

Happiness and the Status quo bias

The influence of happiness on the susceptibility towards the status quo bias

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Abstract

The status quo bias is the preference of maintaining one's current decision over changing it (Samuelson & Zeckhauser, 1988). Many individuals are influenced by the status quo bias and therefore feel a natural resistance towards change and innovation. The happiness of the employee and innovation are both important drivers for business performance. It is, therefore, interesting to study if the happiness of an individual influences its reluctance to change. A survey with 101 respondents is used to answer the research question: 'Are less happy people more influenced by the status quo bias?'. The survey included three scenario questions to find the presence of the status quo bias, and four questions of the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) to determine the respondent's happiness. The main finding of this research is that there is no significant relationship between happiness and the status quo bias. An interesting finding is that the regressions suggest an insignificant, but negative relationship between the level of happiness and the susceptibility towards the status quo bias. Although the gained insights shed more light onto the phenomenon, the findings also emphasize the urge for extended research on the relationship between happiness and the status quo bias.

Introduction

It is within human nature to prefer maintaining its current position over changing it. This cognitive bias is called the status quo bias. The feeling of keeping everything the same offers comfort to individuals. The bias can be seen as a cognitive shortcoming in the sense that the bias exists even when there is no evidence showing the status quo option is better than the option to change.

The general view of scientific researchers and the business is positive towards change. Even more, it is said that innovation is necessary for businesses to remain successful. The famous economist Schumpeter (1942) spoke about creative destruction, the process of continuous innovations that disrupts old techniques and processes. Often businesses have no shortage in generating innovative ideas, putting these ideas into practice is the actual bottleneck. Research has been done on the relationship between innovation and business performance. Rosenbusch, Brinckmann and Bausch (2011) analysed 21.270 small and medium-sized firms and found that innovation has a positive effect on the performance of these firms. Another research confirms this, stating there is clear evidence that innovation plays a crucial role in the long-term profitability and growth of firms (Geroski & Machin, 1992). However, it must be noted that business performance does not solely depend on innovation.

A different driver for business performance, which is gaining more attention, is happiness on the work floor. Several scientific papers indicate that the well-being of employees is positively related to being successful at work. The well-being of individuals is positively related to their job performance as reviewed by their supervisors (Wright & Cropanzano, 2000). Satisfied workers are more likely to be high performers on the job because they are less likely to show job withdrawal. This withdrawal can be in the form of physical behaviour such as absenteeism at work (George, 1989) and job turnover, as well as psychological behaviour such as burnout (Thoresen et al., 2003). The happiness of people in general is a popular research topic. Happiness and well-being of the individual are often used interchangeably. Happy people are said to be optimistic and extrovert, have a high self-esteem, and feel empowered (Myers & Diener, 1995). Moreover, happy people are more open to new things and more often undertake new goals compared to unhappy people (Lyubomirsky, King & Diener, 2005).

Research question and method

Both innovation and happiness of the employee are important drivers of business performance. It is, therefore, interesting to study if the happiness of an individual influences his or her attitude towards

change. More specifically, if unhappy individuals are reluctant towards change, does that mean they are more susceptible towards the status quo bias? This leads to the research question of this paper:

‘Are less happy people more influenced by the status quo bias?’

The goal of this research paper is to shed light on whether the level of happiness is related to being influenced by the status quo bias. Quantitative research will measure the presence of the status quo bias and if happiness influences the susceptibility towards the status quo bias, using a between-subjects design. The results provide a foundation for further scientific research on happiness and the status quo bias. Such results improve the knowledge about causes of the status quo bias, which is useful for scientific behavioural studies. The information in applied form will be valuable for the business. Eventually, the gained insides can contribute to the search for businesses to stay innovative to increase their business performance.

Structure of the paper

This paper is organized as follows: Section 2 provides a literature review, in which more light is shed on the status quo bias, happiness, and the combination of the two. Section 3 covers the methodology where the experimental design is explained. Section 4 explains the results of the statistical analysis. Section 5 gives a conclusion regarding the research question, including limitations of this study and recommendations for further research.

Theoretical framework

Status quo bias

As explained before, the status quo bias is a cognitive bias that makes people prefer to stay in their existing state of conditions. This bias often occurs in the decision-making process. Samuelson and Zeckhauser (1988) describe that in decision-making under uncertainty most real decisions have a status quo option. That is the alternative of doing nothing or maintaining the current or previous decision. Their research provides the most fundamental findings regarding the status quo bias. They did research on an important question in scientific research: 'How do individuals make decisions?'. They conducted experiments that test for status quo effects. In their paper, they describe the status quo bias as the behavioural tendency to decide for a status quo alternative disproportionately often.

Samuelson and Zeckhauser (1988) argue that explanations for the status quo bias can be grouped into three categories: rational decision-making, cognitive misperceptions, and psychological commitment. In the first category rational decision-making two main explanations are mentioned. First, if individuals in sequential decision-making rationally choose for the same choice-alternative (status quo option), this can have several causes. It might be the case that rationality requires the individual to make the same choice repetitively because it takes place in similar independent and identical decision settings. Or if the decisions are not independent, it might be due to transition costs. The cost of switching choice-alternatives is higher than the gains associated with it. The second explanation is the presence of uncertainty in the decision-making setting. In this case, the choice-alternatives are not known and must yet be discovered. Individuals will only change to these alternatives when their current choice is no longer sufficient. This can be when the current choice no longer satisfies them.

Cognitive misperceptions can also cause individuals to stay with the status quo option. The reason can be loss aversion that is when individuals weigh losses heavier than gains (Kahneman, Knetsch & Thaler, 1991). It makes individuals reluctant to change and they are therefore biased towards their status quo option. A different explanation is the anchoring effect (Kahneman, 1992). Here, individuals themselves take an initial decision value as a starting point and use this value, consciously or not, in evaluating what decision to make. Anchoring can also occur in a different form if the given choice-alternatives are discrete. When individuals are exposed to many (detailed) alternatives, they will only use a small part of the alternatives in evaluating what decision to make due to their bounded rationality. This demonstrates the importance of carefully framing the situation and its

choice-alternatives. The status quo option has an advantage in this case. The decision-maker knows that option since it is his or her starting point.

The third category explaining the status quo bias is psychological commitment. Sunk costs can play a role. The heavier people invested in the status quo option, the more strongly people will stay with that alternative, even if the investment is no longer a realistic undertaking. A different explanation is avoidance of decision regret. People occasionally make a bad decision, of which they have to face the consequences. The feeling of regret that people experience is unpleasant and leads to behaviour that avoids making a bad decision again. It causes people to behave risk-averse and consequently stick to their status quo option. Additionally, Kahneman and Tversky (1982) found that individuals feel stronger regret for bad outcomes that are the consequence of new actions taken, than for similar bad outcomes resulting from inaction. Landman (1987) found the opposite to be true as well. Individuals feel increasingly elated when a positive outcome resulted from action rather than from inaction. Furthermore, the self-perception theory is a different explanation in the category psychological commitment. People use their past experiences as a guide for present and future decision-making and are therefore influenced by their status quo option. Festinger and Carlsmith (1959) proved that individuals often draw incorrect or misleading conclusions from past actions. Moreover, Langer (1983) found that when individuals stay with their status quo option, they maintain their illusion of being in control.

Scientific research has been done on the status quo bias together with other topics. Kahneman et al. (1991) discuss the status quo bias in combination with loss aversion. They describe loss aversion in decision-making as the manifestation of asymmetry in valuations. When taking status quo as a reference point, the individual weighs potential losses heavier than potential gains obtained from switching alternatives. So loss aversion causes the individual to behave risk-averse and is, therefore, biased towards the status quo option. Samuelson and Zeckhauser (1988) found that the status quo bias is consistent with loss aversion, but not solely. The effect of loss aversion is presented in the endowment effect introduced by Thaler (1980). The endowment effect is when individuals ask a higher price for giving up an object than the price they are willing to pay for when acquiring it. This effect is also in line with the status quo bias that prefers to maintain the current state; that is keeping the object.

Roca, Hogarth, and Maule (2006) did research on the status quo bias in combination with ambiguity aversion and showed that the status quo bias is a powerful bias. Ambiguity aversion is the preference of known risks over unknown risks. Their research showed that giving individuals an ambiguous

alternative can significantly decrease ambiguity avoidance. All three experiments showed that participants were more likely to retain an ambiguous alternative over its unambiguous counterpart when they previously were given the ambiguous alternative, compared to a neutral situation when it was not previously given. It suggests that it reduces the ambiguity aversion of most individuals when the ambiguous option is the status quo option. Also Bewley (1986) reported that in his experiment the individual chooses the status quo alternative every time when he is unable to compare the available options, which is in the case of ambiguity.

The status quo bias has been researched in experiments as well as in field studies. Porter and Macintyre (1984) did a field study on the antenatal care of pregnant women. They found that pregnant women are conservative regarding their antenatal care, and are biased by the status quo. Respondents argued that whatever care was offered had been carefully considered by experts, and was, therefore, likely to be the best care for them. Porter and Macintyre concluded that such behaviour resulted in an aversion to innovations. Moreover, Samuelson and Zeckhauser (1988) did research on the decision behaviour of individuals on health plans and retirement funds. Hartman, Doane, and Woo (1991) did field research on electric power consumers and Johnson, Hershey, Meszaros, and Kunreuther (1993) on the decision making of an insurance policy. All field studies found the presence of the status quo bias. Burmeister and Schade (2007) performed an experimental study on status quo bias among entrepreneurs, bankers and students. They found that entrepreneurs are just as affected by the status quo as students, but less affected than bankers.

Happiness

Happiness is a very broad topic, about which much literature has been written. Most happiness research examines the well-being of the individual, where happiness and well-being are used interchangeably. The main reason is that both concepts are highly correlated, and therefore, the same predictors are often used in researching different life domains such as marriage, a comfortable income, superior mental health, and a long life (Lyubomirsky et al., 2005). Ryan and Deci (2001) state that there are two general views on well-being. The hedonic view argues that well-being consists of subjective happiness. It involves the experiences of pleasure versus displeasure based on judgements about the good and bad elements in life. Waterman (1993) proposes the eudaimonic view, which states that well-being is more than just happiness. It concerns people their meaning in life, self-realization, and how well that is integrated into their life.

Following the hedonic psychologists' view, Diener, Sandvik, and Pavot (1991) state that subjective well-being consists of three components: life satisfaction, the presence of a positive mood, and the absence of a negative mood. The cognitive element life satisfaction refers to people their level of life satisfaction in life as a whole, as well as regarding more specific fields of life, such as work and relationships. Moods, feelings and emotions represent the affective element in subjective well-being. Positive affect is defined when moods, feelings, and emotions are experienced as pleasant. Examples are joy, elation, and excitement. When moods, feelings and emotions are experienced as unpleasant, this is referred to as negative affect. Examples are anger, anxiety, and depression. Important to know is that the three components should be measured independently, the presence of positive affect does not necessarily mean that there is an absence of negative affect. High scores of the three components translate into high levels of subjective well-being, meaning that the individual is very happy. This paper follows the hedonic view and defines happiness as subjective well-being.

Much research has been done on happiness in combination with other concepts. For example DeNeve and Cooper (1998) did research on personality and happiness. They found that from the 'big five' personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism), extraversion and agreeableness were consistently positively associated with subjective well-being, whereas neuroticism was consistently negatively associated with it. Moreover, Lyubomirsky et al. (2005) did extensive research on whether happiness leads to success. They hypothesized that not only success makes people happy, but also that positive affect engenders success. Their results indicate that happy people show more frequent positive affect and specific adaptive characteristics. They argue that positive emotions increase the tendency for individuals to approach rather than avoid new goals, as well as to prepare the individual to seek and undertake them. They conclude that happiness, rooted in the personality of people and their past successes, leads to approach behaviours that often lead to further success.

Furthermore, much literature discusses happiness and work life. Staw, Sutton, and Pelled (1994) state that individuals with high subjective well-being are more likely to secure job interviews. Once they have obtained a job, they are more likely to be evaluated more positively by supervisors, and to show superior performance and productivity. Therefore, these individuals are also more likely to succeed in the obtained job. Wright and Cropanzano (2000) found that job performance judged by supervisors was significantly correlated with well-being. Cote (1999) concludes that the effect of well-being on job performance is bidirectional. Staw et al. (1994) conclude that happy individuals also secure 'better' jobs. They studied employees with high dispositional positive affect had jobs that

had more autonomy, meaning, and variety. Frisch et al. (2005) claim that even before entering the workforce individuals with high subjective well-being are more likely to graduate from college.

Status quo bias and Happiness

To the best of my knowledge, no direct link between the status quo bias and happiness has been thoroughly investigated in the literature so far. However, different theories exist around both topics status quo bias and happiness that allow for hypothesizing about their actual relationship.

Much research has been done about the affective state of the individual and their behaviour towards risk. Johnson and Tversky (1983) argue that individuals in a negative mood make significant overestimations of likelihoods of negative events and underestimations of positive events. Individuals in a positive mood tend to do the opposite. This is in line with loss aversion, which explains their risk-averse behaviour to stick to their status quo option (Kahneman et al., 1991). Moreover, Yuen and Lee (2003) examined the influence of mood on risk-taking tendencies that guides an individual's choice during critical life decisions. They found that individuals in induced depress mood were more conservative in their risk taking behaviour compared to individuals who were in a neutral and an induced elated mood. The risk-taking tendency of individuals in positive mood did not significantly differ with an individual in a neutral mood. They suggest that the risk taking behaviour of depressed individuals can be explained by their overly pessimistic thinking style. Depressed individuals perceive their environment and the perceived outcome of their decision as riskier. It leads them to become pessimistic and consequently reduces their willingness to take risks, which leads to risk aversion. This behaviour is in line with regret avoidance, which again leads to risk and loss aversion. Contradictory to this view, Goudie, Mukherjee, DeNeve, Oswald, and Wu (2014) did an experimental study on happiness and risk-avoiding behaviour. They found evidence that individuals less satisfied with life, less often wear a seatbelt in the car. Additionally, they are more likely to be involved in a motor vehicle accident later in life. This suggests that less happy people are less conscientious in taking action to preserve their life, and respectively behave riskier.

Ifcher and Zarghamee (2014) did research on the affective state of an individual and overconfidence. Their research consistently indicated that positive affect induces overconfidence in men, but not in women. They suggest that happier individuals may exhibit more overconfidence. Their study stresses that analysing the impact of mood on behaviour must be done carefully. An increase in the intensity of a mood-state does not necessarily mean a one-to-one increase in overconfidence. Furthermore, Campbell, Goodie, and Foster (2004) explain that overconfident individuals misread actual risks and

chances. They found that overconfident people are more risk seeking. Furthermore, Anderson and Galinsky (2006) studied the combination of power, optimism and risk. Across five studies they found evidence that a heightened sense of power makes individuals more optimistic in evaluating the level of risk, and this increases their tendency to engage in risky behaviour. It is contradictory to the logic of prospect theory (Kahneman & Tversky, 1979). Prospect theory explains the behaviour of individuals for gains and losses differently. The theory explains risk seeking behaviour for losses and risk-averse behaviour for gains. When translating it into the power of people, powerless people can be seen as losses, and powerful people can be seen as gains. Then prospect theory suggests that power has a negative relationship with risky behaviour.

Bodenhausen, Gabriel, and Lineberger (2000) studied the relation between affective state and the anchoring effect. They argued in their research that an active thinking process underlies the anchoring bias and that sadness is often associated with extensive and detail-oriented thinking. Therefore, they hypothesized that sad individuals would be more influenced by the anchoring bias. Both conducted experiments showed that sad individuals indeed are more susceptible to the anchoring bias than individuals in a neutral mood. This outcome is in line with the research of Estrada, Isen, and Young (1997) that investigated the influence of positive affect on clinical reasoning among practicing physicians. Their results indicated that physicians in a positive affect demonstrated less anchoring. This suggests that positive affect leads to reduced susceptibility toward the anchoring bias.

The arguments on affective state and mood are good indicators for the happiness of individuals. The level of risk-taking behaviour of individuals can be negatively associated with the status quo bias, whereas the anchoring effect can be positively correlated with it. The theories suggest a clear direction in the relationship between happiness and the status quo bias. Therefore, they are proper guidelines to formulate the hypotheses that will answer the research question of this paper: 'Are less happy people more susceptible towards the status quo bias?'. To explore a relationship between happiness and the status quo bias, the presence of the bias needs to be found first. Therefore, the following hypotheses are constructed:

Hypothesis 1: *'There is a significant difference in frequency of chosen choice-alternatives between the neutral survey and the status quo survey'.*

Hypothesis 2: *'A higher level of happiness leads to a lower susceptibility towards the status quo bias'.*

Methodology

Procedural part

Participants

This research has a between-subjects design and is conducted with respondents between the age of 18 and 75 years old. In total, there are 101 respondents, of which 47 observations in the neutral survey and 54 observations in the status quo survey. The respondents are invited through an online message on social media to participate in an online survey, by clicking on a provided link. There is one general link that will, after clicking, randomly direct the respondent to either one of the surveys. Respondents are made aware of the fact that all responses remain completely anonymous, as this might stimulate people to answer more truthfully.

Survey

The surveys were online for a week from the 13th until the 19th of October 2015, with the help of the online service Thesistools. Each respondent answered eleven questions in total, which were all stated in English. The first four questions were of introductory nature and asked the respondent about his or her gender, age, education, and occupation. Next, there were three hypothetical scenarios questions, followed by four happiness-related questions.

Status quo bias questions

The difference between the two surveys lies solely in the framing of the three hypothetical scenarios. The neutral survey describes the three scenarios without using a reference point and provides four choice-alternatives to choose from. The status quo survey provides the same choice-alternatives, but uses alternative a) as a reference point (the status quo option). This means that before the respondent makes a decision, alternative a) is given as a starting point in the introduction of each scenario. In the status quo survey alternative a) is always the status quo option. If the respondent chooses to stay with choice alternative a) then it chooses the status quo option; this indicates the presence of the status quo bias. When the respondent chooses alternative b), c), or d) it deviates from the status quo option. As an illustration, scenario 1 is shown below in figure 1. Scenario 2 concerns a budget allocation question, and scenario 3 is an investment portfolio decision (for details see Appendix A). All three scenario questions are from the paper of Samuelson and Zeckhauser (1988).

Scenario 1 – neutral survey

Two months ago, you put yourself on the waiting list at a Volvo dealer to order a station wagon. Demand for this model far exceeds supply, and the dealer has little or no control over the wagons he receives from the factory (either the number or the “options” they come with). Customers on the waiting list submit to the dealer their preferences for colours and options. The dealer calls the customer on the top of the list when an acceptable car arrives. For your car, you require air conditioning and a stereo radio with rear speakers. Unfortunately, stereo speakers are an infrequent option on cars from the factory. Consequently, in order to speed delivery, you agree to accept any of the six colours the wagon comes in. Two days ago the dealer called saying that four cars meeting your requirements had arrived. Your choices are (choose one):

- a) A red wagon.
- b) A silver wagon.
- c) A brown wagon.
- d) A white wagon.

Scenario 1 – status quo survey

Two months ago, you put yourself on the waiting list at a Volvo dealer to order a station wagon. Demand for this model far exceeds supply, and the dealer has little or no control over the wagons he receives from the factory (either the number or the “options” they come with). Customers on the waiting list submit to the dealer their preferences for colours and options. The dealer calls the customer on the top of the list when an acceptable car arrives. For your car, you require air conditioning and a stereo radio with rear speakers. Unfortunately, stereo speakers are an infrequent option on cars from the factory. Consequently, in order to speed delivery, you agree to accept any of the six colours the wagon comes in. Two days ago the dealer called saying that a red wagon was available. Today you arrive at the dealership to pick up the car (after arranging financing). You are surprised to learn that by sheer luck, three other cars (with AC and stereo speakers) arrived at the dealer that morning. Your choices are (choose one):

- a) The original red wagon.
- b) A silver wagon.
- c) A brown wagon.
- d) A white wagon.

Figure 1 Scenario question 1 from the neutral survey and status quo survey (Samuelson & Zeckhauser, 1988)

Happiness questions

Part two of both surveys contain the same happiness-related questions, obtained from the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). The questions are answered following a rating from 1 – 7 on a Likert scale. In the first question, respondents need to rate themselves with the use of absolute ratings. The second question asks respondents to compare themselves relatively to their peers. The third and fourth question starts with a short explanation of happy and unhappy

individuals, and asks how well each characterization describes them. The four questions are shown below in figure 2.

Question 1 – *In general, I consider myself:*

Not a very happy person (1) – a very happy person (7)

Question 2 – *Compared to most of my peers, I consider myself:*

Less happy (1) – more happy (7);

Question 3 – *Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?*

Not at all (1) – a great deal (7);

Question 4 – *Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?*

Not at all (1) – a great deal (7).

Figure 2 Happiness questions of the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999)

Theoretical part

Measuring status quo bias

The three hypothetical scenarios are from the controlled experiment of Samuelson and Zeckhauser (1988) that used in total six hypothetical scenarios for the first part of their experiment. They used 486 students that took economics courses at Boston University School of Management and the Kennedy School of Government at Harvard University. Their experiment tested for a statistical difference in frequency of chosen choice-alternatives per scenario. Per scenario there were five different versions of the questionnaire: one neutral version and four versions where each choice-alternative was the status quo option once, and where the others were alternative to the status quo. The status quo option was always displayed as alternative a). They verified the status quo bias using the Chi-squared test and a regression analysis.

In this research, the reason for choosing the three specific scenarios was based on the comprehensibility of the question, the relevance of the scenario for Dutch respondents, and their shown significance in Samuelson and Zeckhauser (1988). According to their results the car scenario (scenario 1) and the budget allocation scenario (scenario 2) both showed high significance in

difference, meaning that there was strong evidence for the presence of the status quo bias. Whereas the portfolio investment scenario (scenario 3) showed low significance, suggesting that there was no status quo bias present. This contrast could be of interest in the analysis of the results of this research.

Burmeister and Schade (2007) conducted an experimental study to investigate if there is a difference between students, entrepreneurs, and bankers in the susceptibility to the status quo bias. They followed Samuelson and Zeckhauser's (1988) method, but constructed their own hypothetical scenarios providing three instead of four choice-alternatives for each scenario. This led to one neutral version and three versions of which each alternative was the status quo option once for each scenario. They conducted two experiments. The first experiment compared students with entrepreneurs using six scenarios, and the second experiment compared entrepreneurs with bankers using three scenarios. Moreover, they extended their verification of the status quo bias, by additionally testing for a difference in frequency in chosen alternative a) (status quo option) specific between the neutral version and the status quo version. Both approaches were tested for significance using the Chi-squared test. They found that students, as well as entrepreneurs, are biased toward the status quo in 10 out of 18 cases (three versions of six scenarios). Bankers were biased in 4 out of 9 cases (three versions of three scenarios).

This research follows a combination of the method of Samuelson and Zeckhauser (1988) and Burmeister and Schade (2007). Three scenarios are stated in the survey, using two instead of five versions; the neutral survey and the status quo survey respectively. Moreover, it uses the extended verification of the status quo bias of Burmeister and Schade (2007). It does not only compare frequency differences between choice-alternatives of the two surveys, but it also compares the difference in choice frequencies between alternative a) (status quo option) specific for the two surveys.

Measuring happiness

The four happiness questions are questions from the Subjective Happiness Scale (SHS) from Lyubomirsky and Lepper (1999). The choice for this specific scale is based on several reasons. The SHS is developed and validated in fourteen different studies with a total of 2.731 participants. It was designed not to swamp respondents with numerous one-dimensional questions. Even though four questions might seem as rather few, Lyubomirsky and Lepper (1999) provided evidence that the SHS is valid. They meet the construct validity criteria that determine the degree to which the scale measures what it claims to be measuring. The SHS showed high correlation with other happiness

measures. These were respectively the Affect-Balance Scale (Bradburn, 1969), Delighted-Terrible Scale (Andrews & Withey, 1976), Global happiness item (Bradburn, 1969), Recent happiness item (Stewart, Ware, Sherbourne, and Wells, 1992), and Satisfaction with Life Scale (Diener, Emmons, Larsen, and Griffin, 1985). Also, it is theoretically and empirically correlated to happiness and well-being. Lyubomirsky and Lepper (1999) found that individuals that perceive themselves as happy also think well of themselves, are optimistic about their futures, experience a predominance of positive emotions, and are extroverted. In addition, happy individuals were less likely to show signs of depression or neuroticism. Furthermore, in five out of fourteen samples, longitudinal data were used, and the Subjective Happiness Scale proved to remain stable over time.

To interpret the outcomes of the Subjective Happiness Scale, the happiness score needs to be calculated. Questions 1, 2, and 4 are to be scored in congruence with their ratings, for example if the respondent rated question 1 with a '5' on the Likert scale, then that is the score for that question. For question 3 the score for the rating on the scale is reversed, if the question was rated with a '5' then the score is a 3. The average of the total score of the four questions is the respondent's happiness score. Lyubomirsky and Lepper (1999) found that the average happiness score of fourteen different samples was 4.94. The lowest score of 4.02 was from a sample of a Russian adult community, whereas the highest score of 5.62 were from samples of a U.S. retired community and a U.S. adult community.

Analysing the results

The results section first provides a general overview of the data. Next, part one presents the results of the status quo bias. The Chi-squared test and Fisher's exact test are performed to test if there is a significant difference in chosen choice-alternatives between the neutral survey and the status quo survey. The Chi-squared test is used to follow the analysis of Samuelson and Zeckhauser (1988) and Burmeister and Schade (2007). The Chi-squared test is a one-sided test, which is useful since the theoretical framework suggests a clear direction of the outcome. In addition, the Fisher's exact test is used because it is an exact test suggesting it will show more accurate results. Also, the two-sided Fisher's exact test is used to confirm if there is a significant relationship at all. Part two shows the results of the relationship between happiness and the status quo bias, using only data from the status quo survey. Additionally to the Fisher's exact test, regressions are used as a second measurement tool. Three different approaches are used to define the status quo bias, as well as to define the level of happiness. Conclusions are drawn from the results and answer the hypotheses. More extended statistical analysis can be found in Appendix B.

Results

General overview data

Table 1 provides a general overview of the data. The number of respondents are quite evenly distributed between the two surveys. The status quo survey has in total seven more respondents than the neutral survey. Regarding happiness, the status quo survey has eight more respondents that are defined as 'more happy', and seven more that are defined as 'very happy' compared to the neutral survey. However, the average happiness score is only slightly higher than the neutral survey. The average happiness score of both surveys is larger than the average happiness score measured in the research of Lyubomirsky and Lepper (1999), which was 4.94. The distribution of all variables between the surveys are displayed in Appendix B.

Table 1: Distribution of the happiness of respondents between the neutral survey and the status quo survey

	Neutral survey	Status quo survey
Total respondents	47	54
Average happiness score	5.14	5.36
Less happy	5	4
More happy	42	50
Unhappy	12	9
Moderately happy	17	20
Very happy	18	25

Part one – Status quo bias

To verify the status quo bias in this research, multiple tests were performed. Each scenario was tested whether there is a significant difference in the frequency of chosen choice-alternatives between the neutral survey and the status quo survey. This was done for all choice-alternatives (a, b, c, d) following Samuelson and Zeckhauser (1988), as well as for alternative a) specific following Burmeister and Schade (2007). Table 2 shows p-values of the one-sided Chi-squared test and the one-sided and two-sided Fisher's exact tests that indicate their significance.

Table 2: Distribution of chosen choice-alternatives between surveys for each scenario, and their statistical significance

Scenarios and their choice-alternatives		Neutral survey	Status quo Survey	Chi-squared test p-value		Fisher's exact test p-value	
				All choice-alternatives	Alternative a) specific	All choice-alternatives	Alternative a) specific
Scenario 1	a)	13	22	0.446	0.168	0.450*	0.210*
	b)	21	19				0.121
	c)	5	3				
	d)	8	10				
Scenario 2	a)	7	14	0.399	0.173	0.411*	0.222*
	b)	9	9				0.132
	c)	14	10				
	d)	17	21				
Scenario 3	a)	13	23	0.392	0.118	0.399*	0.147*
	b)	9	6				0.087
	c)	16	17				
	d)	9	8				

*Note. All p-values are from the one-sided tests, except p-values with a *, which are from the two-sided Fisher's exact test*

Looking at table 2, in all scenarios, there is a difference in the division of chosen choice-alternatives between the neutral survey and the status quo survey. However, not all differences are significant. For example in scenario 1, the Chi-squared test shows a p-value of 0.446 when testing for the frequency difference between all choice-alternatives between surveys. The two-sided Fisher's exact test gives a p-value of 0.450. This means in both tests the null hypothesis cannot be rejected at a 10% significance level. There is no significant difference in the frequency of chosen choice-alternatives between the neutral survey and the status quo survey. For the p-values of alternative a) specific in scenario 1 the same can be said, showing p-values of 0.168, 0.210 and 0.121 respectively. This suggests that scenario 1 shows no significant prove of the presence of the status-quo bias. The same can be concluded for scenario 2. For scenario 3 however, the one-sided Fisher's exact test on alternative a) specific shows a p-value of 0.087. Here the null hypothesis can be rejected at a 10% significance level. So in scenario 3 there is a significant difference in the frequency of chosen alternative a) between the neutral survey and status quo survey. This suggests that in scenario 3 the status quo bias is present.

Therefore hypothesis 1: 'There is a significant difference in frequency of chosen choice-alternatives between the neutral survey and the status quo survey' can be partially confirmed; that is in scenario 3.

Part two – Status quo bias and Happiness

To investigate if the level of happiness is related to the status quo bias, the Fisher’s exact test and a regression analysis were performed. Since the happiness is identified for each respondent but this research has a between-subjects design, only data of the status quo survey could be used. Therefore the definition of the status quo bias needed to be redefined, which was done using three different approaches.

Fisher’s exact tests

The first definition of the status quo bias was based on how often choice-alternative a) was chosen per respondent in the status quo survey. Since the neutral survey does not have a status quo option, alternative a) should be chosen less often than in the status quo survey (where alternative a) is the status quo option). Looking at table 3, this is indeed the case. Chosen alternative a) once, twice or three times occurred relatively more often in the status quo survey than in the neutral survey. In the neutral survey alternative a) was most often never chosen with 46.8% of the respondents. With 48.1% of the respondents of the status quo survey, most often alternative a) was chosen once. Out of the three times every respondent could choose for alternative a), it was chosen on average .7 times in the neutral survey and 1.1 times in the status quo survey respectively. Therefore the first approach of defining the status quo bias was creating a dummy variable, explaining (1) as chosen choice-alternative a) at least once out of three times, and (0) never chosen choice-alternative a). The status quo bias variable was cross-tested with the level of happiness.

Table 3: Frequency distribution of chosen alternative a) in the neutral survey and the status quo survey

Frequency of chosen alternative a)	Neutral survey		Status Quo survey	
	Frequency	In percentages	Frequency	In percentages
Never	22	46.8	13	24.1
Once	18	38.3	26	48.1
Twice	6	12.8	12	22.2
Three times	1	2.1	3	5.6
	47	100	54	100

The level of happiness was expressed in two different ways. ‘Less happy’ meaning a happiness score of 3.5 or lower, and ‘more happy’ meaning a happiness score higher than 3.5. The second expression of happiness was divided into ‘unhappy’ (happiness score below 4.5), ‘moderately happy’ (4.5 – 5.5), and ‘very happy’ (higher than 5.5). Results are presented in table 4. Out of 54 respondents, 41 chose choice-alternative a) at least once, which is shown in the ‘Status quo bias’ column. The p-values

indicate that there is no significant difference between more and less happy people in chosen the status quo bias at least once compared to never chosen it. The null hypothesis cannot be rejected at a 10% significance level on both the one-sided and two-sided Fisher’s exact test. The same can be concluded for the difference between unhappy, moderately happy, and very happy people.

Table 4: Relationship between happiness and status quo bias – chosen alternative a) at least once

Happiness variables	No status quo bias	Status quo bias	Fisher’s exact test p-values	
			Two-sided test	One-sided test
Less happy	1	3	1.000	0.680
More happy	12	38	1.000	0.680
Unhappy	2	8	1.000	0.549
Moderately happy	5	14	1.000	0.512
Very happy	6	19	1.000	0.622

The second approach was defining the status quo bias scenario specific as a dummy variable, by chosen choice-alternative a) (1) and not chosen choice-alternative a) (0) for each scenario. This definition could expose if there is a scenario that shows a particularly strong relation between the level of happiness and the status quo bias. Results are visible in table 5. As displayed not a single p-value is significant at a 10% significance level, so the null hypothesis cannot be rejected. This means that for each scenario there is no significant difference in chosen the status quo bias or not chosen the status quo bias, between more and less happy people as well as between unhappy, moderately happy and very happy people. Closest to significance is the p-value of the one-sided test in scenario 2 suggesting an almost significant relationship between chosen alternative a) and being moderately happy compared to unhappy and very happy.

Table 5: Relationship between happiness and status quo bias – chosen alternative a) per scenario

Happiness variables per scenario		No status quo bias	Status quo bias	Fisher's exact test p-values	
				Two-sided test	One-sided test
Scenario 1	Less happy	2	2	1.000	0.541
	More happy	30	20	1.000	0.541
Scenario 2	Less happy	3	1	1.000	0.726
	More happy	37	13	1.000	0.726
Scenario 3	Less happy	3	1	0.628	0.426
	More happy	28	22	0.628	0.426
Scenario 1	Unhappy	5	5	0.723	0.376
	Mod. happy	12	7	0.775	0.447
	Very happy	15	10	1.000	0.570
Scenario 2	Unhappy	7	3	0.708	0.512
	Mod. happy	16	3	0.331	0.178
	Very happy	17	8	0.371	0.263
Scenario 3	Unhappy	7	3	0.489	0.299
	Mod. happy	10	9	0.774	0.406
	Very happy	14	11	1.000	0.532

The third approach was defining the status quo bias by dividing it into four categories based on the frequency of chosen choice-alternative a), ranging from never (zero out of three times) to always (three out of three times). This definition could show if there is a pattern in the relationship between the level of happiness and the frequency of choosing the status quo option. Table 6 shows the results whether there is a significant difference between more and less happy people in chosen for example status quo bias once compared to not chosen SQB once that is never, twice, or three times. And similarly, table 7 displays the results showing if there is a significant difference between unhappy, moderately happy, and very happy. In both tables all p-values are insignificant, meaning that there is no significant difference in the level of happiness and the presence of the status quo bias.

Table 6: Relationship between happiness (less happy, more happy) and status quo bias – frequency of chosen alternative a)

Frequency of chosen SQB	Fisher's exact test p-values			
	Less happy		More happy	
	Two-sided test	One-sided test	Two-sided test	One-sided test
Never	1.000	0.680	1.000	0.680
Once	1.000	0.666	1.000	0.666
Twice	1.000	0.646	1.000	0.646
Three times	1.000	0.790	1.000	0.790

Table 7: Relationship between happiness (unhappy, moderately happy, very happy) and status quo bias – frequency of chosen alternative a)

Frequency of chosen SQB	Fisher's exact test p-values					
	Unhappy		Moderately happy		Very happy	
	Two-sided test	One-sided test	Two-sided test	One-sided test	Two-sided test	One-sided test
Never	1.000	0.549	1.000	0.512	1.000	0.622
Once	1.000	0.586	0.777	0.420	0.597	0.385
Twice	0.674	0.389	0.506	0.317	1.000	0.513
Three times	1.000	0.534	1.000	0.720	0.591	0.443

Regressions

The second type of measurement was using multiple regressions to analyse the possible relationship between the level of happiness and the status quo bias, again only using data from the status quo survey. The three approaches defining the status quo bias were all used as dependent variables in the regressions. As they are all dummy variables, a logistic model was most appropriate to use. All three types of status quo bias dependent variables were regressed on the independent variable of happiness, controlling for gender, age, education and occupation. The independent variable happiness was expressed in three different ways. Once as the continuous variable happiness score, dummy variable less happy compared to more happy, and dummy variables comparing unhappy, moderately happy, and very happy. In total 24 different regressions were run.

All variations of the regressions gave insignificant p-values, which makes the models unreliable. Low values of the pseudo R2 that determine the goodness of fit of the regressions confirm this as well. Since scenario 2 specific gave a p-value closest to significant (table 5), the outcome of that regression is shown below in table 8. Even though this model is unreliable, it seems to suggest a negative relationship between unhappy compared to very happy and chosen the status quo option. The same can be suggested for moderately happy compared to very happy. This is contradicting hypothesis 2, stating there should be a negative relationship. All other regressions with the independent variables moderately happy and very happy show a variation in positive and negative correlations (see Appendix B).

Table 8: Regression output of happiness and status quo bias – chosen alternative a) in scenario 2

Independent variables	Dependent variable Status quo bias – Scenario 2	
	Coefficient	P-value
Unhappy	-.0146577	0.986
Moderately happy	-1.553645	0.188
Age	-.0231056	0.676
Male	1.209068	0.184
MBO	33.4018	0.993
HBO	14.28423	0.996
WO	14.19561	0.996
Student	16.16369	0.994
Employed	15.86061	0.994
Constant	-30.80872	0.993
Pseudo R2	0.2075	

Moreover, table 9 and 10 show two other examples of the regressions that were run. The regression displayed in table 9, seems to suggest that less happy people compared to more happy are positively correlated with the status quo bias defined as chosen the status quo option at least once. This suggests that the probability of being influenced by the status quo bias is larger for less happy people than for more happy people. The other regression displayed on in table 10, seems to confirm this view, as the happiness score is negatively correlated towards the status quo bias in scenario 1 specific.

Table 9: Regression output of happiness and status quo bias – chosen alternative a) at least once

Independent variables	Dependent variable Status quo bias – Chosen a) at least once	
	Coefficient	P-value
Less happy	.0712469	0.955
Age	.0707555	0.226
Male	.4328438	0.671
MBO	-15.68217	0.996
HBO	-15.82026	0.996
WO	-16.07779	0.996
Student	2.716734	0.293
Employed	1.791598	0.451
Constant	12.76144	0.997
Pseudo R2	0.1015	

Table 10 Regression output of happiness and status quo bias – chosen alternative a) in scenario 1

Independent variables	Dependent variable Status quo bias – Scenario 1	
	Coefficient	P-value
Happiness score	-.1318599	0.675
Age	.009678	0.834
Male	-.6060098	0.463
MBO	<i>Omitted</i>	
HBO	34.09635	0.996
WO	34.18593	0.996
Student	-17.1941	0.997
Employed	-17.31231	0.997
Constant	-16.52525	0.997
Pseudo R2	0.0712	

So up to a certain level, all three different expressions of happiness seem to suggest the same, less happy people are more susceptible towards the status quo bias. However, this relationship is not significant. H0 cannot be rejected at a 10% significance level.

Therefore, hypothesis 2: ‘A higher level of happiness leads to a lower susceptibility towards the status quo bias’ cannot be confirmed.

Conclusion

Main findings

This study did research on whether the level of happiness of individuals influences their susceptibility towards the status quo bias. Many individuals are influenced by the status quo bias and therefore feel a natural resistance towards change and innovation. The happiness of the employee and innovation are both important drivers for business performance. It is therefore interesting to study if the happiness of an individual influences its reluctance to change. The goal of this study was therefore to answer the research question 'Are less happy people more influenced by the status quo bias?'.

The main finding of this research is that there is no significant relationship between happiness and the status quo bias. No evidence was found that proves that the level of happiness influences the susceptibility towards the status quo bias. The first hypothesis 'There is a significant difference in frequency of chosen choice-alternatives between the neutral survey and the status quo survey' was partially confirmed. Out of the three scenarios that were used to test for the status quo bias only scenario 3 showed the presence of the bias. Comparing this to the results of Samuelson and Zeckhauser's (1988) study, it shows the opposite. In their research scenario 1 and 2 show strong significance for the presence of the status quo bias, whereas scenario 3 shows low significance. Possible explanations are discussed in the limitations section of this paper.

Moreover the second hypothesis 'A higher level of happiness leads to a lower susceptibility towards the status quo bias' cannot be confirmed. Since this research is a between-subjects design, only data from the status quo survey could be used in answering the hypothesis. Therefore, the definition of the status quo bias needed to be redefined in order to test for a relationship between the level of happiness and the bias. No significant evidence was found using both statistical tests and regression analysis. An interesting finding is that the regressions do suggest an insignificant, but negative relationship between the level of happiness and the susceptibility towards the status quo bias. This is in line with the argument of Johnson and Tversky (1983) that individuals in a negative mood make significant overestimations of likelihoods of negative events and underestimations of positive events. This leads, according to loss aversion (Kahneman et al., 1991), to risk-averse behaviour that represents the status quo bias. Also Yuen and Lee (2003) found that individuals in an induced depress mood are more conservative in their risk-taking behaviour compared to individuals who are in a neutral or happy mood. Additionally, it was argued that happier people are overconfident, which causes them to misread actual risks and chances what subsequently leads to more risk taking

behaviour (Ifcher & Zarghamee, 2014; Campbell et al., 2004). This suggests that happier people, due to their overconfidence, are less susceptible towards the status quo bias. Finally, less happy people are more susceptible to the anchoring bias than individuals in a neutral mood (Bodenhausen et al., 2000; Estrada et al., 1997). The anchoring bias is one of the cognitive misperceptions explaining the status quo bias according to Samuelson and Zeckhauser (1988). This suggests that less happy people are more influenced by anchoring, which leads them to be susceptible towards the status quo bias.

The outcome of this study that no significant evidence was found that happiness influences the status quo bias, is surprising since substantial theory suggests otherwise. On the other hand, because there was only weak significance of hypothesis 1 it became much more difficult to answer the research question. Hypothesis 1 indicated that there is only limited presence of the status bias in the dataset, which means that there is no significant difference in the division of chosen choice-alternatives when there is a status-quo option present or not. The answer to the research question is that less happy people are not more influenced by the status quo bias. Signs of the possible influence of happiness on the status quo bias emphasize the urge for more extended research on the subject.

Limitations

As with every scientific study, this research has limitations. The first limitation concerns the dataset. The results of the research show several p-values slightly above the 10% significance level. This suggests that with a larger dataset these p-values could become significant. The dataset of 101 observations using a between-subjects design might not be sufficient. Samuelson and Zeckhauser (1988) used 486 observations in total for their experiments, and Burmeister and Schade (2007) respectively 802. Moreover, they both used economics students as their respondents, whereas this research used adults in general. However, one could argue that the respondents of this dataset are more representative for society as a whole and, therefore, give a more realistic view of the susceptibility towards the status quo bias. Perhaps the respondents needed more economics-related knowledge to answer the scenario questions more in congruence with the results of the scenario questions of Samuelson and Zeckhauser (1988). Additionally, the surveys were in English whereas most respondents are native Dutch speakers. This could also have complicated the comprehensiveness of the questions. Moreover, Samuelson and Zeckhauser (1988) used six different scenarios instead of three in their surveys, which allowed for a higher frequency of the presence of the status quo bias. The second limitation of this research concerns the reality of this experiment. There are several external factors that could trigger choosing the status quo option in the real world that cannot be reproduced in a laboratory setting. The decision-maker might have (heavily) invested

in the status quo option already and will consequently feel more pressure to stay with that option due to sunk costs. The decision-maker might prefer the status quo option out of convenience, habit or simple rationalization (Samuelson & Zeckhauser, 1988). Also, real life decisions are often made by an individual acting as part of a group, which may give additional pressure to make the right decision leading to sticking to the status quo option. Finally, in this research, the status quo option was always explicitly defined, which in real life may not always be the case. This could either encourage or discourage the choice of the status quo option. The third limitation concerns the Subjective Happiness Scale, developed by Lyubomirsky and Lepper (1999). Although, the SHS has shown validity, the survey itself is filled out at a certain moment in time. The respondent could be in an elated or depressed mood state at that time, affecting its judgement in answering the happiness questions. This way the happiness score might not represent the respondent his or her actual happiness level.

Future research

This study only researched a small part of the relationship between happiness and the status quo bias. Although the gained insights shed more light onto the phenomenon, the findings also raise new questions. While the influence of happiness on the status quo bias had no significant effect, the research question remains interesting to study for behavioural researchers. To further investigate this, the following recommendations are of interest. First, recommended is to include more scenario questions, up to six in total. This increases the possibility for the status quo bias to occur more often. A larger dataset of 200 observations might allow for more significant results. Additionally, use respondents with more economics-related knowledge as they might better understand the scenario questions. Alternatively, own scenario questions can be constructed that are more relevant to a more general group of respondents. However, the advantage of using the scenario questions of Samuelson and Zeckhauser (1988) is that they have been shown to be appropriate for testing the status quo bias. Regarding the Subjective Happiness Scale, this remains a functional and useful scale to measure the happiness of individuals.

Extended research on happiness and the status quo bias could also be of interest to the business. The current growth model of the business steers to remaining competitive and, therefore, innovative, but this should not be at the cost of the employees. Results of this research could inform economic and innovation policymakers from the business about this matter. Flexible working hours, new forms of work organization and more space for creativity in firms are innovative developments that are already contributing to the happiness of employees and better business performance.

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Appendix A – Survey questions

The neutral survey and status quo survey

Survey

'This survey is part of my research project on decision making under uncertainty. The first three scenarios are hypothetical of nature; please indicate your choice by choosing one alternative. Next there are four questions regarding your happiness, which you can rate on a scale from 1 – 7. All your choices will be kept confidential; the cross-section of subject decisions is the focus of the research.'

[Introduction questions]

- What is your gender?
- What is your age?
- What is your highest level of education?
 - Secondary school (middelbare school)
 - MBO
 - HBO
 - WO

[NEUTRAL scenarios]

The following three scenarios are hypothetical questions. Please indicate your choice by choosing one alternative per scenario.

Scenario 1

Two months ago, you put yourself on the waiting list at a Volvo dealer to order a station wagon. Demand for this model far exceeds supply, and the dealer has little or no control over the wagons he receives from the factory (either the number or the "options" they come with). Customers on the waiting list submit to the dealer their preferences for colours and options. The dealer calls the customer on the top of the list when an acceptable car arrives. For your car, you require air conditioning and a stereo radio with rear speakers. Unfortunately, stereo speakers are an infrequent option on cars from the factory. Consequently, in order to speed delivery, you agree to accept any of the six colours the wagon comes in. Two days ago the dealer called saying that four cars meeting your requirements had arrived. Your choices are (choose one):

- a) *A red wagon.*
- b) *A silver wagon.*
- c) *A brown wagon.*
- d) *A white wagon.*

Scenario 2

The National Highway Safety Commission is deciding how to allocate its budget between two safety research programs: 1) improving *automobile* safety (bumpers, body, gas tank configurations, seatbelts) and 2) improving the safety of interstate *highways* (guard rails, grading, highway interchanges, and implementing selective reduced speed limits). It is considering four options (choose one):

- a) *Allocate 70% to auto safety and 30% to highway safety.*
- b) *Allocate 30% to auto safety and 70% to highway safety.*
- c) *Allocate 60% to auto safety and 40% to highway safety.*
- d) *Allocate 50% to auto safety and 50% to highway safety.*

Scenario 3

You are a serious reader of the financial pages but until recently have had few funds to invest. That is when you inherited a large sum of money from your great uncle. You are considering different portfolios. Your choices are (choose one):

- a) *Invest in moderate-risk Company A. Over a year's time, the stock has .5 chance of increasing 30% in value, a .2 chance of being unchanged, and a .3 chance of declining 20% in value.*
- b) *Invest in high-risk Co. B. Over a year's time, the stock has a .4 chance of doubling in value, a .3 chance of being unchanged, and a .3 chance of declining 40% in value.*
- c) *Invest in treasury bills. Over a year's time, these will yield a nearly certain return of 9%.*
- d) *Invest in municipal bonds. Over a year's time, they will yield a tax-free return of 6%.*

[SQ scenarios]

The following three scenarios are hypothetical questions. Please indicate your choice by choosing one alternative per scenario.

Scenario 1

Two months ago, you put yourself on the waiting list at a Volvo dealer to order a station wagon. Demand for this model far exceeds supply, and the dealer has little or no control over the wagons he receives from the factory (either the number or the "options" they come with). Customers on the waiting list submit to the dealer their preferences for colours and options. The dealer calls the customer on the top of the list when an acceptable car arrives. For your car, you require air conditioning and a stereo radio with rear speakers. Unfortunately, stereo speakers are an infrequent option on cars from the factory. Consequently, in order to speed delivery, you agree to accept any of the six colours the wagon comes in. Two days ago the dealer called saying that a **red** wagon was available. Today you arrive at the dealership to pick up the car (after arranging financing). You are surprised to learn that by sheer luck, three other cars (with AC and stereo speakers) arrived at the dealer that morning. Your choices are (choose one):

- a) *The original red wagon.*
- b) *A silver wagon.*
- c) *A brown wagon.*
- d) *A white wagon.*

Scenario 2

The National Highway Safety Commission is reassessing the allocation of its budget between two safety research programs: 1) improving automobile safety (bumpers, body, gas tank configurations, seatbelts) and 2) improving the safety of interstate *highways* (guard rails, grading, highway interchanges, and implementing selective reduced speed limits). Currently, the commission allocates approximately 70% of its funds to auto safety and 30% of its funds to highway safety. Since there is a ceiling on its total spending, its options are (choose one):

- a) *Maintain present budget amounts for the programs.*
- b) *Decrease auto program by 40% and raise highway program by like amount.*
- c) *Decrease auto program by 10% and raise highway program by like amount.*
- d) *Decrease auto program by 20% and raise highway program by like amount.*

Scenario 3

You are a serious reader of the financial pages but until recently have had few funds to invest. That is when you inherited a large sum of money from your great uncle. A significant portion of this portfolio is invested in moderate-risk Company A. you are deliberating whether to leave the portfolio intact or to change it by investing in other securities. (The tax and broker commission consequences of any change are insignificant.) Your choices are (choose one):

- a) *Retain the investment in moderate-risk Company A. Over a year's time, the stock has a .5 chance of increasing 30% in value, a .2 chance of being unchanged, and a .3 chance of declining 20% in value.*
- b) *Invest in high-risk Co. B. Over a year's time, the stock has a .4 chance of doubling in value, a .3 chance of being unchanged, and a .3 chance of declining 40% in value.*
- c) *Invest in treasury bills. Over a year's time, these will yield a nearly certain return of 9%.*
- d) *Invest in municipal bonds. Over a year's time, they will yield a tax-free return of 6%.*

[NEW PAGE]

[Happiness questions]

The following four questions are about your personal happiness. Please indicate your choice by rating it on a scale from 1 – 7:

- 1. In general, I consider myself:
Not a very happy person (1) – a very happy person (7);
- 2. Compared to most of my peers, I consider myself:
Less happy (1) – more happy (7);
- 3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?
Not at all (1) – a great deal (7);
- 4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?
Not at all (1) – a great deal (7).

Thank you for participating!

Appendix B – Statistical output

This appendix shows some examples of the statistical output from Stata.

General overview of the dataset

Table 11 Distribution of all variables between the neutral survey and the status quo survey

	Neutral survey	Status quo survey
Total respondents	47	54
Male	11	16
Female	36	38
Average age	33.06	32.85
Secondary school	3	2
MBO	4	4
HBO	8	14
WO	32	34
Student	22	21
Employed	22	29
Unemployed	3	4
Average happiness score	5.14	5.36
Less happy	5	4
More happy	42	50
Unhappy	12	9
Moderately happy	17	20
Very happy	18	25

Statistical output of testing hypothesis 1: 'There is a significant difference in frequency of chosen choice-alternatives between the neutral survey and the status quo survey'.

Table 12 Statistical output of happiness and status quo bias – chosen alternative a) in scenario 1

Chi-squared test				Fisher's exact test			
<code>. tab scenario1 survey, chi2</code>				<code>. tab scenario1 survey, exact</code>			
scenario1	survey		Total	scenario1	survey		Total
	surveyN	surveySQ			surveyN	surveySQ	
a	13	22	35	a	13	22	35
b	21	19	40	b	21	19	40
c	5	3	8	c	5	3	8
d	8	10	18	d	8	10	18
Total	47	54	101	Total	47	54	101
Pearson chi2(3) = 2.6642 Pr = 0.446				Fisher's exact = 0.450			
The example above shows output of scenario 1. Both the Chi-squared test and Fisher's exact test indicate if there is a significant difference in frequency of chosen alternative a, b, c, d.							

. tab altA1 survey, chi2				. tab altA1 survey, exact			
altA1	survey		Total	altA1	survey		Total
	surveyN	surveySQ			surveyN	surveySQ	
0	34	32	66	0	34	32	66
1	13	22	35	1	13	22	35
Total	47	54	101	Total	47	54	101
Pearson chi2(1) = 1.8989 Pr = 0.168				Fisher's exact = 0.210			
				1-sided Fisher's exact = 0.121			

The example above shows output of scenario 1. Both the Chi-squared test and Fisher's exact test indicate if there is a significant difference in frequency of chosen alternative a) specific (compared to alternative b, c, d).

Statistical output of testing hypothesis 2: 'A higher level of happiness leads to a lower susceptibility towards the status quo bias'.

Part one – tests

Table 13 Happiness and status quo bias – chosen a) at least once

. tab unhappy SQB, exact				. tab lesshappy SQB, exact			
unhappy	SQB		Total	lesshappy	SQB		Total
	0	1			0	1	
0	11	33	44	0	12	38	50
1	2	8	10	1	1	3	4
Total	13	41	54	Total	13	41	54
Fisher's exact = 1.000				Fisher's exact = 1.000			
1-sided Fisher's exact = 0.549				1-sided Fisher's exact = 0.680			

The example above shows the output of the Fisher's exact test on happiness and the status quo bias. Left shows the output of unhappy (1) compared to moderately happy and very happy (0). Right shows less happy (1) compared to more happy (0).

Table 14 Happiness and status quo bias per scenario specific

. tab lesshappy SQBs1, exact				. tab lesshappy SQBs2, exact			
lesshappy	SQBs1		Total	lesshappy	SQBs2		Total
	0	1			0	1	
0	30	20	50	0	37	13	50
1	2	2	4	1	3	1	4
Total	32	22	54	Total	40	14	54
Fisher's exact =			1.000	Fisher's exact =			1.000
1-sided Fisher's exact =			0.541	1-sided Fisher's exact =			0.726

. tab lesshappy SQBs3, exact			
lesshappy	SQBs3		Total
	0	1	
0	28	22	50
1	3	1	4
Total	31	23	54
Fisher's exact =			0.628
1-sided Fisher's exact =			0.426

The examples in this table show the output of the Fisher's exact test on happiness and the status quo bias (defined for scenario 1, 2, and 3). Happiness is defined as less happy (1) compared to more happy (0).

Table 15 Happiness and status quo bias – frequency of chosen alternative a)

. tab lesshappy SQB0x, exact				. tab lesshappy SQB1x, exact			
lesshappy	SQB0x		Total	lesshappy	SQB1x		Total
	0	1			0	1	
0	38	12	50	0	26	24	50
1	3	1	4	1	2	2	4
Total	41	13	54	Total	28	26	54
Fisher's exact =			1.000	Fisher's exact =			1.000
1-sided Fisher's exact =			0.680	1-sided Fisher's exact =			0.666

. tab lesshappy SQB2x, exact				. tab lesshappy SQB3x, exact			
lesshappy	SQB2x		Total	lesshappy	SQB3x		Total
	0	1			0	1	
0	39	11	50	0	47	3	50
1	3	1	4	1	4	0	4
Total	42	12	54	Total	51	3	54
Fisher's exact =			1.000	Fisher's exact =			1.000
1-sided Fisher's exact =			0.646	1-sided Fisher's exact =			0.790

The examples above show the output of the Fisher's exact test on happiness and the status quo bias (defined as chosen a) never, once, twice, three times). Happiness is defined as less happy (1) compared to more happy (0).

Part two – regressions

```

Logistic regression              Number of obs =      50
                                LR chi2(8)      =      4.95
                                Prob > chi2     =      0.7632
Log likelihood = -31.822973     Pseudo R2      =      0.0721
    
```

SQB _{s1}	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
unhappy	.3812479	.7846729	0.49	0.627	-1.156683	1.919178
modhappy	.115835	.7421536	0.16	0.876	-1.338759	1.570429
age	.008678	.0468692	0.19	0.853	-.0831839	.1005399
dmale	-.6188977	.8328271	-0.74	0.457	-2.251209	1.013413
MBO	0 (omitted)					
HBO	32.12499	3921.139	0.01	0.993	-7653.165	7717.415
WO	32.20093	3921.138	0.01	0.993	-7653.089	7717.491
student	-16.22838	2978.863	-0.01	0.996	-5854.693	5822.236
employed	-16.35747	2978.863	-0.01	0.996	-5854.822	5822.107
_cons	-16.28938	2549.845	-0.01	0.995	-5013.894	4981.315

Figure 3 Regression output of the relationship between happiness and status quo bias – chosen alternative a) in scenario 1

Figure 3 shows the regression indicating if there is a relationship between happiness and status quo bias. The dependent variable is the status quo bias defined as chosen a) for scenario 1 specific. The independent variable happiness is explained as unhappy and moderately happy compared to very happy.

```

Logistic regression              Number of obs =      54
                                LR chi2(9)      =      8.92
                                Prob > chi2     =      0.4451
Log likelihood = -32.9352     Pseudo R2      =      0.1192
    
```

SQB _{1x}	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
unhappy	-.061555	.8156269	-0.08	0.940	-1.660154	1.537044
modhappy	-.0856402	.7555658	-0.11	0.910	-1.566522	1.395242
age	.0537855	.0433568	1.24	0.215	-.0311923	.1387633
dmale	.2396322	.831856	0.29	0.773	-1.390776	1.87004
MBO	-17.44199	3593.573	-0.00	0.996	-7060.715	7025.831
HBO	-17.40437	3593.573	-0.00	0.996	-7060.677	7025.869
WO	-17.88369	3593.573	-0.00	0.996	-7061.157	7025.389
student	2.228353	1.890868	1.18	0.239	-1.477681	5.934387
employed	1.623643	1.700373	0.95	0.340	-1.709027	4.956313
_cons	14.02352	3593.573	0.00	0.997	-7029.25	7057.297

Figure 4 Regression output of the relationship between happiness and status quo bias – chosen alternative a) once

Figure 4 shows the regression indicating if there is a relationship between happiness and status quo bias. The dependent variable is the status quo bias defined as chosen a) once. The independent variable of happiness is explained as unhappy and moderately happy compared to very happy.

```

Logistic regression                Number of obs =      54
                                   LR chi2(8)    =      6.05
                                   Prob > chi2   =     0.6420
Log likelihood = -26.780997        Pseudo R2    =     0.1014

```

SQB	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
happscore	-.0020399	.3703128	-0.01	0.996	-.7278397 .72376
age	.0704047	.0585509	1.20	0.229	-.0443529 .1851623
dmale	.4340186	1.018116	0.43	0.670	-1.561452 2.429489
MBO	-15.679	3100.19	-0.01	0.996	-6091.939 6060.581
HBO	-15.80628	3100.19	-0.01	0.996	-6092.066 6060.454
WO	-16.0738	3100.19	-0.01	0.996	-6092.334 6060.186
student	2.712309	2.579852	1.05	0.293	-2.344108 7.768726
employed	1.789561	2.373811	0.75	0.451	-2.863023 6.442145
_cons	12.78525	3100.191	0.00	0.997	-6063.478 6089.049

Figure 5 Regression output of the relationship between happiness and status quo bias – chosen alternative a) at least once

Figure 5 shows the regression indicating if there is a relationship between happiness and status quo bias. The dependent variable is the status quo bias defined as chosen a) at least once. The independent, continuous variable of happiness is explained as the happiness score.

```

Logistic regression                Number of obs =      54
                                   LR chi2(8)    =      6.66
                                   Prob > chi2   =     0.5733
Log likelihood = -33.503043        Pseudo R2    =     0.0905

```

SQB3	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
lesshappy	-1.124295	1.271612	-0.88	0.377	-3.616609 1.368019
age	-.0146129	.0405753	-0.36	0.719	-.094139 .0649132
dmale	.4972636	.8112174	0.61	0.540	-1.092693 2.08722
MBO	-15.81034	1301.298	-0.01	0.990	-2566.307 2534.686
HBO	-14.83204	1301.297	-0.01	0.991	-2565.328 2535.664
WO	-15.63297	1301.297	-0.01	0.990	-2566.129 2534.863
student	.0989442	1.888148	0.05	0.958	-3.601758 3.799646
employed	-.4945159	1.674121	-0.30	0.768	-3.775734 2.786702
_cons	15.65727	1301.298	0.01	0.990	-2534.841 2566.155

Figure 6 Regression output of the relationship between happiness and status quo bias – chosen alternative a) in scenario 3

Figure 6 shows the regression indicating if there is a relationship between happiness and status quo bias. The dependent variable is the status quo bias defined as chosen a) for scenario 3 specific. The independent variable of happiness is explained as less happy compared to more happy.