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The Absent Role of Self-serving Bias in the Ultimatum Games

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Abstract

We conducted variations of the ultimatum bargaining game featuring a pie of SEK100 or SEK1000 and varying outside options for the respondents. The asymmetries in our setup allowed for self-serving bias, which distorts interpretations for a fair outcome. We observed relatively high rejection rates, as the subjects, despite their similar interests, stood on different positions given their self-serving judgments. However, we did not find any significant relationship between the magnitude of self-serving bias and bargaining impasse. The relationship remained insignificant when we controlled for a heavy anchor and the social comparison effect.

Keywords: self-serving bias, ultimatum bargaining games, anchoring effect, social comparison effect, bargaining impasse

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Table of contents:

I. Introduction

The negotiation process is a leitmotif we constantly come across on daily stages of life. We get engaged in negotiations frequently for a variety of goods, with different people and in many settings. For example, we can negotiate (i) for a carpet with a local seller in a holiday destination, (ii) with the HR director at the workplace for more vacation days and bonuses or (iii) with our children at home for more vegetables in their diet. In addition to human beings, we also hold negotiations with products or companies. When we are in a supermarket, for instance, the price tag on a product standing on the shelf proposes us an offer, and we end the negotiation process either by accepting the offer and placing the product in our shopping basket or rejecting the offer and strolling away for the next negotiation round scheduled for our shopping. We find ourselves in a similar decision-making setup, also called an ultimatum bargaining game, when a TV channel presents us a specific show. In this example, we can decide whether to keep that channel on and watch the broadcasted show or to turn off the TV.

The ultimatum bargaining game is one of the most primitive versions of a negotiation setup with complete information and finite number of plays, in which the set of the outcomes is limited to the following two results only: the negotiating parties either bargain successfully or they end up with a bargaining impasse. Alternatively, the game can be described as the last round of the two-person, alternate-offer, finite bargaining games first analyzed by Ståhl (1972). The ultimatum bargaining game and the bargaining behaviors associated with it have been extensively investigated in numerous experimental settings, as the game itself can provide a basis for understanding the behavior in the more complex examples of negotiating setups or bargaining situations.

In this paper, we explore the extent of the relationship between the rate of bargaining impasse in ultimatum bargaining games and the magnitude of self-serving bias as a deterministic variable. Unlike the previous research, we do not find a significant relationship between the two variables. In addition, we analyze whether the social comparison effect between the proposers and the elimination of a heavy anchor play a role in self-serving assessments of fairness. The relationship remains insignificant when we control for these factors. The structure of the paper is as follows: Section II presents further information on the ultimatum bargaining games and self-serving bias based on the previous literature. Section III explains in detail our experimental design and the procedures we followed to conduct our

experiment. In Section IV, we present our hypotheses. We discuss our results in Section V and make comments and suggestions for future research in Section VI.

II. Previous research

Ultimatum bargaining games:

As the rules of the simple ultimatum bargaining games dictate, two players, a proposer and a respondent, have the chance to negotiate how to distribute a provisionally allocated sum, called c, between themselves. First, the proposer decides how to share c by offering an amount, x, to the respondent, and then the respondent decides whether to accept or reject the proposer`s offer. The game comes to an end with the respondent`s decision, and it is not to be repeated. If the respondent accepts the proposer`s offer, the proposer and the respondent get the amounts c-x and x, respectively, as earnings. If the proposed split is rejected, both parties receive nothing.

The standard economic theory of decision-making suggests that the players like positive payoffs. They prefer, in addition, the prospect that offers the highest expected utility (Tversky and Kahneman, 1981). The subgame perfect Nash equilibrium (SPNE) of the simple ultimatum bargaining game states that the proposer shall offer the respondent the minimum increment possible above the zero payoff (min[x>0] where x Є [x, 2x, 3x, …, c])[1]. The respondent in return shall accept the offer, since he is strictly better off by accepting any positive amount proposed to him than by rejecting the proposed split and receiving nothing.

However, when Güth et al. (1982) analyze the ultimatum bargaining behavior in an experimental setting, they find that their results do not reflect what had been suggested by the standard economic theory. The rather egalitarian payoff distributions show that the subjects relied on "what they consider fair or justified result" and played the strategies that were not consistent or coherent with the standard economic theory. Not only did the average payoffs offered by the proposers deviated significantly from the extreme lows, but the respondents also punished any "exploitative" behavior by rejecting the low payoffs, thus ending the game in an impasse. Several other studies had the objective to provide an explanation for the non-trivial amount of money proposed to the respondents despite the SPNE in the simple ultimatum bargaining game. "Taste for fairness" is one factor that leads to rejections in the simple ultimatum bargaining game, deviating the results from the predictions of the standard economic theory. Güth and Tietz (1990) find that driven by a taste for

[1] If the respondent is assumed to accept an offer when he is indifferent to the amount he receives, an offer of zero

fairness,[2] people are particularly willing to punish greedy payoff distributions in the ultimatum bargaining games.

Forsythe et al. (1994) investigate whether the concerns of fairness can solely explain the proposers` non-trivial offers in the simple ultimatum bargaining game. To test their null hypothesis that a dislike for relatively uneven payoffs alone causes deviation from the prediction of the standard economic theory, they compare their experimental results for both the dictator games[3] and the simple ultimatum bargaining games. Their experimental design includes a pie with real payoffs and anonymous opponents. Forsythe et al. (1994) reject their null hypothesis, as the main finding reveals that the difference between the distributions of the proposals is significant across the treatments - i.e. the proposers were more generous in the simple ultimatum bargaining game than their counterparts in the dictator game. In addition to the concerns of fairness, tastes for other notions such as altruism (Andreoni and Miller, 2002), gender pairings (Ayres and Siegelman, 1995; Eckel and Grossman, 2001) and reputation (Burnham, 2007) cause deviations in behavior from the predictions of the standard economic theory.

Forsythe et al. (1994) suggest that a possible reason that the taste for fairness cannot alone explain for the non-trivial payoffs in the simple ultimatum bargaining games is the largely unobservable incomplete information. In an ultimatum bargaining game with incomplete information, some respondents would be pure "gamesmen," accepting the SPNE offers proposed to them, whereas some respondents would have a "spitefulness" component in their utility functions that prompts them to reject the offers they consider to be unfair. Because the proposers do not have complete information on the different types of respondents they are matched with, the offers which would maximize their expected payoffs may result in a bargaining impasse. Therefore, with complete information, a proposer might find it to his interest to offer a non-trivial amount to the respondent that possesses a spitefulness component, thus thwarting a possible rejection.

The game theory study by Kennan and Wilson (1989) attributes the cause of bargaining impasse in the negotiation games to incomplete information, which arises from uncertainty about the players` reservation values. However, Babcock and Loewenstein (1997) argue that uncertainties are impractical for measurement, so they focus their study on the role

[2] The proposer`s taste for fairness means that the proposer dislikes uneven distributions between himself and the respondent: $x \geq \min[x>0]$. Similarly, the respondent`s taste for fairness means that the respondent dislikes uneven distributions between himself and the proposer: $WTA(x) \geq \min[x>0]$.

[3] Similar to the simple ultimatum bargaining game, the dictator game is a two-person, finite game. As the rules of the dictator game dictate, a proposer decides to split a provisionally allocated sum of c between himself and a respondent, whose role, unlike in the ultimatum games, is entirely passive and limited to accepting the split.

self-serving bias plays as the culprit for bargaining impasse. In comparison to the incomplete information situations, which do not, as previously believed, constitute a major factor for the non-settlement outcomes according to Babcock and Loewenstein (1997), self-serving bias has a more direct effect on bargaining impasse, even when the negotiating parties possess identical information.

Self-serving bias:

Self-serving bias directs people towards conclusions on "fairness" and "moral correctness" with the added detour that leads at the same time to the outcome favoring people`s self-interests. The bias blurs the line between what is fair and what benefits the self. In a negotiation setup, for example, the party suffering from self-serving bias may consider the fair solution to be the outcome that is also in line with his utility-maximizing interests. Therefore, asymmetries in the negotiation setup will allow the negotiating parties to align their self-interests closer with their fairness judgments, triggering a negotiation process to end in a deadlock. Bargaining impasse persists even when the interests of all the negotiating parties are similar and largely driven by concerns for fairness. After all, unlike the interests, the positions of the players, the foci of the "fair outcome," will continue to differ due to self-serving bias and deny the parties a zone of possible agreement, ZOPA. (Bazerman and Moore).

$$x = \min[x>0] + n^P (F^P - \min[x>0]) \quad , 0 \leq n^P \leq 1 \qquad (1)$$

$$WTA(x) = \min[x>0] + n^R (F^R - \min[x>0]) \quad , 0 \leq n^R \leq 1 \qquad (2)$$

In other words, self-serving bias occurs when the negotiating parties have different, self-serving assessments of what the fair outcome is due to the asymmetries in the negotiation setup ($F^P \neq F^R$). Even if both of the parties share the same weight of concern for fairness ($n^P = n^R$), the negotiation can end in a deadlock.

Previous research on self-serving bias emphasizes a number of factors for explaining the bias` emergence, persistence and elimination. Despite complete information, the negotiating parties seem to adopt self-serving assessments of fairness as soon as a constructed asymmetry in the negotiation environment allows for multiple ways of evaluating the payoffs. Roth and Murnighan (1982) run a lottery game between pairs of subjects, who, depending on their role, would earn $5 or $20 upon winning the lottery. The asymmetry in the setup creates two focal points for construing a distribution of 100 tickets, on which the subjects have to agree given the two following options before the lottery takes place: (i) equal number of tickets for both subjects to equalize the chance of winning or (ii) 80 and 20 tickets

for the subjects with $5 and $20 prize values, respectively, to equalize the expected amount of earnings. Roth and Murnighan (1982) observe a disagreement rate of 22%, as the subjects who were assigned a payoff of $20 were more likely to consider the first option, the equal chance of winning, as the fair outcome. On the other hand, the subjects who were assigned the payoff of $5 were more likely to demand the second option, as their own self-serving tastes for fairness would favor the equal expected amount of earnings.

Hastorf and Cantril (1954) investigate how Princeton and Dartmouth students evaluate the penalties committed during a football game held between the two university teams. The students in the experiment were given a chance to view a recording of the game and instructed to report the number of penalties committed by each side. Princeton subjects recorded, on average, more than twice the number of fouls for the Dartmouth team given the number they recorded for the Princeton team. In contrast, the Dartmouth subjects reported almost equal numbers for the penalties committed by both teams. The difference between the reports can be attributed to self-serving bias, which, in this case, does not only affect the individuals` evaluations of themselves, but also their evaluations of the groups they associate themselves with.

Revealing more information to allow for information symmetry may also distort what is construed as fair and bring about self-serving bias. Camerer and Loewenstein (1993) examine the negotiations between pairs of MBA students, who bargained for the sale of a piece of land to attain actual grade points as payoffs. In the first round of the negotiations, the buyers were informed about the value of the land for the buyer, whereas the sellers knew the value of the land for the seller. The results for the first round do not exhibit any deadlocks, as all the pairs agreed on a sale price. At the start of the second round, however, the students were given more information, namely the value of the land to their negotiating partner. Despite the information symmetry, when the students renegotiated the sale of the land in the second round, twenty percent of the pairs found themselves in a deadlock. The students, who fared relatively worse in the first round, demanded more self-benefiting prices as compensation in the second round. On the other hand, their partners argued that keeping the sale price for the land the same in the second round was the fair outcome.

By developing a Texas tort case example based on a real trial that took place in Texas, Babcock and Loewenstein (1997) look for ways to eliminate the bargaining behavior that reflects self-serving bias. The assignment of their subjects was to repeat a trial case, which involved a motorcyclist suing an automobile driver for $100,000 for a collision. The subjects were handed materials to inform themselves about the trial and randomly given the

roles as either the plaintiff or the defendant. Babcock and Loewenstein (1997) asked their subjects to guess the decision of an independent, neutral judge, who reviewed the case as well with the same sources of information. In addition, the subjects were asked about their individual assessments of a fair resolution, and they were given the chance to negotiate between themselves a voluntary settlement in a predetermined amount of time.

In one treatment, if the subjects would fail to reach an agreement at certain intervals, the pie would shrink due to costly delays associated with the legal procedures. The subjects were rewarded with extra payoffs if they reached a settlement within a close range of the judge`s impartial decision. When they failed to agree on a settlement altogether, the judge`s decision determined the payoffs, and the subjects had to pay additional legal costs. The results indicate that the subjects, in their desire to arrive at fair conclusions, search selectively through memory for the kind of information that is coherent with their best interests, "while maintaining an illusion of objectivity" (Danitioso et al., 1990). The plaintiffs` guesses of the judge`s decision were on average $14,527 higher than those of the defendants, and the plaintiffs` settlement values were on average $17,709 higher than those of the defendants, with the discrepancies in the means being statistically different from zero. Despite being paid bonuses for unbiased behavior, the subjects made assessments that demonstrate evidence of self-serving bias, which did not seem to be a deliberate strategy.

In an alternative version of the Texas tort case, Babcock and Loewenstein (1997) inform their subjects about self-serving bias beforehand in order to increase the likelihood of a settlement. However, a prior knowledge about the bias does not give rise to significant changes in the discrepancies between the expectations of the negotiating parties or in the rate of bargaining impasse. The subjects predicted their own guesses to be relatively the same, but they predicted the opposing side`s guesses more realistically. The subjects thought they did not suffer from the self-serving bias themselves, and after finding more about it, they thought the bias still applied to their opponents.

When the subjects learned about their roles only after having gone through the materials presented and made predictions, only 6% of the negotiations, as opposed to the 28% impasse rate in the first version, ended up in a deadlock and got resolved by the judge. Not having been assigned their roles initially, the subjects were unable to recall or unconsciously handpick the type of information that would favor their position and at the same time entail a notion of self-serving fairness. In another treatment, the subjects were assigned their roles initially, but this time they were instructed to write down the weak points for their side of the case. In comparison with the control group, Babcock and Loewenstein (1997) were able to

decrease the bias exercised by the pairs in the treatment group, and the rate of impasse decreased significantly.

In a field study that scrutinizes the public school teacher salary contracts in the state of Pennsylvania, Babcock et al. (1996) examine whether the experts, namely the union and school board presidents, themselves succumb to self-serving bias. To conduct the study, surveys were sent to union and school board presidents in all the 500 school districts of Pennsylvania, which were all unionized and had experienced an 8% strike rate in the teacher salary contract negotiations since 1971. The 75 districts, in which both the union and school board presidents submitted a response, constitute the survey data for the study. In the study, Babcock et al. (1996) asked the experts to give a list of the school districts they deemed to be comparable to their own district for the purpose of negotiating teacher salary contracts. Furthermore, the experts also indicated their preferences for what should be taken as the measure in the negotiations: the income levels for the teachers in other school districts or the wealth of the residents in home districts.

Babcock et al. (1996) find evidence for self-serving bias in answers given in both sections of the survey. In their selection of the comparable lists, both the union and school board presidents put bigger weight on the school districts that neighbored their own district and had similar financial conditions. However, when the teacher salaries among the neighboring districts exhibited a large variation, the union`s list was more likely to include a set of comparable districts with significantly higher average teacher salaries. In contrast, the school board`s list was more likely to be crowded with the comparable districts having significantly lower average teacher salaries. When the neighboring school districts did not exhibit a large variation in teacher salaries, the experts of a single district were unable to self-servingly come up with two contrasting lists that would juxtapose comparable districts with significant differences.

Moreover, self-serving bias is not only evident when Babcock et al. (1996) compare the behaviors of the presidents of the unions and school boards. The experts, who shared the same role in the contract negotiations, displayed differences in preferences among themselves as well. The union presidents in wealthy communities regarded the resident salaries as more relevant for the discussion of contract negotiations than the union presidents in poorer communities did. Similarly, the school board presidents in districts neighboring the districts with higher teacher salaries viewed teacher income levels as less important for the discussion than the school board presidents whose districts are circled by the school districts with lower teacher salaries did.

Babcock et al. (1996) conclude a relationship between the difference in magnitude of the average teacher salaries in the lists of a union and school board president in one district, and the likelihood of a strike in that district. Their finding suggests that compared to a district, in which the average teacher salaries are listed the same, a district with $1000 difference in its lists is 49% more likely to experience a strike. In other words, decreasing the variation in the districts perceived as comparable, which dictates the magnitude of the self-serving bias in the study, can help the school districts eliminate a possible strike, which is an example of bargaining impasse.

Knez and Camerer (1995) find evidence for self-serving bias in their ultimatum bargaining games. Players that are assigned a positive outside option in an ultimatum bargaining game receive a predetermined payoff when they fail to reach an agreement. For example, given a provisionally allocated sum of c and an outside option of m for the proposer, the possible payoff distributions are the following: when the respondent accepts the proposer`s offer x, the proposer and the respondent receive c-x and x, respectively. In case of a bargaining impasse, however, the proposer receives m and the respondent gets nothing. Knez and Camerer (1995) introduce the asymmetry for the focal points of fairness in their version of the ultimatum bargaining game by including a fixed positive outside option in the setup.

By shifting perceptions for fairness among the proposers and the respondents, Knez and Camerer (1995) observe a significant spike in the number of non-settlement cases. In particular, when they decide on a fixed outside option of $4 for the proposer and $2 for the respondent, they observe a rejection rate of 50%. The high rate persists in another treatment that allows for five earlier sessions of learning.

Alternatively, Knez and Camerer (1995) study additional sessions of three-player games that consist of one proposer and two respondents. The proposer and one of the respondents both had the fixed outside option of $4, whereas the other respondent had a fixed outside option of $2. The subjects self-servingly disagreed on reaching a fair outcome at a considerable rate in this treatment as well. Moreover, when each respondent got the chance to observe the proposer`s offer to the other respondent, the social comparison effect kicked in, altering the amount demanded by the respondents, who became more aggressive in their demands. The proposer, on the other hand, did not anticipate any social comparison effects, keeping his offer more or less the same.

We are particularly interested in observing the effects of the magnitude of self-serving bias on bargaining impasse in the ultimatum bargaining games. Our experimental

setup differs from that of Babcock et al. (1996) in that the variable for the magnitude of self-serving bias is not surveyed but deterministic. Unlike in Knez and Camerer (1995), our outside options are not fixed but set in alternating values.

III. Experimental design and procedure

In this paper, we examine the effects of seven treatments in total, namely a null treatment and six other alternative treatments. The null treatment follows the setup of a simple ultimatum bargaining game with a provisionally allocated sum of SEK100. The remaining treatments, on the other hand, can be divided into three categories: four treatments with varying outside options, featuring a distribution pie of SEK100, a sixth treatment with the social comparison effect, featuring a pie of SEK1000 and a seventh treatment with varying outside options around a cutoff outside option value of SEK50. The treatments with the varying outside options and discontinuity around SEK50 follow a setup that are essentially a variation of the simple ultimatum bargaining game, in which the respondent receives an outside option in specified increments in the event of a rejection. In the treatment with the social comparison effect, a single respondent is playing a version of the ultimatum bargaining game with two types of multiple proposers, against whom the respondent may or may not enjoy an outside option of SEK700.

Treatments (#)	Provisionally allocated sum, c	Outside option for the respondent
null (1)	100	0
varying outside options (4)	100	20, 40, 50, 70
social comparison effect (1)	1000	0, 700
discontinuity around SEK50 (1)	100	40-49, 51-60

Table I. Number of treatments in the experiment and their basic properties

First leg of randomization

We conducted the experiment at the Stockholm School Economics in nine sessions that took place in April, 2014. Initially, we applied randomization to the list of graduate level courses offered at the university during the fourth semester of the 2013-2014 academic year for our first six treatments. Among the undergraduate level courses offered at the university during the same period, we applied a secondary randomization to determine the courses, in which we would conduct the eighth and ninth sessions for our seventh treatment. The reason why we chose an undergraduate course for the seventh treatment is due to the large time gap between the sessions 1-7 and 8-9 and also due to our observation as the experimenters that the graduate students often discussed the experiment among themselves

after each session. These two steps of randomization helped us determine the courses we would visit in order to conduct our experimental sessions. Before the random selection, however, we excluded the courses sponsored by the Stockholm School of Entrepreneurship from the pool of courses, as these courses consist of students from other institutions such as the Royal Institute of Technology, Karolinska Institute, Stockholm University and the University College of Arts, Crafts and Design. The randomly selected courses, specifically, 5315, 5309, 4321, 5318, 3307, 1309, GM822, 743 and 760 had a substantial number of registered students listed online; therefore, we decided not to include any additional courses in our pool. Having obtained the consent of the course lecturers in advance, we conducted the sessions in the beginning or the end of the lectures, or in some occasions, during the breaks in between (see the Appendix for our randomly constructed course selection lists).

Second leg of randomization

Given the first six treatments and the two roles for each treatment, we prepared a total of twelve distinct one-page instruction papers and attached to them their corresponding answer sheets (see the Appendix for the actual instructions). The students usually sign up for the courses offered by their specialization departments to fulfill their degree requirements; hence, each session had subjects mainly hailing from one particular field of economics. This composition led us to shy away from pairing up the students within their respective courses. Instead, we assigned the twelve distinct roles randomly to all the students across the courses in order to minimize our standard errors. We prepared individual instruction papers and answer sheets for a total of 40 unique roles in the seventh treatment and distributed them randomly across the undergraduate level classrooms.

Treatments	#	Identifier	Roles and Pairings
null	1	omega	proposer-respondent
varying outside options	2	theta	proposer-respondent
	3	lambda	
	4	sigma	
	5	phi	
social comparison effect	6	social omega social phi	multiple proposers- single respondent
discontinuity around SEK50	7	below the cutoff above the cutoff	proposer-respondent

Table II. Roles assigned in each treatment and their pairings

The procedure of the experimental sessions was as follows: the students, who were present in the (randomly selected) classrooms on the day of the session, first listened to an announcement that was identical across all classrooms. During the announcement the students were told that the session would not take long and that they would have a chance to collect real earnings with their results in the experiment (see the Appendix for the announcement text). No actual numbers regarding the duration of the experiment or the earnings associated were disclosed to the students, on purpose, because we wanted to prevent any possible anchoring effects. Participation was voluntary; however, when necessary, we avoided repeated participation in the experiment by reading out in subsequent sessions the names of those who had been present in the earlier sessions. The list of these names was compiled through the online registration lists of the courses. After handing out the instruction papers with specific treatments to our subjects in a random fashion, we informed them that the game had complete information. Each session was completed in less than 6-10 minutes.

Each game lasted for one round. Except for the treatment with the social comparison effect, each subject played against a single opponent only, and there were no repetitions in match-ups. The proposers were instructed to circle an answer in the proposal sheet to indicate their offer to the respondent. Similarly, the respondents were asked to circle an answer in their response sheet to indicate their minimum WTAs[4], specifically the minimum offer they would accept from the proposer. We assured our subjects of their anonymity from one another- they did not have the chance to observe or see their opponents before, during or after the experiment. In addition, every proposal and response sheet contained two copies of an anonymous code generated uniquely for each participant. The code does not include any numbers but letters instead. We avoided using numbers again to thwart any potential anchoring effects. If decrypted, some of the letters contain information about the subject`s treatment, role, outside option and act as a unique identifier for anonymity from the experimenter (see the Appendix for a more detailed explanation of the anonymous codes). The subjects kept one of the copies, which allowed them to collect possible earnings given their results in the experiment during a secondary meeting held in May in each classroom, where we conducted the experiment earlier.

A total of 250 unique students participated in our experiment. 30 students played the simple ultimatum bargaining game; 119 students played the games with the varying

[4] Willingness to accept.

outside options treatment; 21 students participated in the treatment with the social comparison effect and 80 students participated in the discontinuity treatment.

Third leg of randomization

Having obtained the data from the participating students, we randomly matched the proposers and the respondents to obtain the results. First, we randomized the order of the treatments for which we would determine the pairings. Then, within the same treatment group, we randomly matched a proposer with a respondent and continued with the process until all the subjects in that treatment group formed a pair. The process of pairing up was not repetitive, and the match determined the composition of the pairs, the result of the game and possible earnings for the players. For the treatment with the social comparison effect, no randomization process was necessary, because all the proposers had been matched in advance with a single respondent in our experimental design. We decided on a single respondent, because we are particularly interested in testing for the social comparison effect observed between the proposers in this treatment.

Our subjects did not receive any participation fees, but we tried to make the experience pleasant for all the participating and non-participating students by bringing refreshments for give-away in each classroom. Ultimately, once paired up, the subjects gained access to their experimental results via a secondary meeting a few weeks after, finding out whether their game resulted in a settlement or deadlock. Furthermore, in the null and varying options treatments, a random pair for every five participating pairs collected their earnings from their experimental results in monetary terms. In the treatment with the social comparison effect, the respondent`s two random pairings collected real earnings. In the treatment with the varying outside options around a cutoff value, a random pair for every 10 participating pairs collected their earnings. We visited the same classrooms where we conducted our experimental sessions once again in May to announce the results and handed out the payments anonymously as promised. In conclusion, we distributed SEK>2000 for payment as opposed to a total of SEK3900 had all the pairs participating bargained cooperatively and reached a settlement.

Because the results of the ultimatum bargaining games are quite sensitive to the alterations in the setup, we want to explain in further detail the choices for our two design conditions that divert from the conventional designs of the simple ultimatum bargaining game.

1. Our experiment did not feature double-blind anonymity. The subjects would not find out whom they were paired up with before, during or after the experiment. In addition, as experimenters, we took certain steps to assure the subjects that we were not observing them during their process of decision-making. Unlike the answer sheets, the instruction papers did not include the unique, anonymous codes, so the roles were handed out anonymously as well as randomly. The answer sheets were also handed in an anonymous manner. However, the experiment took place in a classroom setting, so the subjects had to participate in the same room with the other students and the experimenters present in the same room. We were satisfied with this setup, because our subjects had the chance to observe that their likely opponents could have well been in the same classroom. Otherwise, the social comparison effect might have been much smaller to observe in a double-blind setting (Knez and Camerer, 1995). Moreover, technical constraints due to the available space and course schedules discouraged us from using the double-blind setup.

2. The respondents submitted their answers in the form of WTAs. Consequently, they did not give answers after having observed the proposals offered to them by their individual opponents. We wanted our respondents to make decisions independently and give answers based not just on the offers of the proposers. We opted for this particular design partly because of the constraints regarding the course schedules and resources. The WTA design also enabled us to match students randomly across different classrooms. In addition, in our treatment with the social comparison effect, we did not want our single respondent to make decisions on the individual offers in relation to other previous offers. Thanks to this setup, we could assure our proposers of the single respondent`s making independent decisions and thus prevent the proposers from competing against each other while making offers. Furthermore, responses given in the form of WTAs is not significantly different from the responses in the conventional setups, in which the respondents observe specific offers (Knez and Camerer, 1995).

IV. Hypotheses

In this paper, we test whether the magnitude of self-serving bias, which is deterministic in our setup, explains for the rate of bargaining impasse. Additionally, we investigate whether the social comparison effect shifts the tastes and perceptions for the self-

servingly fair focal points of offers and demands. We also examine whether the elimination of a heavy anchor in the game setup leads to a divergence in adopting self-servingly different positions for fairness, distorting the magnitude self-serving bias in our first setup. Because ultimatum bargaining games can help us understand the bargaining behavior in real bargaining situations, our design also helps us test and explain for the findings in Babcock et al. (1996) with experimental data. Furthermore, introducing multiple outside option treatments allows us to systematically classify the reasons behind the magnitude of spikes in the rejections rate observed in Knez and Camerer (1995).

> H1: As the difference between what the proposer and the respondent regard as a fair split increases, the rejection rate increases.

Introducing outside options to the ultimatum bargaining game helps us create an asymmetry between the viewpoints of the proposer and the respondent, specifically on what they consider as a fair outcome in the game. In the null treatment, both the proposer and the respondent would find a 50-50 split fair and mutually decide on that outcome if they were to be driven solely by their concerns for fairness ($n^P=n^R=1$).

However, with the presence of an outside option, m, for the respondent, the players will, despite having identical information, decide in line with their own perceptions of what constitutes a fair offer in an ultimatum bargaining game with a provisionally allocated sum of c. The outside option, m, gives rise to two candidate outcomes, both of which can be self-servingly defined and argued as fair. From the proposer`s perspective, the c/2-c/2 split will constitute the fair outcome as long as offering half the pie is an element in the set of possible outcomes. If c/2 is not a viable option, then the element in the set of possible outcomes that has the closest value to c/2 will be considered the fair outcome by the proposer. From the respondent`s point of view, however, c/2 will cease to be the fair outcome as soon as the respondent receives an outside option, m. Instead, the respondent will perceive (c-m)/2 as the offer addressing to his taste for fairness. While the proposer might review his expected earnings in relation to the pie, c, the respondent might take c-m into consideration as the zone of possible agreement and treat m as an expected earning that is independent from the pie, c-m. Table III. illustrates the differences in magnitude between the fairness focal points of the proposer and the respondent for the null and four varying outside option treatments. The payoff values in SEK refer to the payoffs offered to the respondent.

Outside option	Proposer`s self-servingly fair outcome	Respondent`s self-servingly fair outcome	Magnitude of self-serving bias
0	50	50	0
20	50	60	10
40	50	70	20
50	55	75	20
70	75	85	10

Table III. The different outcomes of "fairness," favored self-servingly by the proposer and the respondent

The magnitude of the difference between the average salaries computed from the self-servingly created lists of comparable school districts enabled Babcock et al. (1996) to predict the likelihood of strikes for each school district. When the average salary in the union`s list was $1000 more than the average salary in the school board`s list, that school district was 49% more likely to experience an impasse in negotiations than a school district without any variation in its lists.

H2: The social comparison effect between the proposers will prompt the disadvantaged side to propose lower offers.

Unlike the study by Knez and Camerer (1995), in our treatment with the social comparison effect, multiple proposers of two types make offers to a single respondent. The first category of randomly selected proposers play the simple ultimatum game against the single respondent. Against the second category of randomly selected proposers, the single respondent enjoys an outside option of SEK700. We do not expect our subjects in this treatment to compete among themselves as it is the case in the monopoly market games[5] (Roth et al., 1991). Instead, the single respondent hands in his WTAs for the offers made by each type of proposers, and he has no means to compare individual offers against one another. Furthermore, we assure the proposers in our experiment that the proposals offered by the others would not affect the respondent`s decision on individual offers.

We hypothesize that we will observe a social comparison effect between the two types of proposers. We expect that the amount of the offers made by the proposers would change after observing the set of possible offers the other type can make. Because the proposers also care about the comparative payoffs, the multiple proposers facing an outside

[5]In the monopoly market game, multiple buyers make offers to a seller, and the seller either accepts the most favorable offer or rejects all the offers and receives nothing. This setup would lead to a fierce competition among the buyers, who would be willing to accept a much less portion of the surplus in comparison to zero payoffs for the others when their offers are rejected.

option will offer more aggressive proposals due to the social comparison effect. In the counterpart treatment without the social comparison effect, namely the phi treatment, some proposers might give in to the respondents` self-serving point of view on the fair outcome, reasoning that the big outside option would enable the respondents to punish selfish and self-serving offers more frequently. However, comparing himself to other multiple proposers who, in his knowledge, do not face any outside options against the single respondent, the proposer confronted with an outside option in the social comparison treatment is more likely to insist on his self-serving consideration of a fair outcome.

Due to the "substantial" social comparison effect observed between the respondents, Knez and Camerer (1995) find that the respondents rejected proposals at higher frequencies when they received lower offers in comparison with another respondent.

> H3: The absence of the heavy anchor of SEK50 shifts preferences between the self-serving points of fairness, increasing the perceived magnitude of self-serving bias.

We make use of two systems of thinking while making decisions, namely system 1 and system 2 thinking. Unlike our system 2 thinking, the system 1 thinking is effortless, less deliberate and time consuming, based less on logic and rationale and utilizing past experiences, emotions and intuition (Bazerman and Moore). In negotiations, people usually shift from system 2 thinking to system 1 thinking when they face time constraints, evaluate complex setups or suffer from overconfidence. The system 1 thinking helps the negotiators to make accurate judgments under time limits, but it can also misdirect the negotiators with bounded awareness and introduce new biases.

The difference between what the proposer and the respondent are likely to regard as a fair split, according to the standard economic theory, is not discreet and can be easily computed in the ultimatum bargaining games with outside options. However, for the distribution of a pie of 100 units, the number 50 can act as a heavy anchor distorting the choice of perceived points of fairness. Due to the extensive use of the expression "fifty-fifty" in the language to describe a split in equal halves or a win-win situation, the subjects may succumb to the problem of availability heuristic while practicing their system 1 thinking to settle on a "fair" decision (Tversky and Kahneman, 1973).

A split of 50-50 is an occurrence that is more readily available in our memory, and the subjects are more likely to assess hastily the outcome (50, 50) as fair regardless of their roles or their outside option. In other words, instead of taking his time to identify the

self-serving point of fairness with diligence in an ultimatum bargaining game with outside options, a respondent may fast track his thought process by switching to system 1 thinking and by making use of his past experiences in evaluating a distribution of SEK100. If the outcome SEK50 is an element in the set of possible outcomes, the respondent is more likely to adopt the proposer`s self-serving point of fairness as his own and deem the outcome of SEK50 to be a good match for his distorted taste of fairness, eliminating the magnitude of the self-serving bias. On the other hand, the absence of SEK50 in the set of possible outcomes will not trigger an automatic reliance on the system 1 thinking, preserving the conscious, active search for the self-serving point of fairness for the respondent as the minimum WTA, increasing the perceived magnitude of the self-serving bias.

If we are able to treat the cutoff values below and above the threshold value of SEK50 as control and treatment groups, respectively, then we can observe, at a sufficiently close neighborhood, the impact of magnitude of the self-serving bias on the rate of bargaining impasse.

IV. Empirical results

In order to systematically explain for the high level of bargaining impasse observed in Knez and Camerer (1995), we set up an experiment with alternating degrees of outside option and a treatment with the social comparison effect in the ultimatum bargaining game. In addition, we tested for a possible discontinuity for the perceived magnitude of the self-serving bias around a cutoff value of a heavy anchor. We discarded three of our observations in total, as the proposers in three pairings violated our rules and offered an amount that was lower than the outside option assigned to their respective respondents.

The frequency of the proposals offered and the minimum WTAs demanded for the varying outside option treatments is presented in Table IV created by the software program STATA. The subjects in these treatments did not know about the alternating outside options assigned to the other players in the experiment, so they did not get the treatment with the social comparison effect.

The modes of the proposals made in each varying outside option treatment give us an interesting tell about what factors might have motivated our proposers. In the absence of an outside option, more than half of the proposers make decisions that reflect a taste for fairness and show a dislike for uneven relative payoffs between themselves and the respondent. On the other hand, just one proposer (<7% of the proposers) seems to be purely self-interested and offers the respondent the minimum amount possible, SEK5, as predicted

by the standard economic theory. The distribution of the proposers with concerns with fairness in our omega treatment are similar to those in the previous ultimatum bargaining games not featuring any outside options (Andersen et al., 2011). The higher frequency regarding the abundance of non-trivial offers in our experiment could also have arisen due to our experimental setup, which was not double-blind and allowed for probable concerns of reputation. In addition, we informed our subjects in our instructions that they were playing the game against their fellow SSE students; therefore, they could have behaved in a more altruistic fashion, caring about the others` payoffs as well.

Pro.	Outside option					Res.	Outside option				
	0	**20**	**40**	**50**	**70**		**0**	**20**	**40**	**50**	**70**
5	1	0	0	0	0	**5**	3	0	0	0	0
10	1	0	0	0	0	**10**	0	0	0	0	0
15	0	0	0	0	0	**15**	0	0	0	0	0
20	0	0	0	0	0	**20**	0	0	0	0	0
25	0	3	0	0	0	**25**	0	2	0	0	0
30	1	1	0	0	0	**30**	1	0	0	0	0
35	0	1	0	0	0	**35**	0	1	0	0	0
40	1	**6**	0	0	0	**40**	4	3	0	0	0
45	2	2	4	0	0	**45**	1	1	**5**	0	0
50	**8**	2	**7**	0	0	**50**	**5**	**6**	**5**	0	0
55	1	0	0	**9**	0	**55**	0	0	0	**4**	0
60	0	0	3	1	0	**60**	0	0	3	1	0
65	0	0	0	0	0	**65**	0	0	0	0	0
70	0	0	1	1	0	**70**	1	0	1	2	0
75	0	0	0	1	**10**	**75**	0	0	0	**4**	**8**
80	0	0	0	1	2	**80**	0	0	0	2	3
85	0	0	0	0	1	**85**	0	1	0	0	1
90	0	0	0	1	0	**90**	0	0	0	0	1
95	0	0	0	1	1	**95**	0	1	1	2	1

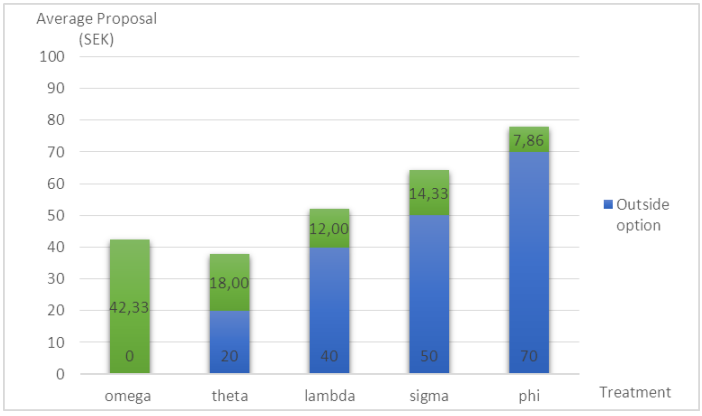
Table IV. Two-way tables of frequencies for the outside options and proposals/responses

Once we introduce an asymmetry into the game via an outside option, the frequency of the offers that reflect a taste for self-interest increases. Fairness concerns in the proposers` general behavior drop in the theta treatment, in relation to the omega treatment, as an asymmetry in the setup kicks in. Compared to their counterparts in the omega treatment, the proposers in the theta treatment show with their lower offers a dislike for the uneven distributions of the outside options assigned between the players. In the treatments lambda, sigma and phi, the self-servingly fair outcomes for the proposer, namely SEK50, SEK55 and SEK75, respectively, become the mode again. This pattern in the proposers` behavior is

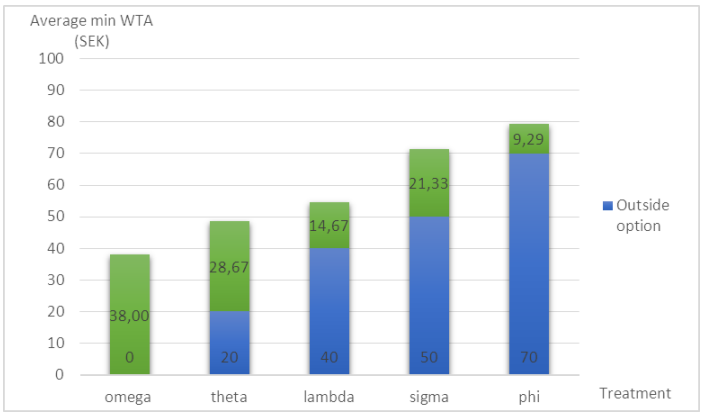
coherent with the standard economic theory, since the concerns with self-interest align increasingly more with the concerns with fairness, as we increase the outside options closer to or above the self-servingly fair payoffs for the proposer.

Unlike the frequency distribution of the proposals, the respondents` minimum willingness to accept values are positively affected by the increasing outside options in all of the varying outside options treatments. Similar to the proposers in the omega treatment, the respondents in the same treatment group seem to dislike uneven relative payoffs between themselves and the proposers. The respondents in the theta and lambda treatments demand more frequently the self-servingly fair outcomes for the proposers as their minimum WTAs, specifically SEK50. The respondents in the sigma treatment, however, are the only group whose modal minimum WTA includes the self-servingly fair outcome for the respondents. The respondents in this group asked frequently for the outcome of SEK75 as well as for SEK55, which is the self-servingly fair outcome for the proposers in the sigma treatment.

In addition to the modes in our data, the average of our subjects` proposals and responses give us more information about the discrepancies in behavior across the varying outside option treatments. The graphs I.A. and I.B. exhibit the average proposals and responses, highlighting the outside options in each treatment.



Graph I. A. Average proposals offered



Graph I. B. Average minimum WTAs demanded

Except for the omega treatment, the respondents, on average, demand higher minimum WTAs than what the proposers offer on average. When we account for the outside options, however, we observe a decreasing gap between the average proposals offered and the outcomes that suggest pure self-interest, namely SEK5, SEK25 and SEK45, respectively, for the proposers in the omega, theta and lambda treatments. In the sigma treatment, even though the strategies that display concerns with self-interest and fairness in a self-serving fashion for the proposers align at the outcome of SEK55, the proposers still make offers that are SEK14.33 higher on average. Furthermore, in the sigma treatment, the respondents are more demanding with their answers, as they ask on average for minimum WTAs that are the closest to the self-servingly fair outcome for the respondents[6].

It is also useful to examine where the average proposals and responses stand in relation to the distinctive self-serving focal points of fairness for the proposers and respondents. Table V compares the offers and demands given to the following focal points: self-interest for the proposer, fairness for the proposer and fairness for the respondent. The values refer to the respondent payoffs.

The values highlighted in different colors indicate the individual references for the divergences of the proposer and respondent, as they self-servingly view different pies for negotiation. Therefore, a jump of SEKX between any two outcomes might appear to be more or less sensitive depending on the role of the subject in the varying outside option treatments. For example, from the proposer`s perspective, an average respondent demands 4.29% more than what the self-servingly pro-proposer fair distribution suggests in the phi treatment, whereas from the respondent`s perspective, the average minimum WTA stated in the same treatment yields 19.05% less earnings than the self-servingly pro-respondent fair distribution would.

Between the respondents in the omega and theta treatments, we observe a decreasing gap between the average minimum WTAs demanded and the self-servingly fair outcomes, namely SEK50 and SEK60. The decrease in the gap is possibly due to the fact that the respondents are more likely punish a proposal driven by the proposer`s self-interest when they receive a positive outside option in the case of bargaining impasse. In the lambda treatment, the average minimum WTAs demanded hovers near the outcome that a proposer would self-servingly deem to be fair, whereas in the sigma treatment, which has the same magnitude of self-serving bias as the lambda treatment, the minimum WTAs demanded on

[6] In the sigma treatment, the self-servingly fair outcome for the respondents is SEK75.

Outside Option	Remaining pie, (c-m)	Average Proposal (Avg P)	Average Response (Avg R)	Pure self-interest point for the Proposer (Self P)	Self-serving fairness point for the Proposer (Fair P)	Self-serving fairness point for the Respondent (Fair R)
omega (0)	100	42.33	38.00	5	50	50
theta (20)	80	38.00	48.67	25	50	60
lambda (40)	60	52.00	54.67	45	50	70
sigma (50)	50	64.33	71.33	55	55	75
phi (70)	30	77.86	79.29	75	75	85

Outside Option	Avg P -Self P	(Avg P -Self P) /(c-m)x100	Avg R - Self P	(Avg R - Self P) /(c-m)x100	Avg P - Fair P	(Avg P - Fair P) /(c-m)x100
omega (0)	37.33	37.33	33.00	33.00	-7.67	-7.67
theta (20)	13.00	16.25	23.67	29.58	-12.00	-15.00
lambda (40)	7.00	11.67	9.67	16.11	2.00	3.33
sigma (50)	9.33	18.67	16.33	32.67	9.33	18.67
phi (70)	2.86	9.52	4.29	14.29	2.86	9.52

Outside Option	Avg R - Fair R	(Avg R - Fair R) /(c-m)x100	Avg R - Fair P	(Avg R - Fair P) /(c-m)x100
omega (0)	-12.00	-12.00	-12.00	-12.00
theta (20)	-11.33	-14.17	-1.33	-1.67
lambda (40)	-15.33	-25.56	4.67	7.78
sigma (50)	-3.67	-7.33	16.33	32.67
phi (70)	-5.71	-19.05	4.29	14.29

Table V. The average proposals and responses and their relation to alternative self-serving reference points

average shows a stronger pull towards the self-serving fairness point for the respondent role. In the lambda treatment, the self-servingly pro-proposer fair point, particularly SEK50, might be acting as heavy anchor for the respondents. In the phi treatment, the average response is closer to the self-serving fairness point of the proposer than that of the respondent, as the majority of the respondents demands the outcome of pure self-interest and of self-serving fairness for the proposer, SEK75. The respondents in the phi treatment are less willing to punish the proposals that reflect a taste of self-interest, while their proposers are in disproportionately disadvantaged position due to the outside option of SEK70 for the respondent. The average proposal diverges in bigger magnitude from the outcome of pure self-interest for the proposers in the sigma treatment by SEK9.33 (9.33% of the proposer`s

defined pie), compared to the divergence in the lambda treatment, SEK7.00 (7% of the proposer`s defined pie).

The varying outside options treatment:

Although the magnitude of the outside options exhibits with some irregularities a connection with the proposals or the responses in our experiment, the relationship between the magnitude of self-serving bias in the treatments and the subjects` proposals or minimum WTA decisions is less clear. In our regression analysis for the varying outside option treatments, we find no significant relationship between the rate of bargaining impasse and the magnitude of self-serving bias. (see the Appendix for dprobit, mfx2 and LPM results generated by STATA)

	(1)	(2)	(3)
Variables	SETTLEMENT	SETTLEMENT	SETTLEMENT
PROPOSALS	0.205***	0.206***	0.0396***
	(0.0617)	(0.0636)	(0.0104)
MBIAS	0.0971	0.0953	0.0193
	(0.0694)	(0.0697)	(0.0137)
OOPTION	-0.151***	-0.152***	-0.0291***
	(0.0485)	(0.0502)	(0.00801)
FEMALE_P	-1.701**	-1.734**	-0.342**
	(0.864)	(0.871)	(0.169)
FEMALE_R	0.173	0.137	0.0201
	(0.661)	(0.753)	(0.148)
MSC	0.547		
	(1.089)		
MSC_P		0.160	0.0665
		(1.143)	(0.215)
MSC_R		0.00245	-0.00218
		(0.978)	(0.199)
Constant	-5.803**	-5.355**	
	(2.370)	(2.485)	
Observations	69	67	67

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table VI. dprobit results reporting marginal effects after probit regressions

Our dependent variable is SETTLEMENT, a dummy variable created for the successful bargaining rate that assumes the value of 1 when the minimum WTA is equal to or bigger than its corresponding proposal and the value of 0 when there is a deadlock between the negotiating pairs. The individual successful bargaining rates for the omega, theta, lambda, sigma and phi treatments are 80%, 40%, 73%, 40% and 71%, respectively. Our exogenous variables include the proposals offered (PROPOSALS), the magnitude of self-serving bias (MBIAS), the amount of the outside option for the respondent (OOPTION), an education level dummy (MSC), course dummies ($COURSE_i$) and a gender dummy (FEMALE). Because the range of values for our dependent variable is limited, the logit and probit models are better candidates for our regression. Both models state no significant relationship between our dependent variable and the magnitude of self-serving bias ($p=0.165$ and $p=0.168$ in probit and logit models). Therefore, the regression coefficient and its sign for the magnitude of the bias reported in the marginal effects report are also not significant. We also do not find any causal effects when we allow for non-linear relationships between our dependent variable and the magnitude of self-serving bias. We reject our first hypothesis.

Burnham (2007) finds a significant relationship between the ultimatum bargaining game conflicts and the subjects` levels of testosterone. Eckel and Grossman (2001), on the other hand, observe males` proposing significantly lower offers to male opponents as opposed to their female opponents in the ultimatum bargaining games. We control for the gender of our subjects because the high-testosterone men among our subjects might have responded in a self-servingly more aggressive manner if they felt especially challenged by the higher outside options assigned to their opponents, possibly decreasing the rate of bargaining success. Similarly, the subjects might have associated the male experimenter, whom they observed during the experiment, with their anonymous opponent and acted less chivalrously in return, altering their self-serving view for fairness and having a negative impact on the rate of bargaining success. However, we do not capture any causal effect of the gender dummy for the respondents on the rate of bargaining success. The significant relationship regarding the gender dummy for the proposers is spurious, as the respondents did not have a chance to observe the necessary information about their opponents. We control for the educational level to adjust for the slight possibility that a subject without a behavioral economics or basic game theory background might misinterpret the game. We do not obtain any significant results for the level of education attained.

The treatment with the social comparison effect:

Table VI. summarizes the results for the treatment with the social comparison effect.

Treatment	Observations (#)	Allocated pie, c	Outside option	Average Proposal
omega	15	100	0	42.33
social omega	10	1000	0	380.00
phi	14	100	70	77.86
social phi	8	1000	700	768.75

Table VI. Comparative results in the omega/social omega and phi/social phi treatments

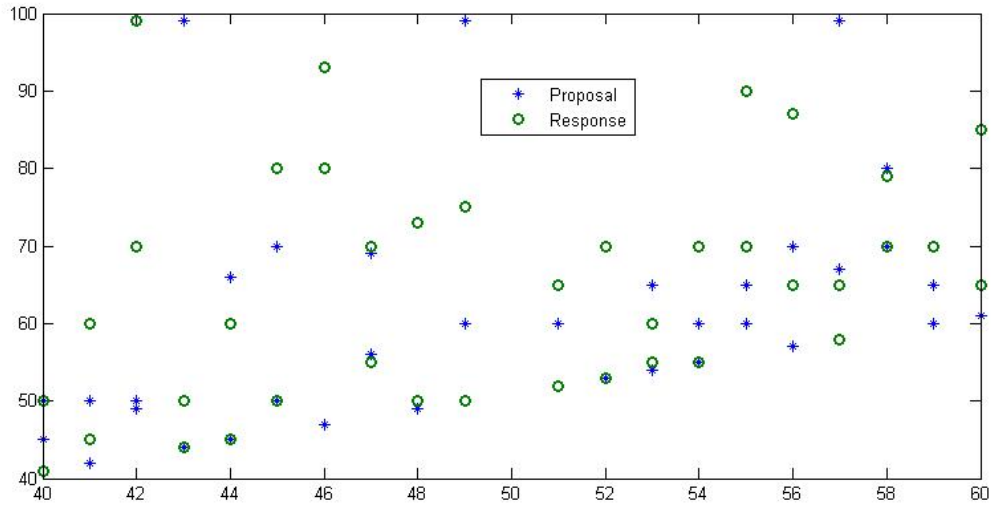
The multiple proposers playing against the single respondent with an outside option of SEK700 in the treatment with the social comparison effect dislike not only the uneven relative payoffs between themselves and the single respondent, but also the uneven relative payoffs between themselves and the multiple proposers facing no outside options in the same treatment. When we compare the ratios between the amounts offered and the provisionally allocated sums within the same treatments, the multiple proposers in the social phi treatment made slightly less generous offers on average than the proposers in the phi treatment did. However, the T-test does not allow us to reject the null hypothesis of no significant difference between the mean ratio of the proposals made across the phi and social phi treatments (p-value= 0.6722, df:20). Similarly, we cannot reject the null hypothesis of no significant difference between the proposals made across the omega and social omega treatments when we compare the mean ratios (p-value= 0.5124, df:23). The probable dislike among the multiple proposers in the social omega treatment for the uneven payoffs between the single respondent and the multiple proposers in the social phi treatment might be a factor for the lower ratio of payoffs (38% vs 42.33%).

We also could not reject the null hypothesis of the Epps-Singleton (ES) test that the underlying distributions of the proposals in the phi and social phi treatments are equal (the test statistic W2 is less than its critical value at the 10% significance level, 6.251). Similarly, we could not reject the null hypothesis of the ES test for the samples in the omega and social omega treatments (the test statistic W2 is less than its critical value at the 10% significance level, 7.779). Therefore, we do not observe an evidence for social comparison effect taking between our multiple proposers and reject our second hypothesis. The ES test is a good fit for our discrete data, because it does not assume that the data is drawn from a continuous distribution (Goerg and Kaiser, 2009). In addition, the ES test also includes minor corrections for smaller samples.

The discontinuity treatment:

In our results for the varying outside option treatment, the respondent data for the lambda and sigma treatments hints at a shift in behavior. The respondents tended to ask for minimum WTAs around the self-servingly fair payoff for the proposer in the lambda treatment, whereas they gravitated on average and in frequency towards the self-servingly fair payoff for themselves in the sigma treatment. The ES test rejects the equality of the distributions, but this could be primarily due to the presence of different outside options in the treatments. Because our respondents displayed hintingly systematic dissimilarities in their behavior despite the common magnitude of the self-serving bias in the lambda and sigma treatments and the randomization of the roles, we held additional sessions of the experiment featuring outside options for the respondent in the vicinity of the payoff value SEK50. We determined our cutoff value due to the heavy anchoring effect the number 50 embodies in system 1 thinking for a distribution of 100 units and in the English language as well.

The presence of the heavy anchor, SEK 50, in the set of possible outcomes may trigger the respondents securing outside options to evaluate the game from the proposers` perspective, invalidating self-serving bias. However, the discontinuity treatment, namely the absence of SEK50 in the set of possible outcomes due to higher outside options, may arbitrarily give rise to the respondents` handpicking self-servingly the other focal point of fairness in the game, allowing for self-serving bias between the roles. We can then use the arbitrary jump as an instrument variable to determine the discontinuity treatment status of our subjects.



Graph II. Response and proposal distributions in the discontinuity treatment

The Graph II. tells us, however, that there is no discontinuity neither in responses nor in proposals around our cutoff value. Therefore, we cannot make arguments for a natural or rule-based randomization or treat our subjects on both sides as control and treatment groups. Our graphical analysis fails to show a jump in the outcome variable, which is necessary for the regression discontinuity designs, so we also reject our third hypothesis.

Nevertheless, our regression analysis LPM, probit and logit models also confirm our results in the varying outside option treatment, displaying no significant relationship between the rate of bargaining impasse and the magnitude of self-serving bias (see the Appendix for dprobit, mfx2 and LPM results generated by STATA). Similar to our regression model in the varying outside option treatment, we introduced controls for gender, graduate level education and previous courses taken on behavioral economics.

VI. Concluding remarks

The magnitude of self-serving bias is deterministic in our ultimatum bargaining game design with positive outside options for the respondent. There are two possible focal points of fairness, namely c/2 and (c-m)/2, and the proposer and the respondent self-servingly select the alternative focal points as guidance for assessments of fairness in the game. We did not find a significant relationship between the magnitude of self-serving bias and the rate of bargaining impasse in our variations of the ultimatum bargaining game. However, our finding of no significant relationship is still significant itself, as it differs from the results of the previous literature.

A substantial difference between the *computed* magnitude of self-serving bias proposed by the economic theory and the magnitude *perceived* and performed by our subjects may account for the insignificant results. We tried to circumvent this problem by trying to exploit a possible discontinuity at a cutoff value around a heavy anchor given our preliminary results for the varying outside option treatment. However, we find no discontinuity in our data, yet confirm our results for no causal effect. An interesting suggestion for future research might be a change in the assignment of the outside options. The subjects in a new treatment could make offers or demand minimum WTAs in a preliminary round. In the next round that determines the earnings, the subjects could then play against the opponent`s outside option, which would have the exact value the subjects wished to keep for themselves in the preliminary round earlier. In this treatment, the subjects would be more likely to commit to their self-serving interpretations of the distributions in order to defend their self-image from the pressures of consistency (Cialdani).

The R^2 values[7] in our LPM regression analyses are rather low, suggesting that the variation in the rate of bargaining impasse can only be partially explained due to the variation in our exogenous variables. In addition, there is always the possibility that our error terms might contain some unobservable variables that are correlated with both our exogenous and dependent variables, invalidating our zero conditionality mean. For example, the wealth of our subjects, which we could not measure, might affect the rate of successful bargaining positively and be positively correlated with the proposals made, yielding a positive omitted variable bias. Political views of our subjects, which we did not collect data on due to privacy concerns is another candidate for any omitted variables, as it can both effect the proposals and the rate of successful bargaining.

In conducting the ES tests to check for the social comparison effect between the multiple proposers, we used the ratio values of the proposals and the provisionally allocated sums. We originally set the pie for each pair in the treatment for the social comparison treatment at SEK1000 instead of SEK100, only because we wanted to equalize the expected earnings for all participating proposers in the experiment. Although there is evidence in previous literature that substantial increases in the monetary stakes do not significantly affect the proposer behavior in the ultimatum bargaining games (Cameron, 1999; Munier and Zaharia, 2002), setting the pie at SEK100 across all treatments would have been the optimal choice to examine possible social comparison effects between the multiple respondents. In addition, in future research, the social comparison effect can be examined among multiple proposers facing against and observing a multitude of sizes of outside options.

Our games consisted of a single round, and we paired our subjects only one time. Given the evidence presented in previous literature (Knez and Camerer, 1995; Eckel and Grossman, 2001), learning and repetitive pairing would have had little impact in our results. The participation in our experiment was voluntary and that might add some bias to our sample; however, in each classroom, where we conducted our experimental sessions, the portion of the students that decided not to participate was extremely low.

Outside the confines of an experimental setup, we regularly find ourselves engaged in negotiations, and as negotiators, we regularly come across some asymmetries in the conditions pertaining to the negotiations. The asymmetries create multiple candidate points for our self-serving appreciation and hardly for our thorough assessment. We all want to maximize our utility function efficiently, but is our awareness being bounded in the process

[7] A higher R^2 value, however, would not mean a more causal effect.

due to self-serving bias? The problem is particularly common among the tragedy of the commons examples, in which the subjects "overestimate their justified shares" (Bazerman and Moore) and risk depletion of future resources.

The Appendix

Below is our randomized list of the graduate level SSE courses offered during the final semester of the 2013-2014 academic period. We collected student data for our treatments with varying outside options and social comparison effect from the first seven courses, namely 5315, 5309, 1309, 3307, 5318, 4321 and GM822, after receiving the consent of the lecturers to our conducting the experimental sessions.

5315 Development Economics

5309 Dynamic Macroeconomic Analysis

1309 Organizations and Society

3307 Advanced Financial Analysis

5318 Advanced Analysis of China's Political Economy

4321 Risk Management

GM822 The Multinational Enterprise

1349 Methodology for Thesis in Management

5320 International Economics Internship

5319 Health Economics

1002 Introductory Swedish II

3308 Current Issues in Accounting & Financial Mgmt

734 Associationsrätt

3309 Auditing and Investor Assurance

4312 M&A: Financial Aspects

881 Self Leadership

4322 Corporate Transition and Restructuring

4312 M&A: Financial Aspects

Below is our randomized list of the undergraduate level SSE courses offered during the final semester of the 2013-2014 academic period. We collected student data for our discontinuity treatment from the first two courses, namely 760 and 743, after receiving the consent of the lecturers to our conducting the experimental sessions.

760 Marketing Frontiers

743 Quantitative Methods for Economic Analysis

211 Marknadsföring II

314 Finance II

758 The Art and Science of Managing Projects

735 Applied Corporate Finance

734 Associationsrätt

301 Ekonomisk analys och styrning

756 Comparative Economic History: Theory and Evidence

730 Strategi och integrerad ekonomi

(Copy of the instructions page handed out to the proposers and respondents in the varying outside option and social comparison effect treatments, 12 in total, 6 examples)

Dear participant,

In this experiment you will be playing a simple ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every five pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **proposer**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. As the proposer, you are paired with an anonymous respondent. You will not be told who this respondent is either during or after the experiment. Similarly, the respondent will not be told who you are either during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. **As the proposer, you get to decide how much of the allocated SEK100 you and the respondent will receive-** i.e. you will make an offer X to the respondent, where X is divisible by SEK5. To do this, you have to fill out the proposal sheet, which includes your randomly distributed, anonymous identification code. Your proposal sheet has been handed to you together with this instructions sheet.

If the respondent accepts your offer, they will get SEKX, which means you will receive SEK100-X. If the respondent rejects your offer, then both you and the respondent will receive nothing.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the proposal sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the proposal sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing a simple ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every five pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **respondent**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. As the respondent, you are paired with an anonymous proposer. You will not be told who this proposer is either during or after the experiment. Similarly, the proposer will not be told who you are either during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. The proposer decides how much of the allocated SEK100 you and the proposer will receive- i.e. they will make you an offer X, which is divisible by SEK5. **As the respondent, you get to decide the minimum offer you will accept from the proposer.** To do this, you have to fill out the response sheet, which includes your randomly distributed, anonymous identification code. Your response sheet has been handed to you together with this instructions sheet.

If you accept the proposer`s offer, the proposer will get SEK100-X, which means you will receive SEKX. If you reject the proposer`s offer, then both you and the proposer will receive nothing.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the response sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the response sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every five pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **proposer**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. As the proposer, you are paired with an anonymous respondent. You will not be told who this respondent is either during or after the experiment. Similarly, the respondent will not be told who you are either during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. **As the proposer, you get to decide how much of the allocated SEK100 you and the respondent will receive-** i.e. you will make an offer X to the respondent, where X is divisible by SEK5. To do this, you have to fill out the proposal sheet, which includes your randomly distributed, anonymous identification code. Your proposal sheet has been handed to you together with this instructions sheet.

Your identification code determines whether and/or to what extent the respondent gets an outside option while playing with you.

Your identification code includes the Greek letter theta (Θ); therefore, your respondent has an outside option of SEK20. That means, if the respondent accepts your offer, they will get SEKX and you will receive SEK100-X. However, if the respondent rejects your offer, they will still get their outside option, SEK20, and you will receive nothing.

As the proposer, you cannot make an offer that is equal to or lower than the respondent`s outside option. The respondent will receive their outside option only if they reject the proposed split.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the proposal sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the proposal sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every five pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **respondent**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. As the respondent, you are paired with an anonymous proposer. You will not be told who this proposer is either during or after the experiment. Similarly, the proposer will not be told who you are either during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. The proposer decides how much of the allocated SEK100 you and the proposer will receive- i.e. they will make you an offer X, which is divisible by SEK5. **As the respondent, you get to decide the minimum offer you will accept from the proposer.** To do this, you have to fill out the response sheet, which includes your randomly distributed, anonymous identification code. Your response sheet has been handed to you together with this instructions sheet.

Your identification code determines whether and/or to what extent you as the respondent get an outside option while playing with the proposer.

Your identification code includes the Greek letter theta (Θ); therefore, you have an outside option of SEK20. That means, if you accept the proposer`s offer, they will get SEK100-X and you will receive X. However, if you reject the proposer`s offer, they will receive nothing and you will still get your outside option, SEK20.

The proposer cannot make an offer that is equal to or lower than your outside option. As the respondent, you will receive your outside option only if you reject the proposed split.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the response sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the response sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay two randomly selected pairs their earnings from the experiment.

In this experiment, you will play the role of a **proposer**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. Along with some other proposers, you are paired with a single anonymous respondent. You will not be told who this respondent is either during or after the experiment. Similarly, the respondent will not be told who you are either during or after the experiment.

The decisions made by the other proposers will not have any effect whatsoever on how the respondent will respond to your individual proposal.

The game setup is as follows: there is a provisionally allocated sum of SEK1000. **As the proposer, you get to decide how much of the allocated SEK1000 you and the respondent will receive-** i.e. you will make an offer X to the respondent, where X is divisible by SEK50. To do this, you have to fill out the proposal sheet, which includes your randomly distributed, anonymous identification code. Your proposal sheet has been handed to you together with this instructions sheet.

Your identification code determines whether the respondent gets an outside option while playing with you. Some of the identification codes include the Greek letter omega (Ω), whereas some of the identification codes include the Greek letter phi (Φ) as the last letter.

If your identification code includes the letter omega (Ω), the respondent has no outside option while playing with you, and you will play the simple ultimatum bargaining game. That means, if the respondent accepts your offer, they will get SEKX, and you will receive SEK1000-X. However, if the respondent rejects your offer, then both you and the respondent will receive nothing.

If your identification code includes the letter phi (Φ), the respondent has an outside option of SEK700 while playing with you. That means, if the respondent accepts your offer, they will get SEKX and you will receive SEK1000-X. However, if the respondent rejects your offer, they will still get their outside option, SEK700, and you will receive nothing.

As the proposer, you cannot make an offer that is equal to or lower than the respondent`s outside option. The respondent will receive their outside option only if they reject the proposed split.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the proposal sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the proposal sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay you your earnings from two randomly selected pairings of yours in the experiment.

In this experiment, you will play the role of a **respondent**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well as other randomly selected SSE students in other classrooms. As the respondent, you are paired with some other anonymous proposers. You will not be told who these proposers are either during or after the experiment. Similarly, the proposers will not be told who you are either during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK1000. Each proposer decides how much of the allocated SEK1000 you and the proposer will receive- i.e. they will make you an offer X, which is divisible by SEK50. **As the respondent, you get to decide the minimum offer you will accept from each type of proposers.** To do this, you have to fill out the response sheets, which includes your randomly distributed, anonymous identification code. Your response sheets have been handed to you together with this instructions sheet.

The identification code of each proposer determines whether you as the respondent get an outside option while playing with them. Some identification codes include the Greek letter omega (Ω), whereas some identification codes include the Greek letter phi (Φ) as the last letter.

If the proposer`s identification code includes the letter omega (Ω), you have no outside option while playing with that proposer, and you will play the simple ultimatum bargaining game. That means, if you accept the proposer`s offer, they will get SEK1000-X and you will receive X. However, if you reject the proposer`s offer, then both you and the proposer will receive nothing.

If the proposer`s identification code includes the letter phi (Φ), you have no outside option of SEK700 while playing with them That means, if you accept the proposer`s offer, they will get SEK1000-X and you will receive X. However, if you reject the proposer`s offer, they will receive nothing and you will still get your outside option, SEK700.

The proposer cannot make an offer that is equal to or lower than your outside option. As the respondent, you will receive your outside option only if you reject the proposed split.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the proposal sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the proposal sheet to the experimenter and leave the classroom. Thank you for your participation!

(Copy of the instructions page handed out to the proposers and respondents in the discontinuity treatment, 20 in total, 2 examples)

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every ten pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **proposer**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well. As the proposer, you are paired with an anonymous respondent. You will not be told who this respondent is before, during or after the experiment. Similarly, the respondent will not be told who you are before, during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. **As the proposer, you get to decide how much of the allocated SEK100 you and the respondent will receive-** i.e. you will make an offer X to the respondent, where X is divisible by SEK1. To do this, you have to fill out the proposal sheet, which includes your randomly distributed, anonymous identification code. Your proposal sheet has been handed to you together with this instructions sheet.

Your respondent has an outside option of SEK60. That means, if the respondent accepts your offer, they will get SEKX and you will receive SEK100-X. However, if the respondent rejects your offer, they will still get their outside option, SEK60, and you will receive nothing.

As the proposer, you cannot make an offer that is equal to or lower than the respondent`s outside option. The respondent will receive their outside option only if they reject the proposed split. The game has complete information.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the proposal sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the proposal sheet to the experimenter and leave the classroom. Thank you for your participation!

Dear participant,

In this experiment you will be playing an alternate version of the ultimatum bargaining game. For your contribution today we will not be paying you any participation fees; however, we will be visiting this same classroom again in May to pay each randomly selected pair (for every ten pairs participating) their earnings from the experiment.

In this experiment, you will play the role of a **respondent**.

You will notice that there are other people in the same classroom as you, and they are participating in the experiment as well. As the respondent, you are paired with an anonymous proposer. You will not be told who this proposer is before, during or after the experiment. Similarly, the proposer will not be told who you are before, during or after the experiment.

The game setup is as follows: there is a provisionally allocated sum of SEK100. The proposer decides how much of the allocated SEK100 you and the proposer will receive- i.e. they will make you an offer X, which is divisible by SEK1. **As the respondent, you get to decide the minimum offer you will accept from the proposer.** To do this, you have to fill out the response sheet, which includes your randomly distributed, anonymous identification code. Your response sheet has been handed to you together with this instructions sheet.

You have an outside option of SEK40. That means, if you accept the proposer`s offer, they will get SEK100-X and you will receive X. However, if you reject the proposer`s offer, they will receive nothing and you will still get your outside option, SEK40.

The proposer cannot make an offer that is equal to or lower than your outside option. As the respondent, you will receive your outside option only if you reject the proposed split. The game has complete information.

Please do not discuss the experiment with your peers or peek at others' proposal sheets during the experiment. The decisions you make can substantially affect your earnings, so please ask questions now if you have any.

After you will have filled out the response sheet, please tear a copy of your identification code, which will allow you to collect anonymously from us any possible earnings when we visit this classroom again in May. You can then hand in the response sheet to the experimenter and leave the classroom. Thank you for your participation!

(Copy of the proposal and response sheets handed out to the proposers and respondents in the varying outside option and social comparison effect treatments, 12 in total, 4 examples)

Identification Code: CRLVUΘ

Identification code: CRLVUΘ

THE RESPONSE SHEET

Please indicate the minimum offer you will accept from the proposer by circling one of the amounts below:

25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

Please mark with an X:

I am ___(Female)/___(Male)/___(N/A) ___(MSc student)/____(BSc student)/___(N/A)

Identification code: SRLAUÅ

THE RESPONSE SHEET

Please indicate the min offer you will accept from the proposer (Ω) by circling one of the amounts below:

50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950

Please mark with an X:

I am ___(Female)/___(Male)/___(N/A) ___(MSc student)/____(BSc student)/___(N/A)

Identification Code: SRLAUÅ

Identification code: SRLAUÅ

THE RESPONSE SHEET

Please indicate the min offer you will accept from the proposer (Φ) by circling one of the amounts below:

750 800 850 900 950

Please mark with an X:

I am ___(Female)/___(Male)/___(N/A) ___(MSc student)/____(BSc student)/___(N/A)

Identification Code: CPAHNΣ

Identification code: CPAHNΣ

THE PROPOSAL SHEET

Please indicate the offer you propose to the respondent by circling one of the amounts below:

55 60 65 70 75 80 85 90 95

Please mark with an X:

I am ___(Female)/___(Male)/___(N/A) ___(MSc student)/____(BSc student)/___(N/A)

(Copy of the proposal and response sheets handed out to the proposers and respondents in the discontinuity treatments, 40 in total, 1 examples)

Identification Code: CPAGEΛ Identification code: CPAGEΛ

THE PROPOSAL SHEET

Please indicate the offer you propose to the respondent by circling one of the amounts below:

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

Please mark with an X:

I am ___(Female)/___(Male)/___(N/A) ___(MSc student)/____(BSc student)/___(N/A)

__I have taken a course on Behavioral Economics before

__I have not taken a course on Behavioral Economics course before

People should earn the same amount of nominal GDP per capita in all countries across the world:

__ Agree __Disagree __ N/A

(Copy of the announcement text that the experimenter recites in each experimental session in the discontinuity treatments, 40 in total, 1 examples)

Hi everyone. My name is Mehmet Sökeli and I am a student at SSE. I am conducting in-class experiments to collect student data for my Master`s thesis. I will be conducting a session in this classroom as well. The experiment will not take long, all you have to do is to read a one-page instructions sheet, circle an answer on the next sheet attached and checkmark some identifiers. Participation is voluntary, and if you decide to participate you will have a chance to collect your earnings from the experiment. Thank you.

The game consists of one round and has complete information, which means your pair has access to the same amount of information as you already do.

The unique anonymous code retains information about the subject`s treatment group (varying outside options or social comparison effect), role (proposer or respondent) and outside option (omega-0, theta-20, lambda-40, sigma-50 and phi-70 or phi-700 depending on the first letter of the code). The letters in between are just ID numbers encrypted; here are the necessary keys:

First letter: S- social treatment, C- varying outside options
Second letter: P- proposer, R- respondent
Last letter: outside options assigned

Ω: 0 omega
Θ: 2 theta
Λ: 4 lamda
Σ: 5 sigma
Φ: 7 phi

Letters in between are ID identifiers:
for the proposer:

A: 0
D: 1
E: 2
G: 3
H: 4
K: 5
L: 6
N: 7
T: 8
Z: 9

for the respondent:

L: 0
V: 1
E: 2
R: 3
T: 4
Y: 5
U: 6
A: 7
D: 8
F: 9

For example, a subject with the anonymous code CPADAΩ is in the varying outside option treatment, a proposer and facing an outside option of zero. The subject`s identifier is 10. The codes still assure the anonymity of the subjects from the experimenter before, during or after the experiment.

Regression tables (dprobit, mfx2 and LPM results) in the varying outside option treatments:

Probit regression, reporting marginal effects — Number of obs = 67
LR chi2(7) = 30.65
Prob > chi2 = 0.0001
Log likelihood = -28.937352 — Pseudo R2 = 0.3462

SETTLE~T	dF/dx	Std. Err.	z	P>|z|	x-bar	[95% C.I.]	
PROPOS~S	.0396457	.0103826	3.42	0.001	54.2537	.019296	.059995
MBIAS	.0192543	.0137059	1.39	0.165	11.6418	-.007609	.046117
OOPTION	-.0291192	.0080061	-3.18	0.001	35.3731	-.044811	-.013428
FEMALE_P*	-.3421399	.1689965	-1.94	0.053	.402985	-.673367	-.010913
FEMALE_R*	.020061	.1482519	0.14	0.893	.432836	-.270507	.310629
MSC_P*	.0665292	.2147864	0.32	0.749	.880597	-.354444	.487503
MSC_R*	-.0021809	.1990468	-0.01	0.991	.835821	-.392305	.387944
obs. P	.6268657						
pred. P	.7272538	(at x-bar)					

(*) dF/dx is for discrete change of dummy variable from 0 to 1
z and P>|z| correspond to the test of the underlying coefficient being 0

Original results are now active. mfx results are stored as logit_mfx.

Model **logit_mfx** (*Marginal effects after logit*)

SETTLEMENT	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
PROPOSALS	.0396699	.0105124	3.77	0.000	.019066	.0602738
MBIAS	.0183598	.0133281	1.38	0.168	-.0077627	.0444823
OOPTION	-.0293375	.0079682	-3.68	0.000	-.0449548	-.0137202
FEMALE_P	-.3488742	.1674819	-2.08	0.037	-.6771326	-.0206158
FEMALE_R	.0261981	.144047	0.18	0.856	-.2561288	.308525
MSC_P	.031741	.2331008	0.14	0.892	-.4251281	.4886101
MSC_R	.0004728	.188507	0.00	0.998	-.3689941	.3699397

Linear regression — Number of obs = 67
F(7, 59) = 10.82
Prob > F = 0.0000
R-squared = 0.3334
Root MSE = .42078

SETTLEMENT	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PROPOSALS	.0222133	.0033672	6.60	0.000	.0154756	.0289511
MBIAS	.0059927	.0089565	0.67	0.506	-.0119292	.0239147
OOPTION	-.0152826	.0034574	-4.42	0.000	-.0222009	-.0083643
FEMALE_P	-.1897391	.1161524	-1.63	0.108	-.4221595	.0426813
FEMALE_R	.0158567	.1249641	0.13	0.899	-.2341959	.2659094
MSC_P	.0758904	.2305782	0.33	0.743	-.3854956	.5372764
MSC_R	.0156377	.1602444	0.10	0.923	-.3050105	.336286
_cons	-.1177642	.3120982	-0.38	0.707	-.7422712	.5067428

Regression tables (dprobit, mfx2 and LPM results) in the discontinuity treatment:

Probit regression, reporting marginal effects — Number of obs = 31
LR chi2(7) = 3.46
Prob > chi2 = 0.8398
Log likelihood = -19.743051 — Pseudo R2 = 0.0805

barga~_n	dF/dx	Std. Err.	z	P>|z|	x-bar	[95% C.I.]	
proposal	.0105424	.0109859	0.96	0.337	57.6452	-.01099	.032074
bias	.0455222	.0720454	0.63	0.527	21.7581	-.095684	.186729
pgend_n*	.1767327	.2091062	0.83	0.406	.483871	-.233108	.586573
rgend_n*	-.0700727	.2182148	-0.32	0.749	.354839	-.497766	.35762
peduc_n*	-.04854	.4519601	-0.11	0.915	.064516	-.934365	.837285
pbehav*	.0472667	.2882454	0.16	0.870	.193548	-.517684	.612217
rbehav*	-.0589124	.3096615	-0.19	0.850	.129032	-.665838	.548013
obs. P	.483871						
pred. P	.4937866	(at x-bar)					

Original results are now active. mfx results are stored as logit_mfx.

Model **logit_mfx** (*Marginal effects after logit*)

bargain_n	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
proposal	.0108639	.0114094	0.95	0.341	-.0114981	.0332259
bias	.0470555	.0731567	0.64	0.520	-.096329	.19044
pgend_n	.1810417	.2112341	0.86	0.391	-.2329695	.5950529
rgend_n	-.0716064	.2229931	-0.32	0.748	-.5086649	.3654521
peduc_n	-.048289	.4440748	-0.11	0.913	-.9186595	.8220816
pbehav	.0521744	.2948284	0.18	0.860	-.5256786	.6300273
rbehav	-.0610473	.3106986	-0.20	0.844	-.6700053	.5479107

Linear regression — Number of obs = 32
F(7, 23) = .
Prob > F = .
R-squared = 0.1257
Root MSE = .55037

bargain_n	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
proposal	.0079779	.0096087	0.83	0.415	-.0118992	.0278549
bias	.0354307	.0730787	0.48	0.632	-.1157441	.1866054
pgend_n	.1654438	.2448664	0.68	0.506	-.341101	.6719885
rgend_n	-.0575119	.2439056	-0.24	0.816	-.5620691	.4470453
peduc_n	-.0188291	.431485	-0.04	0.966	-.9114239	.8737657
reduc_n	-.2738872	.2327829	-1.18	0.251	-.7554354	.207661
pbehav	.0181813	.3072999	0.06	0.953	-.617517	.6538795
rbehav	-.0411284	.3428894	-0.12	0.906	-.7504491	.6681923
_cons	-.8035593	1.533179	-0.52	0.605	-3.975182	2.368063

The data for our discontinuity treatment:

ID	P ID	Group	Treatment	Proposal	PGend	PEduc	Pbehavior	PGDP	Class P
1	CPAADΩ	E	40	45	0	0	0	0	743
2	CPAAEΩ	E	40	50	0	0	1	0	743
3	CPAAKΩ	E	41	50	0	0	0	0	743
4	CPAALΩ	E	41	42	0	0	0	0	743
5	CPAAZΩ	E	42	50	0	0	0		743
6	CPADAΩ	E	42	49	0	0	0	0	743
7	CPADGΩ	E	43	44	1	0	0	1	743
8	CPADHΩ	E	43	99	0	0		0	743
9	CPADNΘ	E	44	66	1	1	0	0	760
10	CPADTΘ	E	44	45	1	0	0	1	743
11	CPAEDΘ	E	45	70	1	0	0	0	743
12	CPAEEΘ	E	45	50	1	0	0	0	743
13	CPAEKΘ	E	46	47	1	0	0	0	743
14	CPAELΘ	E	46	47	1	0	0		743
15	CPAEZΘ	E	47	69	1	0	0	0	743
16	CPAGAΘ	E	47	56	0	0	0		743
17	CPAGGΛ	E	48	49	1	0	0	0	743
18	CPAGHΛ	E	48	49	0	0	0	0	743
19	CPAGNΛ	E	49	99	1	0	1		743
20	CPAGTΛ	E	49	60	1	0	0		743
21	CPAHDΛ	E	51	60	0	1	1	0	743
22	CPAHEΛ	E	51	60	0	0	0	0	760
23	CPAHKΛ	E	52	53	0	0	0	0	743
24	CPAHLΣ	E	52	53	1	0	0	0	760
25	CPAHZΣ	E	53	54	1	0	0	1	743
26	CPAKAΣ	E	53	65	0	0	1	0	743
27	CPAKGΣ	E	54	60	0	0	0	0	743
28	CPAKHΣ	E	54	55	0	0	0	1	743
29	CPAKNΣ	E	55	60	1	0	0	0	743
30	CPAKTΣ	E	55	65	0	0		1	743
31	CPALDΦ	E	56	70	1	0	0	0	743
32	CPALEΦ	E	56	57	0	0	0		743
33	CPALKΦ	E	57	67	1	0	0	0	743
34	CPALLΦ	E	57	99	1	0	0		743
35	CPALZΦ	E	58	70	0	0	0	1	743
36	CPANAΦ	E	58	80	0	0	0	0	743
37	CPANGΦ	E	59	65	1	0	0		743
38	CPANHΦ	E	59	60	0	0	1	0	743
39	CPANNΦ	E	60	61	0	0	0		743
40	CPANTΦ	E	60	61	0	0	1	0	743

ID	Matched v	Treatment	Response	RGend	REduc	Rbehavior	RGDP	Class R
1	CRLLVΩ	40	41	0	0	0		743
2	CRLLEΩ	40	50	0	0	0		743
3	CRLLYΩ	41	45	1	0	0		760
4	CRLLUΩ	41	60	0	0	0	0	743
5	CRLLFΩ	42	70	0	0	0	0	760
6	CRLVLΩ	42	99	1	1	0	0	760
7	CRLVRΩ	43	44	0	0	0	1	760
8	CRLVTΩ	43	50	0	0	0		743
9	CRLVAΘ	44	60	1	0	0	0	743
10	CRLVDΘ	44	45	0	0	0		743
11	CRLEVΘ	45	50		0	0	0	743
12	CRLEEΘ	45	80	0	0	0	0	743
13	CRLEYΘ	46	80	1	0	0	0	743
14	CRLEUΘ	46	93	0	0	1		743
15	CRLEFΘ	47	55	0	0	0	0	743
16	CRLRLΘ	47	70			0	0	743
17	CRLRRΛ	48	50	1	0			743
18	CRLRTΛ	48	73	0	0	0	1	743
19	CRLRAΛ	49	75	0	0	0		743
20	CRLRDΛ	49	50	0	0	1	0	743
21	CRLTVΛ	51	65	1	0	1		743
22	CRLTEΛ	51	52	0	0	0	0	743
23	CRLTYΛ	52	70	0	0	0		743
24	CRLTUΣ	52	53	1	0	0	0	760
25	CRLTFΣ	53	60	0	0	0		743
26	CRLYLΣ	53	55	0	0	0		743
27	CRLYRΣ	54	55	0	0	1	0	743
28	CRLYTΣ	54	70	1	0	0		743
29	CRLYAΣ	55	70	1	0	0	0	743
30	CRLYDΣ	55	90	0	0	0		743
31	CRLUVΦ	56	65	1	0	0	1	743
32	CRLUEΦ	56	87	1	0			743
33	CRLUYΦ	57	58	1	0	0	0	743
34	CRLUUΦ	57	65	0	0			743
35	CRLUFΦ	58	79	0	0	0	0	743
36	CRLALΦ	58	70	1	0			743
37	CRLARΦ	59	70	0	0	0	0	743
38	CRLATΦ	59	70	1	0	0	0	743
39	CRLAAΦ	60	65	1	0	0		743
40	CRLADΦ	60	85	0	0	0	0	743

The data for our varying outside option and social comparison effect treatments:

ID	Group	Treatment	Codes	P: Course	Proposal	PGend	PEduc
1	C	omega	CPAADΩ	1309	50	1	1
2	C	omega	CPAAEΩ	1309	40	1	1
3	C	omega	CPAAGΩ	5318	15	1	0
4	C	omega	CPAAHΩ	1309	5	1	1
5	C	omega	CPAAKΩ	3307	50	0	1
6	C	omega	CPAALΩ	5309	50	0	1
7	C	omega	CPAANΩ	5318	45	1	0
8	C	omega	CPAATΩ	3307	50	1	1
9	C	omega	CPAAZΩ	5315	50	0	1
10	C	omega	CPADAΩ	5309	50	0	1
11	C	omega	CPADDΩ	3307	45	1	1
12	C	omega	CPADEΩ	5309	30	0	1
13	C	omega	CPADGΩ	5318	50	0	1
14	C	omega	CPADHΩ	1309	55	1	1
15	C	omega	CPADKΩ	5318	50	1	1
16	C	theta	CPADLΘ	3307	25	0	1
17	C	theta	CPADNΘ	3307	45	1	1
18	C	theta	CPADTΘ	3307	40	1	1
19	C	theta	CPADZΘ	1309	40	0	1
20	C	theta	CPAEAΘ	3307	25	1	1
21	C	theta	CPAEDΘ	4321	35	0	1
22	C	theta	CPAEEΘ	5315	40	1	0
23	C	theta	CPAEGΘ	822	50	0	1
24	C	theta	CPAEHΘ	822	30	0	1
25	C	theta	CPAEKΘ	3307	25	0	1
26	C	theta	CPAELΘ	1309	40	1	1
27	C	theta	CPAENΘ	3307	40	1	1
28	C	theta	CPAETΘ	5318	40	1	0
29	C	theta	CPAEZΘ	3307	50	0	1
30	C	theta	CPAGAΘ	4321	45	1	0
31	C	lamda	CPAGDΛ	5318	50	1	0
32	C	lamda	CPAGEΛ	3307	45	1	1
33	C	lamda	CPAGGΛ	1309	60	1	1
34	C	lamda	CPAGHΛ	4321	50	0	1
35	C	lamda	CPAGKΛ	3307	60	1	1
36	C	lamda	CPAGLΛ	4321	50	0	1

37	C	lamda	CPAGNΛ	5309	45	0	1
38	C	lamda	CPAGTΛ	1309	50	1	1
39	C	lamda	CPAGZΛ	1309	45	0	1
40	C	lamda	CPAHAΛ	5318	50	0	1
41	C	lamda	CPAHDΛ	822	70	0	1
42	C	lamda	CPAHEΛ	822	50	0	1
43	C	lamda	CPAHGΛ	3307	50	0	1
44	C	lamda	CPAHHΛ	1309	45	0	1
45	C	lamda	CPAHKΛ	3307	60	1	1
46	C	sigma	CPAHLΣ	5315	55	1	1
47	C	sigma	CPAHNΣ	4321	70	1	0
48	C	sigma	CPAHTΣ	5309	55	1	1
49	C	sigma	CPAHZΣ	822	75	0	1
50	C	sigma	CPAKAΣ	1309	55	0	1
51	C	sigma	CPAKDΣ	3307	95		
52	C	sigma	CPAKEΣ	3307	55	0	1
53	C	sigma	CPAKGΣ	3307	80	0	1
54	C	sigma	CPAKHΣ	5315	55	0	1
55	C	sigma	CPAKKΣ	5315	55	1	0
56	C	sigma	CPAKLΣ	4321	55	1	0
57	C	sigma	CPAKNΣ	822	90	0	1
58	C	sigma	CPAKTΣ	1309	55	0	1
59	C	sigma	CPAKZΣ	822	55	0	1
60	C	sigma	CPALAΣ	1309	60	1	1
61	C	phi	CPALDΦ	3307	75	0	1
62	C	phi	CPALEΦ	3307	80	0	1
63	C	phi	CPALGΦ	1309			
64	C	phi	CPALHΦ	5309	75	0	1
65	C	phi	CPALKΦ	5315	75	0	1
66	C	phi	CPALLΦ	3307	95	0	1
67	C	phi	CPALNΦ	5309	75	1	1
68	C	phi	CPALTΦ	1309	75	0	1
69	C	phi	CPALZΦ	3307	75	0	1
70	C	phi	CPANAΦ	822	75	0	1
71	C	phi	CPANDΦ	4321	75	0	1
72	C	phi	CPANEΦ	5315	75	0	1
73	C	phi	CPANGΦ	3307	75	0	1
74	C	phi	CPANHΦ	4321	85	0	1
75	C	phi	CPANKΦ	822	80	0	1

ID	Matched w/	R: Course	Response	RGend	REduc	Bargain?
1	CRLVTΩ	3307	50	0		1
2	CRLLAΩ	5318	40	1	0	1
3	CRLLRΩ	1309	40	0	1	0
4	CRLLTΩ	3307	40	0	1	0
5	CRLLUΩ	5309	50	0	1	1
6	CRLVLΩ	4321	5	0	1	1
7	CRLVVΩ	1309	70	0	1	0
8	CRLVRΩ	3307	5	1	1	1
9	CRLLEΩ	1309	50	1	1	1
10	CRLLDΩ	5309	40	0	1	1
11	CRLLYΩ	5315	45	0	1	1
12	CRLVYΩ	3307	5	0	1	1
13	CRLVEΩ	5309	30	1	0	1
14	CRLLVΩ	1309	50	1	1	1
15	CRLLFΩ	5318	50	0	1	1
16	CRLRLΘ	5318	50	0	1	0
17	CRLEAΘ	5309	25	1	1	1
18	CRLEYΘ	822	95	1	0	0
19	CRLVFΘ	822	40	1	1	1
20	CRLEEΘ	4321	50	0	1	0
21	CRLEDΘ	5309	35	0	1	1
22	CRLEUΘ	5318	85	0	1	0
23	CRLELΘ	5318	40	0	1	1
24	CRLVDΘ	5318	50	0	1	0
25	CRLEFΘ	4321	50	1	0	0
26	CRLETΘ	1309	50	1	0	0
27	CRLVUΘ	4321	45	1	1	0
28	CRLERΘ	1309	40	0	1	1
29	CRLVAΘ	3307	25	0	1	1
30	CRLEVΘ	3307	50	0		0
31	CRLTVΛ	5309	50	0	1	1
32	CRLTRΛ	4321	50	0	1	0
33	CRLRUΛ	4321	60	0	1	1
34	CRLRFΛ	1309	50		1	1
35	CRLRVΛ	4321	45	0	1	1
36	CRLRYΛ	5315	45	1	1	1
37	CRLRRΛ	3307	60	0	1	0

38	CRLRTΛ	1309	70	1	1	0
39	CRLTTΛ	3307	95	1	1	0
40	CRLTEΛ	3307	50	1	1	1
41	CRLTYΛ	4321	50	0	1	1
42	CRLRDΛ	5318	45	1	0	1
43	CRLREΛ	1309	45	1	1	1
44	CRLRAΛ	5318	45	1	0	1
45	CRLTLΛ	4321	60	0	1	1
46	CRLULΣ	5315	55	1	1	1
47	CRLYLΣ	3307	80	1	1	0
48	CRLTAΣ	1309	80			0
49	CRLYYΣ	3307	60	0	1	1
50	CRLYDΣ	3307	75		1	0
51	CRLYRΣ	822	55	1	1	1
52	CRLTFΣ	4321	75	0	1	0
53	CRLYVΣ	822	55	1	0	1
54	CRLYFΣ	3307	70	0	1	0
55	CRLYUΣ	822	55	0	1	1
56	CRLYAΣ	3307	95	1	1	0
57	CRLYTΣ	4321	70	1	1	1
58	CRLTUΣ	1309	75			0
59	CRLTDΣ	4321	95	1	0	0
60	CRLYEΣ	3307	75	0	1	0
61	CRLURΦ	3307	95	1	1	0
62	CRLATΦ	5318	75	1	0	1
63	CRLUTΦ	4321	N/A 50	0	1	N/A
64	CRLUDΦ	1309	75	1	1	1
65	CRLUEΦ	1309	75	0	1	1
66	CRLAYΦ	1309	90	0	1	1
67	CRLAVΦ	4321	80	0	1	0
68	CRLUYΦ	4321	75	0	1	1
69	CRLUFΦ	4321	85	0	1	0
70	CRLUVΦ	4321	75	0	1	1
71	CRLAEΦ	1309	75	1	0	1
72	CRLUUΦ	3307	80	0	1	0
73	CRLUAΦ	5315	75	1	1	1
74	CRLARΦ	822	75	0	1	1
75	CRLALΦ	3307	80	0	1	1

76	ANL	S	omega	SPANLΩ	1309	500	0	1	SRLAUA	4321	400	0	1	1
77	ANN	S	omega	SPANNΩ	3307	500	0	1	SRLAUA	4321	400	0	1	1
78	ANT	S	omega	SPANTΩ	822	250	1	1	SRLAUA	4321	400	0	1	0
79	ANZ	S	omega	SPANZΩ	822	500	1	1	SRLAUA	4321	400	0	1	1
80	ATA	S	omega	SPATAΩ	3307	500	1	1	SRLAUA	4321	400	0	1	1
81	ATD	S	omega	SPATDΩ	1309	450	1	1	SRLAUA	4321	400	0	1	1
82	ATE	S	omega	SPATEΩ	3307	600	0	1	SRLAUA	4321	400	0	1	1
83	ATG	S	omega	SPATGΩ	3307	300	1	1	SRLAUA	4321	400	0	1	0
84	ATH	S	omega	SPATHΩ	1309	100	0	1	SRLAUA	4321	400	0	1	0
85	ATK	S	omega	SPATKΩ	4321	100	0	1	SRLAUA	4321	400	0	1	0
86	ATL	S	phi	SPATLΦ	1309	750			SRLAUA	4321	750	0	1	0
87	ATN	S	phi	SPATNΦ	1309	N/A 500	1	1	SRLAUA	4321	750	0	1	0
88	ATT	S	phi	SPATTΦ	3307	800	0	1	SRLAUA	4321	750	0	1	0
89	ATZ	S	phi	SPATZΦ	822	N/A 700	0	1	SRLAUA	4321	750	0	1	0
90	AZA	S	phi	SPAZAΦ	3307	850	0	1	SRLAUA	4321	750	0	1	0
91	AZD	S	phi	SPAZDΦ	4321	750	0	1	SRLAUA	4321	750	0	1	0
92	AZE	S	phi	SPAZEΦ	822	750	0	1	SRLAUA	4321	750	0	1	0
93	AZG	S	phi	SPAZGΦ	5309	750	1	1	SRLAUA	4321	750	0	1	0
94	AZH	S	phi	SPAZHΦ	5309	750	1	0	SRLAUA	4321	750	0	1	0
95	AZK	S	phi	SPAZKΦ	3307	750	0		SRLAUA	4321	750	0	1	1

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