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The relationship between lottery participation and happiness

Master Thesis

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Executive summary

Lottery gambling is the most popular form of gambling, despite low expected returns. Previous literature shows that standard expected utility theory cannot explain the large amounts of lottery gambling because lottery gambling is irrational behaviour. Prospect theory provides an explanation for this irrational behaviour but there are other theories to consider. The theory examined in this paper is the theory of positive anticipatory emotions. Previous literature shows that positive emotions, such as hope, play an important role in lottery gambling. The positive emotions experienced before the draw show that a part of the value of the lottery ticket is already consumed before the draw. This theory could explain the large amounts of lottery participation and leads to the question if there could be a relationship between lottery participation and happiness. When participants have non-money motivations, the value of the ticket is not dependent on winning or losing and the participants play to enhance their happiness.

In order to examine this relationship, an experiment was conducted. A number of 1100 participants received a free lottery ticket and surveys were conducted to examine the effect of participation on happiness.

The results in this research show that the participants indeed experienced more positive than negative emotions before the draw. However, the level of negative emotions is higher after the draw compared to before the draw. Additionally, the level of short-term happiness is lower before and after the draw compared to the baseline. This means that the participation in the lottery results in lower short-term happiness. The results for long-term happiness were the same as for short-term happiness. Motivation as a moderator is also examined, but no effect was found on the relationship between participation and happiness. Overall, the general results show that lottery participation has a negative effect on happiness. However, more moderators are considered and it was found that the participants who filled out a second survey on the day of the draw have a higher level of short-term happiness before the draw compared to the baseline. This finding shows that the timing of the surveys is important. Another finding concerns the emotion hope. Participants that experienced the emotion hope before the draw, have higher levels of happiness. The main occupation of the participants was also found to influence the relationship between participation and happiness. These findings show that there are different groups to consider when examining the relationship between lottery gambling and happiness.

Chapter 1

Introduction

1.1 Problem indication

Over the last few decades, gambling has become an increasingly popular activity. It has been reported by the University of Chicago (1999) that the proportion of individuals in the United States that have gambled at least one time in their life increased from 68 to 86 percent between 1975 and 1999. This trend kept evolving and an annual report of gambling participation in the UK shows that 48 percent of the population in 2016 participated in any form of gambling in the past four weeks (Gambling Commission, 2017). Lottery gambling is the most popular form of gambling with around 60 percent of the citizens of the US participating at least once a year in a lottery (Kearney, 2005). In Europe, the statistics are quite similar, where in Germany 40 percent of the adults play at least once a year and 70 percent of the adults in Spain play at least once a year (Garvía, 2007). Gambling is considered to be exciting because there is a chance to win large amounts of money. For lottery gambling, winning the lottery would be a once in a lifetime experience and a dream come true. Many people believe winning the lottery would advance their happiness because they could afford a luxurious lifestyle and would not have to worry about money anymore.

However, this large amount of participation in gambling is remarkable since standard economic theory considers gambling as irrational behaviour. Standard expected utility theory cannot explain the large amount of people participating in gambling. According to expected utility theory, it would be irrational behaviour to participate in gambling since the decision maker compares the expected utility values of different situations. In the situation of participating in gambling, the expected utility value is negative[1] and therefore it would be irrational to participate in gambling compared to not participating. That lottery participation is the most popular form of gambling is even more remarkable, since participating in the lottery has the lowest expected return compared to other forms of gambling, about 50% for every euro spent (Clotfelter & Cook, 1990; Statman, 2002). Consequently, plenty of research has been conducted to try to find the motivations for participating in gambling activities (Smith and Preston, 1984; Neighbors, Lostutter, Cronce,& Larimer, 2002; Mcgrath, Stewart, Klein, & Barett, 2010). These studies mainly used survey data to find the most reported motivations for gambling. A distinction is made between problem and non-problem gamblers. The results show that for problem gamblers, the desire to win money is a primary motivation. For non-gamblers however, the most reported motivation is fun/enjoyment endorsement. However,

[1] Except for some forms of gambling, such as blackjack

these studies only reported the motivations but did not find any explanations for the large amounts of participation in lottery gambling.

Since expected utility theory cannot explain participation in lottery gambling, behavioural economics provides another explanation. This theory describes that people have irrational beliefs about their chances of winning when participating in lottery gambling, they overestimate their chances of winning (Ariyabuddhiphongs, 2011). However, there might be alternative explanations for participation in the lottery next to irrational behaviour.

For non-money motivations, continuous participation in lottery indicates that the value of the lottery ticket is independent of winning or losing. A theory that includes this idea is that players experience positive anticipatory emotions before the draw of the lottery and therefore a part of the value is already consumed before the draw takes place, independent of winning or losing (Kocher, Krawczyk & van Winden, 2014).

Recent research on this last theory is by Kocher et al. (2014), and Burger, Hendriks, Pleeging & van der Zwan (2016). They tried to explain the motivations of the participants and showed that positive anticipatory emotions play an important role in Lotto-type lotteries. They argue that emotions such as hope are an important part of the value of a lottery. Also, they show that the emotions that are experienced during the waiting period are mostly positive. These emotions could result from the excitement or hope of winning and therefore being happier.

This leads to the question if participating in a lottery could contribute to the happiness of the participating subjects. Since there is not much research on the positive consequences of gambling, this study will focus mainly on discovering those positive consequences in order to extend the existing literature. Kocher et al. (2014) showed that there are positive emotions experienced before the draw, and this paper will add to that research by studying the effect those emotions have on happiness. The motivations for participating in gambling and theories discussed in previous literature will be discussed but in this study it will actually be tested if the motivations have an influence on the relationship between lottery participation and happiness. Mainly, this research will try to find a direct relationship between lottery participation and happiness, but moderators will also be considered. This study could contribute in answering the question of why people act irrationally when it comes to participating in a lottery. The scientific relevance of this research is providing an additional explanation for the large amounts of lottery participation. This additional explanation also holds societal relevance, because it could give the society some insight on the gambling behaviour of people and has potential to contribute to the understanding of problem gambling.

1.2 Problem statement

Since the goal of this research is to examine the relationship between lottery gambling and happiness with looking at positive anticipatory emotions, it is important to look at the motivations, emotions and level of happiness before and after a draw and comparing those factors. Therefore, the following research question will be answered:

> *What is the relationship between participating in lottery and happiness before and after the draw?*

To help answer this main research question, the following sub questions will be used:

1. What influence do the emotions before and after draw have on happiness?
2. What influence have different kind of motivations on happiness?

1.3 Research design and data collection

The research method used in this research is a survey and an experiment. Secondary sources like previous studies on this subject will be used. One of the most relevant journals for this thesis is the Journal of Gambling Studies.

The data used is retrieved from a study by the Erasmus Happiness Economics Research Organisation (EHERO) in 2015. They conducted a survey and experiment about participating in the Staatsloterij and happiness in the Netherlands. In the experiment, the participants were given a ticket from the Staatsloterij and used a before and after draw questionnaire to measure the happiness of the participants. The data from this study will be used in this research to answer to research question.

1.4 Structure

This papers consists of six chapters. The first chapter is the introduction where the problem statement and the research question are given. In chapter two, the literature review will be conducted. Previous literature on the decision making process of gambling and the effects of gambling will be discussed and the hypothesis are conducted. In chapter three, the methodology will be presented. Next is chapter four with the results from the analysis of the data. Chapter five provides a summary and answers the research question. The final chapter consists of a discussion and limitations of this research and presents recommendations for further research on this topic.

Chapter 2

Theoretical background

In this chapter, the previous literature on gambling and especially lottery participation will be discussed. The first paragraph gives definitions and explains expected utility theory. Paragraph two elaborates on the question of why people gamble. Prospect theory is discussed in this paragraph. In paragraph three, lottery gambling is elaborated further. Paragraph four provides a summary of literature about the relationship between gambling and happiness. The last paragraph gives the formulated hypotheses.

2.1 Concepts

Gambling can be defined as an activity where people play a game for stakes or bet on uncertain outcomes with a chance of winning money. Examples of such gambling games are horseracing, blackjack and slot machines. Gambling is considered to be a decision making process because a decision has to be made with every bet. These decisions are decisions under risk since there is a risk to lose money (Tversky & Kahneman,1979).

In standard economic theory, a descriptive model exists of such decisions under risk. Expected utility theory describes that a decision maker chooses between risky prospects by comparing the expected utility values of those prospects (Mongin, 1997). The expected utility values consist of adding the utility values of outcomes multiplied by their respective probabilities. For the decision maker to show rational behaviour, it should always choose the prospect with the highest expected utility value.

As discussed in the introduction, the expected utility theory is unable to clarify the decision making behaviour in gambling. When it comes to gambling, most decision makers seem to show irrational behaviour (Hartley & Farrell, 2002). Gambling could be seen as a form of investing because the decision maker invests money with a chance to receive more money. With gambling, the expected returns of those investments are very low. Only a few forms of gambling, such as blackjack, show higher expected returns where the chances of winning are higher. Because of these low expected returns, the expected utility values are mostly negative for gambling. It is therefore considered irrational to participate in gambling, because not participating would always provide higher expected utility values. Consequently, the question remains: why do people gamble?

2.2 Why do people gamble?

Prospect theory

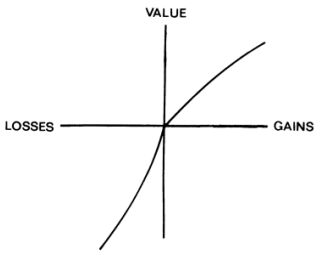

Figure 2.1. Prospect utility function.

As discussed above, expected utility theory cannot explain gambling behaviour. This holds true especially for monetary motivations. When the only motivation is to win money, it would always be irrational to gamble with negative expected returns. Behavioural economics provides a model that could explain gambling behaviour when the primary motivation is the desire to win money. Prospect theory assumes that losses and gains are valued differently and therefore the utility function is S-shaped with concave for gains and convex for losses, as showed in figure 2.1 (Kahneman & Tversky, 1979). Figure 2.1 shows that the utility function is steeper for losses, which implicates that there is loss aversion. Kahneman and Tversky (1979) state that losses cause a greater emotional impact than the same amount of gains. People are more sensitive to losses. However, as prospect theory explains, it depends on how the reference point is constructed. When evaluating an outcome, people use a reference point. Only when a certain outcome is below the reference point, it is considered a loss. This is different from the expected utility theory, because there the decision maker does not care how the outcomes of gains and losses are framed. This loss aversion suggests that people would be opposed to gambling because the chances of losing the initial investment are high. However, as discussed above, it depends on what the reference point is. For example, if the initial investment is not paid by the decision maker itself, every outcome could be considered a gain.

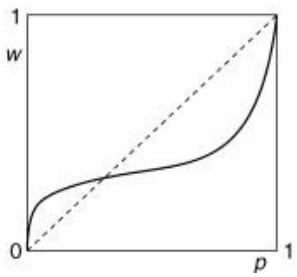

Figure 2.2. Probability weighting function.

Another part of the prospect theory is the decision weight, which could explain why people gamble. To obtain the utility, every value is multiplied by a decision weight which leads to the probability weighting function. Figure 2.2 shows an example of a probability weighting function. Close to the zero point, the curve is steep and it is above the objective probability. This shows that there is an overweighting of small probabilities. In gambling, the probabilities are very small, therefore this overweighting could explain gambling behaviour. Overweighting small probabilities leads to irrational beliefs regarding the chances of winning. Therefore, participating in gambling could be mistakenly considered a good investment by the decision maker.

In conclusion, prospect theory provides an explanation for why people participate in gambling because of the irrational beliefs about their winning chances. This shows that this theory only provides an explanation with monetary motivations because the theory suggests that the

chances of winning are the most important factor when deciding to participate. However, there are more motivations to consider.

Motivations

Expected utility theory cannot explain why people gamble and several studies try to find the answer. Several papers report the motivations for people to participate in gambling activities. What are the reasons for people to participate in gambling? Studies showed that the desire to win money is a primary motivation to participate in gambling (Ladouceur, Sylvain, Boutin & Doucet, 2002; Lam, 2007; Park, Griffiths & Irwing, 2004; Blaszczynski & Nower, 2010). However, this motivation is mostly shown in problem gamblers and for some gambling types like the lottery, casinos and racetrack betting. For gambling types such as card room games and bingo, the gamblers are more motivated to gamble for social reasons (Lam, 2007). It seems that the money-motivated gamblers belief that gambling is a source of wealth and that without much effort gambling has the potential to change their life dramatically (Walker 1992). Another motivation, as reported by Blaszczynski and Nower (2010), is to escape problems, again especially for problem gamblers. On the contrary, they also reported motivations for non-problem gamblers. Those motivations are endorsing fun/enjoyment and socialization. They highlight that non-problem gamblers see gambling as a form of available entertainment and that they gamble for recreational purposes. Especially these last motivations are interesting when looking at the relationship between gambling and happiness, because these motivations could indicate that the non-money-motivated gamblers are gambling to enhance their own happiness.

Other studies show the same results when it comes to reported motivations for gambling. Neighbors et al (2002) show that with a sample of students, monetary gain was reported as the primary motivation in 40% of the sample, and the next most important motivation was enjoyment and fun. Only one motivation was less consistent with previous literature. Social reasons was reported as the primary motivation by 11% of the sample.

Similarly, in the research of Mcgrath et al (2010), a model for alcohol use is used to model the reasons for gambling. There are three categories: coping motives (to reduce or avoid negative emotions), enhancement motives (to increase positive emotions) and social motives (to increase social affiliation). Enhancement motives were reported mostly as reasons for gambling.

In sum, these studies show that there are multiple motivations for gambling and that the desire to win money is not for all individuals the most important motivation for participating in gambling. Fun/enjoyment endorsement is one of the most reported motivations, especially for

non-problem gamblers. This motivation could be an indication that there is a relationship between gambling and happiness.

2.3 Lottery gambling

The literature discussed above was mainly focussed on gambling in general. Since this paper is focussed on lottery gambling in particular, it would be useful to first look into that specific form of gambling. Lottery participation is an example of gambling and the most popular form. The characteristics of lotteries are as follows: they are cheap to play, offer high jackpot prizes and the odds for winning are very low (Rogers, 1998). Furthermore, lotteries are infrequent. For example, the Nationale Postcode Loterij and Staatsloterij of the Netherlands, have drawings once a month. In addition, Hill and Williamson (1998) argue that lottery play is seen as a socially acceptable form of gambling. Lottery play is a game of pure chance, players cannot influence the odds of winning, except by buying more tickets.

Several studies reported the demographic characteristics of people that participate in lottery gambling. Gender, age, education and income are most frequently examined. Whether women or men gamble more in lotteries seems to depend on the country and lottery type (Welte, Barnes, Wieczorek, Tidwell & Parker, 2002; Ariyabuddhiphongs, 2006). Lottery participation does not differ much between different age groups, although 61+ age group has the lowest participation amount (Welte et al. 2002). For education, the trend in lottery gambling seems to be opposite from the trend in general gambling. In general, lottery gambling seems to decrease with education (Brown and Kaldenberg, 1992; Clotfelter, Cook, Edell & Moore, 1999). For income, the trend is the same as for education. Lottery participation is a declining function of income (Herring & Bledsoe, 1994; Welte el al. 2002).

Furthermore, several studies used psychological and demographic variables to predict lottery gambling. One psychological variable is anticipatory regret, the regret a gambler feels when they did not purchase a ticket but their regular numbers were drawn. This variable was found to influence the decision of participation also in the Netherlands (Zeelenberg & Pieters, 2004). In the Nationale Postcode Loterij, the postcode is the ticket number, and therefore there is immediately feedback when you did not buy a ticket but your postcode was drawn. However, they found that when there is no such feedback after the draw, like with the Staatsloterij, there was no correlation between anticipations of regret and lottery play.

In order to get a better overview of the theories that could explain why and how people gamble in lottery gambling, Ariyabuddhiphongs (2011) wrote a review of lottery gambling where he describes three common theories that have been used in the previous literature about lottery

gambling. The first theory is the theory of judgment under uncertainty, and explains lottery participation in terms of perception of probabilities of winning and pattern of numbers (Tversky & Kahneman 1974, 1981). Several heuristics are used in this theory to select lottery numbers, such as availability heuristic and representativeness. Availability heuristic is a heuristic where people judge the likelihood of certain numbers to be drawn based on how easily those numbers come to mind. Representativeness is a heuristic where people assume that arithmetic sequences in numbers are less likely than random sequences (Tversky & Kahneman, 1974). The second theory is the cognitive theory of gambling (Rogers 1998; Griffiths & Wood, 2001). It highlights gamblers' irrational beliefs at different stages of the activities of the gamblers. Examples of those beliefs are unrealistic optimism or illusion of control. This theory is related to prospect theory because it also highlights the irrational behaviour of gamblers and because of their optimism they may overestimate their winning chances. The last theory is the theory of demand for gambles (Nyman 2004). The theory of demand for gambles explains that individuals gamble to obtain 'something for nothing'. It is necessary to give up something else in order to obtain something. The motivation for gambling therefore also involves the utility costs saved by not working for the winnings. These three theories give some insight in the behaviour of lottery gambling.

In conclusion, the studies about lottery play have consistent results and mainly explain and predict the behaviour in lottery gambling. When combined with paragraph 2.2, the already existing literature mainly focused on finding the motivations for gambling and predicting the behaviour of the gamblers but what are the consequences of participating in lottery gambling? The non-money motivations indicate that there could be a relationship between lottery gambling and happiness.

2.4 Lottery gambling and happiness

Only a view studies focus on the positive effects of gambling, or specifically lottery gambling. There are some studies about the relationship between wellbeing and gambling (Gardner & Oswald, 2001; Dixon, Nastally & Waterman, 2010; Farell, 2017), however those studies are not specifically focused on lottery gambling and are not conducted in the Netherlands. Happiness and wellbeing are difficult variables to define. Most studies use self-reported happiness or wellbeing with the use of surveys. For example, Gardner and Oswald (2001) used scores from the General Health Questionnaire (GHQ) to measure wellbeing. This questionnaire consists of 12 questions where the subjects have to answer on a four-point scale. Additionally, Kozma, Stone, Stones, Hannah and Mcneil (1990) made a distinction

between short-term and long-term happiness. They used different scales for short-term affects and life satisfaction.

Farell (2017) examined the relationship between subjective wellbeing and gambling behaviour. Again, there is a separation between gamblers that gamble as a leisure activity and pathological gamblers. The main conclusion from the paper is that gambling addiction and subjective wellbeing are correlated negatively. When gambling problems increase, happiness decreases.

Another study about lottery gambling specifically is from Kocher et al. (2014). In this research, they examine positive anticipatory emotions prior to lottery gambling. They find that positive anticipatory emotions like hope are important to the decision of participating in Lotto-types lotteries. The subjects expected to enjoy a thrill while waiting and therefore chose delayed resolution. They self-reported positive emotions during the waiting period. Concluding, these findings suggest that lottery gamblers experience positive emotions before the draw. This shows that part of the value of the lottery ticket is already consumed before the draw when those emotions are experienced.

An additional paper that studies the relationship between lottery participation and happiness is from Burger et al. (2016). The goal of the paper is to expand the already existing literature on what makes people happy. They did not find a general effect of lottery participation on happiness. However, they found a positive relationship between people that gamble for fun and happiness, compared to people that have other motivations for gambling. Also, players that are not money-motivated or play for fun are significantly happier than people that are money-motivated when participating in the lottery.

In conclusion, previous literature shows that there could be a relationship between lottery gambling and happiness and an additional explanation for gambling behaviour is provided with the positive anticipatory emotions. It is shown that motivation matters because non-money motivated gamblers experience higher levels of happiness. This is also shown in the theory of positive anticipatory emotions, because when gamblers play for fun their mood should be increased, they should experience positive anticipatory emotions, and therefore their happiness should be enhanced. This theory could explain the large amounts of lottery participation, despite the low expected returns. However, research on the relationship between lottery gambling and happiness is still scarce and therefore this study will try to find evidence for this theory.

2.5 This study

The literature review above showed that there could be a relationship between participation in lottery gambling and happiness. In order to examine this relationship, hypotheses are formulated.

As showed by Lancée, Veenhoven and Burger (2017), happiness can be measured in different ways. One way to measure happiness is with affective experience. Within affective experience, specific affects (emotions) can be measured as well as the general mood level (happiness). Within this study, these affective experiences are a form of short-term happiness, in accordance with Kozma et al (1990). Another way to measure happiness is with the level of satisfaction with life as a whole, this is considered long-term happiness.

The theory of positive anticipatory emotions states that people should experience positive emotions before the draw and non-negative emotions after the draw. Therefore, the following hypotheses are formulated:

Hypothesis 1: People generally have positive emotions when thinking about the draw before the draw has taken place

Hypothesis 2: People generally have non-negative emotions when thinking about the draw after the draw has taken place

Since the theory in this research is based on positive anticipatory emotions before the draw, only a significant effect is expected on short-term happiness because the effect of positive anticipatory emotions is expected to be short-term. Additionally, the level of short-term happiness is expected to be higher before the draw compared to the baseline because then the positive anticipatory emotions are experienced. After the draw, the level of short-term happiness is expected to return to the baseline because then the positive anticipatory emotions are not experienced anymore. Moreover, the level of short-term happiness does not move below the level of short-term happiness in the baseline because the negative emotions should be limited. When the short-term happiness moves below the baseline, the participants would not participate in lottery again because then they would have a negative overall affective experience.

Consequently, the following hypotheses are formulated:

Hypothesis 3: The level of short-term happiness is significantly higher before the draw compared to the baseline

Hypothesis 4: There is no significant difference between the level of short-term happiness after the draw and the level of short-term happiness at the baseline

Hypothesis 5: The level of satisfaction with life as a whole at the baseline is not significantly different from the level of satisfaction with life as a whole before and after the draw

Lastly, as discussed above, motivations matter. As previous literature shows, non-money-motivated people should experience a higher level of happiness before and after the draw compared to the baseline, than money-motivated people because they play for fun which should enhance their happiness. Therefore, the last hypothesis is formulated:

Hypothesis 6: Non-money motivation has a positive influence on the relationship between lottery participation and happiness before and after draw

Chapter 3
Data and methodology

In this chapter the data and methodology of this research are discussed. First the methods used for the survey and experiment are elaborated. After that, the data and analysis plan will be discussed.

3.1 Survey and experiment

For this research, an experiment has been conducted and surveys were distributed among 1630 respondents, in the Netherlands. These respondents are retrieved by CentERdata, with the use of the CentERpanel. The CentERpanel consists of more than 2000 Dutch households that fill out surveys every week. For this research, randomly one person out of the 2027 households was approached. Respondents younger than 18 years were not approached.

In total, there were three questionnaires. The first 'basic' questionnaire was send to 2027 respondents (see appendix A). With a response of 78.7%, 1630 respondents started the questionnaire and 1611 respondents completed the questionnaire. This first questionnaire was used to get an impression of the general level of happiness, gambling participation and personality characteristics.

In order to measure the effect of lottery participation, an experiment was conducted among 1300 respondents. 1100 out of the 1300 respondents received a free lottery ticket for the lottery draw of Sunday the 10th of May in 2015. The 200 remaining respondents only received a letter with information about the second survey.

Before the draw, the respondents filed out a second questionnaire with questions about their life satisfaction. The 1100 respondents that received a free Staatslot or already bought one, also answered questions about their emotions and ideas about the lottery and lottery draw (see appendix B).

Just after the draw, a third questionnaire was sent (see appendix C). The questionnaire contains the same kind of questions as questionnaire two, with questions about life satisfaction, emotions and ideas about the lottery and lottery draw.

Descriptive statistics

Table 3.1 shows the descriptive statistics of the entire sample. The table shows that the sample consists of 1630 respondents and that it is representative for the Dutch population.

Variable	N	Mean	Min.	Max.	Std. dev
Age	1630	55.62	18	92	15.34
Gender					
Male	1630	51.7%	0	1	
Female	1630	48.3%	0	1	
Position in household					
Head of household	1625	69%	0	1	
Married partner	1625	24.5%	0	1	
Unmarried partner	1625	3.9%	0	1	
Parent (in-law)	1625	0.1%	0	1	
Child living at home	1625	1.7%	0	1	
Roommate	1625	0.1%	0	1	
Family member or boarder	1625	0.2%	0	1	
Main occupation					
Paid employment	1616	43.7%	0	1	
Worker in family business	1616	0.4%	0	1	
Free occupational practioner, freelancer of self-employed	1616	4.8%	0	1	
Job-seeker after loss of work	1616	2.9%	0	1	
First-time job-seeker	1616	0.1%	0	1	
Pupil or student	1616	1.7%	0	1	
Care of household	1616	8%	0	1	
Retired (early, AOW or VUT)	1616	28.7%	0	1	
(partially) incapacitated	1616	4.9%	0	1	
Performs unpaid work while maintaining unemployment benefit	1616	2%	0	1	
Voluntary work	1616	3.1%	0	1	
Other	1616	0.6%	0	1	
Urbanity residence					
Very strong urbanised	1611	14%	0	1	
Strong urbanised	1611	25.1%	0	1	
Moderate urbanised	1611	20.8%	0	1	
Little urbanised	1611	21.2%	0	1	
Not urbanised	1611	17.8%	0	1	
Province					
Groningen	1611	4.3%	0	1	
Friesland	1611	4.9%	0	1	
Drenthe	1611	3.3%	0	1	
Overijssel	1611	6.2%	0	1	
Flevoland	1611	1.8%	0	1	
Gelderland	1611	11.7%	0	1	
Utrecht	1611	6.6%	0	1	
Noord-Holland	1611	14.7%	0	1	
Zuid-Holland	1611	18.2%	0	1	
Zeeland	1611	2.9%	0	1	
Noord-Brabant	1611	17.3%	0	1	
Limburg	1611	6.7%	0	1	
Region residence					
Three big cities	1611	15.3%	0	1	
Rest West	1611	27.2%	0	1	
North	1611	12.5%	0	1	
East	1611	19.8%	0	1	
South	1611	24%	0	1	
Net monthly income in categories					
EUR 1150 or less	1630	8.6%	0	1	
EUR 1151 up to and including EUR 1800	1630	15.8%	0	1	
EUR 1801 up to and including EUR 2600	1630	27.1%	0	1	
More than EUR 2600	1630	47.7%	0	1	
Unkown	1630	0.7%	0	1	
Head of household lives with partner					
Yes	1619	29.4%	0	1	
No	1619	69.9%	0	1	
Number of household members					
One person	1630	25.2%	0	1	
Two persons	1630	45.2%	0	1	
Three persons	1630	10.2%	0	1	
Four persons	1630	14.2%	0	1	
Five persons	1630	4%	0	1	

Six persons	1630	0.9%	0	1
Seven persons	1630	0.4%	0	1
Eight persons	1630	0.1%	0	1
Number of children in household				
None	1619	68.7%	0	1
One child	1619	10.7%	0	1
Two children	1619	14.7%	0	1
Three children	1619	4.1%	0	1
Four children	1619	0.8%	0	1
Five children	1619	0.3%	0	1
Six children	1619	0.1%	0	1
Residential shape of household				
Single	1619	25.2%	0	1
(un)married living together, without children	1619	42.7%	0	1
(un)married living together, with children	1619	26.5%	0	1
Single, with children	1619	3.6%	0	1
Other	1619	1.3%	0	1
Education in CBS-categories				
Elementary education	1616	3.7%	0	1
VMBO	1616	25.1%	0	1
HAVO/VWO	1616	10.1%	0	1
MBO	1616	22.1%	0	1
HBO	1616	25.5%	0	1
WO	1616	12.6%	0	1

Table 3.1. Descriptive statistics

3.2 Variables

The variable of interest in this study is happiness. Within the questionnaires, there are three types of measurements for happiness. The three types are also discussed in paragraph 2.5 of chapter 2. There is a distinction made between emotions, general mood level and life satisfaction.

The different kind of emotions are measured on a 7-point Likert scale with the following question: “Which emotions do you experience when you think about your upcoming participation in the lottery?’’ (see appendix B). Every emotion has its own answer scale with 1 Not at all – 7 Totally. This question is asked before the draw and after the draw the same question is asked with regard to the previous participation.

Tables 3.2 and 3.3 show the descriptive statistics of the emotions before and after draw. The emotions happy, hopeful, excited, curious, trust, amused and friendly are considered positive emotions. The rest of the emotions are considered negative, except for the indifferent emotion. As the tables show, most of the means of the positive emotions are higher compared to the means of the negative emotions before and after the draw.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Dev
Thinking about draw: Happy	1037	1	7	3,79	1,681
Thinking about draw: Hopeful	1037	1	7	4,07	1,795
Thinking about draw: Excited	1037	1	7	2,59	1,658
Thinking about draw: Curious	1037	1	7	4,71	1,696

Thinking about draw: Trust	1037	1	7	3,15	1,633
Thinking about draw: Amused	1037	1	7	3,41	1,776
Thinking about draw: Friendly	1037	1	7	2,94	1,711
Thinking about draw: Sad	1037	1	7	1,32	,829
Thinking about draw: Anxious	1037	1	7	1,51	,999
Thinking about draw: Irritated	1037	1	7	1,41	,958
Thinking about draw: Disappointed	1037	1	7	1,59	1,106
Thinking about draw: Regret	1037	1	7	1,40	,917
Thinking about draw: Detached	1037	1	7	1,87	1,387
Thinking about draw: Indifferent	1037	1	7	2,43	1,665
Valid N (listwise)	1037				

Table 3.2. Descriptive statistics emotions before draw

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Dev
Thinking about draw: Happy	1029	1	7	3,85	1,749
Thinking about draw: Hopeful	1029	1	7	3,45	1,829
Thinking about draw: Excited	1029	1	7	2,28	1,528
Thinking about draw: Curious	1029	1	7	3,90	1,941
Thinking about draw: Trust	1029	1	7	3,55	1,823
Thinking about draw: Amused	1029	1	7	3,45	1,776
Thinking about draw: Friendly	1029	1	7	3,44	1,814
Thinking about draw: Sad	1029	1	7	1,51	1,036
Thinking about draw: Anxious	1029	1	7	1,41	,874
Thinking about draw: Irritated	1029	1	7	1,53	1,077
Thinking about draw: Disappointed	1029	1	7	2,33	1,676
Thinking about draw: Regret	1029	1	7	1,56	1,079
Thinking about draw: Detached	1029	1	7	1,93	1,364
Thinking about draw: Indifferent	1029	1	7	2,34	1,608
Valid N (listwise)	1029				

Table 3.3. Descriptive statistics emotions after draw

General mood level is measured with the following question: ‘’How happy do you feel today?’’ (see appendix A). The answer is given on a 10-point Likert scale: 1 Very unhappy – 10 very happy.

Life satisfaction is measured as follows: ‘’Taking everything into account, how satisfied are you with your life as a whole?’’ (see appendix A). The answer is given on a 10-point Likert scale: 1 very unsatisfied – 10 very satisfied.

Table 3.4 shows the descriptive statistics of the general mood levels and life satisfaction levels for the three questionnaires. This table already shows that the mean of the level of general mood is higher at the baseline (mean=7.63) compared to the level before the draw (mean=7.53) and after the draw (mean=7.40). However, tests will show if the difference is significant.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
General mood baseline	1163	1	10	7,63	1,342
General mood before draw	1163	1	10	7,53	1,345
General mood after draw	1163	1	10	7,40	1,369
Life satisfaction baseline	1163	1	10	7,81	1,293
Life satisfaction before draw	1163	1	10	7,68	1,263
Life satisfaction after draw	1162	1	10	7,65	1,260
Valid N (listwise)	1162				

Table 3.4. Descriptive statistics happiness

Although there is still a debate going on about whether the Likert scale is ordinal or interval, and if the data should be used in parametric or non-parametric statistical procedures, within this research the scale is considered to be interval because parametric tests have more statistical power and therefore it is more likely to correctly detect a significant effect. Also, the distributions of the happiness variables are all normal (see appendix D, figure D1, D2, D3, D4, D5, and D6). However, since there still is a chance that the parametric tests show incorrect results, nonparametric tests will also be conducted to check if the results are the same.

3.3 Analysis plan

In order to test the hypotheses, statistical tests will be conducted. Since the respondents filled out three questionnaires at different times, the samples of the three questionnaires are considered to be paired because the samples consists of the same subjects. Therefore a within-subject approach will be used. This approach is consistent with a paired samples t-test. This test is chosen because the variables for happiness are continuous with the Likert scale. Moreover, one assumption of a paired samples t-test is that the variables should be normally distributed. This is shown in appendix D, as discussed above.

A paired samples t-test should be used when the samples come from the same population but represent two different times or two different means. The purpose of the test is to determine if there is statistical evidence that the means of the two paired samples are significantly different. For this test, some assumptions have to be met in order for the test to be valid. The first assumption is that there should be no significant outliers within the differences of the paired

samples. If there are outliers, they will be filtered out of the analysis. The second assumption concerns the normal distribution of the distribution of the differences between the paired samples. This assumption can be checked with a histogram.

In the following paragraph, the tests are explained for every hypothesis.

Hypothesis 1 & 2: For these hypotheses, first the descriptive statistics of the positive and negative emotions will be reported which will show the means of the reported emotions. After that, paired samples t-tests will be used to determine if there is a significant difference between the means. The samples of the positive and negative emotions before and after the draw come from the same population but represent two different means, therefore a paired samples t-test is suitable. The following null hypothesis (H_0) and alternative hypothesis (H_1) are formulated:

H_0:$\mu_1 = \mu_2$ (the paired sample means are equal)
H_1: $\mu_1 \neq \mu_2$ (the paired sample means are not equal)

The test statistic will show the paired t test statistic together with the p-value. This p-value will determine if there is a significant difference between the two means. Within this analysis, a significance level of 5% will be used. This means that a 5% risk of concluding that there is a difference when there is not is accepted. The test then has a 95% reliability. Since the test is used to see if the null hypothesis can be rejected, the p-value tells us that the null hypothesis can be rejected when the p-value is below 0.05. This means that there is a 5% chance that the rejection is not correct, but we accept that. For hypothesis 1, it means that when the null hypothesis is rejected, the means of the paired samples of the positive and negative emotions before the draw are significantly different. For the second hypothesis, it means that the mean of the paired samples of the positive and negative emotions after the draw are significantly different. When we look at the descriptive statistics, the means are shown and therefore a conclusion can be drawn about the levels of positive and negative emotions.

Hypothesis 3: For this hypothesis the variable of general mood is used because that is the only measurement of short-term happiness that is measured at the baseline. Again a paired samples t-test is used because the samples of the baseline and before draw come from the same population but represent two different times. The test will be used to test if there is a significant difference between the mean of the level of short-term happiness at baseline and the mean of short-term happiness before the draw.

Hypothesis 4: For this hypothesis, a paired samples t-test will be used again. The hypothesis is quite similar to hypothesis 3, however here the variables are short-term happiness at the base line and after the draw.

Hypothesis 5: Again a paired samples t-test will be used for this hypothesis. However, this time the variables that are tested are life satisfaction at the baseline and before draw, and life satisfaction at the baseline and after the draw.

Hypothesis 6: For this hypothesis a simple linear regression is used to examine if motivation moderates the relationship of lottery participation and happiness. Simple linear regression is a model that has a dependent and independent variable where the independent variable predicts the dependent variable. In this case, the dependent variable is a difference score variable of the difference between the short-term happiness levels or the difference between life-satisfaction levels. The independent variable in this case is non-money motivation. The models will tell if motivation has an influence on the difference of happiness level when the coefficient of that independent variable is significant. When the coefficient is insignificant, it means that there is no significant difference in the levels of happiness with non-money motivation compared to money-motivation. When there is a significant difference, the unstandardized coefficient of the independent variable shows the direction and magnitude of the influence. In order to use this model, there are some assumptions that need to be checked. The first assumption is that the dependent variable needs to be continuous. As described above, short-term happiness and life satisfaction are assumed to be continuous variables because it is measured on a 10-point Likert scale. The second assumption is that the independent variables should be continuous or categorical. When there are categorical variables, those variables need to be transformed into dummies in order to compare the categories to a reference category. With this model, non-money motivation is a dummy variable. The third assumption is linearity. There should be a linear relationship between the independent and dependent variable. The fourth assumption is about the independence of the observations, which can be checked using the Durbin-Watson statistic. When the value of the Durbin-Watson is close to 2, it can be assumed that the observations are independent. The fifth assumption is homoscedasticity, which can be checked with the plots of the residuals. The last assumption is that the residuals should be normally distributed. This can be checked with a histogram. If any of these assumptions is violated, the findings may be inefficient or even biased. If that is the case, the data should be transformed such that the assumptions are met or another form of analysis should be used.

Moderators

In the hypotheses generated in this study, only one moderator has been considered. To examine if there is a difference in happiness level between certain groups, more moderators are considered. These moderators will also be examined through simple linear regression. Moderators to consider are control variables, such as age and gender, and other independent variables that are expected to have an influence on the difference in happiness level. One

important variables is the variable that says if the participants received the lottery ticket for free or bought their own ticket. This is considered to be of influence because in the real world participants would mostly buy their own tickets instead of receiving free tickets. Another important moderator to consider is the date of filling out the survey before the draw. If the participants experience positive emotions before the draw, it could matter whether the draw is closer. The last moderator that will be examined is positive emotions. Because the theory says that positive anticipatory emotions are experienced before the draw, it would be interesting to look at those emotions and see if they are related to the level of happiness.

Chapter 4

Results

This chapter gives the results of the statistical tests for every hypothesis.

4.1 Hypothesis 1 & 2

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Positive_emotions_before	1037	1	7	3,52	1,321
Negative_emotions_before	1037	1	7	1,52	,764
Positive_emotions_after	1029	1	7	3,42	1,287
Negative_emotions_after	1029	1	5	1,71	,869
Valid N (listwise)	1027				

Table 4.1. Descriptive statistics positive and negative emotions

Table 4.1 shows the means of the level of positive and negative emotions before and after the draw. The mean of the level of the positive emotions before the draw is higher than the mean of the level of the negative emotions. From a paired samples t-test it is concluded that the difference is significant (p=0.000). Furthermore, the mean of the level of positive emotions before the draw is significantly higher than the mean of the level of positive emotions after the draw (p=0.003). The mean of the level of negative emotions is significantly higher after the draw compared to before the draw (p=0.000). These results show that the participants experienced more positive emotions than negative emotions and the level of those positive emotions is higher before the draw than after the draw.

4.2 Hypothesis 3

Paired Samples Statistics			
		Mean	N
Pair 1	Short-term happiness baseline	7,63	1163
	Short-term happiness before draw	7,53	1163

Table 4.2. Descriptive statistics test short-term happiness baseline-before draw

Paired Samples Test				
		t	df	Sig. (2-tailed)
Pair 1	Short-term happiness baseline – Short-term happiness before draw	2,794	1162	,005

Table 4.3. Test statistics short-term happiness baseline-before draw

Tables 4.2 and 4.3 show the test statistics of the paired samples t-test that tests if there is a significant difference between the means of the short-term happiness at the baseline and before the draw. The p-value in table 6 (sig. 2-tailed) is 0.005 (<0.05) and therefore it can be concluded that there is a significant difference between the two means. From table 4.2 it can be seen that the mean of the short-term happiness at the baseline is 7.63 and the mean of the short-term happiness before draw is 7.53. Therefore it can be concluded that on average, the level of short-term happiness before the draw is 0.1 points lower than the level of short-term happiness at the baseline. Additionally, table D1, appendix D, shows that short-term happiness at baseline and short-term happiness before draw are weakly and positively correlated (r=0.575, p-value=0.000<0.05).

4.3 Hypothesis 4

Paired Samples Statistics

		Mean	N
Pair 1	Short-term happiness baseline	7,63	1163
	Short-term happiness after draw	7,40	1163

Table 4.4. Descriptive statistics test short-term happiness at baseline-after draw

Paired Samples Test

		t	df	Sig. (2-tailed)
Pair 1	Short-term happiness baseline - Short-term happiness after draw	6,491	1162	,000

Table 4.5. Test statistics short-term happiness at baseline-after draw

Tables 4.4 and 4.5 show the test statistics of the paired samples t-test that tests if there is a significant difference between the means of the short-term happiness at baseline and the short-term happiness after draw. The p-value in table 8 is 0.000 and therefore it can be concluded that there is a significant difference between the two means. Table 4.4 shows those means and the mean of the short-term happiness after draw is 7.40. It can therefore be concluded that on average, the level of short-term happiness after draw is 0.2 points lower than the level of short-term happiness at the baseline. Table D2 in appendix D shows the correlation between the two variables. It can be concluded that short-term happiness at baseline and short-term happiness after draw are weakly and positively correlated (r=0.577, p-value=0.000<0.05).

4.4 Hypothesis 5

Paired Samples Statistics

		Mean	N
Pair 1	Long-term happiness baseline	7,81	1163
	Long-term happiness before draw	7,68	1163

Table 4.6. Descriptive statistics test long-term happiness at baseline-before draw

Paired Samples Test				
		t	df	Sig. (2-tailed)
Pair 1	Long-term happiness baseline- Long-term happiness before draw	4,848	1162	,000

Table 4.7. Test statistics long-term happiness at baseline-before draw

Tables 4.6 and 4.7 show the test statistics of the paired samples t-test that tests if there is a significant difference between the means of the long-term happiness at baseline and long-term happiness before draw. The p-value in table 10 is 0.000 so it can be concluded that there is a significant difference between the means. Table 4.6 shows that the mean of long-term happiness at baseline is 7.81 and the mean of long-term happiness before draw is 7.68. Therefore it can be concluded that on average, the level of long-term happiness before draw is 0.131 point lower than the level of long-term happiness at baseline. Table D3 in appendix D shows that long-term happiness at baseline and long-term happiness before draw are weakly and positively correlated with r=0.741 and p-value=0.000.

Paired Samples Statistics			
		Mean	N
Pair 1	Long-term happiness baseline	7,81	1162
	Long-term happiness after draw	7,65	1162

Table 4.8. Descriptive statistics test long-term happiness at baseline-after draw

Paired Samples Test				
		t	df	Sig. (2-tailed)
Pair 1	Long-term happiness baseline - Long-term happiness after draw	5,934	1161	,000

Table 4.9. Test statistics long-term happiness at baseline-after draw

Tables 4.8 and 4.9 show the test statistics of the paired samples t-test that tests if there is a significant difference between the means of long-term happiness at baseline and after draw. The p-value in table 12 is 0.000 and therefore it can be concluded that there is significant difference between the means. The mean of long-term happiness after draw is 7.65 (table 4.8) and that means that on average, the level of long-term happiness after draw is 0.157 points lower than the level of long-term happiness at baseline. Additionally, table D4 in appendix D shows that long-term happiness at baseline and long-term happiness after draw are weakly and positively correlated with r=0.749 and p-value is 0.000.

4.5 Hypothesis 6

Coefficients[a]					
Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	,017	,060	,276	,783
	Motivation_nonmoney	-,027	,101	-,264	,792

a. Dependent Variable: Difference short-term happiness_wave2_1

Table 4.10. Simple regression model moderator motivation short-term happiness wave2_1

Table 4.10 shows the statistics of the simple linear regression model with the dependent variable the difference between short-term happiness before the draw and at baseline. The table shows that the coefficient of the non-money motivation variable is not significant (p=0.792). This means that there is no significant difference in the levels of short-term happiness before the draw and at baseline, for non-money motivated people compared to money-motivated people. Appendix D tables D5, D6 and D7 show the statistics for the models with dependent variables of the difference between short-term happiness after draw and baseline, and difference of life satisfaction before draw and baseline, and after draw and baseline. The tables show that the coefficient of non-money motivation variable is insignificant in every model.

The assumptions that make these models valid are all met. The dependent variables are continuous and the independent variables are categorical and transformed into dummies. The assumptions of linearity and homoscedasticity are also met for every model, because the independent variables are all dummies, the assumptions are automatically met as the values can only be 0 or 1. Figure D7 in appendix D shows the scatterplot for these assumptions[2]. The assumption of independence is also met for every model. The Durbin-Watson values are 2.140, 1.951, 1.769, 1.802, respectively. The last assumption of the normality of the residuals is also met for all the models. Figure D8 in appendix D shows the histogram for this assumption[3]. The normality assumption for these models is the same normality assumption for the paired samples t-tests. Therefore, the histograms of these models also show that the assumption for normality is met for the paired samples t-tests above.

[2] The scatterplots for the other models can be obtained by request

[3] The histograms for the other models can be obtained by request

4.6 Moderators

Control variables

The first moderators to consider are the control variables. Most of those variables have no significant influence on the difference in happiness levels, such as age and gender[4]. However, main occupation does have a significant influence.

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	,004	,047	,093	,926
	Mainoccupation_cat7	-,396	,133	-2,977	,003
	Mainoccupation_cat8	-,197	,079	-2,486	,013
	Mainoccupation_cat12	-1,719	,466	-3,687	,000
2	(Constant)	-,231	,037	-6,309	,000
	Mainoccupation_cat12	-1,055	,472	-2,235	,026

a. Model 1: Dependent variable: difference short-term happiness wave2_wave1
b. Model 2: Dependent variable: difference short-term happiness wave3_wave1

Table 4.11. Models moderator main occupation

Table 4.11 shows that participants that take care of the household, are retired or have another occupation have a significant negative difference in short-term happiness level before draw and at baseline. Also, the difference between the level of short-term happiness after draw and baseline is significantly negative for participants with occupation 'other'. For the other occupations and for life satisfaction there were no significant differences.

Ticket bought

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,068	,039	-1,740	,082
	Ticket_bought	,172	,181	,950	,342
2	(Constant)	-,236	,040	-5,840	,000
	Ticket_bought	-,056	,188	-,299	,765
3	(Constant)	-,105	,028	-3,728	,000
	Ticket_bought	-,020	,131	-,151	,880
4	(Constant)	-,143	,029	-4,961	,000
	Ticket_bought	-,024	,134	-,179	,858

a. Model 1: Dependent variable = difference short-term happiness wave2_wave1
b. Model 2: Dependent variable = difference short-term happiness wave3_wave1
c. Model 3: Dependent variable = difference LS wave2_wave1
d. Model 4: Dependent variable = difference LS wave3_wave1

Table 4.12. Models moderator ticket bought

[4] Some regressions with the control variables can be found in appendix D, the other regressions can be obtained by request

Table 4.12 shows the coefficients of the models with ticket bought as the moderator. It shows that for every model, the coefficient of ticket bought is insignificant, higher than 0.05. This means that there is no significant difference in the happiness levels for participants that bought their own ticket.

Date

The following table shows the model of the difference in short-term happiness at baseline and short-term happiness before the draw with the independent variables of the dates.

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,123	,058	-2,117	,034
	Date_9	-,115	,083	-1,395	,163
	Date_10	,275	,094	2,921	,004

a. Model 1: Dependent variable: difference short-term happiness wave2_1

Table 4.13. Model moderator date

It can be concluded from table 4.13 that the date of 10-05-2015 has a significant influence on the difference between the levels of short-term happiness at baseline and before the draw. The coefficient of 0.275 shows that the influence is positive, which means that people that filled out the second questionnaire on the 10th of May 2015 (the day of the draw), have a higher level of short-term happiness before the draw compared to the baseline. For the other models, difference between short-term happiness after draw and baseline, difference between life satisfaction at baseline and before and after draw, the date has no significant influence.

Positive emotions

The only positive emotion that has a significant influence on the difference in happiness levels is hope. The table below shows the coefficients of the models with the moderator hope.

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,451	,093	-4,837	,000
	Thinking about draw: hopeful (before)	,096	,021	4,587	,000
2	(Constant)	-,532	,097	-5,480	,000
	Thinking about draw: hopeful (before)	,072	,022	3,309	,001
3	(Constant)	-,289	,070	-4,156	,000
	Thinking about draw: hopeful (before)	,036	,016	2,280	,023

a. Model 1: Depedent variable: difference short-term happiness wave2_wave1
b. Model 2: Dependent variable: difference short-term happiness wave3_wave1
c. Model 3: Dependent variable: difference LS wave3_wave1

Table 4.14. Models moderator hopeful emotion

It can be concluded that on average, a 1 point increase in the level of the emotion hope before the draw leads to a 0.096 higher positive difference in the level of short-term happiness before the draw and the baseline. Similarly, a 1 point increase in the level of the emotion hope before the draw leads to a 0.072 higher positive difference in the level of short-term happiness after the draw and the baseline. The difference between life satisfaction after draw and life satisfaction at the baseline increases positively with 0.036 when the emotion hope before draw is increased with 1 point. This means that when the positive anticipatory emotions (hope) are experienced, the difference in happiness levels is positive and therefore the happiness level increases before and after the draw compared to the baseline.

As discussed in chapter 3, there are several assumptions that need to be met in order for the models to be valid. For every model in this paragraph, the assumptions are met[5].

[5] The statistics for the assumptions of every model within this chapter can be obtained by request

Chapter 5

Summary

This study is about the relationship between participation in lottery and happiness before and after the draw. In order to answer the research question, hypotheses were formulated, which were tested using experimental and survey data. The first hypothesis states that people have positive emotions before the draw has taken place. The results above showed that the level of positive emotions is significantly higher than the level of negative emotions before the draw and therefore the first hypothesis is accepted. The second hypothesis stated that people have non-negative emotions after the draw. The results show that the level of positive emotions is significantly higher than the level of negative emotions after the draw. However, the level of negative emotions after the draw is significantly higher after the draw compared to before the draw, therefore the second hypothesis cannot be accepted because it is unclear if the participants experienced a higher level of negative emotions because of the draw.

Hypothesis three stated that the level of short-term happiness before the draw is higher compared to the level of short-term happiness in the baseline. The results above showed that there is a significant relationship between short-term happiness at the baseline and short-term happiness before the draw. However, the level of short-term happiness at the baseline is higher compared to the level of short-term happiness before the draw. This means that the third hypothesis is rejected. The fourth hypothesis stated that there is no significant difference between the level of short-term happiness after the draw and the level of short-term happiness at the baseline. The results above show that there is a significant difference between the two levels and that the level of short-term happiness after draw is lower than the level of short-term happiness at the baseline. Consequently, the fourth hypothesis is also rejected. The fifth hypothesis stated that the level of satisfaction with life as a whole at the baseline is not significantly different from the level of satisfaction with life as a whole before and after the draw. The results of the two tests in tables 10 and 11 show that there is a significant difference between the levels of life satisfaction as a whole at baseline and before draw, as well as the levels of life satisfaction as a whole at baseline and after draw. The level of life satisfaction as a whole is higher at the baseline compared to before and after the draw. This means that the fifth hypothesis is also rejected.

The last hypothesis stated that the moderator non-money motivation has a positive influence on the relationship between participation in the lottery and happiness. The results show that non-money motivation has no significant influence on the relationship between participation and both short-term and long-term happiness. Therefore, hypothesis six is also rejected.

The analysis of the moderators show that main occupation has a significant effect on the difference in the level of short-term happiness before and after draw compared to the baseline. Also, people that bought their own ticket do not have a significant difference in happiness level before and after draw compared to the baseline. The third moderator shows that the date of filling out the second questionnaire is of a significant importance, because the respondents that filled out the questionnaire on the date of the draw have a significant higher level of short-term happiness before the draw compared to the baseline. The last moderator that is considered is the emotion hope. When this emotion is experienced before the draw, the level of happiness before and after draw increases compared to the baseline.

From these results it can be concluded that positive emotions are experienced during participation in the lottery. However, from these results it can also be concluded that lottery participation has a general negative effect on happiness before and after draw. These conclusions are remarkable and partly the opposite of the expectations. However, the moderators show that the results differ between different groups. The next chapter will examine these differences further and try to find more explanations for the remarkable results.

Chapter 6

Discussion, Limitations and Recommendations

Since the results of this study are not in line with the expectations based on previous literature, the method of this study will be discussed and explanations for the results are explored. After that, recommendations for further research are given.

6.1 Discussion

First of all, as discussed in chapter 3, there are three ways to measure happiness: general mood, life satisfaction and emotions. However, the questions about the different emotions were only asked in questionnaires 2 and 3 (see appendix B and C). Therefore it was not possible to test the effect of participation of lottery on the emotions because there is no baseline. This is a limitation because this means that not all the measures of happiness are taken into consideration. The level of the emotions before and after the draw cannot be compared to the level of emotions before participation so therefore no conclusion can be made about the effect of participation on the level of emotions. Because of this limitation, the tests in this study are conducted with the level of general mood variable and the life satisfaction variable. Yet, there is still a strange observation regarding the emotions. We see that the general mood level drops before the draw compared to the baseline but the emotions reported before the draw are generally positive. This raises the question whether we can use general happiness data when looking at the effect of participation on happiness. Maybe all different kind of measurements for happiness should be considered separately. Therefore, it is advised to also measure the level of emotions at the baseline when looking at the effect of participation on happiness.

As discussed above, there is still a debate going on about whether the Likert-scale should be considered interval. Because of this debate, the first hypothesis is also tested with a nonparametric test to see if there is a difference in result. This nonparametric test is the Wilcoxon Signed Ranks test that compares two sets of scores from the same participants. The test is used when normality is not assumed in the data. However, the test gives the same result as the parametric test. The test indicated that short-term happiness before the draw is significantly lower than short-term happiness at the baseline ($p=0.005$). Therefore it can be assumed that the parametric test is sufficient and the Likert-scale can be considered interval in this case.

Another factor to consider is the reliability of this study. Since this study has three questionnaires with exactly the same participants in all three the questionnaires, the participants could become biased over time. The second time they fill out the survey they already know what is expected of them. Most importantly, since the question about happiness

today and life satisfaction is the same within the three questionnaires, the participants could experience anchoring bias when filling out the questionnaire for the second and third time. Anchoring bias occurs when there is an initial value that is used as an anchor to estimate the final value (Tversky and Kahneman, 1974). Within this study, the participants could experience anchoring bias by using the initial value they filled out for the happiness questions as an anchor when answering the questions for the second time. This could lead to biased answers and would give unreliable results.

Positivity bias is another bias that could be experienced during the questioning. As Smith (1979) stated, people suffer from positive bias when filling out a questionnaire about happiness. The question that is asked is how 'happy' or how 'satisfied' the participant feels. Not how 'unhappy' or 'dissatisfied'. This way of questioning could lead to more positive answers. The answer scale is also a factor that is questionable when looking at the reliability of the answers. Because the answers are given on a Likert-scale, the mean could be somewhat unreliable when looking at the level of happiness. Every participant could interpret the scale in another way. One participant could consider an answer of 5 as being happy, while another considers an answer higher than 8 as happy. Therefore the mean of the answers is not a correct indicator of the actual happiness level. However, when looking at the difference in happiness levels it does not matter what the actual levels of happiness mean.

Moderators

The moderators studied in the analysis show that different groups have different results on the level of happiness. Whether a ticket is bought or received for free seems to be an important factor when you want to represent the real world. Therefore, the finding of this variable is important because it suggests that it matters whether a participant received a ticket for free or bought their own ticket since the results are not in line with the results for participants that received their ticket for free. However, there are only 48 participants in this sample that bought their own ticket, and therefore the sample could be too small to draw reliable conclusions. The findings of the last moderator, the emotion hope, could contribute to the explanation for the remarkable results. When people experience the emotion hope before the draw, the level of happiness before and after the draw is higher than in the baseline. This is consistent with the expectations for hypothesis 1 and could explain a small part of the unexpected results.

The moderators examined in the analysis are not the only factors that could influence the level of happiness at different times. Since the sample in this study is representative for the Dutch population, it would be useful to look at important events that happened in the Netherlands during the time that the participants filled out the first questionnaire and the second and third questionnaire. The website Wikipedia (https://nl.wikipedia.org/wiki/2015) shows a page with

an overview of important events that happened in 2015 per month. There seem to be no important events that happened during the period of April 17th and may 12th, 2015 that would influence almost all the participants in this sample.

This concludes the section of the discussion. Positive emotions are experienced during the experiment, however, it is not possible to compare them to a baseline. The nonparametric test did not give different results and therefore the parametric test is considered to be sufficient. Nonetheless, there are some biases to consider when evaluating the questionnaire. Still, the results are not what was expected regarding the previous literature. The moderators that were found give some explanations for the results. The variables for date of filling out the second survey, the emotion hope and main occupation seem to have a significant influence on the difference of the happiness levels. With these moderators, different groups are found that have different influences on the levels of happiness. The group of participants that bought their own lottery ticket seems to have no significant difference between the level of happiness at the baseline and before and after draw. However, since the sample of this group is small, further research on this group would be necessary to draw concrete conclusions.

6.2 Recommendations

As discussed above, in this study the questions about the emotions were not asked in the first questionnaire. Because of this limitation, one part of the happiness measurement is missing. Since the emotions are also a measurement for happiness, the emotions should also be considered at the baseline in order to draw more complete conclusion about the difference in happiness levels.

The second recommendation for further research on this topic concerns the method of the experiment. In this study, the lottery tickets were given to the participants for free. Therefore the effect of participation in the lottery for free on happiness is studied. For a representation of the real world, the lottery tickets should not be received for free since most people do not participate in the lottery for free. The analysis above shows that there could be a difference between the levels of happiness of participants that received the ticket for free or bought their own ticket. The results show that there is no significant difference in happiness levels for participants that bought their own ticket, which is a different result than the overall result of this study. However, because of the small sample of this group no clear conclusions can be made and therefore a further study with more participants that bought their own ticket would be recommendable.

Another factor that seems to influence the happiness level is the date of the second questionnaire. When the participants are closer to the draw they have a higher level of short-term happiness. This finding is consistent with the expectations of short-term happiness and

therefore it could be useful to further investigate the influence of days before the draw on short-term happiness. Maybe it is only useful to consider the actual day of draw in a research about participation in the lottery because it could be that participants do not think about the draw before the actual day of draw and therefore they experience other emotions the days before. Further research on this topic is advised.

Additionally, the questioning should be re-evaluated in order to try to avoid biases. The bias of anchoring could be overcome when there are no numbers used. The question could be asked with statements like: ‘’I feel very happy today’’ – ‘’I feel very unhappy today’’. However, it would not be possible to calculate a mean for this variable and therefore the opportunities for tests would be limited. Another bias that should be considered is the positivity bias. In order to overcome this bias, the questions could be asked differently: ‘’How do you feel today?’’ and ‘’How do you feel about your life as a whole?”. The answers could still be the same but these questions would not bias the participants towards a more positive answer.

With everything taken into consideration, there are several recommendations for further research to build on this study and to find more concrete conclusions about the effect of participation in the lottery on happiness.

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Appendix A

'Basic' questionnaire

Conducted among 1630 respondents between 17-04-2015 and 28-04-2015. The respondents filled out the survey on the internet.

V1
Hieronder ziet u tien situaties, waarin u een keuze kunt maken tussen één heel staatslot (met een winkelwaarde van €15 en een Jackpot van 7,5 miljoen euro) of een vast bedrag. Geef voor elke situatie aan of u voor het staatslot kiest of voor het bedrag.

a)	Situatie 1	1 Staatslot	2 €2,50
b)	Situatie 2	1 Staatslot	2 €5,00
c)	Situatie 3	1 Staatslot	2 €7,50
d)	Situatie 4	1 Staatslot	2 €10,00
e)	Situatie 5	1 Staatslot	2 €12,50
f)	Situatie 6	1 Staatslot	2 €15,00
g)	Situatie 7	1 Staatslot	2 €17,50
h)	Situatie 8	1 Staatslot	2 €20,00
i)	Situatie 9	1 Staatslot	2 €22,50
j)	Situatie 10	1 Staatslot	2 €25,00

V2
Hoe gelukkig voelt u zich vandaag?
1 zeer ongelukkig - 10 zeer gelukkig

V3
Alles bij elkaar genomen, hoe tevreden bent u met uw leven als geheel?
1 zeer ontevreden - 10 zeer tevreden

V4
Aan welke loterijen hebt u het afgelopen jaar (april 2014 - april 2015) deelgenomen?
Meerdere antwoorden mogelijk.

a) De Lotto
b) De Postcodeloterij
c) De Staatsloterij
d) De Vriendenloterij
e) De BankGiro Loterij
f) Overige loterij(en)
g) Ik heb niet aan loterijen deelgenomen

0 Nee
1 Ja

V5
Hoe regelmatig hebt u het afgelopen jaar (april 2014 - april 2015) deelgenomen aan een loterij?
Als u aan meerdere loterijen deelneemt, tel dan alle loterijen waaraan u hebt deelgenomen bij elkaar op.
1 Wekelijks of meerdere keren per week
2 Maandelijks, maar niet wekelijks
3 Meerdere keren per jaar, maar niet maandelijks
4 Eén keer per jaar of nooit

V6
Hoeveel geld geeft u gemiddeld uit per deelname aan een loterij?
1 Minder dan €10
2 €10 - €24,99
3 €25 - €49,99
4 €50 - €99,99
5 €100 - €499,99
6 €500 of meer

V7
Hebt u in het afgelopen jaar (april 2014 - april 2015) uw inleg aan loterijen terugverdiend?
1 Nee, ik heb meer dan €100 verlies gemaakt
2 Nee, maar ik heb minder dan €100 verlies gemaakt
3 Ik heb ongeveer evenveel uitgegeven als gewonnen
4 Ja, maar ik heb minder dan €100 winst gemaakt
5 Ja, ik heb meer dan €100 winst gemaakt

V8
In hoeverre beleeft u loterijtrekkingen als:
a) Een kans om rijk te worden
b) Een leuke activiteit
c) Een hobby of tijdverdrijf
d) Een middel tegen verveling
e) Gezellig
f) Een inkomstenbron
g) Ontspanning
h) Een sociale activiteit met familie en vrienden
1 helemaal niet - 7 helemaal wel

V9
In hoeverre bent u het oneens of eens met de volgende stelling:
'Ook als ik niets win, is deelnemen aan loterijen leuk.'
1 helemaal oneens - 7 helemaal eens

V10
Hoe vaak praat u met vrienden, kennissen of familie over deelname aan een loterij?
1 nooit - 7 altijd

V11
Hoe groot schat u de kans in dat u ooit een grote prijs wint in een loterij?
1 zeer klein - 7 zeer groot

V12
Aan welke van de volgende kansspellen hebt u het afgelopen jaar (april 2014 - april 2015) deelgenomen? Meerdere antwoorden mogelijk.
Let op: deelname aan loterijen moet u hier niet opgeven.
a) Gokken in het casino
b) Gokken op sportwedstrijden
c) Online gokken
d) Gokken op fruitmachines of andere gokautomaten
e) Kaartspellen (bv. poker) voor geld
f) Ander kansspel

g) Ik heb het afgelopen jaar (april 2014 - april 2015) niet deelgenomen aan andere kansspellen dan loterijen

0 Nee
1 Ja

V13

In hoeverre bent u het oneens of eens met de volgende stellingen:

a) In onzekere tijden verwacht ik meestal het beste.
b) Als iets voor me mis kan gaan, dan gebeurt dat ook.
c) Ik ben altijd optimistisch over mijn toekomst.
d) Ik ga er haast nooit van uit dat de dingen gaan zoals ik het wil.
e) Ik ga er zelden van uit dat mij leuke dingen overkomen.
f) In het algemeen verwacht ik dat mij eerder goede dingen overkomen dan slechte.

1 helemaal oneens - 7 helemaal eens

V14

In hoeverre bent u het met de volgende stelling oneens of eens:
'Ik ben een persoon die vaak geluk heeft.'
1 helemaal oneens - 7 helemaal eens

V15

In hoeverre bent u het oneens of eens met de volgende stellingen:

a) Ik bezit graag dingen die indruk maken op anderen.
b) Mijn bezittingen zeggen veel over hoe goed mijn leven is.
c) Ik heb bewondering voor mensen die dure huizen, auto's en kleding hebben.
d) Ik probeer mijn leven simpel te houden, voor zover het bezittingen betreft.
e) Dingen kopen geeft mij veel plezier.
f) Ik heb graag veel luxe in mijn leven.
g) Mijn leven zou beter zijn als ik bepaalde dingen bezat die ik nu niet heb.
h) Ik zou niet gelukkiger zijn als ik meer spullen kon kopen.
i) Ik vind het soms best vervelend dat ik niet alles kan kopen wat ik wil.

1 helemaal oneens - 7 helemaal eens

V16

In hoeverre bent u het oneens of eens met de volgende stellingen:

a) Mijn leven wordt bepaald door mijn eigen handelingen.
b) Ik ben meestal in staat om mijn persoonlijke belangen te behartigen.
c) Wat er in mijn leven zal gebeuren heb ik aardig in de hand.
d) Mijn leven wordt voor een groot deel bepaald door toevallige gebeurtenissen.
e) Vaak heb ik geen mogelijkheid om mijn persoonlijke belangen te beschermen tegen pech.
f) Als ik krijg wat ik wil, is dat meestal vanwege toeval.
g) Mensen zoals ik zien erg weinig kans om hun belangen te behartigen als deze botsen met belangen van invloedrijke anderen.
h) Mijn leven wordt voornamelijk door invloedrijke anderen beheerst.
i) Om te krijgen wat ik wil, moet ik het de mensen die boven mij staan naar de zin maken.

1 helemaal oneens - 7 helemaal eens

Appendix B

The before draw questionnaire

This questionnaire is conducted among 1300 respondents between 8-05-2015 and 10-05-2015. The respondents filled out the questionnaire on the internet.

V1
Hoe gelukkig voelt u zich vandaag?
1 zeer ongelukkig - 10 zeer gelukkig

V2
Alles bij elkaar genomen, hoe tevreden bent u met uw leven als geheel?
1 zeer ontevreden - 10 zeer tevreden

V3
Onlangs hebt u een lot van de Staatsloterij thuis gestuurd gekregen voor de trekking van 10 mei. Hoe blij bent u met dit lot?
1 helemaal niet blij - 7 heel erg blij

V4
Op 10 mei is er een trekking van de Staatsloterij. Hebt u een lot voor deze trekking, of bent u van plan om hier een lot voor te kopen?
1 Nee
2 Ja, ik heb al een lot
3 Ja, ik ga een lot kopen

V5
In hoeverre beleeft u de komende Staatsloterijtrekking als:
a) Een kans om rijk te worden
b) Een leuke activiteit
c) Een hobby of tijdverdrijf
d) Een middel tegen verveling
e) Gezellig
f) Een inkomstenbron
g) Ontspanning
h) Een sociale activiteit met familie en vrienden
1 helemaal niet - 7 helemaal wel

V6
Hoe vaak denkt u aan de komende trekkingsuitslag van de Staatsloterij?
1 nooit - 7 altijd

V7
Welke emoties ervaart u als u denkt aan uw komende deelname aan de Staatsloterij?
Als ik aan mijn deelname aan de Staatsloterij denk...
a) ben ik blij
b) ben ik ongerust
c) ben ik hoopvol
d) ben ik verdrietig
e) ben ik geïrriteerd
f) ben ik opgewonden
g) ben ik benieuwd

h) ben ik teleurgesteld
i) voel ik me vol vertrouwen
j) voel ik spijt
k) voel ik me geamuseerd
l) voel ik me vriendschappelijk
m) voel ik me afstandelijk
n) voel ik me onverschillig

1 helemaal niet - 7 helemaal wel

V8

Hoe groot schat u de kans in dat u ooit een grote prijs wint in een loterij?

1 zeer klein - 7 zeer groot

V9

In hoeverre bent u het met de volgende stelling oneens of eens:

'Ik ben een persoon die vaak geluk heeft.'

1 helemaal oneens - 7 helemaal eens

Appendix C

The after draw questionnaire

This questionnaire is conducted among 1341 respondents between 10-05-2015 and 12-05-2015. The respondents filled out the questionnaire on the internet.

V1
Hoe gelukkig voelt u zich vandaag?
1 zeer ongelukkig - 10 zeer gelukkig

V2
Alles bij elkaar genomen, hoe tevreden bent u met uw leven als geheel?
1 zeer ontevreden - 10 zeer tevreden

V3
Onlangs hebt u een lot van de Staatsloterij thuis gestuurd gekregen voor de trekking van 10 mei.
Achteraf gezien, hoe blij bent u met dit lot?
1 helemaal niet blij - 7 heel erg blij

V4
Hebt u los van het ontvangen lot nog meegespeeld met een ander lot in de Staatsloterijtrekking van 10 mei?
1 Nee
2 Nee, maar een ander persoon in mijn huishouden wel
3 Ja

V5
Hebt u de afgelopen week deelgenomen aan een loterij?
Meerdere antwoorden mogelijk.
a) Nee
b) Ja, ik heb al een lot
c) Ja, ik ga een lot kopen
0 Nee
1 Ja

V6
Op 10 mei 2015 was een trekking van de Staatsloterij. Voor deze trekking had u een lot. Wanneer hebt u de uitslag bekeken?
Als u dit nog niet hebt gedaan, vragen we u de uitslag nu te bekijken op
'www.staatsloterij.nl/trekkingsuitslag' *alvorens met de volgende vragen verder te gaan.*

Vult u de dag en het tijdstip in. Als u de tijd niet precies weet, geef dan uw best mogelijke schatting. (Bijvoorbeeld: maandag 09:30).

Dag	1 zondag 2 maandag 3 dinsdag
Tijdstip	hh:mm:ss
Ik heb de uitslag zojuist via de bovenstaande link bekeken	0 Nee 1 Ja
Ik wil de uitslag niet bekijken	0 Nee 1 Ja

V7
Welke emoties ervaart u als u terugdenkt aan uw deelname aan de Staatsloterijtrekking van 10 mei?
Als ik aan mijn deelname aan de Staatsloterij terugdenk...

a) ben ik blij
b) ben ik ongerust
c) ben ik hoopvol
d) ben ik verdrietig
e) ben ik geïrriteerd
f) ben ik opgewonden
g) ben ik benieuwd
h) ben ik teleurgesteld
i) voel ik me vol vertrouwen
j) voel ik spijt
k) voel ik me geamuseerd
l) voel ik me vriendschappelijk
m) voel ik me afstandelijk
n) voel ik me onverschillig

1 helemaal niet - 7 helemaal wel

V8

Hebt u iets gewonnen met uw lot voor de Staatsloterij?

1 Nee
2 Ja, minder dan €10
3 Ja, €10 - €49,99
4 Ja, €50 - €99,99
5 Ja, €100 - €499,99
6 Ja, €500 of meer

V9

Hebt u anderen verteld of u wel of niet iets hebt gewonnen in deze Staatsloterijtrekking?
Meerdere antwoorden mogelijk

a) Nee
b) Ja, vrienden
c) Ja, partner of kinderen
d) Ja, andere familieleden
e) Ja, maar met anderen

0 Nee
1 Ja

V10

Hoe vaak hebt u gedacht aan de trekkingsuitslag voor de daadwerkelijke trekking?

1 nooit - 7 de hele tijd

V11

Hoe groot schat u de kans in dat u ooit een grote prijs wint in een loterij?

1 zeer klein - 7 zeer groot

V12

In hoeverre bent u het met de volgende stelling oneens of eens:
'Ik ben een persoon die vaak geluk heeft.'

1 helemaal oneens - 7 helemaal eens

V13

Hoe gelukkig voelt u zich op dit moment?

1 zeer ongelukkig - 10 zeer gelukkig

Appendix D

Tables and figures

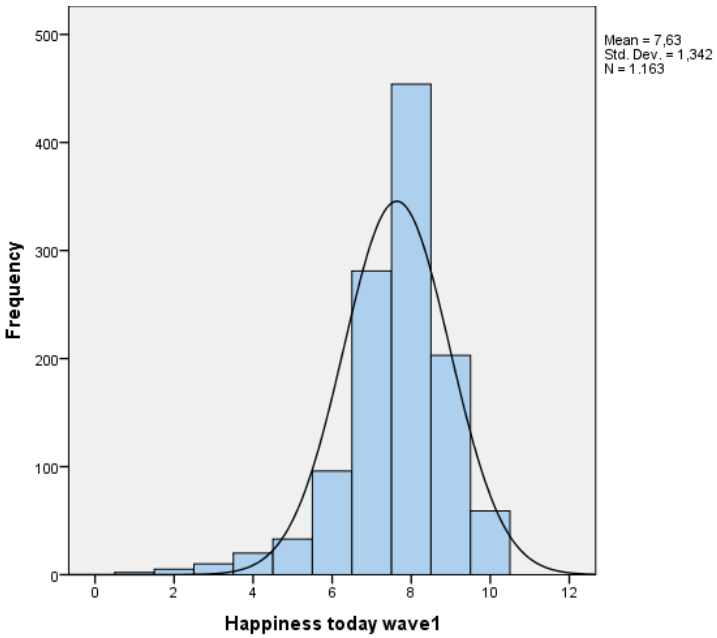

Figure D1. Distribution general mood baseline

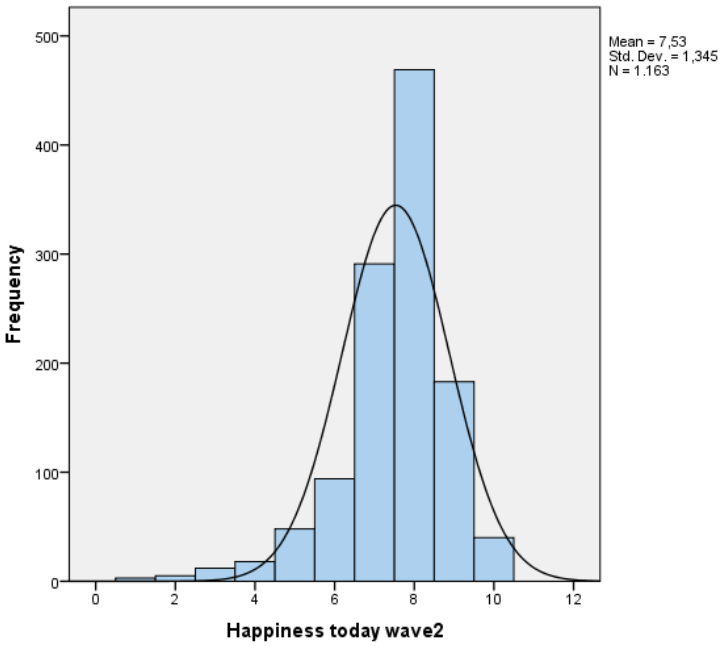

Figure D2. Distribution general mood before draw

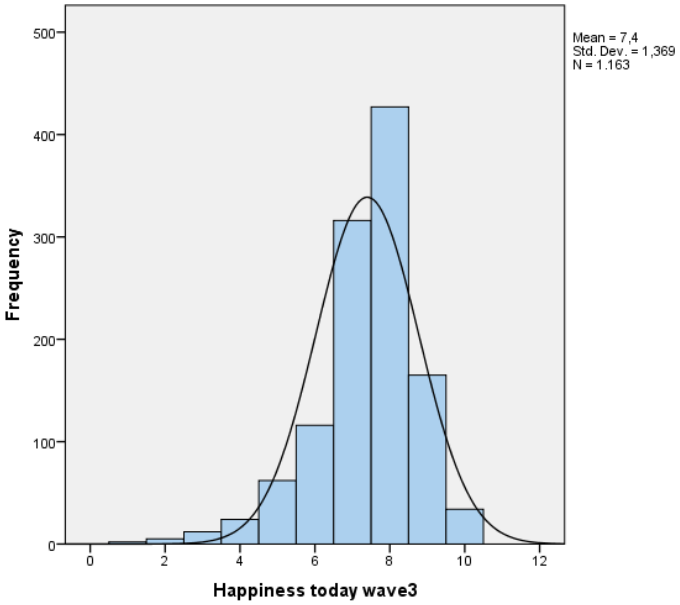

Figure D3. Distribution general mood after draw

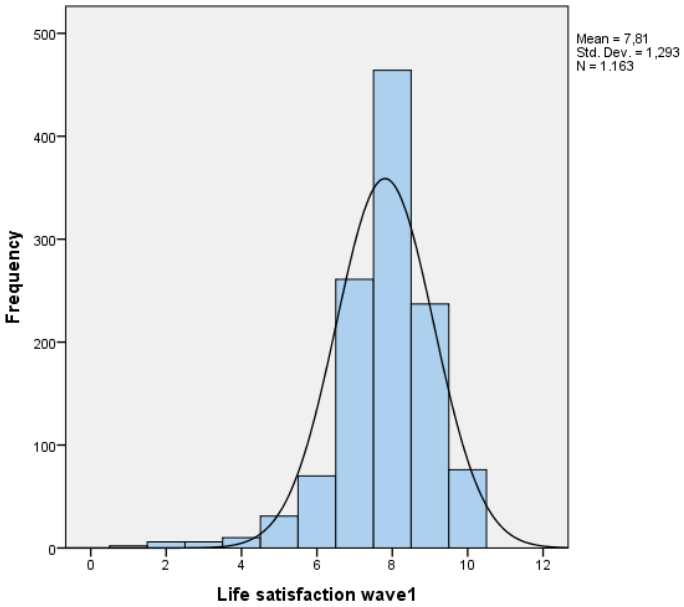

Figure D4. Distribution life satisfaction baseline

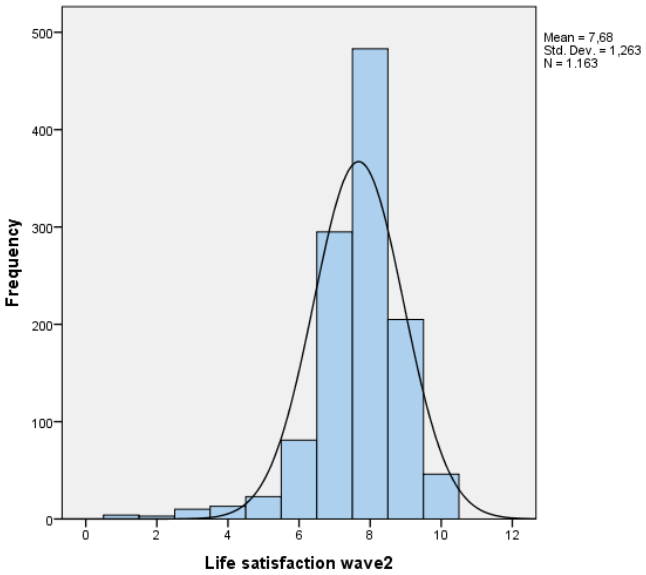

Figure D5. Distribution life satisfaction before draw

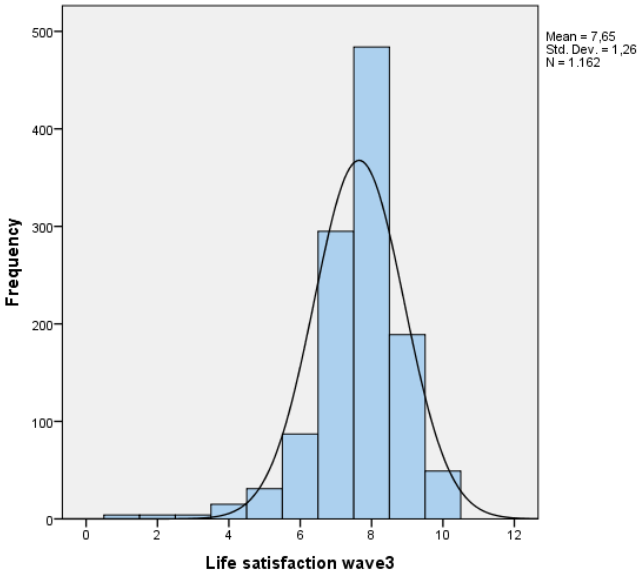

Figure D6. Distribution life satisfaction after draw

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Short-term happiness baseline & Short-term happiness before draw	1163	,575	,000

Table D1. Correlation short-term happiness at baseline and before draw

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Short-term happiness baseline & Short-term happiness after draw	1163	,577	,000

Table D2. Correlation short-term happiness at baseline and after draw

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Long-term happiness baseline & Long-term happiness before draw	1163	,741	,000

Table D3. Correlation long-term happiness at baseline and before draw

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Long-term happiness baseline & Long-term happiness after draw	1162	,749	,000

Table D4. Correlation long-term happiness at baseline and after draw

Coefficients[a]					
Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,217	,063	-3,448	,001
	Motivation_nonmoney	,017	,105	,159	,874
a. Dependent Variable: Difference short-term happiness_wave3_1					

Table D5. Simple regression model moderator motivation short-term happiness wave3_1

Coefficients[a]					
Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,164	,045	-3,618	,000
	Motivation_nonmoney	,004	,076	,051	,959
a. Dependent Variable: Difference LS_wave2_1					

Table D6. Simple regression model moderator motivation life satisfaction wave2_1

Coefficients[a]					
Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	-,198	,042	-4,654	,000
	Motivation_nonmoney	,013	,071	,180	,857
a. Dependent Variable: Difference LS_wave3_1					

Table D7. Simple regression model moderator motivation life satisfaction wave3_1

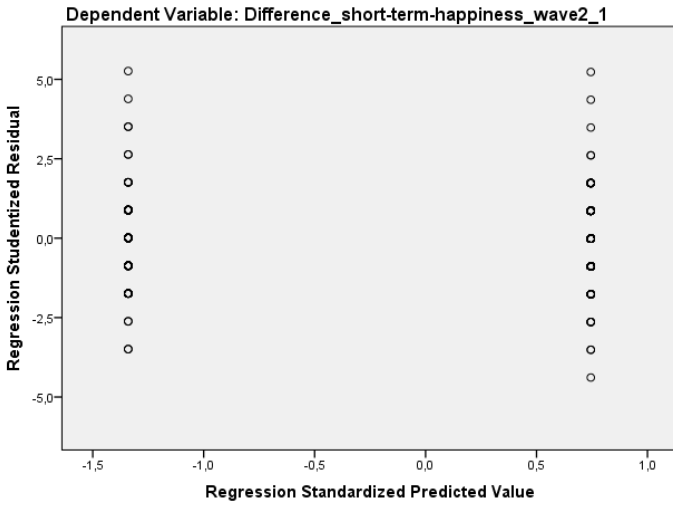

Figure D8. Scatterplot residuals model difference short-term happiness wave2_1

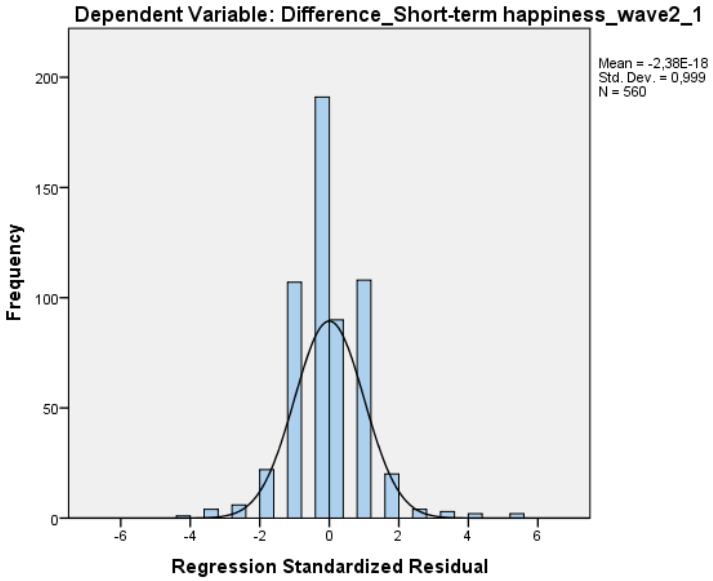

Figure D9. Histogram normality residuals short-term happiness wave2_1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,124	,078		-1,586	,113
	Age_cat2	,346	,302	,035	1,147	,251
	Age_cat3	,173	,157	,036	1,098	,272
	Age_cat4	,183	,116	,056	1,567	,117
	Age_cat5	,005	,122	,001	,038	,969
	Age_cat7	-,075	,098	-,029	-,764	,445

a. Dependent Variable: Difference_short-term happiness_wave2_1						

Table D8. Regression model moderator age wave2_1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,312	,079		-3,954	,000
	Age_cat2	,145	,304	,014	,477	,633
	Age_cat3	,300	,159	,062	1,888	,059
	Age_cat4	,083	,118	,025	,704	,482
	Age_cat5	,102	,123	,029	,829	,407
	Age_cat7	,057	,099	,022	,579	,563
a. Dependent Variable: Difference_short-term happiness_wave3_1						

Table D9. Regression model moderator age wave3_1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,065	,050		-1,301	,193
	Gender_female	-,078	,073	-,031	-1,068	,286
a. Dependent Variable: Difference_short-term happiness_wave2_1						

Table D10. Simple regression model moderator gender wave2_1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,229	,121		-1,891	,059
	Income_cat2	,089	,150	,027	,596	,551
	Income_cat3	,075	,139	,027	,541	,589
	Income_cat4	,195	,132	,078	1,473	,141
	Income_cat5	,429	,567	,023	,756	,450
a. Dependent Variable: Difference_short-term happiness_wave2_1						

Table D11. Regression model moderator income wave2_1