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Threats and demonstrations of power: Experimental results on bilateral bargaining*

Noemí Navarro† and Róbert Veszteg‡

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Abstract

We test the empirical effectiveness of threats in equilibrating bargaining power in simple bilateral bargaining games. Our experimental design is based on the two-player versions of the multibidding game (Pérez-Castrillo and Wettstein, 2001) and the bid-and-propose game (Navarro and Perea, 2005) that build on the ultimatum game and balance parties' bargaining power by auctioning the role of the proposer in the first stage. We show that, while both mechanisms implement the fair split in their subgame-perfect Nash-equilibrium, they induce different results in the laboratory. Subjects do not react to threats that lie off the the equilibrium path in the expected way, even if these threats are theoretically credible as they belong to the subgame-perfect Nash equilibrium. In particular, it seems that subjects feel the need to show their bargaining power as if punishment that never happens could not constitute a credible threat.

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1 Introduction

Conventional bargaining theory has little to say about negotiation breakdowns, e.g. strikes.[1] The typical arguments consider strikes as "the result of faulty negotiation" (Hicks, 1963) that could be avoided by "adequate knowledge" and cannot occur if the involved parties are rational. Since then numerous alternative models and arguments have come to light as surveyed by Card (1990). In this paper we report experimental data on three simple bargaining games and show that breakdowns do occur in spite of full information. We argue that subjects feel the need of showing their bargaining power even if it involves taking actions outside the subgame-perfect Nash equilibrium. As for our principal message using the example of strikes, given that most union power is derived from the threat of strike, union members might consider necessary to bear its cost in order to directly demonstrate their power instead of silently trusting the rationality of the other party. It seems that the assumption of rationality and/or the assumption of rationality being common knowledge is violated in the laboratory, therefore the subgame-perfect Nash equilibrium may prove to be inadequate to predict the outcome of the conflict.

An extensive number of experiments based on the ultimatum game have shown that subgame-perfection fails as a prediction for individual behavior, given that subjects tend to agree closer to a 40-60 split than to the prediction by the subgame-perfect Nash equilibrium (see Bearden (2001) for a review). As a result, two new branches of the literature have appeared. On one hand, some authors explore, from a theoretical point of view, new rationality concepts that include psychological aspects of human behavior, like fairness or reciprocity considerations, as opposed to the pure selfish approach taken by game theory (see for example Rabin (1993), Fehr and Schmidt (1999) and Bolton and Ockenfels (2000).) On the other hand, some laboratory experiments try to identify the reason for this failure while testing the presence of psychological aspects in the behavior of the participating agents. This paper belongs to the latter group. We study two very similar bargaining games that implement the fair split in subgame-perfect Nash equilubrium, and

[1] Strikes constitute a common empirical phenomenon that impose serious costs on all parties involved. According to the statistics of the International Labor Organization, 783 strikes and lockouts took place in Spain during 2006. They implied 927,712 days not worked in the whole country.

the related ultimatum game with its extreme equilibrium outcome. The rules of the three games to be studied are detailed below.

- The ultimatum game (ULT)

  Two players must divide an amount of money π. One of them, who is randomly appointed to be the proposer, sends an offer, o, suggesting a division $(\pi - o; o)$ in which she receives $\pi - o$ and the other player receives o monetary units. This other player, called the chooser, can either accept or reject the proposal. If she accepts, the amount of money π is split according to the proposal, while if she rejects, neither player receives anything from π.

- The multibidding game (MLT)

  This game consists of two stages. In stage 1, players bid to become the proposer in stage 2. This is done by simultaneously choosing a non-negative number. The player who has chosen the highest number becomes the proposer and must pay her bid, b_P, to the other player. In stage 2 the ultimatum game is played.

- The bid-and-propose game (BAP)

  This game consists of two stages. In stage 1, players bid to become the proposer in stage 2. This is done by simultaneously choosing a non-negative number. The player who has chosen the highest number becomes the proposer, but bids are not paid in this stage. In stage 2 a modified version of the ultimatum game is played: if the chooser accepts the offer, the amount of money π is split according to the proposal; while if she rejects, the proposer must pay her winning bid, b_P, to the chooser.

For further reference table 1 summarizes how payoffs are computed in the analyzed bargaining games, while table 2 displays the theoretical predictions, i.e. the subgame-perfect Nash equilibria. Note that in case of a rejection by the chooser the amount of money π is always lost. Subgame perfection predicts that (i) there are no rejections in the second stage in any of the three games, and (ii) in the ultimatum game the pie will all go to the proposer, while in the multibidding and the bid-and-propose games it is split equally.

As mentioned before, laboratory experiments based on the ultimatum game report that subjects tend to agree around the 40-60 split instead of the theoretical prediction. Forsythe et al. (1994), Güth and van Damme (1998) and Carpenter (2003) study treatments of ultimatum bargaining in which chooser's behavior, or expectations about it, is driving the final outcome towards a more egalitarian solution. Forsythe et al. (1994) analyze proposer's willingness to make nontrivial offers in simple bargaining games (including ultimatum) concluding that fairness, by itself, cannot explain the observed distribution of proposals. Güth and van Damme (1998) analyze ultimatum bargaining with an inactive third player and with different information structures. In the case of irrelevant information, the proposer demands all the cake. The authors conclude that proposers do not have a strong intrinsic motivation for fairness but realize that choosers will not accept any offer. Proposers would then try to react strategically to the information of the chooser by anticipating their reaction. Very significantly, Carpenter (2003) finds that competitive choosers are more likely to reject offers, while egoistic proposers offer more equal shares for instrumental reasons. He points at the fact that most rejections come from competitive and egoistic bargainers.[2] According to him, what makes the ultimatum bargaining closer to an equal split than to the subgame perfect prediction is "the presence of competitive agents who tend to leave money on the table rather than lose relative standing."

Given the empirical evidence that proposers have no intrinsic valuation for fairness and offers are driven away from the subgame-perfect Nash equilibrium by (out-of-equilibrium) expectations about chooser's behavior, we focus on the latter and collected data from treatments based on the three games described above.

The three games differ mainly in what happens in case of a rejection. In the ultimatum game, the amount of money (in our treatments, 10 monetary units) is lost and the proposer would obtain 0 monetary units. In the multibidding game not only the amount of money is lost but the proposer cannot finance the bid she paid before with the benefits from splitting the 10 monetary units. In the bid-and-propose game, the amount of money is

[2]The difference between competitive and selfish bargainers is that competitive ones care about the relative standing of payoffs, while selfish only care about maximizing their own payoff.

lost as in any of the previous cases and the proposer has to pay the bid. Although the multibidding and the bid-and-propose games look almost the same, the difference turns very relevant in terms of the threat or bargaining power in the hands of the chooser. The power of the chooser in the last stage of the multibidding game is the same as in the ultimatum game, given that the bid has already been paid: the proposer loses the benefit from splitting the money according to the offer. But in the bid-and-propose game the proposer not only loses the benefit from splitting the money, but this is when she will have to pay the bid. So, a priori, in the multibidding game the bid helps to balance the payoffs across the two agents, but the last stage is an ultimatum game in which the equilibrium offer is nevertheless equal to zero. In the bid-and-propose game the bid stays as a serious threat, as a tool for providing bargaining power to the chooser. Its goal is to induce a higher offer by the proposer which in turn will make the distribution of payoffs more even (than in the ultimatum game).

Our main conclusion is that the data collected are partially consistent with the theory: the multibidding game seems to be a re-scaling of the ultimatum game, in which the bid previously paid is taken into account to compute offers, but the behavior of choosers stays similar to that one in the ultimatum game. The bid-and-propose game, on the contrary, presents a more intense rejecting behavior by the choosers but not a more egalitarian offering behavior by the proposers. We interpret this higher frequency of rejection in the bid-and-propose game as a demonstration of power. It seems that choosers feel in the need to reject more to remind the proposers that they have to pay the price bid in stage one in case of a rejection, even when this is costly to them. This demonstration of power turns unfruitful given that the distribution of offers is similar to the ultimatum game.

This paper is organized as follows. The next section explains the experimental design. Section 3 presents the data and our main results. Section 4 concludes.

2 Experimental design

We recruited students to a computer lab through announcements posted across the campus of both the Universidad de Navarra in Pamplona and the Universidad del País Vasco in Bilbao, Spain (62 subjects in total). They were informed that they would participate in a paid experiment on decision making. The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007). The first session took place in May, 2007, while the second and the third in May, 2008. We implemented three games in various treatments. At the beginning of each treatment, printed instructions were given to subjects and were read aloud to the entire room. Instructions explained all rules to determine the resulting payoff for each participant. They were written in Spanish and contained some numerical examples to illustrate how the program works.[3]

At the start of each round the computer randomly assigned subjects to groups of two. We applied stranger treatment where participants were not informed about who the other member of their group was. Also, a new assignment was made in every period; hence participants knew that groups were typically different from period to period. Subjects were not allowed to communicate among themselves; the only information given to them in this respect was the size of the group.

All subjects played the ultimatum game and either the bid-and-propose or the multibidding game. Table 3 contains precise information about the games and their order in each session. In each game and in each round subjects had to decide how to share 10 Experimental Monetary Units (EMU). Treatments, with some exceptions, consisted in one practice and 5 paying rounds for each game. We allowed for two digits in all numerical choices in order to make the decision problem similar to a problem of dividing real money (Euros, EUR) between two people.

For convenience, and in order to keep subjects informed about their performance, the history of personal earnings appeared on screen after each repetition. All computer screens contained payoff simulation tables on their lower part that subjects could use before submitting their final decision.[4] By making use of these tables subjects would simulate their payoffs (both their own payoff and the other player's payoff) in several hypothetical

[3]The English translation and the original Spanish version of the instructions are available upon request from the authors. A sample can be found on the Internet at http://navarro.prada.googlepages.com and http://rveszteg.googlepages.com.

[4]As in the theoretical game, subjects observed the first-stage winning bid before they were asked to post and consider an offer in the multibidding and bid-and-propose games. Simulation tables were also updated with this information and computed the hypothetical payoffs accordingly.

situations as follows. First, they would write the opponent's strategic choices and their own ones. Afterwards, by a simple mouse click, they would obtain information on the final results given the specified actions. We observed that participants made extensive use of these simulation tables that showed clearly who would receive what amount of money by the end of the game.[5]

The sessions lasted an hour and a half, because subjects played several versions of each game. This paper concentrates on one particular issue, we report other results in a different paper.[6] At the end, participants were paid individually and privately. Final profits were computed according to a simple conversion rule, 100 experimental monetary units equal EUR 8.5, based on the personal gains in experimental monetary units during the whole session. Subjects also received a fixed amount of EUR 3 as show-up fee in Pamplona and EUR 5 in Bilbao.

3 Experimental results

Table 4 shows the experimental results. It turns out that the subgame-perfect Nash equilibrium is a poor predictor for the outcome of the analyzed games in the experimental laboratory, as all payoffs are significantly different from the expected ones at the usual significance levels.[7] Nevertheless a closer look at the data reveals interesting regularities that are in line with the theoretical arguments.

Bids

In the multibidding and the bid-and-propose games, bids are meant to balance the negotiating parties' bargaining power and to induce fair outcomes. Being the proposer in the

[5]We wish to emphasize that playing the game 5-10 times is usually not sufficient for gaining experience in the lab. Nevertheless our simulation tables ensured that participants understand the monetary consequences of their decisions right from the first period. Not less importantly, the relatively small number of repetitions reduce possible dynamic considerations in the decision making process from round to round. It also allows for playing more games in a strictly bounded time horizon.

[6]Check Navarro and Veszteg (2008).

[7]It is true independently whether we are looking at all the observations or only the ones that belong to accepted offers. When reporting statistical significance we refer to the results of both parametric and non-paramentric tests. Results are significant according to both families of tests at the usual significance level, if not stated otherwise.

second stage implies having the right to send an ultimatum that in general can not be rejected without suffering a monetary loss. Therefore bids reflect the value of the proposer's position and can be considered as its price. Experimental subjects seem to underestimate the value of being the proposer as they bid approximately EMU 2 on average in both games instead of the expected EMU 5. However, this behavior can be rationalized once we notice that, even though they do not appear in the theoretical equilibria, rejections do occur in the experimental laboratory. Rejections weaken the proposer's power just as the first-stage bids do. Our data leaves this statement as a conjecture. The statistical result we can state is that the average bid is smaller, although not significantly, for the bid-and-propose game where we observe a significantly lower acceptance rate.[8] In spite of the relatively low number of repetitions bids do show a slight, but significant downward sloping trend. It seems that experience, especially rejections, made the proposer's role less attractive in the laboratory.

Offers

Offers tend to be more balanced in the experimental laboratory than expected, i.e. proposers do not or can not make full use of their bargaining power. In the case of the ultimatum and the multibidding games they are significantly higher (than EMU 0), while in the bid-and-propose game significantly smaller than (EMU 5) predicted by game theory. Interestingly, the mean offer is around EMU 3 in the multibidding game, while it is approximately EMU 4 in the other two games.[9] Given that in the multibidding game proposers must always pay their bids to choosers, we can consider the sum of the (net) offer and the first-stage winning bid as the gross offer. The last rows in table 4 reveal that this gross offer in the multibidding game tend to be significantly more generous than the offers in the other two games.

A look at the three graphs in Figure 1 reveals that the distribution of offers in the ultimatum and the bid-and-propose games are similar. They look symmetric and, as com-

[8]The above statement holds even if we consider only the accepted offers and/or only the winning bids.

[9]Offers are somewhat larger if only accepted ones are considered. In any case, offers in the ultimatum and the bid-and-propose game are statistically equal, and statistically different from the offers in the multibidding game.

mented before, have the same mean. Offers in the bid-and-propose game show a smaller dispersion both if we look at the difference between the maximum and the minimum, and the standard deviation. The distribution of offers in the multibidding game has a long right tale, a smaller mean and a large variance.

Some researchers conclude that players behave more according to the theory, i.e. less fair, when they feel they have earned their position (see Bearden (2001) for a broad review of the literature). Our results do not support this view. Winning the auction in the first stage in both the multibidding and the bid-and-propose games can be considered as earning the position with the largest bargaining power. Nevertheless, proposers of the bid-and-propose game are not more generous than proposers in the ultimatum game. This is true even if we control for other factors that may influence the offers. The first two regression models reported in Table 5 reveal that offers tend to be significantly and considerably lower in the multibidding game than in the bid-and-propose game. Offers tend to be larger in the bid-and-propose game than in the ultimatum game due to positive bids. However the comparison of offers between the multibidding and the ultimatum games are not straightforward. On one hand, net offers tend to be smaller in the multibidding game, but this fall is compensated by the first-stage winning bids.[10] The estimation results show that offers tend to increase with the first-stage winning bid, i.e. as the proposer's bargaining power decreases. These two effects together, on one hand, suggest that the introduction of the first-stage auction raises the chooser's bargaining power. On the other hand, offers tend to be significantly lower if the winner has to pay her bid in the first stage. Again, even if the laboratory experiments do not deliver the outcomes predicted by game theory, they show that the theoretical tools have a significant effect and they are able to move the outcome in the expected direction. Results are similar, as shown in columns 3 and 4, if we consider only the accepted offers.

In other words, the effect of the bidding stage on offers can be explained by standard game theory. However, backwards induction and the equilibrium concept of subgame-

[10]There exist a significant ordering effect (subjects who play the ultimatum game first tend to be more generous), and a significant difference between the two locations (subjects from the UNAV are less generous) if only accepted offers are considered. The regression models without controls take these effects into consideration directly, while the ones with controls for subjects do it by allowing for subject-specific fixed effects. Both models support the same interpretation of the data.

perfection can not explain its effects on the chooser's decision, that is observed to be significantly different in the two games.

Acceptance decisions

Even if theory predicts full-efficient equilibria in which no rejection occurs, rejections usually appear in the laboratory. As shown by the grey bars in Figure 1 the acceptance rate tends to increase with the generosity of the offer.[11] The global acceptance rate in the ultimatum and multibidding games was equal to 78%, while it was significantly smaller in the bid-and-propose game, 62%. The regression results in the last column of table 5 confirm that subjects tend to accept more in the multibidding game than in the ultimatum game, while there does not exist significant difference between the bid-and-propose and the ultimatum games.[12]

Again, a full comparison among the three games should not ignore the effect of the first-stage bidding.[13] As for the influence of bids on acceptance decisions, there is a clear empirical difference between the multibidding and the bid-and-propose game. In the multibidding game, the presence of the bidding stage increases the chooser's bargaining power directly, as the winning bid is immediately paid to the chooser. Therefore first-stage bids have no significant effect on the acceptance rate in the last stage (the coefficient of the $bid \cdot mlt$ regressor is not significantly different from zero). In the bid-and-propose game, the bidding stage serves identical theoretical goal, but it operates indirectly, as the winning bid is never paid in equilibrium, but increases the chooser's power by increasing the cost of a rejection for the proposer. It seems that choosers do not fully trust that proposers are aware of this fact in the laboratory. Therefore, they tend to demonstrate their enhanced bargaining power by rejecting more often. The coefficient of the $bid \cdot bap$ regressor is significantly negative. And more importantly, the coefficients of $bid \cdot bap$

[11] If we consider the first-stage winning bid as part of the offer in the multibidding game and reestimate the logit regression with the gross offer among the regressors, we obtain similar results. Numerically, the estimated coefficients remain unchanged with one exception: the coefficient of $bid \cdot mlt$ becomes significantly different from zero and equals -1.4104. This represents a model specification that is equivalent with the one presented in the table. Therefore conclusions derived from the two models are also the same.

[12] As for the difference between the estimated coefficients of the *mlt* and *bap* dummies, the $p-$value of corresponding statistical test is 0.1558.

[13] Given that the ultimatum game has no bidding stage, bids are considered to be equal to zero there.

and $bid \cdot mlt$ are statistically different at the usual significance levels (the corresponding $p-$value is 0.0001).[14]

Payoffs

When considering all observations, both the multibidding and the bid-and-propose games yield lower payoffs for proposers than the ultimatum game, but for different reasons. The average bid plus the average offer in the multibidding game is higher than the average offer in the ultimatum game, while the rejection behavior is similar (see Figure 1). In the bid-and-propose game offers are similar as in the ultimatum game and rejections happen more often. The fact that there are more rejections than in the ultimatum game does not make the offers higher. Therefore, choosers' payoffs in the bid-and-propose game end up similar on average to the ones in the ultimatum game. In the multibidding game those payoffs are clearly higher.

When focusing on only accepted offers, the multibidding game yields higher payoffs to the chooser than both the ultimatum and the bid-and-propose games. The fact that the multibidding game yields higher payoffs to the chooser than the ultimatum game is consistent with the theoretical design of the multibidding game. Not so surprisingly, the bid-and-propose game and the ultimatum game yield similar payoffs to the chooser given that offers in both games are statistically equal, and that the bid in the bid-and-propose game is not paid in case of acceptance.

4 Conclusions

In line with other studies, Navarro and Veszteg (2008) find that experimental subjects respond to changes in their bargaining power, in their outside options, in the expected way. The interesting result here is how different the use of bargaining power is in each game. Choosers and proposers have exactly the same bargaining power, from a theoretical point of view, in the multibidding and the bid-and-propose games (and theory predicts

[14]We could not detect any significant time trend or relationship in the evolution of offers and the acceptance rate in our database. Detailed results are available upon request from the authors.

the same equilibrium outcome). Nevertheless, the two games induce significantly different behavior (and outcomes) in the laboratory. It seems that the way bargaining power in enhanced does make a difference.

In the multibidding game the winner must pay her bid to the other player before the bargaining process takes place. This monetary transaction balances the final payoffs independently on whether acceptance or rejection occurs. Having to pay a certain amount of money to the other party not only reduces the proposer's bargaining power, but the action also makes sure that the proposer notices the reduction in payoff before she posts her offer. In the bid-and-propose game, having to pay the winning bid is an out-of-equilibrium although credible threat for the proposer. It seems that choosers feel the necessity of showing their increased bargaining power through rejecting more in this case.

The surprising fact is that this demonstration of power does not induce higher offers by the proposers than in the ultimatum game. Taking the average payoffs in the ultimatum game as a reference, we can conclude that proposers lose by the introduction of a stage one as designed in the multibidding game or in the bid-and-propose game, as expected from theory. Choosers win clearly only from the introduction of a stage one designed as in the multibidding game, due to their unfruitful and costly demonstrations of power in the bid-and-propose game.

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Tables and figures

Table 1: Payoffs in the analyzed bargaining games. ULT: ultimatum game, MLT: multibidding game, BAP: bid-and-propose game. π: amount to be shared, o: offer, b_P: the proposer's winning bid from the first stage.

	acceptance		rejection	
	proposer	chooser	proposer	chooser
ULT	$\pi - o$	o	0	0
MLT	$\pi - b_P - o$	$b_P + o$	$-b_P$	b_P
BAP	$\pi - o$	o	$-b_P$	b_P

Table 2: The subgame-perfect Nash equilibrium and the equilibrium payoffs in our games if $\pi = 10$. ULT: ultimatum game, MLT: multibidding game, BAP: bid-and-propose game. b_P: the proposer's winning bid from the first stage.

	strategy			payoff	
	bids (b)	offer (o)	accept if	proposer	chooser
ULT	-	0	$o \geq 0$	10	0
MLT	5	0	$o \geq 0$	5	5
BAP	5	5	$o \geq b_P$	5	5

Table 3: Session summary. UNAV: Universidad de Navarra in Pamplona, Spain. UPV: Universidad del País Vasco in Bilbao, Spain. Number of trial rounds between parenthesis. ULT: ultimatum game, MLT: multibidding game, BAP: bid-and-propose game.

session	institution	subjects	rounds and games			
			first		second	
S1	UNAV	22	(1) + 5	ULT	(1) + 10	BAP
S2	UPV	22	(1) + 5	BAP	(1) + 5	ULT
S3	UPV	18	(1) + 5	ULT	(1) + 10	MLT

Table 4: Summary of experimental results. ULT: ultimatum game, MLT: multibidding game, BAP: bid-and-propose game. b_P: proposer's winning bid from the first stage.

	all observations		observations with accepted offers	
	proposer's payoff	chooser's payoff	proposer's payoff	chooser's payoff
ULT - mean	4.57	3.24	5.85	4.15
st.dev.	2.80	2.22	1.58	1.58
min / max	0.00 / 9.00	0.00 / 9.00	1.00 / 9.00	1.00 / 9.00
MLT - mean	2.06	5.71	3.51	6.49
st.dev.	3.79	3.01	2.87	2.87
min / max	-7.00 / 7.90	0.25 / 13.5	-3.50 / 7.90	2.10 / 13.5
BAP - mean	2.30	3.88	5.71	4.29
st.dev.	4.53	1.37	0.84	0.84
min / max	-8.99 / 8.10	0.00 / 8.99	3.70 / 8.10	1.90 / 6.30
	bid	bid difference	bid	bid difference
MLT - mean	2.04	2.01	2.08	1.95
st.dev.	1.82	1.64	1.85	1.64
min / max	0.00 / 7.00	0.00 / 6.80	0.00 / 7.00	0.00 / 5.50
BAP - mean	2.02	1.61	1.94	1.28
st.dev.	1.52	1.49	1.33	1.04
min / max	0.00 / 8.99	0.00 / 8.49	0.00 / 7.00	0.00 / 4.00
	offer	accept	offer	accept
ULT - mean	3.81	0.78	4.15	-
st.dev.	1.60	0.42	1.58	-
min / max	1.00 / 9.00	0 / 1	1.00 / 9.00	-
MLT - mean	2.96	0.78	3.44	-
st.dev.	1.71	0.42	1.62	-
min / max	0.00 / 8.00	0 / 1	1.00 / 8.00	-
BAP - mean	4.02	0.62	4.29	-
st.dev.	1.08	0.49	0.84	-
min / max	0.00 / 6.30	0 / 1	1.90 / 6.30	-
	offer + b_P		offer + b_P	
MLT - mean	6.00	-	6.49	-
st.dev.	2.78	-	2.87	-
min / max	1.25 / 13.50	-	2.10 / 13.50	-

Table 5: Regression analysis of offers and acceptance decisions. Dependent variable: in the first row; Regressors: *offer* - offer received; *unav* - 1 if the observation is from the Universidad de Navarra, 0 if it is form the Universidad del País Vasco; *mlt* - 1 if the observation is from the multibidding game, 0 otherwise; *bap* - 1 if the observation is from the bid-and-propose game, 0 otherwise; *ultfirst* - 1 if the observation is from a session where subjects played the ultimatum game first, 0 otherwise; *bid* - the proposer's first stage (winning) bid, equals to 0 in the ultimatum game. Coefficient: *Significant at 10%. **Significant at 5%. ***Significant at 1%.

	offer		*accepted offer*		*accept*
constant	3.5160***	3.9006***	3.9002***	4.2240***	−2.9135***
offer	-	-	-	-	1.5440***
mlt	−1.7483***	−1.7353***	−1.9358***	−2.0839***	2.0649***
bap	−0.2250	−0.2364	−0.4612	−0.3296	0.6744
bid · *mlt*	0.1893**	0.1806*	0.2482***	0.2578***	0.1236
bid · *bap*	0.1797**	0.1421*	0.2953***	0.2553**	−0.9463***
ultfirst	0.6151**	-	0.7179**	-	−1.5360***
unav	−0.2877	-	−0.5761**	-	0.5407
control	-	subject	-	subject	-
estimation method	ols	ols	ols	ols	logit
adj.R^2 / pseudo R^2	0.0960	0.2954	0.1064	0.3535	0.2849
F-test / χ^2-test	0.0000	0.0000	0.0000	0.0000	0.0000
obs.	410	410	293	293	410

Figure 1: Distribution of offers and acceptance rate.