summary, all the tests above indicated heteroskedastic data.

5. Discussion

The results presented in Section 4 are analyzed in this segment by previous relevant research. There is also a discussion concerning the emergence of the results and as well as the relevance of these in connection with previous significant results and surveys. The results of this study is compared to the findings by Haisley et al. (2008) which this essay is extending.

Previous research has shown that there is a tendency for investment decisions to be taken in line with expected value maximization when the decisions are made by another person (O. Andersson et al., 2016; Montinari & Rancan, 2013). The participants in the experiment of this paper were solely observed to act more according to expected value maximization (i.e. fewer instant state lottery tickets were purchased) in the two conditions when the decision-makers estimated their partners to be more risk-taking. This relation is presumably random since the regression was non-significant. Hsee and Weber (1997) disputed that one is influenced by the own feeling towards risk when estimating the risk preferences of others. Perhaps some of the participants in this sample had a positive feeling towards risk and overestimated the risk preferences of the other participant.

The mean number of tickets bought in the myopic condition exceeded the mean number of tickets bought in the all-or-nothing condition. Benartzi's and Thaler's (1993) theory indicates myopic loss aversion in favorable gambles. That is, one is more probable to refuse a gamble with positive expected value when it is presented myopically. Several other findings such as the observation of Samuelson (1963) and DeKay and Kim (2005) report data in line with the same bias. The sample examined in this study were shown a prospect with negative expected value. The myopic presentation of the prospect with the negative expected value urged the participants to purchase the tickets for their partner instead of discouraging them from it. This can be explained by the peanuts effect (Markowitz, 1952). The mean tickets purchased in the myopic condition indicated difficulty to comprehend the entire perspective amongst the

participants, as Benartzi and Thaler (1993) argued in the case with favorable prospects. In line with the peanuts effect, the participants displayed difficulty in understanding that the long-term cost of participating. When the lottery tickets were presented in a bundle of five, the mean tickets acquired decreased. Namely, they ended up on a part of Markowitz's (1952) utility function where the cumulative cost of the lottery tickets along with the small increase of winning generated disutility. The outcome is also supported by Kahneman and Tversky (1979). They stated that people are indifferent to change in probability if the change is far away from the sure outcomes. The increased probability of winning when purchasing five lottery tickets in contrast to one ticket is minor, it is far away from sure outcomes. The simultaneous increase in the price, 50 SEK versus 10 SEK, exceed the minor increase in winning which makes the all-or-nothing condition less attractive.

The participants in the current study displayed risk-seeking when the unfavorable prospect was presented myopically. This finding is consistent with the results by Haisley et al. (2008) who examined the lottery ticket purchases in the different conditions when the participants decided for themselves. The risk-seeking behavior observed in both the current study and in the study by Haisley et al. (2008) is in line with the prospect theory by Kahneman and Tversky (1979). As well as in the current study, Haisley et al. (2008) observed that the mean tickets bought in the myopic condition surpassed the number bought in the all-or-nothing condition. It can be concluded that the presentation of the tickets has the same impact on number of tickets purchased even if one is deciding on the behalf of someone else.

The mean lottery tickets purchased of this study exceed the means in the study by Haisley et al. (2008) with 1.89 in the myopic condition and with 2.01 in the all-or-nothing condition[15]. This result indicates that one is willing to purchase more lottery tickets when it is not for their money or for themselves. The difference in results could be explained by a reduced effect in the amygdala activity. Since the choice is not affecting the participant who is making the decision, this participant will be less emotionally attached to the outcome and thus less loss averse (Albrecht et al., 2011; Amunts et al., 2005; Sokol-Hessner et al., 2012). However, there is a possibility that the decision-makers in the experiment does not account for the fact that the prospect has a negative expected value. This effect is slightly dampened in the all-or-nothing

[15] The mean lottery tickets bought of this study in the myopic condition is 3,47 (standard deviation: 1,64) and the mean in the all-or-nothing condition is 2,65 (standard deviation: 2,57). The mean lottery tickets bought in the study by Haisley et al. (2008) is 1,58 (standard deviation: 1,58) in the myopic condition and is 0,64 (standard deviation: 1,69) in the all-or-nothing condition.

condition where the participants are presented the cumulative cost of playing. Also, the possible awareness of that their partners in the experiment derive utility from scratching the lottery tickets might urge the decision-makers to purchase lottery tickets for them for their earned money. The quote below is from a decision-maker in the myopic condition that chose to purchase lottery tickets for all the money.

"He, my husband, would have taken the lottery. Hope he wins."

–quote from a decision-maker in the myopic condition.

Golec and Tamarkin (1998), Harsanyi (1978), Schlee (1992) and Vickrey (1945) have all discussed that utility can be derived from gambling. The decision-maker acted according to what she thought her husband, the survey-responder, would have wanted. Approximately 52 % of the sample decided on the basis of the estimated preferences of their partner. Thus, even if the decision-maker is not affected by the outcome of the lottery tickets or will take part of the possible excitement from playing, the decision could still indirectly be influenced by the future derived utility from the prospect.

Many couples participated in the experiment. Consequently, there exist a plausibility that the decision-makers from the experiments, as from the quote above, will take part of any possible winnings from the lottery if they are married or if they have any other close relation to each other. According to expected value maximization, purchasing state lottery tickets is not lucrative in the long-run. So, if for example a couple have shared economy, why does the decision-maker in the experiment choose to purchase lottery tickets for their partner? This can be explained by the "the $\pi(p)$ weighting function" coined by Kahneman and Tversky (1979). The overvaluation of low-probability events, such as winning high stakes, in combination with underestimation of the ticket price encourages participation in unfavourable prospects. The skewed weighing of price and probability is also supported by Edwards (1962), Quiggin (1982) and Tversky and Kahneman (1992).

There are several factors that can convey the decisions in the wrong direction. One may succumb to the temptation of gambling despite any awareness of negative expected value (Baron, 2008). When purchasing lottery tickets merely on the basis of the other person's preferences, this behavior will persist. In fact, more lottery tickets were bought when someone else made the decision of purchasing them or not, compared to the study by Haisley et al. (2008).

The winners of the instant state lottery tickets are highlighted by the media in Sweden. The overrepresentation of winners will cause some to overweigh the possibility of winning (Kahneman, 2011). Haisley et al. (2008) found that participants who reported frequent gambling chose to purchase more tickets for themselves. This study observed the same relationship even if the lottery tickets were bought on the behalf of their partner, see Table 4.3, regression 3 and regression 6. It is plausible that the decision-makers suffer from availability bias due to the overrepresentation and prescribe a high chance of winning to the prospect. They might also make the decisions with the impingement of bounded rationality. The unawareness of that the expected value of a ticket is less than the unit price of the same will impede expected value maximization (Conlisk, 1989; Harless & Camerer, 1994; Sopher & Gigliotti, 1993).

The ratios for age from regression 3 in Table 4.3 indicates that age affects the lottery ticket purchases negatively up until a certain age. After this point, as one gets older, the lottery ticket purchases are affected positively with age. However, due to the small sample, this effect is not evident. The variables income and education have a negative effect on the lottery ticket purchases. Age in regression 6 in Table 4.3 have the same effect on the tickets purchased in the all-or-nothing condition. It can also be discerned that low-income takers purchase more tickets in the same regression. Clotfelter and Cook (1991), Clotfelter et al. (1999) and Kearney (2005) support this outcome. However, more tickets were purchased in the all-or-nothing condition when the participants reported higher education. This could depend on overrepresentation, despite random assignment, of less educated participants in the condition. Furthermore, one can observe from regression 3.1 and 6.1 in Table 4.5 that if the GRP of the decision-maker increases with one unit, the number of lottery tickets bought in the conditions decreases with a ratio of 0.999 and 0.998 respectively. The participants that resided in regions with low GRP have a tendency to purchase more lottery tickets for their partner. Kearney (2005) discusses that people with lower income spend more money on instant state lottery tickets than high earners. Perhaps the decision-makers in this sample possess bounded rationality and reverie of higher liquidity.

Previous research states that females are more risk averse than men (O. Andersson et al., 2016; Charness & Gneezy, 2012; Von Gaudecker et al., 2011b). Regression 6 in Table 4.3, regression 3.1 as well as of regression 6.1 in Table 4.5 shows gender ratios in line with the previous findings. The difference could dependent on that the emotional attitude towards risk between the genders differ (Croson & Gneezy, 2009). Also, the males in the examined sample may

conceivably have a higher motive to purchase the lottery tickets for their partner depending on financial circumstances in combination with inaccurate beliefs of the prospect. The gender ratio of regression 3 in Table 4.3 displays the opposite of the above stated regressions. However, the ratio is not statistically significant which impacts the outcome.

It is evident that the presentation of the lottery tickets is affecting how many lottery tickets one purchases. It has been concluded that people from regions with low GRP have a tendency to gamble more than those who live in high GRP regions. It has also been established and supported by previous research that people with low-income gamble more than high earners. From this perspective, the government steal money from the poor and give to the rich by the state lottery tickets. This may be perceived as an undesirable outcome, however, it is unlikely that state lottery tickets will vanquish due to its popularity. Even if the prospect is unfavorable with a yield of 4.9 SEK on a 10 SEK ticket, the tickets are genuinely attractive amongst low-income takers. Haisley et al. (2008) argued that the lottery tickets can be considered as an uncompelled tax on the low-income part of the population. They suggested that the chance of winning should be altered to the advantage of the players. However, one could hypothesize that the gambling would have increased amongst the low-income individuals if the probabilities of winning amplified.

Haisley et al. (2008) concluded that fewer lottery tickets would be bought if they the presentation of them is altered. This is also applicable when lottery tickets are bought on the behalf of another. To lessen the impact on the low-income part of the population, the tickets could be offered in bundles instead of one by one. This way, the cumulative cost would be more apparent. Pursuant to the "peanuts effect" by Markowitz (1952), the action will solely decrease the purchases of low-income takers since the value of one ticket would be predictable to upsurge as income increases.

If the bundling of lottery tickets would be successfully implemented and the sale would decrease as predicted, people with low-income could attain a less restricted budget constraint. Even if they derive utility from gambling, it is possible that they could end up on a higher indifference curve in the long-run due to the shift in the budget constraint. With higher liquidity, fiscal anxiety could be reduced. Furthermore, the excess money could be invested on activities other than lottery tickets that substitutes the utility from gambling. However, it cannot be

predicted with certainty that one will arrive on a higher or lower indifference curve due to the change in lottery ticket sales.

The number of lottery ticket purchases was dependent on the estimated preferences of the partner in the experiment in over half of the cases in this study. The reason to why some chose to purchase lottery tickets for their partner could be dependent on skewed perception of the prospect. It is likely that many of them overweigh the possibility of winning and underweight the cost. The chances of winning on an instant state lottery ticket is stated in the back of the ticket. On the back of MiniTriss, it says that it gives a return of 49 %. This might seem favorable, however, what it really means is that if you purchase a ticket that cost 10 SEK, MiniTriss will give a return of 4.9 SEK. Thus, on each ticket bought, you will lose 51 % of your input. The government cannot assume that people could draw this conclusion when they purchase lottery tickets. Especially not when the chances are written in a small font size on the back of the ticket. Thus, it is of importance to make the return and the probabilities easier to understand for the player. By emphasizing the expected value, the peanuts effect as well as the prediction by the $\pi(p)$ weighting function will not have as large impact. If the government wishes to decrease the purchases of lottery tickets amongst the low-income population, they can also explicitly state on the front of the tickets that gambling could lead to addiction. This method is currently used on cigarette packages. It is probable that this information on the front of the package has discouraged individuals from purchasing cigarettes for themselves as well as for others. Thus, it is likely that the sales of instant state lottery tickets will decrease by implementing the same strategy. Furthermore, they could market the actual probabilities of instant state lottery tickets as well as educate the players regarding the availability bias to increase the awareness as a complement to the over-representative amount of winners in media.

The mapping of the gambling behavior could also be improved. This could be done by implementing a law that enforces registration of the gamblers (both frequent and infrequent gamblers). This registration does not have to be actively done by the consumers themselves. It could be done in a similar fashion as when one declares taxes online. In Sweden, the tax declaration account exists by default and is connected to the Social Security number. The gambling account suggested could also be connected to the Social Security number in a similar fashion. By signing in to this account with e.g. the Mobile Bank ID, one could observe the total winnings and losses. This plotting of the gambling behavior would allow the government to act pro-actively to decrease unhealthy gambling. Reports of the win/loss balance could be sent out

automatically to the individuals quarterly. This would give them a better impression of how much they spend on gambling and how much they, except for in extreme cases, actually lose. It is likely that this suggested mapping would decrease government expenditures in the long-run and dampen the peanuts effect as well as the availability bias.

6. Summary

The purpose of this study was to examine the choices made when financial decisions were made on behalf of another. To examine this, one participant earned an amount of money whilst the other participant was asked if these earnings should be disbursed on lotteries with negative expected value. These lotteries were presented individually in one setting and in bundles of five in another setting. The previous research by Haisley et al. (2008), whom which research this study is extending, found that the participants chose to purchase more tickets for themselves when the tickets were presented individually. This study observed the same behavior even if a third person decided upon entering the gamble. In fact, more tickets were purchased when someone else made the decision. The low-income participants were observed to purchase more tickets for their partner than the participants with higher income.

Education is suggested to decrease the negative impact the lottery tickets have on the individuals with low-income. If they are educated about the peanuts effect and the availability bias, it is possible that the lottery ticket purchases will decrease amongst the individuals with low-income. The awareness of possible gambling addiction could be increased to reduce the lottery ticket purchases on the behalf of others. This can be highlighted by explicitly stating the risk on the front of the lottery ticket. Also, an account connected to the Social Security number could increase the awareness of the gambling expenditures. Moreover, if the lottery tickets only are offered in bundles, the peanuts effect is predicted to decrease. That is, the sales amongst the low-income takers will decrease whilst the sales amongst the high earners will remain the same.

6.1. Further research

There are several areas that could be examined. The research regarding how one decides on the behalf of another when standing in front of a gamble with negative expected value is scarce. This study could be extended by including a third way of presenting the lottery tickets, that is to present them broadly bracketed. This particular presentation of lottery tickets has been shown by Haisley et al. (2008) to decrease the purchases amongst individuals. It is however not proven that this holds when one decides on the behalf of another.

The area could also be further examined by informing the participants of the chances of winning before offering them lottery tickets.

This study is examining how one decides on the behalf of another person. The sample observed includes only participants that have some sort of relationship to each other. Thus, this study could be extended by how one decides on behalf of a stranger.

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Appendix

Appendix A – Definition of the variables.

The variable names in Stata are stated in brackets.

ID [ID]

Decision-maker	=	1-32
Survey-responder	=	101-132

ID for the participating couples [ID_couple]

Couple 1	=	1
Couple 2	=	2
Couple 3	=	3
:		:
Couple 32	=	32

Treatment [treatment]

Myopic condition	=	0
All-or-nothing condition	=	1

Lottery choices in the all-or-nothing condition [choice1]

Chose to buy none	=	0
Chose to buy all	=	1

Lottery choices in the myopic condition [L1, L2, L3, L4, L5]
(L1 indicates the first node, L2 the second node etc.**)**

Chose to buy none	=	0
Chose to buy one	=	1

Decision-maker or not [active]

Survey-responder	=	0
Decision-maker	=	1

Gender [female]

Male	=	0
Female	=	1

Age [age]

Age = The age of the participant

What is your highest level of education? [education]

Elementary school	=	1
Upper secondary school	=	2
Post-secondary education, 1 year	=	3
Post-secondary education, 2 years	=	4
Post-secondary education, 3 years	=	5
Post-secondary education, 4 + years	=	6

Occupation [occupation]

Student	=	1
Employed	=	2
Self-employed	=	3
Retired	=	4
Other	=	5

Gross income [income]

0 – 9 999	=	1
10 000 – 24 999	=	2
25 000 – 34 999	=	3
35 000 – 49 999	=	4
50 000 – 64 999	=	5
> 65 000	=	6
No response	=	7

Size of household [size_house]

1 adult	=	1
2 adults	=	2
3 adults	=	3
4 adults	=	4

Number of children in household [children]
(Children over the age of 18).

0 children	=	0
1 child	=	1
2 children	=	2
3 children	=	3

How often do you play the lottery? [frequency_lottery]
(Buy instant lottery tickets, bet on horses, bingolotto, online casinos etc.)

More than once a week	=	1
Every other week	=	2
Once a month	=	3
Once a quarter	=	4
Once a year	=	5
Never	=	6

Do you usually gamble, e.g. buy instant lottery tickets? [gambling_habit]

No	=	0
Yes	=	1

How much money do you spend on average while gambling? [money_gambling]

The average cost of gambling.

People used the below table in the surveys to estimate. The range from 1 – 5 in each question was coded accordingly into Stata.

	Don't agree at all				Fully agree
I am good at resisting temptation [temptation]	□ 1	□ 2	□ 3	□ 4	□ 5
I have a hard time breaking bad habits [habits]	□ 1	□ 2	□ 3	□ 4	□ 5
People say that I have a strong self-discipline [highself]	□ 1	□ 2	□ 3	□ 4	□ 5
Sometimes I can't stop myself from doing something, even if I know that it is wrong [resisting]	□ 1	□ 2	□ 3	□ 4	□ 5
I often act without thinking through the alternatives [impulse]	□ 1	□ 2	□ 3	□ 4	□ 5
In general, I am a person who shows great patience [patience]	□ 1	□ 2	□ 3	□ 4	□ 5

The risk preferences of self on a scale from 0 – 10. 0 means completely risk averse and 10 means completely risk seeking. The range was coded into Stata. [SOEP]

Risk averse										Fully prepared to take risk
□	□	□	□	□	□	□	□	□	□	□
0	1	2	3	4	5	6	7	8	9	10

The estimated risk preferences of the partner on a scale from 0 – 10. 0 means that one estimates the partner to be completely risk averse and 10 means that one estimates the partner to be completely risk seeking. The range was coded into Stata. [SOEP_partner]

Risk averse										Fully prepared to take risk
□	□	□	□	□	□	□	□	□	□	□
0	1	2	3	4	5	6	7	8	9	10

Which factors did you have in mind when you took the decisions you did? [motivation]

Here, the participants could answer freely.

Appendix B – The surveys

Below follows the survey provided to the passive participant, i.e. the survey-responder. The letter in the top right corner is indicating the all-or-nothing condition. When the myopic condition was executed, this indication was changed to an M.

ID: _____ A

Enkätundersökning

Denna undersökning kommer att behandla frågor kring denna affär, demografisk information om besökarna samt frekvensen av dess spelande. *Alla svar kommer att vara anonyma och behandlas konfidentiellt.*

1. Vad anser du om utbudet av varor?
   - Mycket bra utbud
   - Ganska bra utbud
   - Någorlunda utbud
   - Inte så bra utbud
   - Dåligt utbud

2. Vad tycker du om affärens geografiska plats?
   - Mycket bra
   - Ganska bra
   - Någorlunda bra
   - Inte så bra
   - Dåligt

3. Vad anser du om affärens öppettider?
   - Mycket bra tider
   - Ganska bra tider
   - Någorlunda tider
   - Inte så bra tider
   - Dåliga tider

4. Hur bemöter personalen dig?
   - Mycket bra
   - Ganska bra
   - Likgiltigt
   - Inte så bra
   - Dåligt

5. Skulle du rekommendera att handla i denna affär till någon annan?
   - Ja
   - Nej
   - Vet ej

Demografiska frågor samt frågor om spelande

1. Kön: O Man O Kvinna

2. Ålder:_____ år

3. Månadsinkomst (inkomsten före skatt):

   O 0 - 9 999 kr
   O 10 000-24 999 kr
   O 25 000-34 999 kr
   O 35 000-49 999 kr
   O 50 000-64 999 kr
   O Mer än 65 000 kr
   O Vill ej uppge (OBS! Frågan är *väldigt* viktig för studien. Svaren kommer att behandlas *anonymt*)

4. Födelseort:_____

5. Sysselsättning: O Student O Anställd O Självanställd O Pensionerad O Annat

6. Vad är din högsta slutförda utbildning?

   O Grundskola
   O Gymnasiet
   O Eftergymnasial utbildning, 1 år
   O Eftergymnasial utbildning, 2 år
   O Eftergymnasial utbildning, 3 år
   O Eftergymnasial utbildning, 4+ år

7. Storleken av hushåll:
   _____ antal vuxna, _____ antal barn som bor hemma (0 - 18 år)

8. Hur ofta spelar du på lotteri (köper skraplotter, spelar på hästar, bingolotto, på spelsidor m.m.)?
   O Mer än en gång i veckan
   O Varannan vecka
   O En gång i månaden
   O En gång i kvartalet
   O En gång i halvåret
   O Aldrig

9. Brukar du spela, t.ex. köpa trisslotter? O Ja O Nej

10. Hur mycket pengar spenderar du i genomsnitt när du (väl) spelar?_____kr

11. Kryssa i de alternativ nedan som stämmer bäst in på dig.
1 betyder att du inte alls håller med och 5 betyder att du fullkomligt håller med:

	Håller inte alls med				Håller med fullkomligt
Jag är bra på att motstå frestelser (generellt)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Jag har svårt att bryta dåliga vanor	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Folk brukar säga till mig att jag har högt självdisciplin	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Ibland kan jag inte hindra mig själv från att göra någonting, även om jag vet att det inte är bra	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Jag agerar ofta innan jag tänker	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Jag är generellt sätt en person med stort tålamod	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

12. Hur ser du dig själv:
Är du generellt sätt en person som är fullt förberedd för att ta risker eller försöker du undvika risker? *Var vänlig kryssa i en ruta på skalan nedan, 0 betyder "riskavers" och 10 betyder "fullt förberedd för ta risker". Du kan använda värdena emellan för att estimera.*

Riskavers										Fullt förberedd att ta risker
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

13. Hur upplever du din partner (den person du gör detta experiment med):
Är han/hon generellt en person som är fullt förberedd på risker eller försöker han/hon alltid att undvika risk?
Var vänlig kryssa i en ruta på skalan nedan, 0 betyder "riskavers" och 10 betyder "fullt förberedd för ta risker". Du kan använda värdena emellan för att estimera.

Riskavers										Fullt förberedd att ta risker
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
0	1	2	3	4	5	6	7	8	9	10

Kommentarer: _____
_____

Tack så mycket för ert deltagande!

The active participant, i.e. the decision-maker, was handed page 2 – 3. That is, the part of the questionnaire that treated demographical questions and questions regarding gambling behavior and risk. This version contained also a 14th question where the decision-makers were asked to motivate their decision of lottery ticket purchases.

The following forms are the report sheets handled by the experimenters. Before the execution of the experiment, time and ID was filled in. Any related comments from the participants regarding the experiment as well as the number of lottery tickets acquired was noted in these forms. The indication in the top right corner specifies the different conditions.

Date_____ Time_____ A

ID_____

At the shop
Approach people travelling in pairs. Underage individuals, disabled, people talking in phones, people with language deficiency or people shopping with underage individuals should not be approached (i.e. mother with child).

"Hello, do you want to participate in a survey for my master's essay? It will take a few minutes and you will receive a small compensation as gratitude for your participation. We want to stress that the data collected will be treated confidentially and your decisions will remain anonymous."

If yes, explain the meaning of the roles.

A Condition

"You will be assigned to one of two roles randomly. One of the roles will get the task to fill in a survey which is treating questions regarding this grocery store. The other person will face some choices."

Meanwhile the assistant is preparing the random assignment of the roles (…). When the roles are assigned, their tasks will be explained more detailed to the participants.

Speaking to both: *"You are not allowed to communicate with each other from now until the end of the survey.*
I will now explain the tasks of the roles in detail of you. Please do not comment and speak to each other meanwhile. After the tasks have been explained, we will answer your questions if something is unclear."

Speaking to the survey-responder but so that both can hear: *"You were randomly assigned the role of answering the survey. In total, you will earn 50 SEK by answering the survey."*

Speaking to the decision-maker but so that both can hear: *"You will take a decision on her/his behalf regarding the money she/he earns. You will be asked if you want to buy lottery tickets on her/his behalf. These lottery tickets cost 10 SEK each. You will receive your compensation at the end of your task."*

Comments (if any) (e.g. if someone comments about the fact that Trisslotter are good or bad, etc.)_____

_____

_____

The participants are taken aside and starts with their tasks.

"Here is the 50 SEK she/he (the survey-responder) earned by answering the survey".

Show the 50 SEK in coins of 10 each.
Present also five instant lottery tickets at once.
(Note here that you do not have to give to the decision-maker anything, take only note of his/her choice. The payment will be given to the person who is answering the survey).

"Do you want to buy five lottery tickets for her/him or none?"

____Yes ____No

Comments (if any)_____

_____

_____

"I have taken note of your choice. I will give the money/lottery tickets to her/him according to your choice.

Thanks! While we are waiting for him/her to finish the task, I would appreciate if you could answer short survey. You will get a small prize as a token of gratitude from participating!"

Give him/her the survey for the decision-maker.
Once the survey is completed, let the decision-maker choose a prize as appreciation for participation and give the money to the survey-responder.

Comments (if any)_____

_____

_____

Date_____ Time_____ M

ID_____

At the shop
Approach people travelling in pairs. Underage individuals, disabled, people talking in phones, people with language deficiency or people shopping with underage individuals should not be approached (i.e. mother with child).

"Hello, do you want to participate in a survey for my master's essay? It will take a few minutes and you will receive a small compensation as gratitude for your participation. We want to stress that the data collected will be treated confidentially and your decisions will remain anonymous."

If yes, explain the meaning of the roles.

Myopic Condition

"You will be assigned to one of two roles randomly. One of the roles will get the task to fill in a survey which is treating questions regarding this grocery store. The other person will face some choices."

Meanwhile the assistant is preparing the random assignment of the roles (…). When the roles are assigned, their tasks will be explained more detailed to the participants.

Speaking to both: *"You are not allowed to communicate with each other from now until the end of the survey.*
We will now explain the tasks of the roles in detail of you. Please do not comment and speak to each other meanwhile. After the tasks have been explained, we will answer your questions if something is not clear."

Speaking to the survey-responder but so that both can hear: *"You were randomly assigned the role of answering the survey. In total, you will earn 50 SEK by answering the survey."*

Speaking to the decision-maker but so that both can hear: *"You will take a decision on her/his behalf regarding the money she/he earns. You will be asked if you want to buy lottery tickets on her/his behalf. These lottery tickets cost 10 SEK each. You will receive your compensation at the end of your task."*

Comments (if any) (e.g. if someone comments about the fact that Trisslotter are good or bad, etc.) _____

The participants are taken aside and starts with their tasks.

"Here is 10 SEK as a part of his/her payment".

Display a 10 SEK-coin. Present also one instant lottery ticket.
(Note here that you do not have to give to the decision-maker anything, only take note of his/her choice. The payment will be given to the person who is filling in the survey)

Decision 1
"Do you want to buy one lottery ticket for her/him or none?" ____Yes ____No

"Here is another 10 SEK as a part of her payment".
Display a 10 SEK-coin. Present also one instant lottery ticket.

Decision 2
"Do you want to buy 1 lottery ticket for her/him or none?" ____Yes ____No

"Here is another 10 SEK as a part of her payment".
Display a 10 SEK-coin. Present also one instant lottery ticket.

Decision 3
"Do you want to buy 1 lottery ticket for her/him or none?" ____Yes ____No

"Here is another 10 SEK as a part of her payment".
Display a 10 SEK-coin. Present also one instant lottery ticket.

Decision 4
"Do you want to buy 1 lottery ticket for her/him or none?" ____Yes ____No

"Here is the final 10 SEK as a part of her payment".
Display a 10 SEK-coin. Present also one instant lottery ticket.

Decision 5
"Do you want to buy 1 lottery ticket for her/him or none?" ____Yes ____No

"I have taken note of your choice. I will give the money/lottery tickets to her/him according to your choice.

Thanks! While we are waiting for him/her to finish the task, I would appreciate if you could answer short survey. You will get a small prize as a token of gratitude from participating!"

Give him/her the survey for the decision-maker.
Once the survey is completed, let the decision-maker choose a prize as appreciation for participation and give the money to the survey-responder.

Comments (if any) _____
_____
_____

Appendix C – Visitor statistics

Figure 1: Peak hours at Willys, Eslöv (Google Inc., 2016b)

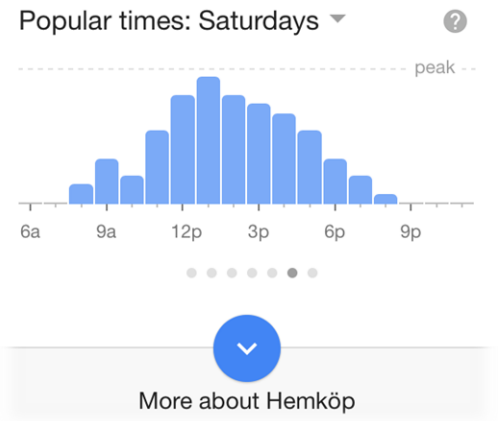


Figure 2: Peak hours at Hemköp, Kävlinge (Google Inc., 2016a)

Appendix D – Spearman's test of correlation

	female	age	income	occupa~n	educat~n	size_h~e	children	freque~y
female	1.0000							
age	-0.2295	1.0000						
income	-0.2161	0.0698	1.0000					
occupation	-0.2182	0.4180	-0.2613	1.0000				
education	-0.0566	-0.0748	0.5730	-0.2584	1.0000			
size_house	0.0132	-0.1120	-0.0468	0.0035	0.0448	1.0000		
children	0.0423	-0.5046	0.1208	-0.2261	0.0660	0.1306	1.0000	
frequency_~y	0.1589	-0.4500	-0.0938	-0.1605	0.0894	0.1280	0.2220	1.0000
gambling_h~t	0.0170	0.2071	0.1421	0.0554	-0.0345	-0.1413	-0.0602	-0.5314
money_gamb~g	-0.2359	0.3209	0.1243	0.1124	-0.0573	-0.1467	-0.0996	-0.5625
temptation	0.0051	0.0095	-0.0233	0.1065	-0.0123	0.2508	0.1298	0.0583
habits	0.3293	0.0494	-0.0065	-0.0600	-0.1379	-0.0020	0.0226	0.0654
highself	0.0187	0.0746	-0.1454	0.3399	-0.2729	0.0491	0.0032	-0.1102
resisting	0.2542	0.0501	0.0527	0.0601	0.0601	0.1154	0.1368	0.2666
impuls	0.2333	-0.0475	0.0403	0.0237	0.1347	0.0287	-0.0926	0.0615
patience	-0.1492	0.0030	0.1047	-0.1191	-0.0666	0.0038	0.0577	-0.0250
SOEP	-0.1211	-0.2470	0.2548	0.0295	0.0419	0.0947	0.3133	-0.0351
SOPE_partner	0.1395	-0.4057	0.1568	-0.1287	0.1095	0.0440	0.1961	0.2319

	gambli~t	money_~g	tempta~n	habits	highself	resist~g	impuls	patience
gambling_h~t	1.0000							
money_gamb~g	0.2182	1.0000						
temptation	0.0191	-0.0657	1.0000					
habits	0.1058	0.0394	-0.2355	1.0000				
highself	0.0679	0.1060	0.1994	-0.0798	1.0000			
resisting	-0.1817	0.1097	-0.0679	0.3254	0.0527	1.0000		
impuls	0.1607	0.1164	-0.3556	0.4134	-0.2852	0.3329	1.0000	
patience	-0.1102	0.1149	0.3394	-0.0274	0.1143	-0.0062	-0.2486	1.0000
SOEP	0.0371	0.1855	-0.1549	0.0708	-0.0775	0.0652	0.1085	-0.0397
SOPE_partner	-0.0282	-0.1030	-0.0297	0.0159	-0.2643	-0.0611	0.1303	-0.1438

	SOEP	SOPE_p~r
SOEP	1.0000	
SOPE_partner	0.4983	1.0000

Table 1: Spearman's correlation test. A correlation of 0.7 or above indicates high correlation.

Appendix E – Tests of heteroscedasticity

	Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
All-or-nothing against the demographic variables *female, income, education, occupation, size_house, children* (n=17)	chi2(7) = 2.62 Prob > chi2 = 0.9181
All-or-nothing against the remaining variables *frequency_lottery, gambling_habit, money_gambling, temptation, habit,s highself, resisting, impuls, patience, SOEP, SOEP_partner* (n=17)	chi2(11) = 9.64 Prob > chi2 = 0.5626
Myopic against the demographic variables *female, income, education, occupation, size_house, children* (n=15)	chi2(7) = 5.02 Prob > chi2 = 0.6580
Myopic against the remaining variables *frequency_lottery, gambling_habit, money_gambling, temptation, habit,s highself, resisting, impuls, patience, SOEP, SOEP_partner* (n=13)	chi2(11) = 14.41 Prob > chi2 = 0.2110

Table 2: Breusch-Pagan / Cook-Weisberg test (H0 = constant variance) for heteroskedasticity for the myopic- and the all-or-nothing condition.

	Bartlett's test
All-or-nothing against the demographic variables:	
Gender	chi2(1) = 0.0142 Prob > chi2 = 0.905
Income	chi2(3) = 0.0827 Prob > chi2 = 0.994
Occupation	chi2(7) = 0.5214 Prob > chi2 = 0.914
Education	chi2(7) = 0.0214 Prob > chi2 = 0.884
Adults in household	chi2(7) = 0.0120 Prob > chi2 = 0.913
Children in household	chi2(7) = 0.2498 Prob > chi2 = 0.969
All-or-nothing against the remaining variables:	
Frequency of lottery-playing	chi2(3) = 0.2121 Prob > chi2 = 0.976

Gambling habits	chi2(1) = 0.0214 Prob > chi2 = 0.884
Amount spent on gambling	chi2(2) = 0.0594 Prob > chi2 = 0.971
Good at resisting temptation	chi2(2) = 0.0613 Prob > chi2 = 0.970
Hard to break bad habits	chi2(2) = 0.4556 Prob > chi2 = 0.796
Self-discipline	chi2(2) = 0.0474 Prob > chi2 = 0.977
Resistance against allurement	chi2(3) = 0.1738 Prob > chi2 = 0.982
Impulsiveness	chi2(4) = 0.5366 Prob > chi2 = 0.970
Patience	chi2(2) = 0.0527 Prob > chi2 = 0.974
Risk preferences	chi2(3) = 0.0614 Prob > chi2 = 0.996
Perceived risk preferences of partner	chi2(2) = 0.0582 Prob > chi2 = 0.971

Table 3: Bartlett's test (H0 = constant variance) for heteroskedasticity between the all-or-nothing condition and the demograplic variables.

	Bartlett's test
Myopic against the demographic variables:	
Gender	chi2(1) = 0.0170 Prob > chi2 = 0.896
Income	chi2(1) = 0.0001 Prob > chi2 = 0.991
Occupation	chi2(7) = 0.2200 Prob > chi2 = 0.146
Education	chi2(2) = 0.7219 Prob > chi2 = 0.697
Adults in household	chi2(7) = 0.1520 Prob > chi2 = 0.264
Children in household	chi2(7) = 0.2070 Prob > chi2 = 0.162
Myopic against the remaining variables:	
Frequency of lottery-playing	chi2(3) = 0.8597 Prob > chi2 = 0.835
Gambling habits	chi2(1) = 0.1447 Prob > chi2 = 0.704
Amount spent on gambling	chi2(2) = 3.2607 Prob > chi2 = 0.196
Good at resisting temptation	chi2(2) = 0.2870 Prob > chi2 = 0.866

Hard to break bad habits	chi2(2) = 0.5057 Prob > chi2 = 0.777
Self-discipline	chi2(3) = 1.9223 Prob > chi2 = 0.589
Resistance against allurement	chi2(4) = 2.2117 Prob > chi2 = 0.697
Impulsiveness	chi2(3) = 0.2851 Prob > chi2 = 0.963
Patience	chi2(2) = 1.1045 Prob > chi2 = 0.576
Risk preferences	chi2(3) = 0.1903 Prob > chi2 = 0.979
Perceived risk preferences of partner	chi2(2) = 1.2109 Prob > chi2 = 0.546

Table 4: Bartlett's test (H0 = constant variance) for heteroskedasticity between the myopic condition and the demograplic variables.

	White's test for heteroscedasticity
All-or-nothing against the demographic variables *female, income, education, occupation, size_house, children* (n=17)	chi2(15) = 11.74 Prob > chi2 = 0.6988
All-or-nothing against the remaining variables *frequency_lottery, gambling_habit, money_gambling, temptation, habit,s highself, resisting, impuls, patience, SOEP, SOEP_partner* (n=17)	chi2(16) = 17.00 Prob > chi2 = 0.3856
Myopic against the demographic variables *female, income, education, occupation, size_house, children* (n=15)	chi2(14) = 15.00 Prob > chi2 = 0.3782
Myopic against the remaining variables *frequency_lottery, gambling_habit, money_gambling, temptation, habit,s highself, resisting, impuls, patience, SOEP, SOEP_partner* (n=13)	chi2(12) = 13.00 Prob > chi2 = 0.3690

Table 5: White's test (H0 = constant variance) for heteroskedasticity of the all-or-nothing condition, the demograplic variables and the remaining variables.

	Levene's test			
Myopic against the demographic variables:				
Gender	W0	=	0.0127	Pr > F = 0.9121
	W50	=	0.0443	Pr > F = 0.8366
	W10	=	0.0127	Pr > F = 0.9121
Income	W0	=	2.7058	Pr > F = 0.0919
	W50	=	0.9932	Pr > F = 0.4546
	W10	=	2.7058	Pr > F = 0.0919
Occupation	W0	=	4.4291	Pr > F = 0.2855
	W50	=	0.4545	Pr > F = 0.7674
	W10	=	1.4588	Pr > F = 0.2855
Education	W0	=	1.45882	Pr > F = 0.9121
	W50	=	0.01268	Pr > F = 0.9121
	W10	=	0.01268	Pr > F = 0.9121
Adults in household	W0	=	4.8246	Pr > F = 0.0222
	W50	=	1.1447	Pr > F = 0.3740
	W10	=	2.8827	Pr > F = 0.0841
Children in household	W0	=	17.1875	Pr > F = 0.0002
	W50	=	11.0000	Pr > F = 0.0012
	W10	=	12.2055	Pr > F = 0.0008
Myopic against the remaining variables:				
Frequency of lottery-playing	W0	=	1.3117	Pr > F = 0.3515
	W50	=	0.4541	Pr > F = 0.8241
	W10	=	1.3117	Pr > F = 0.3515
Gambling habits	W0	=	1.0249	Pr > F = 0.3298
	W50	=	0.7610	Pr > F = 0.3988
	W10	=	1.0249	Pr > F = 0.3298
Amount spent on gambling	W0	=	0.0127	Pr > F = 0.9121
	W50	=	0.0127	Pr > F = 0.9121
	W10	=	0.0127	Pr > F = 0.9121
Good at resisting temptation	W0	=	3.1000	Pr > F = 0.0668
	W50	=	0.3646	Pr > F = 0.8285
	W10	=	3.1000	Pr > F = 0.0668
Hard to break bad habits	W0	=	1.6895	Pr > F = 0.2318
	W50	=	0.3462	Pr > F = 0.7927
	W10	=	1.6895	Pr > F = 0.2318
Self-discipline	W0	=	4.9976	Pr > F = 0.0179
	W50	=	0.5559	Pr > F = 0.6997
	W10	=	4.9976	Pr > F = 0.0179
Resistance against allurement	W0	=	1.8804	Pr > F = 0.1905
	W50	=	0.9494	Pr > F = 0.4752
	W10	=	1.8804	Pr > F = 0.1905
Impulsiveness	W0	=	2.1501	Pr > F = 0.1564
	W50	=	0.1607	Pr > F = 0.9530
	W10	=	2.1501	Pr > F = 0.1564

Patience	W0	=	12.0995	Pr > F = 0.0011
	W50	=	6.7757	Pr > F = 0.0084
	W10	=	12.0995	Pr > F = 0.0011
Risk preferences	W0	=	4.4667	Pr > F = 0.0333
	W50	=	2.9778	Pr > F = 0.0866
	W10	=	4.4667	Pr > F = 0.0333
Perceived risk preferences of partner	W0	=	5.9750	Pr > F = 0.0214
	W50	=	3.9833	Pr > F = 0.0545
	W10	=	5.9750	Pr > F = 0.0214

Table 6: Levene's test (H0 = constant variance) for heteroskedasticity of the myopic condition, the demograplic variables and the remaining variables. W0: testing the mean, W50: testing the median and W10: testing the 10 % trimmed mean.

	Levene's test			
All-or-nothing against the demographic variables:				
Gender	W0	=	0.0441	Pr > F = 0.8365
	W50	=	0.0441	Pr > F = 0.8365
	W10	=	0.0441	Pr > F = 0.8365
Income	W0	=	0.5719	Pr > F = 0.6434
	W50	=	0.2927	Pr > F = 0.8210
	W10	=	0.5719	Pr > F = 0.6434
Occupation	W0	=	4.4291	Pr > F = 0.2855
	W50	=	0.4545	Pr > F = 0.7674
	W10	=	1.4588	Pr > F = 0.2855
Education	W0	=	59.475	Pr > F = 0.0000
	W50	=	1.0461	Pr > F = 0.4387
	W10	=	59.475	Pr > F = 0.0000
Adults in household	W0	=	22.594	Pr > F = 0.0000
	W50	=	0.3393	Pr > F = 0.7179
	W10	=	22.594	Pr > F = 0.0000
Children in household	W0	=	0.4461	Pr > F = 0.7242
	W50	=	0.4461	Pr > F = 0.7242
	W10	=	0.4461	Pr > F = 0.7242
All-or-nothing against the remaining variables:				
Frequency of lottery-playing	W0	=	2.6669	Pr > F = 0.0814
	W50	=	0.3982	Pr > F = 0.8401
	W10	=	2.6669	Pr > F = 0.0814
Gambling habits	W0	=	0.8894	Pr > F = 0.3606
	W50	=	0.2107	Pr > F = 0.6528
	W10	=	0.8894	Pr > F = 0.3606
Amount spent on gambling	W0	=	5.7620	Pr > F = 0.0330
	W50	=	0.5481	Pr > F = 0.8115
	W10	=	5.7620	Pr > F = 0.0330

Good at resisting temptation	W0	=	6.2587	Pr > F = 0.0059
	W50	=	0.4021	Pr > F = 0.8036
	W10	=	6.2587	Pr > F = 0.0059
Hard to break bad habits	W0	=	2.9989	Pr > F = 0.0626
	W50	=	0.3987	Pr > F = 0.8059
	W10	=	2.9989	Pr > F = 0.0626
Self-discipline	W0	=	0.7206	Pr > F = 0.5037
	W50	=	0.7206	Pr > F = 0.5037
	W10	=	0.7206	Pr > F = 0.5037
Resistance against allurement	W0	=	5.2728	Pr > F = 0.0110
	W50	=	0.6652	Pr > F = 0.6282
	W10	=	5.2728	Pr > F = 0.0110
Impulsiveness	W0	=	0.6890	Pr > F = 0.6134
	W50	=	0.6433	Pr > F = 0.6420
	W10	=	0.6890	Pr > F = 0.6134
Patience	W0	=	8.5091	Pr > F = 0.0022
	W50	=	0.4337	Pr > F = 0.7325
	W10	=	8.5091	Pr > F = 0.0022
Risk preferences	W0	=	3.6324	Pr > F = 0.0433
	W50	=	0.2794	Pr > F = 0.9550
	W10	=	3.6324	Pr > F = 0.0433
Perceived risk preferences of partner	W0	=	2.7827	Pr > F = 0.0775
	W50	=	0.2390	Pr > F = 0.9638
	W10	=	2.7827	Pr > F = 0.0775

Table 7: Levene's test (H0 = constant variance) for heteroskedasticity of the all-or-nothing condition, the demograplic variables and the remaining variables. W0: testing the mean, W50: testing the median and W10: testing the 10 % trimmed mean.

Appendix F – Goodness-of-fit tests

See the valuation of the variables stated in Appendix A for further reference.

```
Poisson regression                              Number of obs   =         15
                                                LR chi2(6)      =       2.56
                                                Prob > chi2     =     0.8614
Log likelihood = -27.327583                     Pseudo R2       =     0.0448
```

summyopic	IRR	Std. Err.	z	P>|z|	[95% Conf.	Interval]
frequency_lottery_high	1.089523	.3896948	0.24	0.811	.5404841	2.19629
age	.9259373	.0737242	-0.97	0.334	.7921508	1.082319
age2	1.000798	.0008405	0.95	0.342	.9991523	1.002447
income	.9357567	.1910306	-0.33	0.745	.6271825	1.39615
education	.9855199	.0927138	-0.16	0.877	.8195732	1.185067
female	1.008489	.3973228	0.02	0.983	.4659256	2.182861
_cons	21.3254	31.70132	2.06	0.040	1.157555	392.8734

```
. estat gof

        Deviance goodness-of-fit =  9.578514
        Prob > chi2(8)           =    0.2959

        Pearson goodness-of-fit  =  9.269956
        Prob > chi2(8)           =    0.3200
```

Table 8: A goodness-of fit test of the dependent variable myopic condition and the independent variables frequent gambling, age, income, educaiton and gender.

```
Poisson regression                              Number of obs   =         17
                                                LR chi2(6)      =       3.31
                                                Prob > chi2     =     0.7688
Log likelihood = -13.067792                     Pseudo R2       =     0.1125
```

choice1	IRR	Std. Err.	z	P>|z|	[95% Conf.	Interval]
frequency_lottery_h~h	4.911989	5.167806	1.51	0.130	.6247771	38.61799
age	.9137817	.183576	-0.45	0.654	.6163659	1.35471
age2	1.000698	.0021497	0.32	0.745	.9964935	1.00492
income	.7269952	.633925	-0.37	0.715	.1316137	4.015706
education	1.223893	.4776009	0.52	0.605	.5696105	2.629714
female	.6299645	.6233969	-0.47	0.641	.0905709	4.381709
_cons	3.074386	8.628646	0.40	0.689	.0125532	752.9413

```
. estat gof

        Deviance goodness-of-fit =  8.135584
        Prob > chi2(10)          =    0.6156

        Pearson goodness-of-fit  =  6.041975
        Prob > chi2(10)          =    0.8117
```

Table 9: A goodness-of fit test of the dependent variable all-or-nothing condition and the independent variables frequent gambling, age, income, educaiton and gender.

Appendix G – Regressions

Poisson regression analysis		
	(1)	(2)
Dependent variables	M	A
Independent variables		
SOEP_partner	0.948 (0.053)	0.980 (0.148)
SOEP	0.943 (0.064)	0.951 (0.151)
_cons	5.457* (1.880)	0.753 (0.617)
McFadden's pseudo R^2	0.036	0.008
N	15	17

*Table 10: Poisson regression of both conditions and the above independent variables. The values are stated in incidence rate ratios. The standard errors are stated in parenthesis. M denotes the myopic condition and A denotes the all-or-nothing condition *p<0.01, **p<0.05, ***p<0.10*

The above regressions examine number of lottery tickets purchased in both conditions against the estimated risk preferneces of self and of partner. If one estimated themselves or their partners to be one unit more risk seeking, those participants bought less tickets for their partners in both conditions. These relations were not statistically significant.

Poisson regression analysis

	(1)	(2)
Dependent variables	M	A
Independent variables		
Temptation	1.044 (0.175)	0.780 (0.269)
Habits	1.035 (0.210)	2.202 (1.210)
Perceived self-discipline	1.371 (0.231)	0.819 (0.685)
Self-control	1.074 (0.139)	1.643 (0.786)
Impulsiveness	1.039 (0.154)	0.431 (0.210)
Patience	0.963 (0.226)	0.891 (0.261)
_cons	0.718 (1.145)	0.522 (1.187)
McFadden's pseudo R^2	0.128	0.131
N	15	17

*Table 11: Poisson regression of both conditions and the above independent variables. The values are stated in incidence rate ratios. The standard errors are stated in parenthesis. M denotes the myopic condition and A denotes the all-or-nothing condition *p<0.01, **p<0.05, ***p<0.10*

The above regressions examine if the number of lottery tickets purchased in both conditions are affected by the independent variables. No significance was observed. It cannot be established that any of the independent variables are affecting the number of lottery tickets bought for the partner.

Appendix H – Profit plan of a lottery ticket

Amount	Winnings (in SEK)
1	100 000
60	5 000
3 000	100
30 000	30
110 000	20
110 000	10
Total amount of winning tickets:	**Total winnings:**
253 061	4 900 000

Table 12: The statistics are retrieved from AB Svenska Spel (N.D.-c).

Appendix I – Summarized results from the experiment

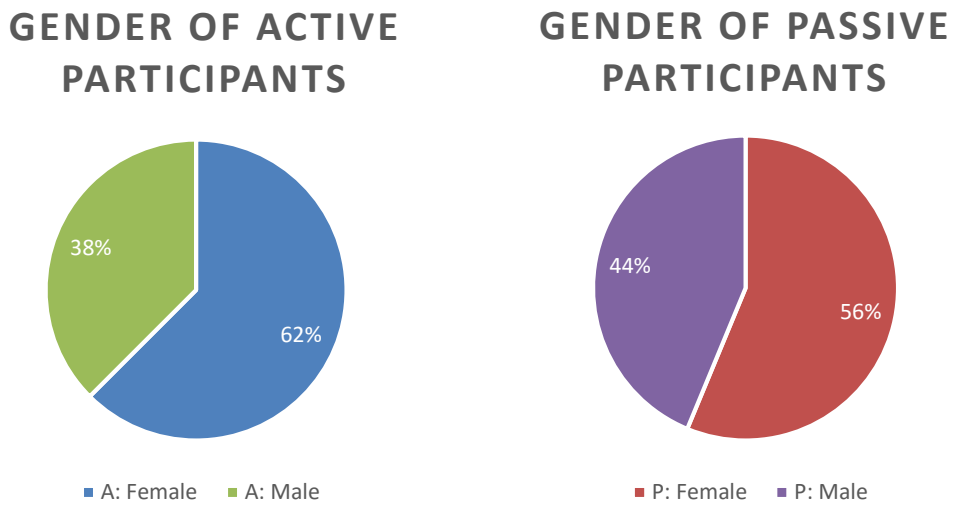


Figure 3: The gender distributions of the active and passive participants.

Age	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	≥ 65
# of obs.	5	3	4	7	7	6
% of sample	16 %	9 %	12 %	22 %	22 %	19 %

Table 12: Age of active participants presented in count and percentages.

Age	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	≥ 65
# of obs.	4	4	3	8	6	7
% of sample	12 %	13 %	9 %	25 %	19 %	22 %

Table 14: Age of passive participants presented in count and percentages.

Figure 4: The gross income distribution. The income ranges are in SEK. X-axis is the number of participants. P: passive participant, A: active participant.

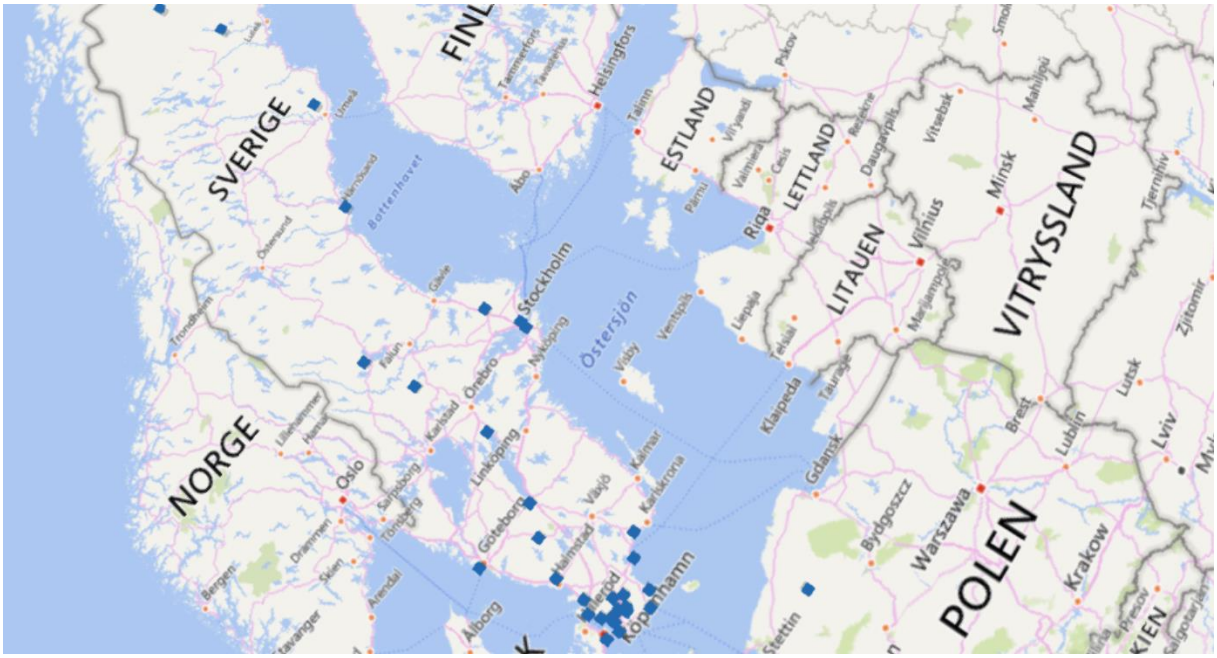


Figure 5: The geographical distribution. 1 participant from Bangkok is not included in the figure.

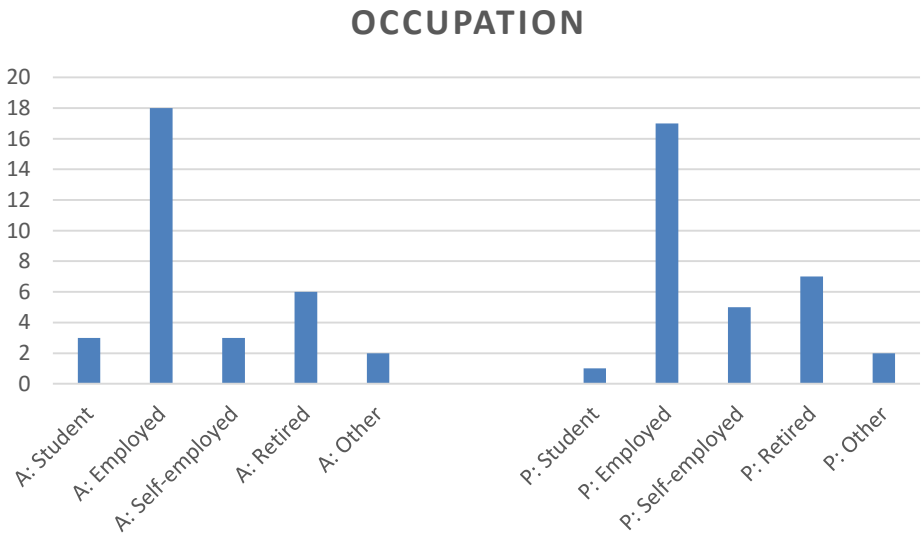


Figure 6: The distribution of occupation. P: passive participant, A: active participant. Y-axis states the number of participants.

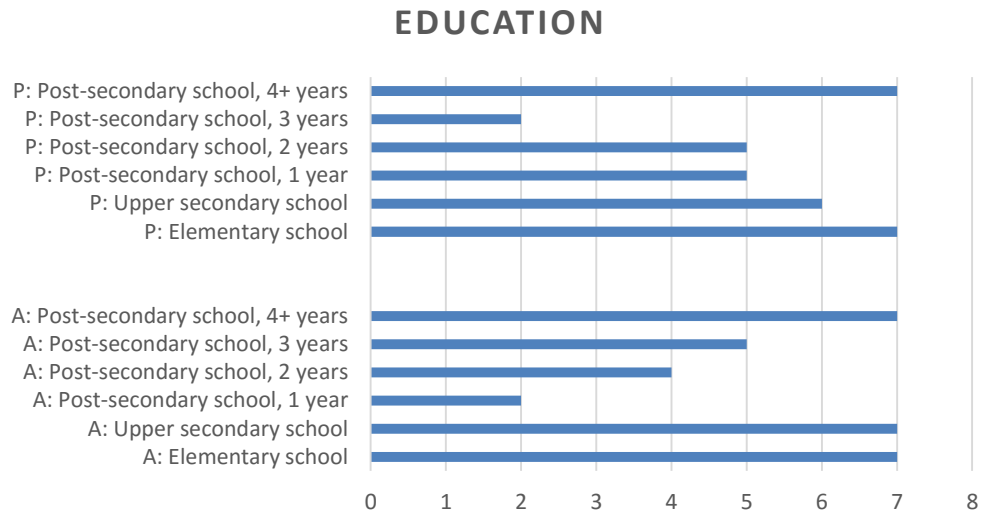


Figure 7: The distribution of education. The numbers on the x-axis states the number of participants. P: passive participant, A: active participant.

Household	**1 Adult**	**2 Adults**	**3 Adults**	**4 Adults**
N	6 (2)	23 (27)	2 (3)	1 (0)
% of sample	18.75 (6.25)	71.88 (84.38)	6.25 (9.38)	3.13 (0)

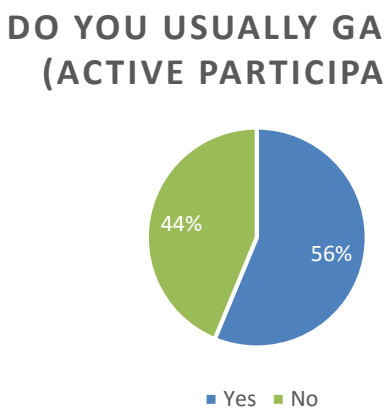
Table 15: Number of adults in household presented in count and percentages. The passive participants are stated in paranthesis.

Household	**0 Children**	**1 Child**	**2 Children**	**3 Children**
N	20 (17)	6 (5)	3 (6)	3 (4)
% of sample	62.50 (53.13)	18.75 (15.63)	9.38 (18.75)	9.38 (12.50)

Table 16: Number of children (≥18 years) in household presented in count and percentages. The passive participants are stated in paranthesis.

Frequency in gambling	**N**	**% of sample**
More than once a week	7 (3)	21.88 (9.38)
Every other week	3 (3)	9.38 (9.38)
Once a month	9 (9)	28.13 (28.13)
Once a quarter	2 (5)	6.25 (15.63)
Once in six months	5 (5)	15.63 (15.63)
Never	6 (7)	18.75 (21.88)

Table 17: The frequency of gambling reported by the active participants presented in count and percentages. The passive participants are stated in paranthesis.



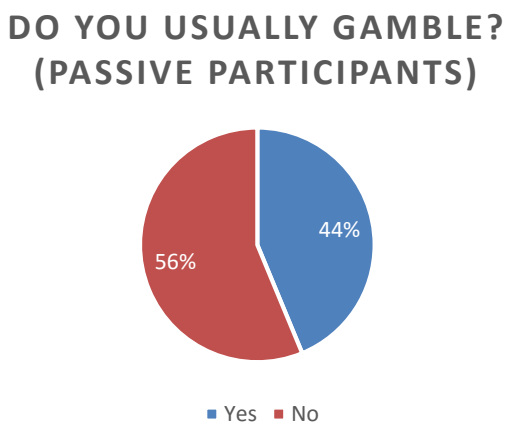


Figure 8: The active and passive participants reported gambling habits.

Temptation	**1**	**2**	**3**	**4**	**5**
N	4 (1)	5 (9)	6 (10)	13 (8)	4 (4)
% of sample	12.50 (3.13)	15.63 (28.13)	18.75 (31.25)	40.63 (25.00)	12.50 (12.50)

Table 18: Resistance against temptation is reported in count and percentages where 1=not good and 5=very good. The passive participants are stated in paranthesis.

Habits	**1**	**2**	**3**	**4**	**5**
N	2 (6)	10 (4)	9 (8)	8 (10)	2 (4)
% of sample	6.45 (18.75)	32.26 (12.50)	29.03 (25.00)	25.81 (31.25)	6.45 (12.50)

Table 19: Difficulties breaking bad habits are reported in count and percentages where 1=no difficulties and 5=major difficulties. The passive participants are stated in paranthesis.

Self-discipline	**1**	**2**	**3**	**4**	**5**
N	2 (1)	7 (5)	14 (14)	6 (5)	3 (7)
% of sample	6.25 (3.13)	21.88 (15.63)	43.75 (43.75)	18.75 (15.63)	9.38 (21.88)

Table 20: The percieved self-discipline from others is reported in count and percentages where 1=no self-discipline and 5=high self-discipline. The passive participants are stated in paranthesis.

Self-control	**1**	**2**	**3**	**4**	**5**
N	5 (4)	8 (9)	9 (12)	4 (3)	6 (3)
% of sample	15.63 (12.90)	25.00 (29.03)	28.13 (38.71)	12.50 (9.68)	18.75 (9.68)

Table 21: The self-control is reported in count and percentages where 1=high self-control and 5=no self-control. The passive participants are stated in paranthesis.

Impulsiveness	**1**	**2**	**3**	**4**	**5**
N	7 (7)	8 (4)	4 (11)	9 (7)	3 (2)
% of sample	22.58 (22.58)	25.81 (12.90)	12.90 (35.48)	29.03 (22.58)	9.68 (6.45)

Table 22: The impulsiveness is reported in count and percentages where 1=cautious and 5=high impulsiveness. The passive participants are stated in paranthesis.

Patience	**1**	**2**	**3**	**4**	**5**
N	4 (2)	2 (10)	7 (5)	9 (9)	9 (6)
% of sample	12.90 (6.25)	6.45 (31.25)	22.58 (15.63)	29.03 (28.13)	29.03 (18.75)

Table 23: The patience is reported in count and percentages where 1=no patience and 5=high patience. The passive participants are stated in paranthesis.

Patience	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
N	4 (2)	2 (10)	7 (5)	9 (9)	9 (6)	4 (2)	2 (10)	7 (5)	9 (9)	9 (6)
% of sample	12.90 (6.25)	6.45 (31.25)	22.58 (15.63)	29.03 (28.13)	29.03 (18.75)	12.90 (6.25)	6.45 (31.25)	22.58 (15.63)	29.03 (28.13)	29.03 (18.75)

Table 24: The patience is reported in count and percentages where 1=no patience and 5=high patience. The passive participants are stated in paranthesis.

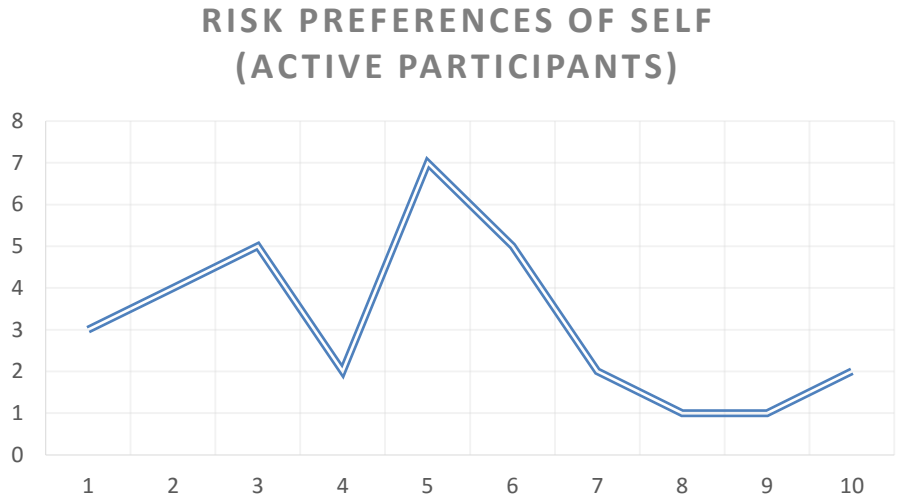


Figure 9: Estimated risk preferences of self amongst the active participants. The x-axis is a grading scale from 1 – 10 where 1=risk averse and 10=risk seeking. The y-axis is the number of participants.

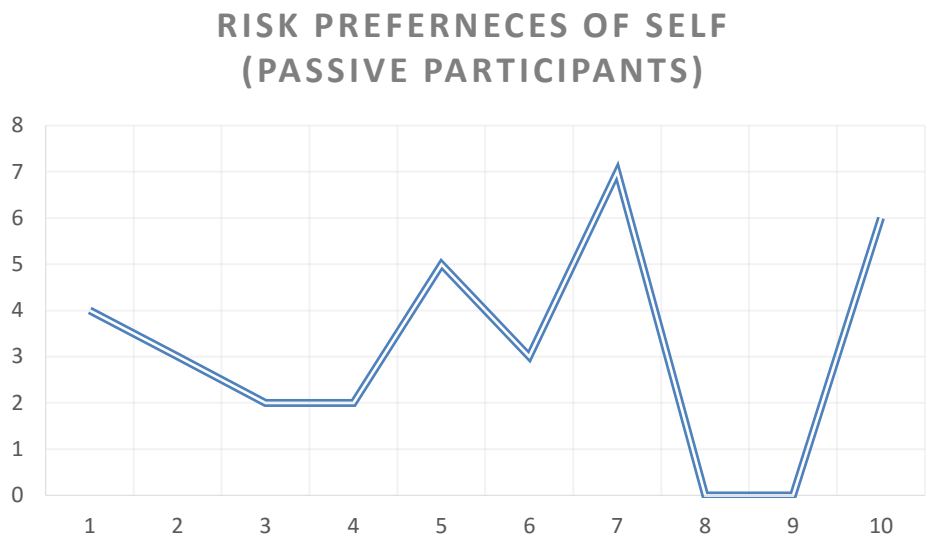


Figure 10: Estimated risk preferences of self amongst the passive participants. The x-axis is a grading scale from 1 – 10 where 1=risk averse and 10=risk seeking. The y-axis is the number of participants.

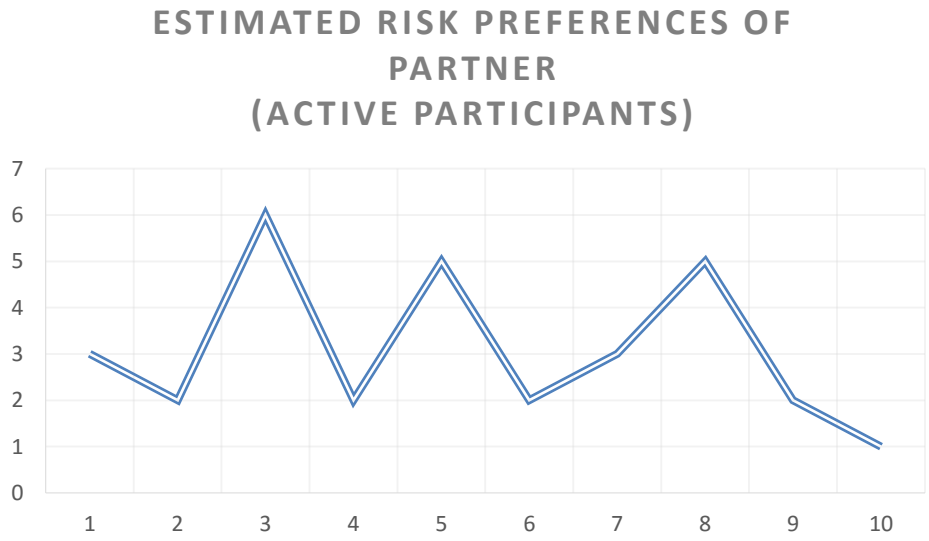


Figure 11: Estimated risk preferences of the partner in the experiment amongst the active participants. The x-axis is a grading scale from 1 – 10 where 1=risk averse and 10=risk seeking. The y-axis is the number of participants.

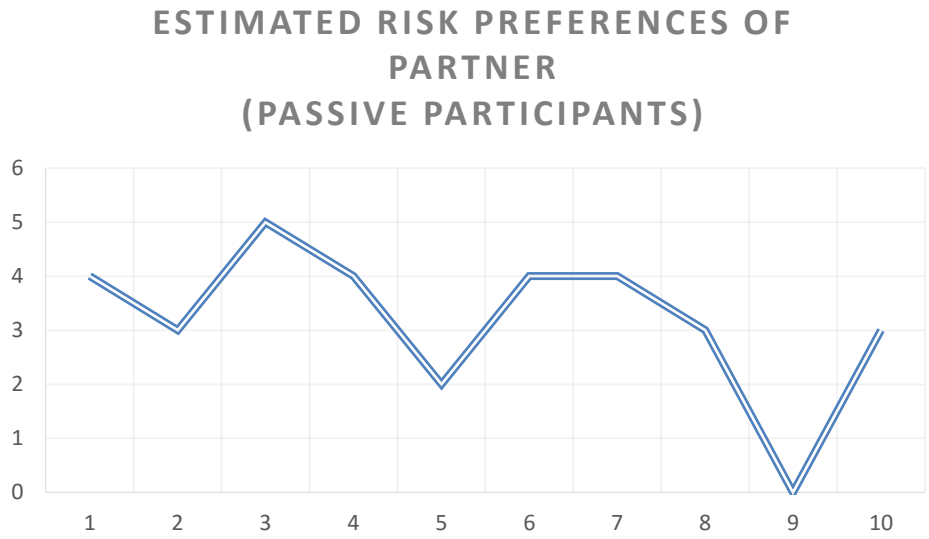


Figure 12: Estimated risk preferences of the partner in the experiment amongst the passive participants. The x-axis is a grading scale from 1 – 10 where 1=risk averse and 10=risk seeking. The y-axis is the number of participants.

	Motivation w.r.t. partner	**Motivation w.r.t. self**	**Motivation w.r.t. investment**	**Motivation w.r.t. logic**	**Other motivations**
N	15.5*	2.5*	6	3	3
% of total motivations	51.67	8.33	20.00	10.00	10.00

*Table 25: The motivations of the lottery ticket purchases for the partner are reported in count and percentages. *Here, one active participant decided on the basis of self and of partner.*