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QUANTIFYING THE BIASED EXCHANGE OF MONEY AND TIME

How monetary and social factors influence decisions

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Abstract

This study investigated whether anchored prices induced biased choices and time estimations for the pursuit of an equal discount and if different degrees of social distance influenced these biases. A new measurement for quantifying the relative degree of bias was also proposed. A sample group of 142 students were tested from a university in southern Sweden. In a repeated measure design, each participant made choices and time estimations to obtain three equal discounts (1,160 SEK) regarding three differently priced items. These choices and time estimations were framed in regard to oneself or another student, depending on the degree of social distance. Several steps were taken in order to balance extraneous variables across the two between - groups. The authors presented the results by displaying preference reversals regarding the participants' choices. A mixed-ANOVA concluded a significant interaction between social distance and the anchored prices on the participants' time estimations, $p = .03$, with significant main effect for the anchored prices, $p = < .001$. The results indicated a presence of a strong bias toward the anchored prices when the participants stated their choices and time estimations to obtain the equal discounts. The relative degree of bias decreased when the choices and time estimations regarded another student compared to oneself.

Keywords: behavioural economics, decision-making, consumer psychology, prospect theory, anchoring effect, contrast effect, construal level theory. social distance, relative bias measurement, decision congruency

Authors Note

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1. Introduction

Not everything that can be counted counts, and not everything that counts can be counted.
- Albert Einstein

Economy translates into the frugal use of resources. Our personal economy is sometimes determined by the trade-offs we are willing to make between money and time. Linguistically, we treat "money" and "time" quite similarly: We can spend money and we can also spend time. Sometimes we do not have the money to do certain things, and sometimes we do not have the time. These economic choices relate to everyday decision-making for most of us. Traditionally, economic research has focused on the outcomes of such decisions, whereas questions of underlying processes have been central to psychological research (Selart, 1994). This study intends to further quantify biased decisions regarding the exchange of time and money. To illustrate: According to Tversky and Kahneman (1981), most people are willing to spend 20 minutes driving across town in order to save $5 on the purchase of a $15 calculator but not on the purchase of a $125 jacket. To an extent, such decisions make sense, e.g. why spend time on saving a mere $5 on an expensive jacket? However, most of us probably know that $5 is and, for the foreseeable future, will continue to be $5. Therefore, how can saving $5 for 20 minutes be a good deal when it is in the context of the procurement of calculators, but not when it concerns jackets? The short and simple answer is that we fail to distinguish between what *can* be counted with what *should* be counted and in that process, we make biased decisions. From a rational point of view: $5 saved in 20 minutes on a calculator is just as much, and just as efficient as $5 saved in 20 minutes on a jacket. What psychological processes are at play when otherwise equal choices all of a sudden seem different to us? This research paper aims to further explore if some specific factors skew otherwise equal choices and if this skewness i.e. bias can be further quantified.

One of the more seminal theories on the topic of describing biased decision-making is called Prospect Theory. Its founders, Tversky and Kahneman (1979), empirically verified how human decisions deviated from rational principles. This was done by articulating some of the constraints of perception and judgment that limit the rationality of choice (Tversky & Kahneman, 1986). Their findings indicated that the presentation and processing of decisions could cause a violation of the basic assumptions of Expected Utility Theory (Sebora & Cornwall, 1995).

In the 1970's, the mainstream paradigm for analysing monetary decisions was viewed through the Expected Utility Theory (Tversky & Kahneman, 1979). As a theory, it suggests that most decisions are made by weighing the outcome of each choice by its probability of occurrence, multiplied by the estimated value, and then opting for the option that provides the highest expected value. Expected Utility Theory did not permit for any cognitive limitations or personal values to influence the decision (Von Neumann & Morgenstern, 1944). During 1970's, rational preferences had a favoured position in the field of economics (Tversky & Kahneman, 1986). Yet, Prospect Theory clarified that normative rational assumptions could not make accurate predictions regarding decisions with uncertain circumstances. In turn, Tversky and Kahneman laid the foundations for what became one of the most influential research programs in psychology, the heuristics and biases approach (Mussweiler & Strack, 1998). Their findings also made significant contributions to additional fields of research. In 2002, Daniel Kahneman was awarded the Nobel Prize in economic sciences for his work regarding Prospect Theory (The Nobel Foundation, 2014).

To date, for more than six decades, psychological research regarding decision-making has, as its major objective, studied, explained, and interpreted discrepancies between predictions based on normative theories and actual decision/judgmental behaviours (Selart, 1994). This has provided plentiful evidence suggesting that the assumption of rationality regarding human decision-making is normative rather than descriptive (Tversky & Kahneman, 1979). That is, rational assumptions describe how decisions and judgements *ought* to work, rather than describing how they actually *do* work. According to Vlaev, Chater, Stewart and Brown (2011), there are several types of psychological theories and models that are used to examine the influencing conditions on decision-making. Some of these conditions are: uncertainty, physical distance, social distance, time frames, and levels of abstraction (Chen & He, 2016; Manis, 1988; Trope, Liberman & Wakslak, 2007; Tversky & Kahneman, 1979).

The focal point of this research paper will be on the following questions: Can different prices induce a bias regarding decisions about time? Will changing the social perspective of these decisions effect the size of that bias? Can these biases be measured in valid manner? According to Kahneman (2011, p. 123), there are many psychological phenomena that can be demonstrated in experiments, but few of these can be measured. The Anchoring Effect is an exception and its effects have a strong influence on decisions (Kahneman, 2011, p. 123).

1.1 Anchoring Effect

Anchoring is described as a tendency to converge towards the given number that was first presented (Mussweiler & Strack, 1998). During decisions, this cognitive bias occurs when the initial piece of information is used for subsequent judgement or decision at hand. This is true even if people were exposed to a random numerical value such as spinning a wheel of fortune, that is completely irrelevant to the estimation at hand, like the number of African countries in the United Nations (Tversky & Kahneman, 1974). In short, different anchoring numbers yield different estimates which are biased towards the anchored number. Numerical anchors influence just about any type of judgment (Wegener, Petty, Blankenship & Detweiler-Bedell, 2010). For instance, the effects of anchoring have been verified in real-estate evaluation: In a study performed by Northcraft and Neale (1987) it was demonstrated that anchored listing prices effected the values that were later assigned to the properties. Anchoring can also effect estimations regarding the likelihood of nuclear war, (Plous, 1989) to people giving higher damage award estimations regarding the liable defendants in civil cases (Chapman & Johnson, 1999).

In summary, previous research has shown that anchoring can significantly bias many kinds of decisions. By introducing a numerical value, decision-makers tends to get biased towards that value, but the opposite can also happen. Instead of converging towards the anchor, peoples' estimations can also scatter away from the anchor value (Sherif, Taub & Hovland, 1958). That is, the Anchoring Effect can shift the estimations in the direction of the anchor value, but also shift the estimations away from the anchor (Sherif et al., 1958). By using three different prices as anchor values, one of the aims of this study is to produce a shift of preferences and estimations between three otherwise identical choices. This brings us to another pervasive cognitive effect.

1.2 Contrast Effect

Simonson and Tversky (1992) argues that the Contrast Effect is ubiquitous in both perception and judgment. This effect refers to when background stimuli alters the assessment of a target stimuli which is independent from the background or when background stimuli alters the recollection of past judgement of similar stimuli (Helson, 1964). The simplest way to illustrate the Contrast Effect is in visual terms: The colour grey appears as a bright colour on a black background but the same hue of grey seems darker on a white background (Rossotti, 1983). The Contrast Effect has been established in many other areas. For instance, in the

context of sensory perception, researchers concluded that an odour stimuli was perceived as more intense when it was preceded by a weak scent than preceded by a strong scent (Pol, 1998). Similar Contrast Effects have also been demonstrated in social settings. Manis, Nelson and Shedler (1988) conducted an experiment where conformists were judged as more hostile by the subjects if they were introduced directly after a moderate hostile person than an extremely hostile one. To summarize, people's judgements are effected by the information exposed to sequentially or simultaneously and this has also been demonstrated in regard to monetary decisions (Tversky & Kahneman, 1979). During monetary decisions, we often make comparisons between the attributes of each option (Stewart, 2006). In these cases, contextual information which might be irrelevant to the decision, influences the appraisal of the target estimation. Contrast Effects can consequently be induced by setting different anchor values for the decision at hand.

Earlier research suggests that the Anchoring and Contrast Effect can explain how a numerical value can induce a bias regarding different decisions (Tversky & Kahneman, 1974; Sherif et al., 1958; Plous, 1989; Herr, 1986). Another important question that concerns this particular study is: What happens in regard to biases when people make decisions for other people? Could envisioning another person's perspective of the same decision impact the preferences, or affect the level of rationality of the choices? Trope and Liberman (2007) developed the concept "psychological distance" which is defined on several dimensions i.e. its reference point is the self in the present moment, and the different ways an object can be changed from that point, such as in space, time, social distance and abstraction constitutes the different dimensions (Trope & Liberman, 2007). In their research, Trope and Liberman (2010) suggests that one of the dimensions, the social distance, could effects the weighting of preferences of a choice, thereby affecting the decision. To assess whether or not social distance can affect the size of a bias regarding decisions about time, another theoretical model has to be included. This model was coined by Yaacov Trope and Liberman (2010) and is called Construal Level Theory (CLT).

1.3 Construal Level Theory

As a theory, CLT rests on two interacting concepts, psychological distance and levels of construal – the latter meaning, levels of understanding. The core assumption of CLT is that different dimensions of psychological distances (spatial, temporal, social and hypothetical distances) can influence people's predictions, evaluations and behaviours (Fiedler, 2007). Psychological distance is egocentric oriented, the starting point is the self in the here and now

and the different ways in which an object might be moved from that point, as the distance increases, the construal level becomes higher (Trope & Liberman, 2010). To illustrate, from a distant view we see a forest in an abstract manner emphasising on the essential features e.g. vastness and the colour or the forest. As we get closer we see trees less abstractly including the incidental and detailed features like, size, texture, type of trees (Trope & Liberman, 2010). The purpose of incorporating CLT to this study is because it includes the aspect of social distance as one of the psychological dimensions which influences people's thoughts and behaviours (Trope, Liberman & Wakslak, 2007). The construal level of the self is often more concrete and in a lower level than the construal level of others so when the self is viewed from a third-person perspective it may be more abstract and in a higher level of construal according to Trope and Liberman (2010). With that in mind, this study intends to alter or frame the degree of social distance and then measure the potential changes in the level of bias regarding certain decisions.

To summarize, for more than six decades, psychological research has illuminated various biases and heuristics that, in turn, influences decisions (Selart, 1994). In this study, Prospect Theory, Anchoring - / Contrast Effects and CLT are of particular relevance. Thaler (1999) recaps the important insights of Prospect Theory in the following manner:

- Both gains and losses display diminishing sensitivity - the difference between $10 and $20 USD seems bigger than the difference between $1010 and $1020.
- People are, in general, more motivated to avoid losses, than to seek out gains - losing $100 hurts more that gaining $100 produces pleasure.
- We focus on changes rather than absolute values – [which is why most people are willing to spend 20 minutes driving across town in order to save $5 on the purchase of a $15 calculator, but not on the purchase of a $125 jacket.]

The Anchor Effect is demonstrated by the fact that peoples' judgments are effected by the first piece of information that is presented to them before they make a choice or estimation. Anchoring has been proven to be a truly ubiquitous and robust phenomenon that influences many different kinds of decisions and estimations (Mussweiler et al., 1998).
The Contrast Effect illuminates that depending on the context, identical options can appear different. Once we cognitively start spotting differences, this can sometimes lead us astray because similarities are more likely to be missed (Mussweiler, 2003). CLT states that different dimensions of psychological distances (spatial, temporal, social etc.) can influence people's

predictions, evaluations and behaviour (Fiedler, 2007). As psychological distance increases, construal levels become higher. This, in turn, creates a more abstract understanding of the object or event under consideration while lower levels of construal are more concrete and includes more incidental features (Trope & Liberman, 2010). In this particular study, the focal point is aimed at the psychological dimension of social distance, and its effect on the biases of the decision-making process.

1.4 Research Questions

As mentioned earlier, psychological phenomenon such as biases are easier to demonstrate than to measure. Seminal research on the topic has produced a lot of fruitful knowledge but the measurements of these biases are typically shackled to a specific research design. This design can be described as the binary statement of the participants' preferences between two alternatives (A/B) or a (Yes/No) reply to a given proposal, see (Simonson & Tversky, 1992; Thaler, 1999; Tversky et al., 1979, 1981) for a review. The results of such designs are usually displayed as relative frequencies, e.g. (A: 25% B:75%). A binary choice can only be operationalised as a nominal variable. This limits the number of statistical analyses that can be conducted. However, as Kahneman (2011) states, this is not the case with the Anchoring Effect. When people are asked to give numerical estimates rather just choosing a preference, more statistical analyses can be utilised. This is due to the fact that analyses of means and variances are meaningful for ratio-scale measurements but not for nominal-scales. This study will incorporate this understanding into the design in order to further quantify the measurement of decision biases. Here, both nominal and ratio scales will be used for the variables to further deepen the statistical analysis. The research questions of this study are:

1. Can anchored prices induce a bias regarding the choices and time estimations for pursuit of three equal discounts?
2. Will the social perspective of these choices and time estimations influence the size of that bias?
3. Can this bias be quantified and therefore measured, in a valid manner?

Earlier research findings suggest that the first enquiry of this study is more or less asked and answered (Wegener, Petty, Blankenship & Detweiler-Bedell, 2010). In others words, according to earlier research, it is very likely that anchored prices will induce a bias regarding the participants' choices and time estimations. As mentioned, anchoring has been proven to be a strong bias. With this in mind, our intent is to design a questionnaire in a within-group

fashion i.e. every participant answers three questions regarding the same discount. This will not only increase the sensitivity of the design but it will also make the results of this research more conservative and also put the level of robustness of the Anchoring Effect to an implicit test. This latter point will be further described under Additional Definitions. If the anchored prices do not induce a bias regarding the choices and time estimations for a constant discount, the second research question of this study will be very hard to answer. In order to measure the size of a bias, there has to be one. This also means that the bias has to be quantified in some way, thus, a new construct is proposed.

1.5 New Measurements

As stated earlier: Rational assumptions describe how decisions and judgements *ought* to be made, rather than how they actually *are* being made. Seminal studies on this topic, such as Tversky, Kanheman (1981, 1984), Simonson, Tversky (1992) and Thaler (1999) have already presented people with binary choices where the relevant facts to these choices are kept constant, while other irrelevant attributes are changed/manipulated. The discrepancies of these choices are then scrutinised by examining preference reversals or other kinds of irrational decisions.

But instead of only focusing on the potential irrationality of choices and estimations and in that process completely discard the assumption of rationality, this study will attempt to measure the degree of rationality or rather: The relative degree of the bias itself. By slight changes to the research design – making this a repeated measure with three trials, it is possible to estimate this degree. This construct will be referred to as Decision Congruency from here on. In this study, this is defined as the relative consistency of the participants' choices and time estimations to obtain the equal discounts. If every trial regards the same amount of money, i.e. the discount is constant, so *should* the decisions be, in regard to that money, if one is rational. So if the participants make choices and time estimations that are consistent in relation to each other, their Decision Congruency is viewed as high. To further increase the validity of this new construct, it will be operationalized in two levels. This aspect will be further discussed under Measures in the Method section of this paper.

1.6 Research Hypothesis

The research questions of this study warrants the following research hypothesis:

1. The participants of this study will display a clear bias regarding both their choices and time estimations to obtain three equal discounts.

2. The degree of social distance of these choices and time estimations will significantly decrease the size of the bias regarding the participants' choices and time estimations to obtain the three equal discounts.

3. There will therefore be a significant increase in Decision Congruency on the aforementioned choices and time estimations if these decisions are made for someone else (i.e. another student) compared to being made for oneself (i.e. oneself).

Prospect Theory states that people tend to focus on changes rather than absolute values (Thaler, 1999). This suggests the first hypothesis will most likely be true. The research findings on the Anchor - / Contrast Effects further amplifies this likelihood (Sherif et al., 1958; Mussweiler et al., 1998). Moreover, CLT suggests that the degree of social distance could have an effect on the decisions regarding these choices and time estimations (Trope and Liberman, 2010).

1.7 Additional Definitions

The reason why a time estimation is preferable as opposed to other kinds of estimations, is because it subtracts the loss aversion from the choice at hand. As Thaler (1999) states, loss aversion is the tendency to be more motivated to avoid losses than to seek out gains. To estimate how much time one is willing to spend in order to obtain a discount is rather a trade-off between money and time. This eliminates the unequal weighing of losses and gains that Prospect Theory illuminates. The first research question asks if anchored prices can induce a bias regarding the choices and time estimations to obtain three equal discounts. In this study, three different prices will be used as Anchors to create a Contrast Effect between three otherwise completely equal questions. The constant factor is that the participants will choose their preference on whether or not to make a 4-hour trip in order to obtain a 1,160 Swedish Crowns (SEK) discount in relation to the given Price Anchor.

The reasons why 1,160 SEK is chosen as the constant discount and why the 4 hours are chosen as the constant traveling time to each question, regards the face validity of this study. The hourly saving of 290 SEK (e.g. 1,160 SEK divided by 4 hours) is the average hourly salary of a lawyer in Sweden (SCB, 2014) given the assumption that the lawyer works full

time, (46,400 SEK divided by 160 hours, equals 290 SEK an hour). This is also related to the intended sample population of this study, which will be university students. It is reasonable to argue that the discount should be deemed a "good deal" from a monetary standpoint for most university students since the average monthly income of a Swedish university student is significantly less than that of the average lawyer. According to a study done by the Swedish Council for Higher Education (2015), the average full-time university student makes 128,400 SEK a year. This is less than a quarter of what the average Swedish lawyer makes annually (556,800 SEK) according to SCB (2014). Therefore, the hypothetical opportunity to obtain the discount is arguably viewed as an incentive, since the student saves the same amount of money each hour, as the average lawyer makes. Therefore, only university students will be sampled in this study.

The specific time (4 hours) could have been excluded but by specifying it, the measurement becomes more focused i.e. it measures more about less. The decision to not prefer a 4-hour trip where one also saves 1160 SEK says more about one's preference than the decision to not prefer "a trip" with no specified time, where one also saves 1,160 SEK. It is also arguable that the measure of the biases becomes more conservative: In this repeated measure design, every participant is thoroughly informed, three times, that the decision regards the obtainment of a 1,160 SEK discount if they are willing to travel for 4 hours. This could increase the likelihood that the participants are able to spot the relevant similarity of the three questions, which in turn, could decrease their degree of bias. The argument here is that: If the participants see that the questions regard the same amount of money, for the same amount of time – this increases the likelihood that their choices and estimations in regard to that money and time will also be the same.

In order to answer the second research question, that is: If the social distance of these choices and time estimations decreases the level of bias? Two comparable groups will be formed, with different degrees of social distance in regard to the choices and time estimations. To achieve this, a quasi-experimental design will be adopted. The main tenants of this design are described in further detail in the Design segment in the Method section of this research paper.

2. Method

2.1 Participants

A convenience sample of 144 students was gathered at six different venues from a university campus in southern Sweden. All six venues were open areas where the students were seated around tables in small groups with less than 10 people. Two participants did not mark the acceptance box for their consent form, these two participants were therefore excluded from the statistical analysis. Out of the remaining sample (N = 142) there were 81 females, 60 males and one participant specified "other" as gender. All of the participants were over the age of 18 with the age spanning between 19 – 46, with two outliers at 31 and 46 years of age. The average age for the sample was 23.3 years.

2.2 Design

The terminology of this section draws heavily on experimental research design. However, the method of this particular study is quasi-experimental, with the purpose of illuminating the characteristics and differences of the population(s) decision biases in regard to three different Price Anchors and to ascertain whether or not social distance has any effect on these biases. Two separate questionnaires were designed to describe the bias of the population(s) choices and time estimations in regard to the three different Price Anchors: a mobile phone (3,499 SEK), a computer (17,499 SEK) and an around-the-world trip (87,499 SEK). The last Price Anchor: Around-the-world trip will be referred to as ATW trip from here on out. The sole modification between the two questionnaires was the Social Distance in which the choices and time estimations had to be made. The choices and time estimations had to be made either in regard to oneself or another student. Table 1 (*one the next page*) displays the two independent variables of this design.

Table 1.

Independent variables: Social Distance (Between-group factor) and Price Anchors (Within-Group factor)

Social Distance	**Price Anchors**		
	1	**2**	**3**
1. Oneself			
	Mobile phone	Computer	ATW trip
	3,499 SEK	17,499 SEK	87,499 SEK
2. Student			
	Mobile phone	Computer	ATW trip
	3,499 SEK	17,499 SEK	87,499 SEK

Note: See appendix 1. For a visual overview of the research design.

The dependent variables in this design were the choices and time estimations in regard to each Price Anchor. In an incomplete repeated measures design, each participant received each Price Anchor only once and the balancing of practice effects was accomplished across participants through a Latin Square procedure i.e. the order of the questions was randomized across the participants in all possible orders (3! equals 6 possible orders). A double blind method was also employed when the two different questionnaires were handed out to the participants. This will be further described in the Procedure section.

2.3 Material

The quasi-experiment was conducted with a questionnaire with an informed consent form on the front. The questionnaire started with three different questions where the participants were asked to state their preference with a binary yes/no choice. The outline of these three questions was based on problems 8, 9 and 10 as cited in Tversky and Kahneman, (1981, p. 457). Each of the three questions had a follow-up question where the participants were asked to estimate specifically how much time they were willing to spend in order to obtain the 1,160 SEK discount in regard to each Price Anchor. The questionnaire was written in Swedish, thus there are some sematic differences from the original (see Appendix 2). For the final

questionnaire, the three questions were constructed according to the following framework (translated by the authors):

1) Imagine the following situation: You[b] are about to buy a computer[w] that costs 17 499[w] SEK in computer store[w]. (Choice A). You[b] discover that it is possible to buy an identical computer[w] at a 1160 SEK discount if you[b] are willing to make a 4-hour round-trip to another computer store[w] (Choice B). Will you[b] make the trip?

2) In this situation: How much time would you[b] be willing to travel in order to purchase the cheaper alternative (Choice B)?

b) The change of these words marks the between-group factor, therefore grouping the 142 participants in two different groups where the word "You" (n = 74) is exchanged with "Student" (n = 68). This factor is referred to as Social Distance throughout this research paper.

w) The change of these words marks the within-group factor: In a repeated measure, each participant answered three randomly ordered questions about a mobile phone priced at 3,499 SEK, a computer priced at 17,499 and an around-the-world trip (ATW trip) priced at 87,499 SEK. From here on, this factor is referred to as Pricing Anchor.

The constant factor in every question was the discount (1,160 SEK) as was the traveling time to obtain that discount (4 hours). Questions regarding background and demographics were placed after the questions regarding the preferences and time estimations to pursue the 1,160 SEK discount. These latter questions concerned factors such as age, educational discipline, number of studied semesters and prior purchasing history in regard to the three Price Anchors.

2.4 Procedure

The data was collected with a questionnaire where one sample was drawn from a population of students in southern Sweden. A pilot-study was conducted (n = 26) a week before the final draft was printed and used on the intended sample group. This pilot-study yielded promising results in regard to the decision biases that were relevant to the study. As authors, we thought it was likely that the material was not going produce biased results since the design of the measurement was conservative: In this repeated measure design, every participant was thoroughly informed, three times, that their choices regarded the obtainment of a 1,160 SEK

discount if they were willing to travel for 4 hours. As mentioned earlier, the three questions had the same sematic framework. The main reason the pilot-study was conducted was to test the assumption that the participants were going to be able to spot the similarity of the three questions and therefore produce unbiased answers, i.e. consistent choices and estimations. However, the results of the pilot-study showed no such tendencies.

A week after the pilot-study, the final questionnaire was administered in two different versions, one for each Social Distance group, (see Appendix 1. for a visual overview). Before the data-collection each researcher opened random.org:s "Random Integer Generator" on separate computers and generated 75 random integers, ranging between the values 1-2 (since there were two different versions of the questionnaire). Then, roughly 75 copies of each questionnaire were printed. Each researcher then proceeded to mix his stack of printed questionnaires according to the random integer numbers on his computer. Once this mixing-process was complete the researchers switched stacks. The participants were encouraged both verbally and in writing to complete the questionnaire individually. This was done in order to minimize the risk of contamination. During the data-gathering, a double blind procedure was used, i.e. the researchers were unaware of which version of the questionnaire that was being administered and the respondents were also unaware of the fact that two different versions were in existence (see Appendix 2 for the full questionnaire that was used).

Before administration, the questionnaires were divided into two sets, one for each gender allowing for roughly even sets. The questionnaires were then handed out accordingly with pens and pencils. Once the participants were finished, the questionnaires were placed into a folder, marked with different post-it notes indicating the name of the location and the time the data-gathering procedure took place at that location, (see Appendix 3 for a distribution of the extraneous variable time and locations of each part-sample across the two Social Distance groups). The responses from the questionnaires were coded in accordance to a variable codebook and put into Excel/SPSS.

2.5 Ethics

The ethical guidelines regarding quantitative research was followed throughout the research process. The participants were informed on the first page of the questionnaire that:

- They were participating freely (on their own accord);
- They could abort their participation at any time, without any explanation;
- Their answers were being processed anonymously;

- The data was gathered and analysed for a Bachelor thesis;
- We, (the researchers) thanked them for their participation

To signal their understanding, the participants then had to cross a checkbox next to the statement: *I have read the above information.* If they did not, their data was not analysed (out of 144 respondents, there were 2 such cases). No single answer or any combination of multiple answers to the questionnaire was viewed as sensitive data in accordance with The Swedish Personal Data Act. The data-gathering procedure did not pose any physical or psychological harm to any of the participating individuals. All of the participants were approached and asked if they wanted to participate in a survey regarding decision-making that took between 2 - 3 minutes to complete. While they were handed the questionnaires, they were also encouraged to complete them individually. Once the completed questionnaires had been gathered by one the researchers, the participants were debriefed of the actual purpose of the research which was the potential biases of their choices and time estimations.

2.6 Measures

2.6.1 Price Anchors

Three different Price Anchors were used to create a Contrast Effect between three otherwise equivalent questions. These Price Anchors were a mobile phone (3499 SEK), a computer (17,499 SEK) and an around-the-world trip (87,499 SEK). The last Price Anchor will be referred to as "ATW trip" from here on.

2.6.2 Social Distance

The degree of Social Distance was altered by semantically framing the questions in one of two ways. That is, the subject of each question was either "oneself" i.e. (You are going to buy…) or a "student" i.e. (A student is going to buy…)

2.6.3 Choices and Time Estimations

These were the dependent variables of the design. The participants were asked to make binary Yes/No choices and then a time estimation. The first variable was a nominal one, while the latter was a numerical. The main interests of the nominal variable were to study the preferences in regard to each Price Anchor. The time estimations were stated as the number of hours and minutes that the participants were willing to spend in order to obtain the equal discounts. This variable was also analysed in regard to each Price Anchor.

2.6.4 1st level Decision Congruency

This is a computed variable. It was operationalized as whether or not the participants were answering the three Price Anchors consistently as it relates to the binary Yes/No choices. If the participants' preferences were consistent: (Yes, Yes, Yes) or (No, No, No) their choices were viewed as congruent on the first level. Any other combination of answers e.g. (No, Yes, No) were viewed as not being congruent on the first level. This was therefore a binary and also nominal scale measurement.

2.6.5 2nd level Decision Congruency

This was operationalized as the participant's individual standard deviation regarding their stated time estimations on the different Price Anchors. If this equalled zero, it meant that the participant had stated the same time estimation on all three Price Anchors which in turn, makes that participant completely congruent on the second level. So the more the participants time estimations varied relative to each other – the less congruent they were. This variable was computed by the following formula:

$$\frac{\sqrt{\sum(X - M)^2}}{n}$$

Where *X* was the participants stated time estimation on each of the Price Anchors, *M* was the mean of these three raw-scores and *n* was the number of Price Anchors (3), where each of the participants stated their individual time estimation to obtain the equal discounts. If these raw-scores varied, it meant that there was a variation to how much time that participant was willing to spend in order to obtain the exact same discount, which makes that participant less congruent on the second level.

Since this is a ratio-scale measurement, an independent t-test can ascertain whether or not there is a statistically significant difference of the 2nd level Decision Congruency mean between each Social Distance group (Oneself/Student).

2.7 Statistics

Background and demographic variables were analysed for potentially unequal distributions in order to ensure that a valid comparison was made between the two Social Distances (Oneself and Student). T-tests and Chi Square tests were used during these procedures. Bar diagrams were used to display distribution of the (Yes/No) choices regarding the three Price Anchors (Mobile phone, Computer, ATW trip) for the two Social Distance groups. Chi Square tests were also performed to ascertain whether or not there were significant associations between

Social Distance and the (Yes/No) choices made on each Price Anchor. To further deepen the analysis of the decision bias, the time estimations regarding the pursuit of the discount on the three Price Anchors were analysed with a mixed - AVOVA, with Social Distance (Oneself/Student) as the between-group factor and the time estimation on each Price Anchor (Mobile phone, Computer, ATW trip) as the within-group factor.

The last statistics were the two computed variables: 1st and 2nd level Decision Congruency. The first one was displayed with a frequency table for the two Social Distances and an Independent t-test was performed for 2nd Decision Congruency to ascertain a difference between the (Oneself/Student) groups.

3. Results

3.1 Background and Demographics

This section displays general background and demographic factors that concern the comparability of the two Social Distance groups, (Oneself, Student). Two participants were excluded from the analysis due to not accepting the conditions in the consent form making the total number of participants 142. The gender distribution of the group "Oneself" (n = 74) consisted of 42 female and 32 male participants and the other "Student" (n = 68) consisted of 39 females, 28 males and 1 "other" as gender. The age distribution for the two Social Distances were: Oneself (M = 23.3, SD = 3.7) and Student (M = 23.3, SD = 2.4). The number of semesters that the participants had studied at the university was distributed in the following manner across the two groups: Oneself (M = 4.7, SD = 2.7), Student (M = 5.4, SD = 2.4).

Independent T-tests (for ratio-scale measurements) and Chi Square Test of Independence (for nominal-scale measurements) were non-significant for all the above mentioned variables (gender, age, number of studied semesters) between the two Social Distance groups.

In the Appendix 3. and 4. the distributions of the extraneous variables are displayed. These variables are the (time and location for part-samples) of the participants in two Social Distance groups, and the (prior purchase history in regard to the Price Anchors) of the whole sample.

3.2 Decision Biases

This section demonstrates the biased decisions that the participants displayed regarding the obtainment of the equal discounts. Figure 1 displays the relative frequency of choices on whether or not to make a 4-hour trip in order to obtain a 1,160 SEK discount on the three different Price Anchors for the Social Distance group (Oneself).

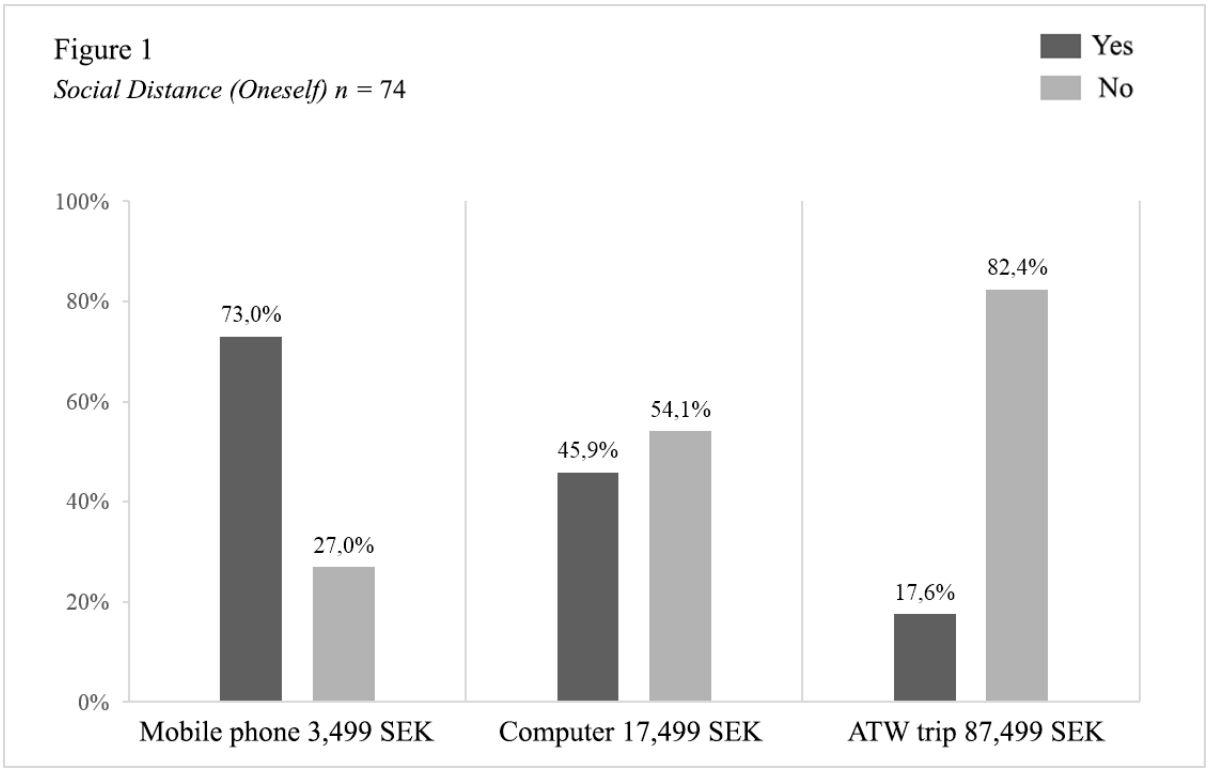
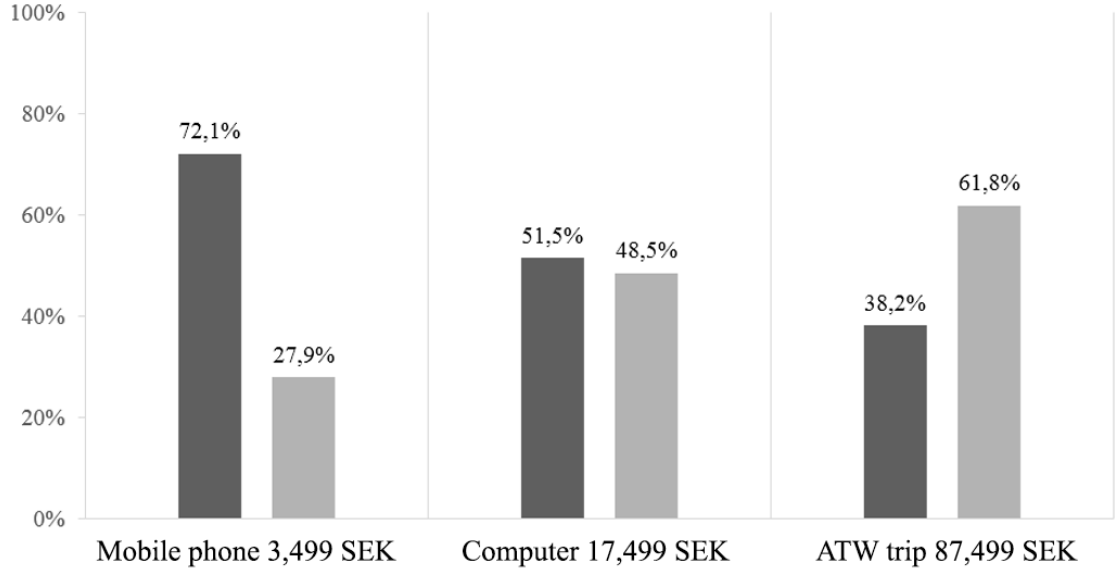


Figure 2 (*on the next page*) also displays the choices on whether or not to make a 4-hour trip in order to obtain a 1,160 SEK discount on the three different Price Anchors, but for the other Social Distance group (Student).

Figure 2

Social Distance (Student) n = 68



A Chi Square test of Independence with Yates Continuity Correction was performed to determine if there was any association between (Yes/No) choices and Social Distance. A significant association was indicated between Social Distance and (Yes/No) choices, χ^2 (1, 142) = 6.60, p = .01, phi = - .23 on the third Price Anchor, e.g. ATW trip; 87,499 SEK, (see Figure 1 and 2). There were no other significant associations between Social Distance and (Yes/No) choices.

A mixed ANOVA was performed to assess the impact of the Social Distances (Oneself/Student) on the dependent variable (Time Estimation) to obtain the 1,160 SEK discount on three Price Anchors (Mobile phone, Computer and ATW trip). There was a significant interaction between Price Anchor and Social Distance, (Wilks' Lamda = .95, *F* (2, 139) = 3.47, *p* = .03, partial eta squared = .05). There was also a significant main effect for Price Anchor, (Wilks' Lamda = .61, *F* (2, 139) = 44.92, *p* = < .001, partial eta squared = .39), with both groups showing a significant difference on their mean time estimation to obtain the 1,160 SEK discount on the three different Price Anchors (see Table 2 and Figure 3). The main effect comparing the two Social Distances (Oneself/Student) was not significant (*F* (1, 140) = 2.65, *p* = .11, partial eta squared = .02), suggesting no

difference in overall time estimation between the Social Distances (Oneself, Student). For the sake of accessibility, these results are displayed as a table and also as a line diagram.

Table 2

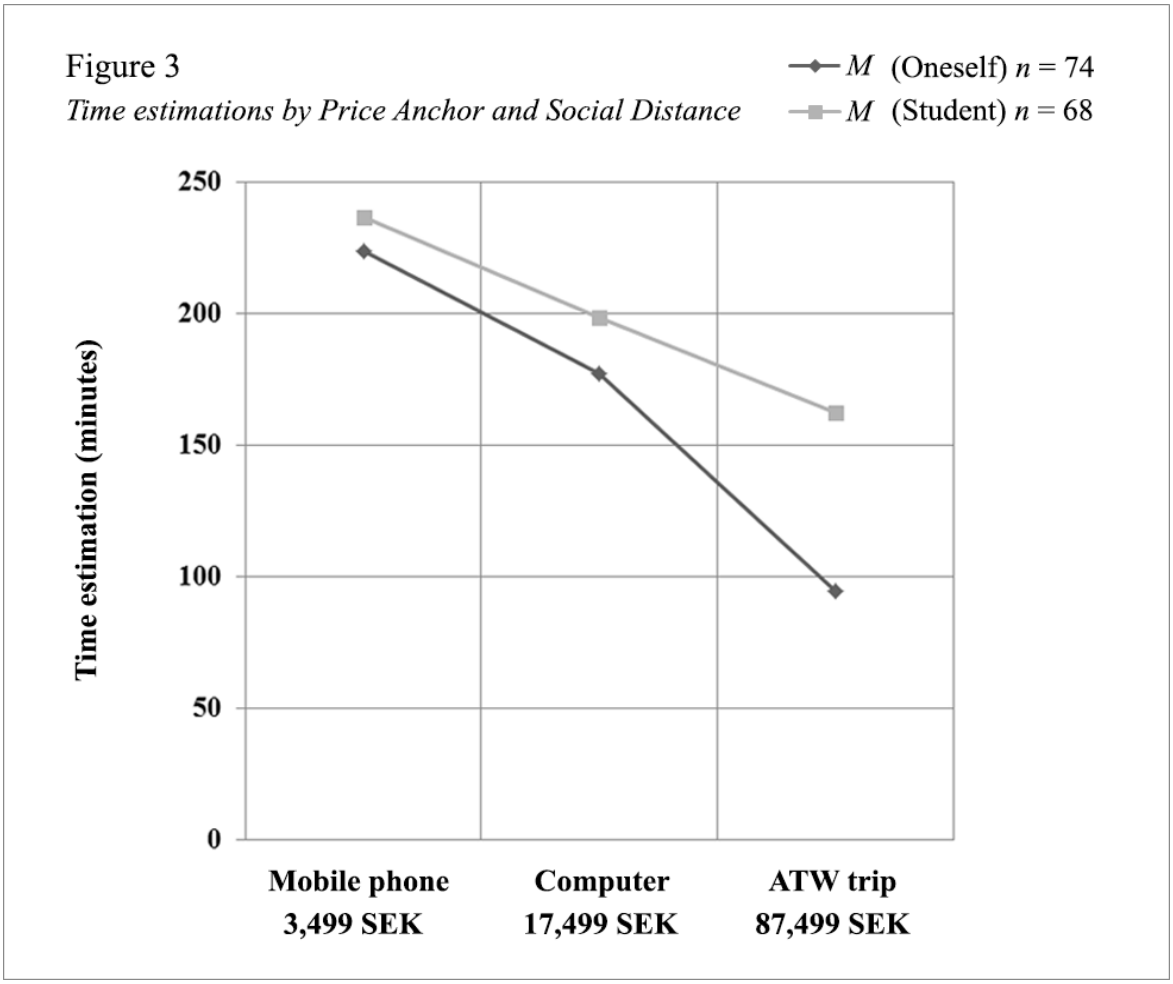
Time estimations by Price Anchor and Social Distance

	Social Distance			
	Oneself (*n* = 74)		**Student (*n* = 68)**	
	M	*SD*	*M*	*SD*
Price Anchor				
Mobile phone (3,499 SEK)	224	140	236	136
Computer (17,499 SEK)	177	140	199	147
ATW trip (87,499 SEK)	94	114	162	160

The tilt of the lines in Figure 3 further illustrates the impact of the Price Anchors and Social Distance on mean time estimations in order to obtain the 1,160 SEK discount.

Figure 3

Time estimations by Price Anchor and Social Distance



3.3 Decision Congruency

This last section concerns the new measurement of Decision Congruency. That is, the relative consistency of the participants' choices (1st level Decision Congruency) and their time estimations (2nd level Decision Congruency) to obtain the equal discounts. Table 3 displays the distribution of 1st level Decision Congruency of the two between-groups.

Table 3

1st level Decision Congruency across the two Social Distance groups (Oneself, Student)

Social Distance	**1st Level Decision Congruency**		
	Yes	**No**	**Total**
Oneself			
Count	34	40	74
Percentage	45.9%	54.1%	100%
Student			
Count	38	30	68
Percentage	55.9%	44.1%	100%

To ascertain the relationship between Social Distance and 1st level Decision Congruency, a Chi Square test of Independence (with Yates Continuity Correction) was performed. This showed no significant association between Social Distance and 1st level Decision Congruency, χ^2 (1, N = 142) = 1.03, p = .31, *phi* = - .10.

An Independent T-test was conducted to test whether or not the participants' time estimations were more consistent in relation to each other based on their degree of Social Distance (Oneself, Student). The T-test confirmed a significant difference in 2nd level Decision Congruency between the Social Distances (Oneself, Student), t (140) = 2.50, p = .01, with the (Student) group having a higher degree of 2nd level Decision Congruency. That is, they were significantly more consistent regarding their time estimations to obtain the equal discounts.

4. Discussion

The first part of the results of this study regards the comparability of the two groups, (Oneself/Student). These results display the effects of the steps that were taken in order to control different background variables. Here, no significant results were encountered. The first research hypothesis of this study expected that the participants would display a clear bias regarding their preferences and time estimations for the pursuit of a constant discount. As Figure 1 and 2 shows the preferences of the participants are clearly biased by the different Price Anchors. This is not a new phenomenon and very much in line with seminal research findings (Thaler, 1999; Tversky et al., 1981, 1986). As was stated in the Introduction, we wanted to deepen the statistical analyses regarding decision biases by the use of scale-ratio measurements. One of these attempts are displayed in Figure 3, the mixed-ANOVA. The results of this analysis supports the first research hypothesis, i.e. the main-effect of the Pricing Anchor is significant (p = < .001) and this effect accounts for almost 40 % of the proportion of variance (partial eta squared = .39).

Table 2 and Figure 3 also illuminates an important result for the second research hypothesis, a significant interaction between Social Distance and Price Anchors. This suggests that the time estimations on the different Price Anchors vary depending on which Social Distance group the participants were part of. In other words: As Table 2 and Figure 3 shows, the time estimations regarding each Pricing Anchors are different if these estimations are made in regard to oneself compared to being made for another student. Displaying the additional line diagram (Figure 3) might be viewed as redundant but it captures an important indication in graphical terms: The tilt of the line of the second group (Student) does not have the same drop as for the first group (Oneself), which in turn suggests a smaller bias in regard to the Price Anchors for the second group (Student). This finding is further corroborated by the last result, the Independent t-test regarding 2nd level Decision Congruency.

The mathematical connection between the mixed-ANOVA and 2nd level Decision Congruency can be put like this: If the lines of the mixed-ANOVA in Figure 3 would have been completely horizontal - 2nd level Decision Congruency would have reached its upper limit. In other words: It would have been as high as possible. As Figure 3 shows, this is not the case. By operationalizing this new measurement, i.e. 2nd level Decision Congruency, it was possible to measure the relative variation of each participant. This scale was proposed as

a valid measurement of the degree of bias that occured between the three Price Anchors. The last T-test confirmed a significant difference between the two Social Distance groups with the Student-group having a higher 2nd level Decision Congruency (p = .01). This is in line with the third research hypothesis and as mentioned earlier, the significant interaction between Social Distance and the Price Anchors in the mixed ANOVA further corroborates this result.

4.1 Critical considerations

The results of this study seem promising at first glance, but these results are shackled to a quasi-experimental design. Bertrand Russel (1945 p. 527) states that: It is not *what* the man of science believes that distinguishes him, but *how* and *why* he believes it. One of the main challenges with the quasi-experimental design of this research is the preservation of face/construct validity: Is the theoretical construct being measured that we intend to measure? As mentioned in the Method section, work by seminal researchers in the same field was taken into careful consideration for the sake of face validity, regarding the final version of the questionnaire. The only significant change that was made, was the items of the different Price Anchors (mobile phone, computer and an around-the-world trip). For a review of the example that was emulated see Tversky et al., (1981, p. 457) and Thaler (1999 p. 186). The choice of the items that were used as Price Anchors in this study, was made so that the different Price Anchors would seem be reasonable at face value. This is why the participants were asked about their prior purchases in regard to the different Price Anchors at the end of the questionnaire. As Appendix 4 shows: More than 90% of the participants had had all prior purchase experience with mobile phones, computers and travel/vacations.

There is a slight possibility though, that the chosen items for the Price Anchors could in fact threaten the validity of the research finding. To illustrate this point, let's consider the following research: A study done by Pratt, Wise and Zeckhauser (1979) found that different buying behaviours among consumers explains the pricing landscape of different products. One of the conclusions that Pratt et al. (1979) draws is that there has to be a certain number of products in a given price category for a competitive market to emerge. Their conclusion draws attention to a critical consideration of this study: The names of the three Price Anchors (mobile phone, computer and around-the-world trip). The innate interaction between these names and their respective prices might affect the subsequent choices and time estimations that the participants made. The question regarding this validity aspect can be put this way: What if a meta-analysis regarding the pricing manners of retailers would show that mobile phones are less likely to be on sale than computers? That would suggest an already innate bias

between the items, i.e. a mobile phone at a discount is a rarer occasion than a computer at a discount which would make the mobile phone more attractive beforehand. Research on the topic of scarcity suggest that items which are otherwise identical are rated as more attractive as a consumer article, more desirable and costlier if this item just happens to be more scarce than its identical comparison (Worchel, Lee & Adewole, 1975). To our current knowledge, no such meta-analysis has been performed and it is reasonable to assume that it the numerical price anchor of the items, and not the sematic anchor of the items names that produces a bias but as for the question: Were the items analysed statistically for possible bias before this study was conducted? The answer is no. The items of the Pricing Anchors that were included in the final version of the questionnaire were so because they seemed reasonable at face value.

One of the changes that were made between the pilot-study and the final study was that the final item of the Price Anchors was changed from a "car" to an "around-the-world trip". This was done because most of the participants in the pilot-study had prior experience of purchasing mobile phones and computers but not cars. It could be argued that most students in the final sample probably did not have prior experience of buying 87,499 SEK around-the-world trips but at least, more than 90% of the participants have stated that they have prior experience with buying "trips or vacations", see Appendix 4.

As Appendix 4 shows the participants were asked about their prior purchases in regard to the different Price Anchors at the end of the questionnaire, and these results were very homogenous for the entire sample. However, one might still argue that the extraneous variable of (prior purchase history) in regard to the different Price Anchors has not been sufficiently controlled this study, but to our knowledge, this extraneous variable has not been addressed in earlier seminal research on the same topic, see (Tversky et al., 1981, 1984; Simonson et al., 1992 & Thaler, 1999).

According to Shaughnessy, Zechmeister and Zechmeister, (2012 p. 331), the best evidence for the external validity of research findings is replication with different populations, settings and times. As mentioned in the Method section, the data-gathering procedure took place at six different venues at a university campus in southern Sweden. The time of each part-sample could affect the time estimations that the participants made for each Price Anchor, which in turn, could affect the degree of bias. This is a potential confound and therefore a very important aspect to balance. To put this confound in perspective, one example will suffice: A study done by Danziger, Levav and Avnaim-Pesso (2011) suggests

that legal proceedings in Israel can be based on more than just legal facts: The likelihood of a favourable ruling by the sampled judges was greater at the very beginning of the work day or after a food break than later in the sequence of cases. The data of Danziger et al. (2011) suggested that the percentage of favourable rulings dropped regularly from roughly 65% to nearly 0% within each decision session, and then returned to around 65% after a lunch-break. In summary, the judges seemed to be affected by extraneous variables that should not have had any bearing on their legal decisions. Could the degree of bias among students also be influenced by a confound such as what time during the day they were tested?

With this in mind, a mixed ANOVA was also performed to assess the impact of the extraneous variable (time and location of each part-sample) on the dependent variable (time estimations to pursue the 1,160 SEK discount on three different Price Anchors). The interaction and the main effect of the (time and location of each part-sample) was not significant. Suggesting that the different times and settings of each part-sample did not affect the dependent variable this study, that is, the participants time estimations. This fact, in combination with the fact that Figure 1 and 2 of the Results section are in line with prior research on the same topic, speaks well for the external validity of the findings. The reason this extraneous variable regarding the time and setting was not featured in the Results section is because it is *extraneous* to the research questions of this study. However, the distribution of the variable (time and location for each part-sample) across the two Social Distance groups is featured in the Appendix 3.

Some attention should also be drawn to the wording of the questionnaire in this quasi-experimental study. Since the sample was drawn at a university in Sweden, the questionnaire was also written in Swedish. However, this research paper is written in English and one might spot a difference in the phrasing of the questions between the two Social Distances, e.g. How much time *would you* spend, as opposed to: How much time *should a student* spend in order to purchase the cheaper alternative? Should/would questions cannot be mutually exchanged and compared in a valid manner. In English, one has to make this semantic trade-off, that is, crossing the Rubicon between normative/descriptive language in order for the language to make sense. If one does not do this, the questions of the two groups (Oneself, Student) have to be framed as normative i.e. how much time should you/a student spend etc. This kind of wording is not a good option because in this study, we wanted the participants to make prognostic choices and estimations about their own or another students behaviour, rather than normative. With the English language, this results in the following phrasing: How much time

would you/a student spend etc. This phraseology of the questions becomes rather unreasonable for the second group (Student). It is impossible for the participants to know how much time another student would spend in order to obtain a 1,160 SEK discount. However, this trade-off does not have to be made in the Swedish language, see Appendix 2. The three Price Anchor questions of the two Social Distance-groups had the exact same syntax, with the exception of the word "You" being exchanged with "A student" in Swedish. This, in turn, makes the comparison of the two Social Distances more valid because there are no sematic confounds between the questionnaires of the two groups.

4.2 Implications of the research findings

In summary the great majority of all the participants decided that a 4-hour trip was of value if they saved 1,160 SEK on a mobile phone. Roughly half of them if they saved the same amount of money for the same amount of time on a computer, and only a small minority of those same participants decided that a 4-hour trip in order to save 1,160 SEK is a good deal if they are saving it on an around-the-world trip. At face value, these discrepancies appear rather surprising. These results modestly suggest that the participants seem to have a somewhat irrational relationship to the absolute value of money. The changes of the Price Anchors did seem to promote a more relative comparison rather than an absolute, just as Prospect theory would predict (Thaler, 1999) even though this was accomplished in a repeated-measure design with three equal questions rather than two: Suggesting that these biases are even more robust than previously demonstrated.

This category of biased decision-making is not a new finding but very much in line with research on the same topic (Thaler, 1999; Tversky et al., 1981, 1986). Still, as mentioned in the Introduction, we wanted to offer more depth to the measurement of these decision biases, other than confirming that they do exist. This brings us to the measurement of Decision Congruency. As Table 3 shows, roughly half of all the participants replied in a congruent manner i.e. in accordance with the 1st level Decision Congruency. This puts the first research hypothesis more on the fence, about half of the participants, were overall not biased in regard to their (Yes/No) choices, i.e. they were willing to either accept the 4h-trip or reject it, in regard to all of the three Price Anchors. In other words, the Social Distance (Oneself/Student) did not have a significant impact on 1st level Decision Congruency. This is why a scale-ratio measurement was incorporated into the research design, to get a more profound statistical analyses and more opportunities to corroborate the findings of the study and therefore, making the results more reliable.

The 2nd level Decision Congruency between the two Social Distance groups, indicated a significant difference between Oneself and Student, with the Student group being more congruent i.e. less biased than the Oneself group. In the view of CLT, this particular result suggests that the participants in the Student group viewed the questions in a higher construal level i.e. more abstract manner. This proposes that the participants in the Student group were looking at the overall context rather than specific changes. By making the decision on a higher construal level with more psychological distance they seemed to minimize the degree of bias in their decisions (Trope and Liberman, 2007; 2010).

In conclusion, our attempt to replicate previous research findings regarding biased decision-making seemed to have worked. Furthermore, this was accomplished using a three trial repeated measure (p = < .001) and the Price Anchors account for almost 40 % of the proportion of variance. Our current perspective is that this result suggests that the Anchoring Effect is even more robust than previously demonstrated. This is one of the more important findings of this research paper and it also answers the first research question with a decisive: Yes. As for the second research question, Social Distance also seem to play a role in minimizing the level of bias for the participants of this study. This finding was also significant (p = < .03) in terms of the mixed ANOVAs interaction effect and further corroborated by the significant difference in 2nd level Decision Congruency (p = <. 01). However, these results are obtained through quasi-experimental between-groups. These are non-equivalent control groups, since no pre-test was made, that determined their comparability. Several steps were taken in order to balance extraneous variables across the two between – groups and a pilot-study was conducted but our perspective is that more research has to be made on the topic before a decisive conclusion can be made. The results do suggest that Social Distance has a significant impact on decision biases but these results are not as valid and reliable as those obtained through the repeated measure design since the level of control in the repeated measure is higher. The third research question regarded the quantification of the potential biases. This question brings us to future research in this topic.

4.3 Future Research

In order to generate more fruitful knowledge in this area, we suggest to further simplify the research design. The design chosen for this study was thoroughly examined to be as clear and straightforward as possible, especially for the participants. Our novel approach to have a mixed-design with three repeated Price Anchors and two Social Distance groups can hopefully assist in determining the robustness and pervasiveness of the Anchor Effect.

Secondly, one of the objectives was to further quantify the bias in a valid manner so that additional analysis could be applied in order to further comprehend the decision-making-process during monetary decisions.

On a specific level, our suggestion would be to further develop the measurement of Decision Congruency for the sake of reliability and validity. That is, refining it further by measuring more about less and also testing it in more contexts, not only in regard to money and time. One alternative would be to eliminate the between group factor (Social Distance) and increase number of within groupings (Pricing Anchors) while the product names could have been constant throughout the repeated measure. Instead of having three products (a mobile phone, a computer and an around-the-world trip), one could have used nine trips to different destinations with different prices. This would have increased the number of levels on the within factor and kept the product names constant while a variety of anchored prices would still have been completely plausible. If similar results would have been obtained after such changes, the measurement scale would have been even more valid and reliable. We want to encourage future researchers to continue exploring and quantifying different types of cognitive processes during decision-making and develop a deeper understanding of how the degree of bias can influence decision-making. The ultimate goal would be to have the technical capability to gauge the degree of bias present and predict our decision-making abilities before making important decisions. From our perspective, just the knowledge that we tend to be biased in certain contexts creates a higher level of humility towards certain decisions. There are of course more important contexts than what this research paper covered, which was money and time.

On a more general level: There are numerous reasons why future research is important on the topic of biased decision-making. Selart (1994) argues that our knowledge of how people make decisions determines the degree of what we are able to understand and interpret in a social system. One of these systems, is democracy itself. More recent research has shown that the technical capability to significantly bias democratic decisions is very real. A study done by Epstein and Robertson (2015) proved that search engine algorithms can easily shift the voting preferences of undecided voters by more than 20%. In fact, in some demographic groups this number increases to 80% (Epstein & Robertson, 2015). Furthermore, their results indicate that practically none of the participants knew that their decisions were being manipulated (Epstein & Robertson, 2015). One of the conclusions of their study is that search companies could affect, and perhaps already are affecting the outcomes of close elections

worldwide (Epstein & Robertson, 2015). According to our knowledge, Epsteins and Roberts (2015) study is not an isolated research finding on the topic of IT- companies technical capability to effect human decision-making.

If we as a global society want to further facilitate the notion of effective, accurate and unbiased decisions in both legal and political discourses, further scientific research in the area of biased decision-making is probably warranted. However difficult these biases may be to quantify, our argument is: As scientists, we still ought to try.

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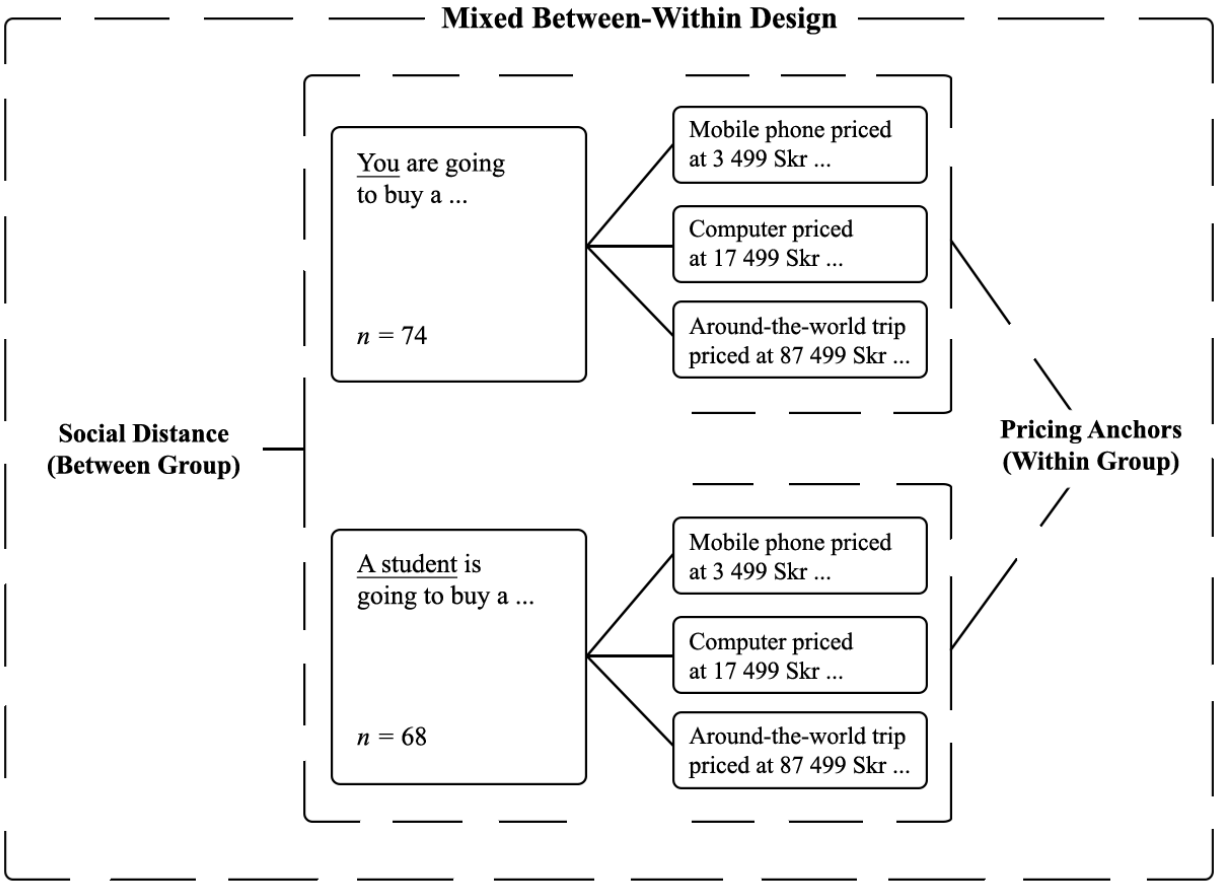
6. Appendix

1. *A visual outline of the research design*



2. *The original (non-translated) questionnaire used for the data-gathering procedure, Social Distance group: Oneself.*

Denna enkät är i två delar. Den första delen består av 3 st. frågor gällande beslutsfattning: Försök att fatta ett så bra beslut som möjligt i varje situation. Den andra delen består av 7 st. demografiska frågor. Svaren kommer att analyseras och sammanställas i en Bsc. uppsats. Det tar mellan 2 -3 minuter att besvara frågorna i enkäten.

Undersökningen genomförs enskilt, är helt frivillig och dina svar kommer att behandlas helt anonymt. Du kan när som helst, utan förklaring avbryta ditt deltagande.

Vi tackar dig för din medverkan.

Med Vänliga Hälsningar

Kristoffer Bergram & Karan Luthra
Lunds Universitet

Jag har tagit del av ovanstående information ☐

1. **Föreställ dig följande situation:** Du skall du köpa en dator som kostar 17 499 kr i datorbutik A. Du får reda på att det går att köpa en exakt likadan dator 1160 kr billigare om du genomför en 4 timmars gratis färd (tur/retur) till datorbutik B. Ska du genomföra resan?

   Ja☐ **Nej**☐

   b) **I denna situation:** Hur lång tid skulle du vara villig att resa för att få köpa det billigare alternativet (B)? **Max restid: _____ timmar _____ minuter.**

2. **Föreställ dig följande situation:** Du skall du köpa en mobiltelefon som kostar 3499 kr i elektronikaffär A. Du får reda på att det går att köpa en exakt likadan mobiltelefon 1160 kr billigare om du genomför en 4 timmars gratis färd (tur/retur) till elektronikaffär B. Ska du genomföra resan?

   Ja☐ **Nej**☐

   b) **I denna situation:** Hur lång tid skulle du vara villig att resa för att få köpa det billigare alternativet (B)? **Max restid: _____ timmar _____ minuter.**

3. **Föreställ dig följande situation:** Du skall du köpa en ”jorden runt semester" som kostar 87 499 kr hos resebyrå A. Du får reda på att det går att köpa en exakt likadan ”jorden runt semester" 1160 kr billigare om du genomför en 4 timmars gratis färd (tur/retur) till resebyrå B. Ska du genomföra resan?

   Ja☐ **Nej**☐

   b) **I denna situation:** Hur lång tid skulle du vara villig att resa för att få köpa det billigare alternativet (B)? **Max restid: _____ timmar _____ minuter.**

4. Din ålder: **_____ år.**

5. Kön: **Kvinna** ☐ **Man** ☐ **Annat** ☐

6. Din utbildningsinriktning: **_____**

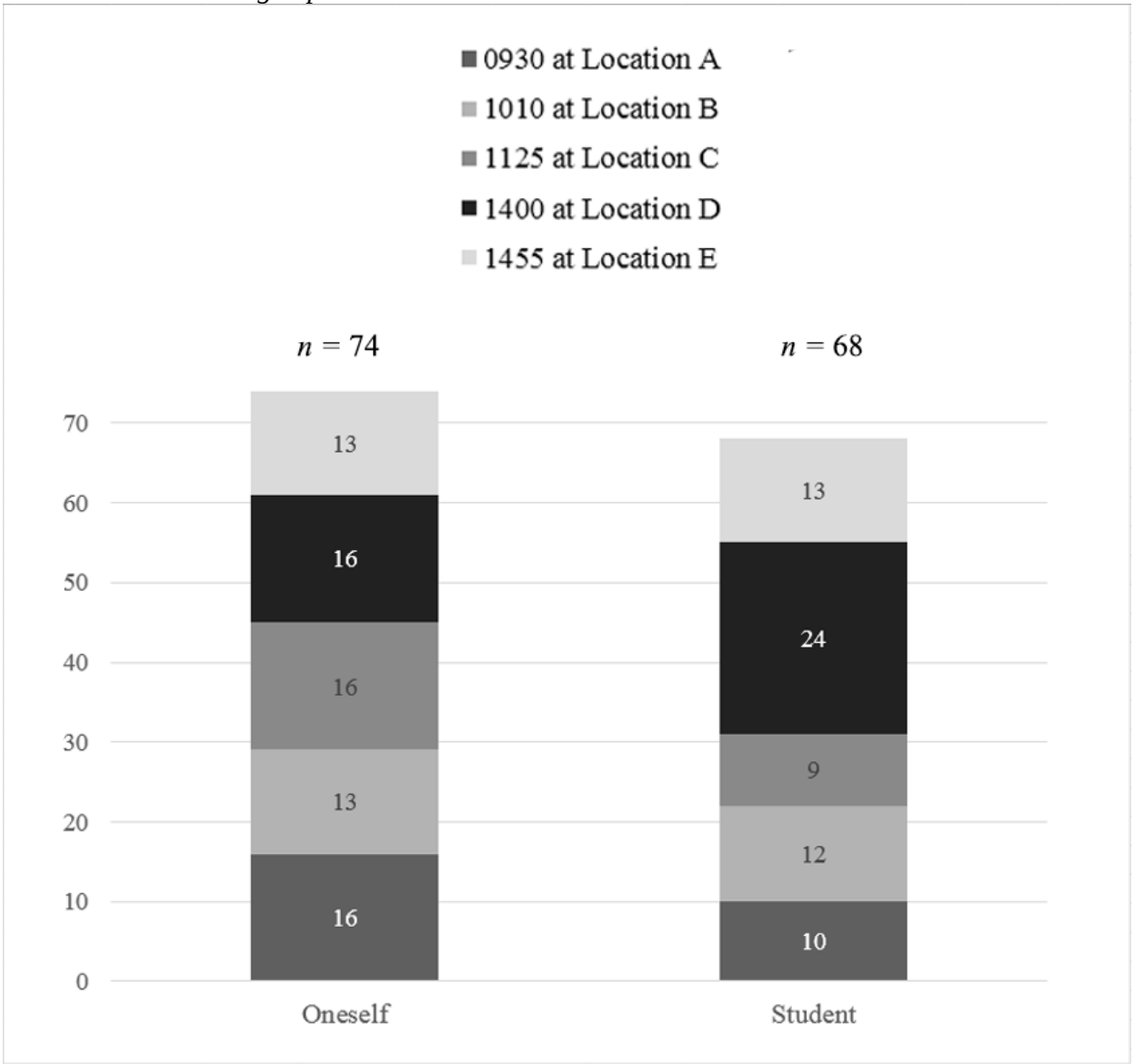
7. Universitet/Högskola: **Lund** ☐ **Kristianstad** ☐

8. Hur många terminer har du hitintills studerat på högskolan/universitet: **_____ termin(er).**

9. Hur många terminer planerar du att fortsätta studera: **_____ termin(er).**

10. Har du själv någonsin köpt något av följande: **Mobiltelefon** ☐ **Dator** ☐ **Semester** ☐

3. *Distribution of the extraneous variable (time and locations of each part-sample) across the two Social Distance groups*



4. *Distribution of the extraneous variable (prior purchase history, in regard to the Price Anchor items) across the whole sample.*