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The Relevance of Relative Position in Ultimatum Games

The Relevance of Relative Position in Ultimatum Games*

Luis Miller[†] Paloma Ubeda[‡]

Abstract

This paper investigates the effect of focal points and initial relative position in the outcome of a bargaining process. We conduct two on-line experiments. In the first experiment we attempt to replicate Güth, Huck and Müller's (2001) results about the relevance of equal splits. In our second experiment, we recover the choices of participants in forty mini-ultimatum games. This design allows us to test whether the equal split or any other distribution or set of distributions are salient. Our data provide no support for a focal-point explanation but we find support for an explanation based on relative position. Our results confirm that there is a norm against hyper-fair offers. Proposers are expected to behave selfishly when the unselfish distribution leads to a change in the initial relative position.

Keywords: Bargaining, Focal Points, Relative Position

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1 Introduction

Early experimental analysis of the ultimatum game suggested a focal-point interpretation of the prominence of equal splits in this simple bargaining game. Binmore et al. (1985: 1180) argued that subjects, faced with a new problem, simply choose equal division as an obvious and acceptable compromise. By a focal-point interpretation, we mean the idea proposed by Thomas Schelling in his book *The Strategy of Conflict*. Schelling explicitly acknowledged the importance of focal points in bargaining since, he argued, parties recognize that there is a wide range of outcomes preferable to both of them over no agreement at all (Schelling, 1960: 101). In this sense, focal points are related to expectation of what the other expects him to expect to be expected to do (p. 57).

The use of a focal-point theory to explain bargaining outcomes can be based on at least two ideas. First, bargaining parties -perhaps equipped with social preferences- may transform the conflicting nature of the negotiation into a coordination game, in which they try to coordinate on mutually acceptable outcomes. If that is the case, the notions of focal-point and salience developed by Mehta et al. (1994) and Bacharach and Bernasconi (1997) for pure coordination games might be straightforwardly applied to bargaining situations. Here, salience refers to the state or quality by which a solution e.g. a 50-50 split- stands out relative to its neighbors e.g. a 51-49 split. In this respect, a focal point would be related to the psychological property of *rarity*. An outcome would be salient or prominent because is rare. Whereas there are potentially infinite ways of splitting a cake, there is only one way of splitting it equally, and in that sense a fifty-fifty split is salient because is rare.

A second interpretation of bargaining outcomes as focal points can be traced back to the theory of conventions developed by the philosopher David Lewis (1969) and also discussed by authors such as Schotter (1981), Sugden (1986) and Young (1996).

Lewis based his account of conventions on the ideas of focal-point and salience proposed by Schelling. In Lewis account, people coordinate their actions by precedent. Therefore, people would coordinate on a fifty-fifty split because that is the common regularity of behavior in the culture they live in. The fifty-fifty convention would then be nothing but an arbitrary but stable behavioral regularity. Interestingly, recent cross-cultural research uses very similar arguments to justify the prominence of equal splits in simple bargaining games in a vast number of countries and cultures (Barr et al., 2009).

Although, as noted before, focal-point theory seems a fruitful approach to bargaining, most of the literature on focal points has been restricted to coordination games (Jansen, 2006). Perhaps the exception is the work of Güth et al. (2001). Güth, Huck and Müller (2001) (GHM, hereafter) provide evidence of a focal-point explanation of fair behavior in mini-ultimatum games (MUGs, hereafter). In different treatments, the authors replace exactly equal splits by nearly equal splits, and they find that fair offers occur less often when equal splits are replaced by nearly equal splits. GHM interpret the focality of equal splits as a natural feature that we acquire in our 'upbringing' and that it is sometimes enforced by third parties.

This paper reports the results of two related experiments that build on GHM's original design. The first experiment constitudes, to the best of our knowledge, the first attempt to replicate GHM's main results. The fact that our replication was unsuccessful motivated us to conduct a second experiment to study behavior in forty different MUGs, as oppose to the three games studied in both GHM's paper and our first experiment.

We find that the only factor that significantly changes participants' behavior is their relative position in the final payoffs. Proposers' unselfish choices dramatically decrease when behaving unselfishly implies offering the responder more than what the proposer keeps. Similarly, responders' rejection rate of selfish offers substantially drops when behaving selfishly can be rationalized as a way of mantaining the relative position. When the relative position is kept constant, the cost of being unselfish is weakly correlated with participants' decisions, but this latter relationship is far from being significant.

We complement our quantitative results on participants' actions with a qualitative analysis of participants' second-order positive and normative expectations. Our results on expectations confirms an interpretation based on relative positions. Interestingly, GHM's main results can also be explained by changes in the relative position of the players.

The rest of the paper proceeds as follows. Section 2 describes the features of the experimental design that are common to experiments 1 and 2. Sections 3 and 4 presents experiments 1 and 2, respectively. Sections 5 and 6 discuss both experiments and conclude.

2 Methods

We conduct the two experiments using an online platform that differs from the standard economic laboratory in at least four important features. First, five hundred people participated in our two experiments, a sample that is hardly observed in lab experiments. Second, we used a procedure that ensures anonymity in a way that would be very difficult to implement in the lab. Third, we use a heterogeneous sample that goes beyond the standard student subject pool typically employed in the lab. Finally, we use high stakes (the pie is equal to 100 GBP), but only a few randomly selected participants are actually paid.

For our online experiments, we used the subject pool of the Nuffield Centre for

Experimental Social Sciences in Oxford. The CESS database comprised about 2000 registered participants at the moment of the experiment. We used a matching procedure that guaranteed a random allocation of participants to mini-ultimatum games. This procedure is described below.

The games are sequential and between subjects, so a participant plays only one of the two roles, either proposer or responder, of one of the mini-ultimatum games. In a particular mini-ultimatum game, the proposer can choose between a selfish and an unselfish distribution. We define the selfish distribution as the distribution where the proposer's payoff is higher. The responder makes a 'hot decision' and accepts or rejects the proposed distribution. As it is customary in ultimatum games, if the responder accepts the proposed distribution, the money is split accordingly; if the responder rejects the offer, both players receive nothing.

Our design requires both, random allocation of participants to games and roles and sequential play. We achieve these two goals with a new matching procedure for online experiments. All participants in the database were invited to participate in the experiment. Once they individually agreed to participate, games and roles were assigned sequentially in the following way. The first participant that agreed to participate was assigned the role of proposer in a given game, e.g. $\binom{51}{49}$ game. The second participant was assigned the role of responder in that game, the third participants was assigned the role of proposer in the next game, e.g. $\binom{50}{50}$, and so on and so forth.

Our matching procedure also accounted for drop-outs. Imagine that the second participant agrees to participate before the first participant has chosen a distribution. Then the second participant will be assigned the role of proposer in the subsequent distribution. Once any of the first two participants finish, the next individual to join the experiment will be a responder and will be matched with the first proposer that has completed the decision, otherwise the third participant will be a proposer too.

Participants were invited to participate in the experiment via e-mail. Every invitation e-mail contained a unique link to access the experiment. This guaranteed that the invited person could participate in the experiment only once. Only people registered in the CESS mailing list received invitations. We used a standard invitation e-mail for online experiments. Participants were informed about the duration of the experiment and the amount that they could potentially earn. Only after clicking on the experiment's link, participants learnt the specific rules of the experiment. To ensure anonymity, once a participant has completed the experimental task, a random code and a password were generated. We used the code and password to anonymously pay participants. Participants' codes and identities were never linked. They were always kept in two different databases.

After completing the experimental task, participants answered a battery of questions that included elicitation of beliefs, attitudes towards risk and pro-social values, as well as socio-demographic characteristics. Individual decisions in the games were recorded even if participants did not complete the questionnaire. Five hundred student and non-student subjects participated in this online experiment. The participation link was accessible for two weeks. After this period of time, three pairs of subjects were randomly selected to pay. The payoffs ranged from 30 GBP to 70 GBP. The winners' codes were publicized in the experiment's website, and participants had to provide their code and password to collect their payment at CESS. Participants' instructions can be found in the appendix.

3 Experiment 1

3.1 Description of the Games

In order to replicate GHM's results, we study three different one-shot sequential mini-ultimatum games. In the $EQUAL$ game, the unselfish choice is the equal split $\binom{50}{50}$. In the $PROP$ and $RESP$ games, the unselfish choices are $\binom{51}{49}$ and $\binom{49}{51}$, respectively. We kept the selfish distribution constant at $\binom{70}{30}$ so that the difference in final outcomes between proposer and responder is always 40 GBP if this distribution is selected.[1]

To perform the binary comparisons between equal-split and nearly-equal-split games, we have a total of 166 observations. The observations per game are 56, 56, and 54 corresponding to the $\binom{51}{49}$, $\binom{50}{50}$, $\binom{49}{51}$ games, respectively. Half of these decisions were made by proposers and half by responders in the three mini-ultimatum games.

3.2 Results

GHM find significant behavioral differences when the equal split is replaced by a nearly equal split.[2] Specifically, they find significant differences in proposers' behav-

[1] Our design tries to push GHM's argument to its limits. Whereas their 'nearly-equal splits' are distributions in which the proposer receives either 55% or 45% of the pie, we use as 'nearly-equal splits' the closest possible distribution to the exactly equal split, i.e. $\binom{51}{49}$ and $\binom{49}{51}$. GHM's interpretation of the relevance of equal splits would still predict a significant difference in behavior between $PROP$ and $RESP$ games, on the one hand, and the $EQUAL$ game, on the other.

[2] GHM claim that 'Only the 'natural' design, in which subjects play one game sequentially, reveals the behavioral relevance of exactly equal splits' (p. 165). They also test their main hypothesis using two modified versions of the game, the strategy method and a treatment in which subjects play all three games. They do not find differences between games under these two

Game	Proposers Unselfish	Selfish	Responders Unselfish Offers Accept	Reject	Selfish Offers Accept	Reject
$\binom{51}{49}$	18	10	17	1	8	2
$\binom{50}{50}$	15	13	15	0	12	1
$\binom{49}{51}$	15	12	14	1	10	2

Table 1: Behavior in All Three Games.

ior between $EQUAL$ and $RESP$, as well as between $EQUAL$ and the aggregate behavior in the two inequality games. In both comparisons, they find that the equal split is offered significantly more often that nearly-equal splits.

Table 1 reports behavior in all three games in our experiment. We observe that in all three cases proposers offer the unselfish distribution more often than the selfish one. We find the three binary comparisons between games to be insignificant at any conventional statistical level[3] ($PROPvs.EQUAL : z = -0.8149, p = 0.4151$; $RESPvs.EQUAL : z = 0.1477, p = 0.8826$; $PROPvs.RESP : z = -0.6607, p = 0.5088$). We also find the comparison between equal and unequal games insignificant ($z = 0.5607, p = 0.5750$). Hence, we cannot replicate the behavioral regularity observed by GHM.

Next we turn to responders' behavior. GHM observe that the rate of rejection is significantly lower in game $PROP$ than in the other two games. We do not find significant differences in responders' behavior (table 1). Unselfish offers are almost never rejected, and only 14% of selfish offers are rejected. We perform the same comparison that GHM report in the paper and we find that rejection patterns in

conditions. They only find differences when subjects play a one-shot sequential game.

[3]We provide the results of two-sample test of proportions. All the results have been replicated using χ^2 and Wilcoxon Rank-Sum tests.

the $PROP$ game are not significantly different from behavior in the other two games ($z = 0.5335, p = 0.5937$).

We fail to replicate the relevance of equal splits reported by GHM. Apart from other obvious methodological differences, one could claim that the way equal and nearly-equal splits are operationalized in both studies may affect the differences in results. In our second experiment, we study a much wider range of MUGs, in which the selfish choice is kept constant and the unselfish choice is systematically changed.

4 Experiment 2

4.1 Description of the Games

GHM claim that the presence of an equal split induces people to choose the selfish distribution less often in a mini-ultimatum game. In study 1, we show that behavior does not significantly change when the choice set includes the equal split in our experiment. Both analyses are, however, very limited in the sense that they only consider two types of games, i.e. equal-split games and nearly-equal-split games. We conduct a second experiment to overcome this limitation.

In our second study, we recover the choices of participants in a continuum of mini-ultimatum games. This continuum includes games in which selfish and unselfish choices are almost identital, games that involve the equal split and different nearly-equal splits, and games where the unselfish choice disproportionaly favors the responder. This design allows us to test whether the equal split or any other distribibition or set of distributions are prominent.

Forty different MUGs were played (see Table 2). In the experiment, we obtain a

	(Distribution)	(Cost of Unselfishness)	(Inequality)	(Distribution)	(Cost of Unselfishness)	(Inequality)
Selfish	(70-30)	0	1600			
Unselfish	(69-31)	1	1444	(49-51)	21	4
	(68-32)	2	1296	(48-52)	22	16
	(67-33)	3	1156	(47-53)	23	36
	(66-34)	4	1024	(46-54)	24	64
	(65-35)	5	900	(45-55)	25	100
	(64-36)	6	784	(44-56)	26	144
	(63-37)	7	676	(43-57)	27	196
	(62-38)	8	576	(42-58)	28	256
	(61-39)	9	484	(41-59)	29	324
	(60-40)	10	400	(40-60)	30	400
	(59-41)	11	324	(39-61)	31	484
	(58-42)	12	256	(38-62)	32	576
	(57-43)	13	196	(37-63)	33	676
	(56-44)	14	144	(36-64)	34	784
	(55-45)	15	100	(35-65)	35	900
	(54-46)	16	64	(34-66)	36	1024
	(53-47)	17	36	(33-67)	37	1156
	(52-48)	18	16	(32-68)	38	1296
	(51-49)	19	4	(31-69)	39	1444
	(50-50)	20	0	(30-70)	40	1600

Table 2: Forty Mini-Ultimatum Games

minimum of four independent observations per game and role, what gives us a total of 167 offers and 167 responders' decisions.[4] To facilitate the comparison between games, we keep the selfish distribution constant at $\binom{70}{30}$. The unselfish distribution results from monotonically increasing the cost (C) of being unselsfih from ($C = 1$), i.e. $\binom{69}{31}$, to $C = 40$, i.e. $\binom{30}{70}$. A complete list of distributions can be found in table 2.

4.2 Results

4.2.1 Proposers' behavior

Figure 1 plots the proportion of selfish offers in four groups of MUGs. The four groups are defined by the characteristics of their unselfish distribution. Unselfish distributions can have high or low inequalities and can favor the proposer or the responder. Each group consists of ten unselfish distributions. The first one (*High Inequality Prop*), represents the games with high inequality that favors the proposers and the games that comprise this group go from $\binom{69}{31}$ to $\binom{60}{40}$. In the second group (*Low Inequality Prop*), the inequality of the unselfish options are lower, although the unselfish options continue favoring the proposer. The unselfish distributions of the second group go from $\binom{59}{41}$ to $\binom{50}{50}$. Groups three and four represent the same than group one and two, but in this case the unselfish distributions favor the Responder. Group three is composed by games from $\binom{49}{51}$ to $\binom{40}{60}$ and group four by games from $\binom{39}{61}$ to $\binom{30}{70}$.

[4]The 167 observations are the result of securing 4 observations per mini-ultimatum game and role and 7 additional observations distributed among three of the forty games. The game $\binom{39}{61}$ has five additional observations, and the games $\binom{43}{57}$ and $\binom{32}{68}$ one additional observation each. These additional observations result from a glitch in the random generator of mini-ultimatum games that was found and corrected in the very first day of the online experiment. We have replicated all the analyses in the paper excluding these cases and found no differences.

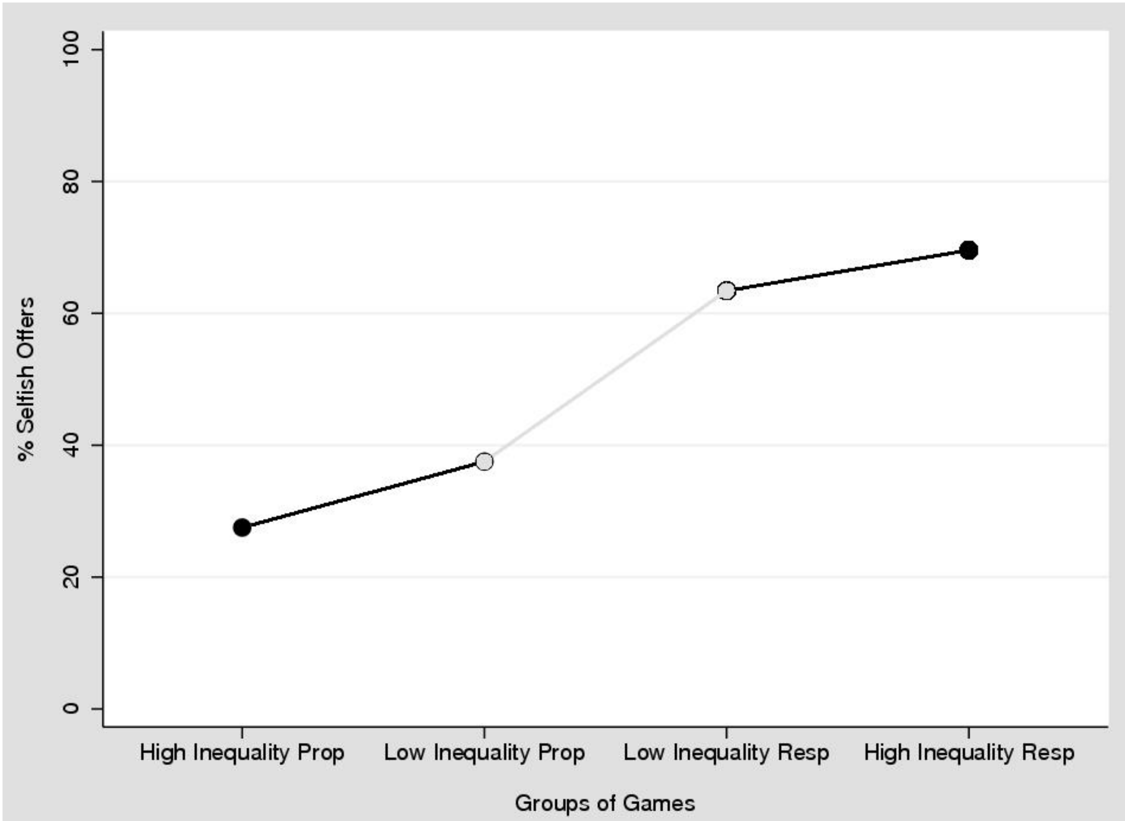

Figure 1: Proportion of selfish choices by four groups of games

We observe that regardless of the relative position, a higher proportion of proposers select the selfish distribution when the inequality of the unselsfih distribution is low. However, the proportion of selfish offers does not significantly change when the inequality level changes (High Ineq. Prop vs. Low Ineq. Prop: $z = -0.9548, p = 0.3397$; High Ineq. Resp vs. Low Ineq. Resp: $z = -0.6075, p = 0.5435$; High Ineq. vs. Low Ineq.: $z = 0.0797, p = 0.9364$).

Whereas the absolute inequality of the distribution do not seem to matter, the relative position significantly affects the proportion of selfish offers. The proportion of proposers behaving selfishly in the two groups of games that favor the responder is well above the proportion of selfish proposers in the two groups that favor the proposer. This is confirmed by a test of proportions (Low Ineq. Prop vs. Low

Ineq. Resp: $Z = -2.3323, p = 0.0197$; High Ineq. Prop vs. High Ineq. Resp: $Z = -3.8915, p = 0.0001$; Prop vs. Resp: $Z = 4.4115, p < 0.0001$).

We use two additional checks to test the robustness of our main result: the relevance of relative positions. First, we split the forty games into eight groups of games, as oppose to the four considered above. Second, we use a probit regression to control for game heterogeneity within the eight groups.

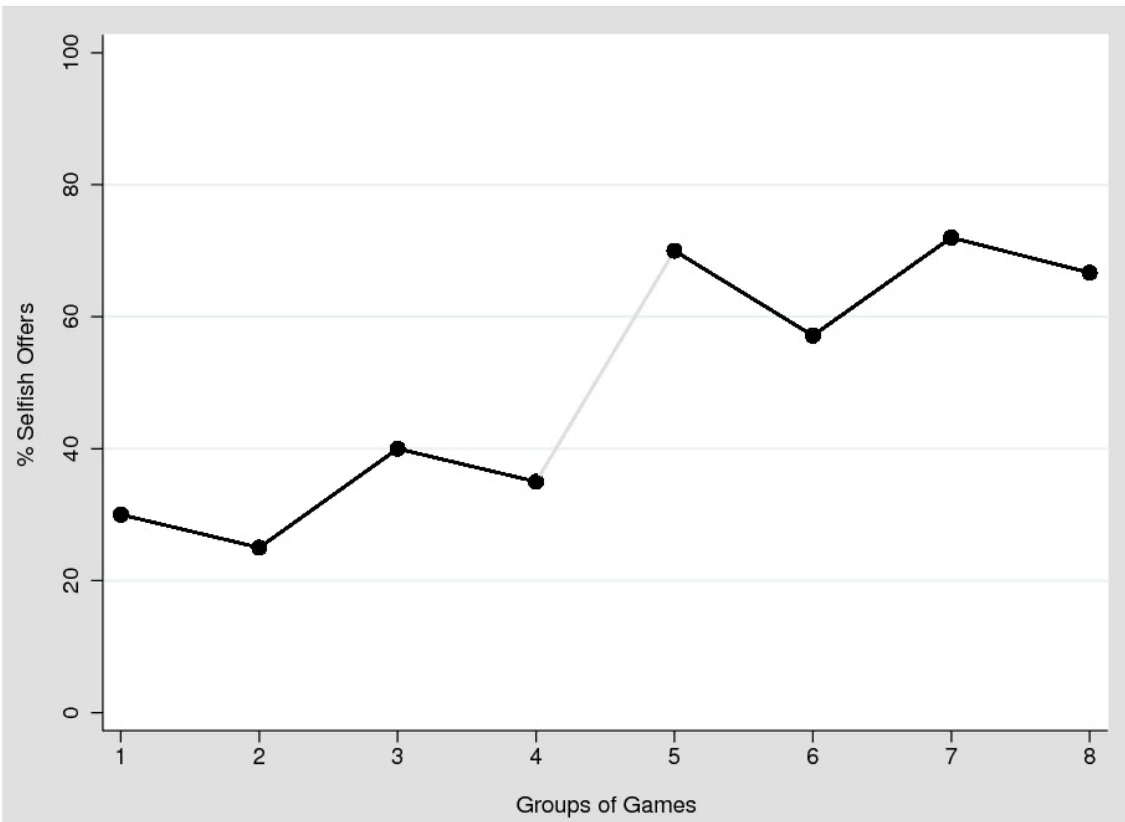

Figure 2: Proportion of selfish choices by eight groups of games

Figure 2 shows the proportion of selfish offers in eight groups of MUGs. Again, we observe a dramatic increase of selfish offers when the unselfish offer implies a change in the relative positions. In fact, only when the relative position changes (Group 4 vs. Group 5), the proportion of selfish offers is significantly different ($z = -2.5921, p = 0.0095$). None of the other six comparisons approaches statistical

Proportion of selfish offers	
Constant	0.459*
	(0.223)
Payoff Favors Proposer	-0.343**
	(0.078)
Inequality	-0.000
	(0.000)
Observations=	167
Pseudo R^2 =	0.086

**p<0.01, *p<0.05

Table 3: Marginal effect of relative position on the probability of choosing the selfish offer

significance.

Finally, we test whether the arbitrary division of games in groups affects our significant results. Table 3 reports the results of a probit model that replicates our main finding. We estimate the probability of proposing a selfish offer. The model is clustered at the game level to control for heterogeneity within the groups of games. We also control for the absolute inequality of the unselfish distribution, in order to rule out the effect of inequality.

Whereas the inequality of the distribution matters nothing, a change in the relative position has a signiticant effect on the probability of choosing the selfish distribution. When the unselfish distribution favors the proposer, the likelihood of choosing the selfish distribution decreases.

4.2.2 Responders' behavior

Responders also react to changes in the relative position. Figure 3 plots the rejection patterns of selfish offers in the same four groups of games considered for proposers. The rejection of selfish offers increases when the unselfish distribution is more egalitarian, but this result is not statistically significant (High Ineq. Prop vs. Low Ineq. Prop: $z = 0.3308, p = 0.7408$; High Ineq. Resp vs. Low Ineq. Resp: $z = 0.6270, p = 0.5306$; High Ineq. vs. Low Ineq.: $z = 0.1429, p = 0.8864$). In contrast, a change in the relative position marginally affects the proportion of rejected offers (Low Ineq. Prop vs. Low Ineq. Resp: $z = -1.3374, p = 0.1811$[5]).

In spite of being only marginally significant, the effect of the relative position in responders is consistent with the result obtained for proposers. Assuming that the status quo is a situation where the proposer is favored, a change in this status quo generates more selfish offers and a lower rate of rejection of these selfish offers. In the final section of the results, we study whether participants are aware of this change in the bargaining dynamics by exploring their expectations.

4.2.3 Participants' beliefs

The fact that both, the proportion of selfish offers and the probability of these offers to be accepted, increase when the relative position in final payoffs changes, suggests that proposers and responders share the same intuition concerning the relevance of relative position. To study whether this is the case, after the game, we elicited four types of beliefs following Bicchieri and Xiao (2009). For responders, we elicit first-order empirical beliefs, i.e. what they expect the proposer is going to choose,

[5]Although a two-sided test is insignificant at any conventional statistical level, a one-sided test assuming that the rejection rate is higher when the unselfish distribution favors the proposer, provides a marginally significant result: $p = 0.0905$

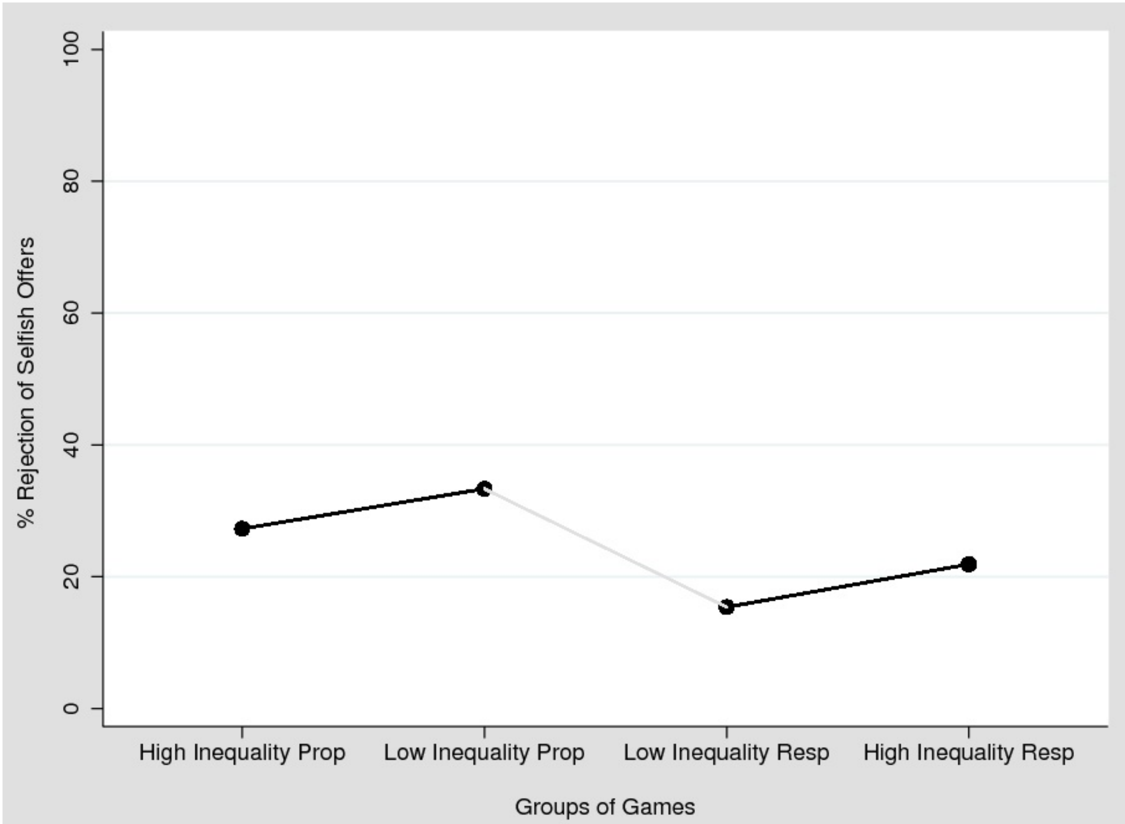

Figure 3: Rejection of selfish choices by four groups of games

and first-order normative beliefs, i.e. what they believe the proposer should choose. For proposers, we elicit both, second-order empirical beliefs, i.e. what they think the responder believes they would choose, and second-order normative beliefs, i.e. what they think the responder believes they should choose. Table 4 combines the answers of proposers and responders to these four questions.

Responders' first-order beliefs are consistent with proposers' second-order beliefs at the aggregate level (see table 4). At the individual level, there is also a significant (although weak) correlation between the empirical beliefs of proposers and responders ($\rho = 0.1025; p = 0.061$, Spearman test). Normative beliefs are also weakly correlated ($\rho = 0.093; p = 0.088$, Spearman test). Proposers and responders expect a higher proportion of selfish choices to occur. But, interestingly, this is not what

	Empirical belief		Normative belief	
Distribution	Proposer	Responder	Proposer	Responder
Selfish	61.68%	54.49%	23.95%	26.35%
Unselfish	38.32%	45.51%	76.05%	73.65%

Table 4: Responders' first order and proposer's second order beliefs

they think it should happen. This contradiction between empirical and normative beliefs have been shown in previous literature (Aguiar et al. 2010).

More important for our argument is the effect of relative position on beliefs. Figure 4 and 5 show that empirical beliefs match actual behavior when the unselfish distribution favors the responder. Responders expect proposers to be selfish, and proposers anticipate this expectation and behave selfishly. When the unselfish distribution disproportionally favors the responder, almost half of the responders believe proposers should behave selfishly. Therefore, many responders excuse proposers' selfish behavior when being selfish means respecting the initial relative position.

Following the definition of social norms put forward by Bicchieri (2006: 11), we argue that the consitency between participants' behavior, empirical beliefs and even normative beliefs in our experiment suggest that there is a norm that protects initial relative positions. This is consistent with the widely replicated finding of offers equal or below the fifty-fifty split in Ultimatum and Dictator games. Participants do not expect or even do not approve hyper-fair offers.[6] However, the fact that there is a norm against hyper-fair offers prevents researchers from studying what happen when participants have to choose between a selfish and hyper-fair offers. In this study, we show that agreements that imply offers above the equal split are rare to happen because proposers are fully justified to choose the selfish option when the

[6]Very few examples of hyper-fair offers have been documented. For some interesting exceptions, see Henrich et al. (2006) and Barr et al. (2009).

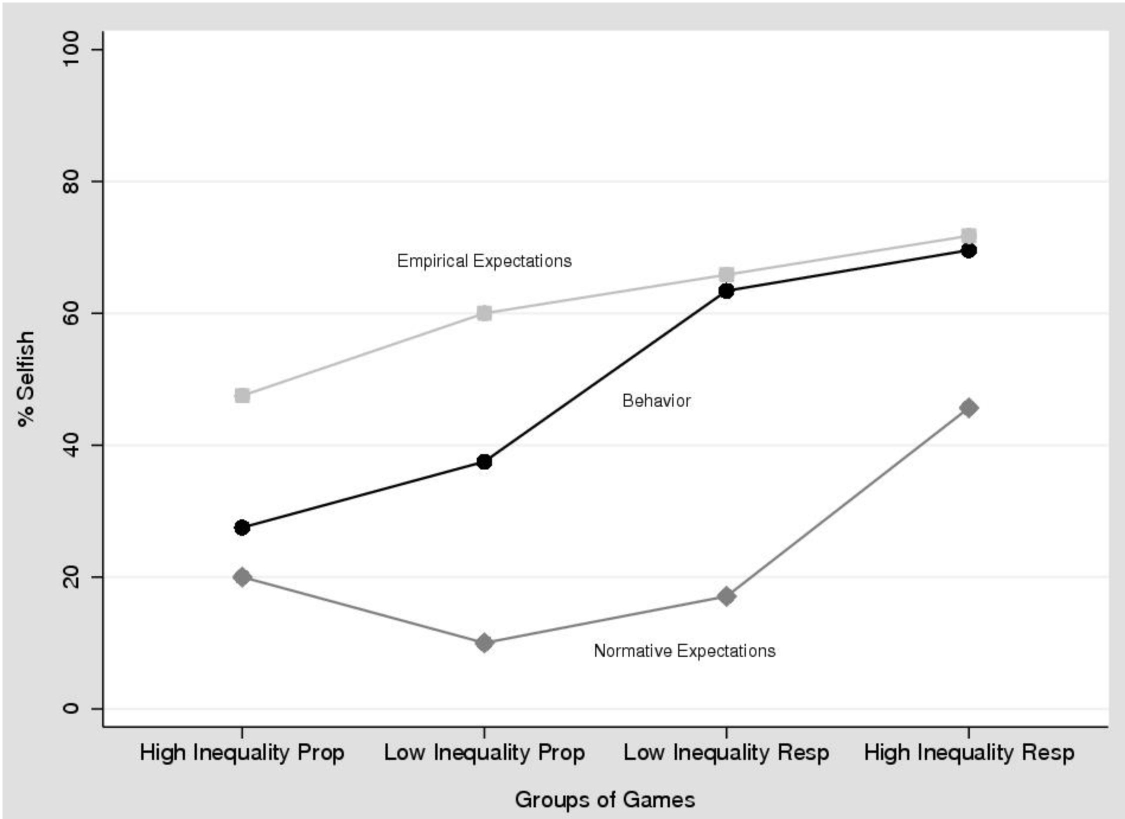

Figure 4: Proposers' Behavior and Beliefs by Four Groups of Games

unselfish distribution means going beyond the equal split.

5 Summary and Discussion

Our first experiment provides no support for a focal-point explanation of bargaining outcomes in the Ultimatum Game. This motivated us to run a second experiment, where we find support for an explanation based on relative position. In mini-ultimatum games, proposers do not offer the unselfish distribution when this distribution favors the responders, and responders accept the selfish distribution more often when the unselfish distribution disproportionally favors them. We can, moreover, rule out an explanation based on absolute inequality. The spread of the

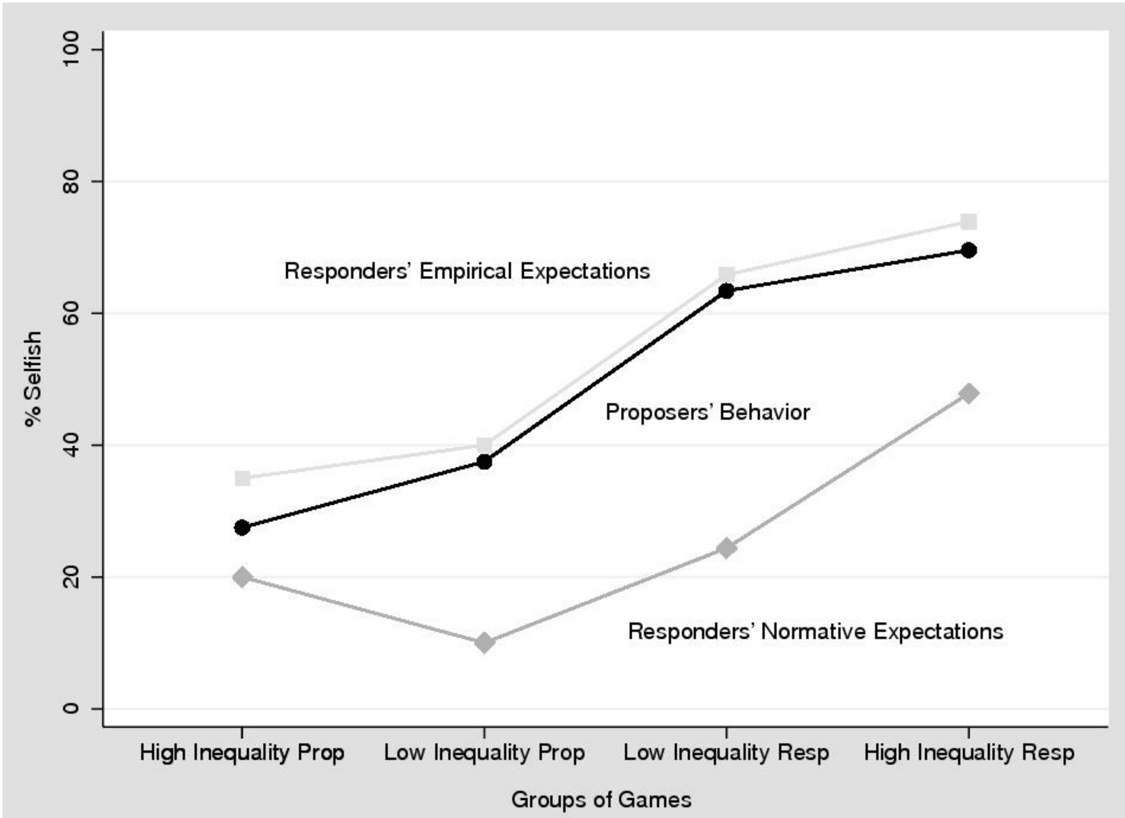

Figure 5: Proposers' Behavior and Responders' Beliefs by Four Groups of Games

unselfish distribution is not a good predictor of either proposers' choices or responders' patterns of acceptance.

Our explanation can partially account for GHM's results. GHM provide results consistent with the idea that the focality of equal splits explains participants' behavior in Ultimatum Games. They only find a significant difference, however, when they compare the equal split game ($EQUAL$) and the unequal game favoring the responder ($RESP$). If the focal point explanation works, they should find differences between $EQUAL$ and the unequal game favoring the proposers $PROP$, but this is not the case. Our explanation based on relative position provides an alternative interpretation of their data. This explanation predicts differences when the relative position changes, so we would not expect any difference between $EQUAL$ and

PROP, but we would expect differences between *EQUAL* and *RESP*.

Many studies on mini-ultimatum games have concluded that intentions matter in bargaining situations. Given that proposers have only two choices, responders can easily assess whether proposers behave fairly towards them. And, of course, proposers can reason in a similar fashion and anticipate responders' most likely reaction to the first mover's choice. In general, responders are more likely to accept a distribution if they consider that the decision process have been fair or if they think proposers have fair intentions.

In this paper we have provided evidence of a different factor that affects behavior in mini-ultimatum games: the relative position in final payoffs of the two players. In our experiment, participants agree more often on the selfish distribution when the unselfish distribution favors the responder. In some sense, proposers and responders accept that proposers get more at the end of the experiment. But, why should proposers have the right to a higher share if both players are *ex ante* equals? In the following, we explore some explanations that provide support for an asymmetry of payoffs favoring the proposer.

Proposers may think that they have the right to extract a benefit from the situation just because they are the first movers. Hoffman et al. (1994) show that more selfish offers are made when participants earn the right to be the first mover. As in our case, participants seem to also accept proposers' advantage. Our experiment suggests that the norm protecting first-movers' advantage is in place even in situations where participants have been randomly allocated to positions. The framing of the situation is such that the person who distributes the money is expected to keep at least a half. An interesting extension of our research would be to study taking behavior (List 2007; Bardsley 2008) in our forty mini-ultimatum games.

A second interpretation of our results would suggest that by the mere fact of being selected as first movers, proposers feel that they have acquire a different status. An advantageous relative position is a characteristic of status. Barr et al (2010) find that a group of people among the Sursurunga society are only willing to accept offers above the equal split. The authors argue that these participants use the experiment as a way to reaffirm their reputation at a cost of getting nothing.

As Brandts et al. (2010) have recently suggested, we observe a relationship between the cost of being unselfish and the probability of behaving unselfishly. However, our data fit better with an explanation based on relative position than with an explanation based on the price of sacrifice. Likewise, we do not observe any pattern that suggest that focality matters, as Guth et al. (2001) claim.

All in all, our experimental design allows us to analyze behavior that has not been previously observed in experiments. We explore a range of games favoring the responder that are rare in the literature on continuous ultimatum games simply because participants do not make hyper-fair offers. We have provided some tentative explanations about why this is so, the most important being the existence of a behavioral norm that prescribes proposers to keep at least half of the pie. This norm may well be sustained by the importance of property rights and status-seeking behavior.

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6 Appendix

Instructions

In this experiment, two participants will interact each other only once. Each of the two members of a pair will be randomly assigned one of two roles: person A or person B. In the first screen, you can read which role (either person A or person B) has being assigned to you and your partner.

Each pair can share £100. Person A has the right to propose the distribution of the £100. Person B must decide if he or she accepts or rejects person A's offer.

After person A and person B have made their choices, their payoffs are determined as follows:

- If person B has accepted person A's offer, then they both get what person A has proposed.
- If person B has rejected person A's offer, then they both earn nothing, i.e., the £100 is lost.

After you have made your decision, you will be asked to answer a short questionnaire.

Proposer

You have been selected as Person A

From the two options below, please choose how to split the £100 between yourself and person B.

1. £70 for you and £30 for Person B.
2. £51 for you and £49 for Person B.

Responder

You have been selected as Person B

Person A had to decide between two distributions:

1. £70 for him/her and £30 for you.
2. £51 for him/her and £49 for you.

Person A chose distribution 2.

Please accept or reject the distribution showed below which was chosen by the person you are matched with.

- Accept (Person A gets £51 and Person B gets £49)
- Reject (Person A gets £0 and Person B gets £0)