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Confrontation Costs in Negotiations: Bargaining Under the Veil of a Screen

Andrés Gago

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CENTRO DE ESTUDIOS MONETARIOS Y FINANCIEROS Casado del Alisal 5, 28014 Madrid, Spain www.cemfi.es

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Abstract

In negotiations the objectives of parties are generally in conflict. Facing this conflict can trigger negative emotions, such as nervousness, embarrassment and awkwardness, which I refer as confrontation costs. In this paper, I use a lab experiment to explore whether these costs exist and if so what their implications are. First, I show that a significant proportion of participants avoid bargaining even when it delivers higher payoffs. I find that the avoidance rate is 50% higher in face-to-face negotiations than in electronic negotiations. Second, after shutting down alternative channels, I find that the higher avoidance rate in person can be attributed to higher confrontation costs. Together, these two things make e-negotiations welfare-improving in my design, casting doubts on the general belief that face-to-face communication increases efficiency by fostering transactions. Finally, consistent with previous literature, I observe that women haggle less than men, and I find that confrontation costs can also account for this fact.

JEL Codes: C78, C91, D91, J16.

Keywords: Bargaining, Conflict Aversion, Social Pressure, Image Concerns, Gender.

Andrés Gago Universidad Torcuato di Tella agago@utdt.edu

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1. Introduction

Over the course of a lifetime, we have the opportunity of bargaining over many things. Those things range from important issues with long-lasting consequences, such as the price of a house, a car, or a salary, to more mundane ones such as a second-hand bike or sofa. However for some individuals negotiating can entail confrontation costs, especially face-to-face. These costs derive from the conflict inherent in haggling and show up as feelings of embarrassment, awkwardness or nervousness. To avoid these unpleasant feelings, some people might avoid engaging in negotiations altogether.

We now have substantial evidence, mostly from surveys, that confrontation costs exist. In a wide cross section of the US population, Babcock et al. (2006) find that subjects suffer apprehension before negotiations. Likewise, Brooks and Schweitzer (2011) and Bowles, Babcock and Lai (2007) find that negotiations trigger anxiety and nerves.¹ However, we know little about how these costs affect individuals' willingness to bargain in an incentivized setting. In this paper I run a lab experiment to confirm that these unpleasant feelings exist and determine their effect on bargaining propensity. Moreover, I study how these feelings vary depending on the communication channel and how this affects bargaining outcomes.

In an experiment with over 400 participants, I find that confrontation costs are substantial and lead subjects to forgo one out of every four profitable negotiations. More importantly, I find that communicating electronically rather than in person is an effective way to reduce these costs and foster negotiations: participants are 56% more likely to avoid negotiations if they are in person. This casts doubt on the extended belief that face-to-face negotiations increase efficiency by fostering transactions. I also explore the gender dimension and find that women pay higher confrontation costs and are 56% more likely to refrain from bargaining than men.

The finding that communicating electronically can increase total welfare introduces a new perspective into the study of the expansion of e-negotiations. Morris et al. (2002) show that face-to-face communication is an effective way to increase rapport, facilitate coordination, and help people to reach agreements. Probably for these reasons, 89% of Harvard Business Review subscribers declared that face-to-face meetings were the most effective way of "sealing the deal".² In a context in which there are gains from trade, every transaction increases monetary welfare. Thus, Valley, Moag and Bazerman (1998) and Valley et al. (2002) interpret the higher rate of agreements in face-to-face negotiations as evidence that they are welfare improving. In this paper I show that once the decision to engage in bargaining and confrontation costs are accounted for this is no longer a general truth. Indeed, in my experiment, the welfare of the participants assigned to the electronic

¹After the survey, Brooks and Schweitzer (2011) study how the induction of anxiety affects negotiation performance.

²See report by Harvard Business Review Analytic Services (2009).

condition is actually higher than that of those assigned to the face-to-face condition.

Endogenizing the opt-in decision enables me to observe that a higher probability of agreement conditional on bargaining is counterbalanced by a higher avoidance rate face-to-face. I find that when participants are assigned to the face-to-face condition they are are more likely to agree, but they are less likely to bargain at all. Thus, the unconditional rate of agreement turns out to be the same across communication channels (and thus monetary welfare is also the same). Moreover, I find that confrontation costs are higher if the negotiation is conducted face-to-face. Hence, as monetary welfare is the same in both channels but costs are higher in person, it turns out that total welfare is higher, not smaller, if participants bargain electronically.

These results have two important implications. First, from a methodological point of view, they emphasize the relevance of explicitly considering the opt-in decision in bargaining studies. Outside the lab, subjects can typically choose whether to engage in negotiations or not, but this choice is very often neglected in studies of bargaining. This paper shows that abstracting from this decision in the experimental design can change the results dramatically.

Second, they highlight the importance of an overlooked feature of peer-to-peer electronic marketplaces. In October 2016 Facebook launched Facebook Marketplace in the US. By May 2017 more than 18 million new items were posted every month (Cohen, 2017) and by a year later there were more than 800 million active users in 70 countries (TSP-Staff, 2018).³ Platforms such as Facebook Marketplace are used for selling everything, from the smallest items to houses or cars, and even for house renting. As economists, we have typically regarded the expansion of these sites from the perspective of the reduction in search costs. This is indeed a highly significant point. However, another distinctive feature of these platforms is that potential buyers and sellers meet electronically and bargain over prices. According to the results shown in this paper, the possibility introduced by new technologies of hiding behind an electronic device fosters negotiations and reduces confrontation costs, which expands the customer base and allows for transactions that otherwise would not occur. This might be one cause and a consequence of the success of electronic marketplaces and could be one reason why electronic communication methods such as WhatsApp, email or LinkedIn are widely used in negotiations.

The third implication of the paper is derived after exploring the results by gender. In line with previous literature, I find that women are more reluctant to bargain than men (see also Babcock et al., 2006; Bowles, Babcock and Lai, 2007; Brooks and Schweitzer, 2011; Babcock et al., 2003). In a study using data from Portugal, Card, Cardoso and Kline (2015) show that different attitudes towards negotiations explain part of the gender wage gap.

³Similar figures can be given for *letgo*, its direct competitor, with more than 75 million downloads, 200 million listings, and more than 3 billion messages sent through its chat service up to September 2017 (Lowe, 2017). Craiglist, the incumbent platform for buying and selling in the US also offers the possibility of communicating electronically.

Therefore, there is an open debate about whether women should be encouraged to leanin as a way to close this gap. To foster women' participation in negotiations, one must understand why they are shying away in the first place. Interestingly, a closer look at the results of this experiment reveals that women pay higher confrontation costs that deter them from engaging in negotiations. According to this evidence, interventions targeted at eliminating the confrontation component of negotiations would be good candidates for increasing the bargaining propensity of women.

The experiment works as follows. In the baseline treatment participants must decide whether they want to engage in a negotiation with another subject on how to split a pie (let's say $20 \in$). To simplify the analysis, only one member of each pair is allowed to choose whether the negotiation takes place. If she chooses to negotiate, they have three minutes to reach an agreement. If they do not reach an agreement, each receives her outside option. If she chooses not to negotiate, they also receive their outside option and wait for three minutes. The sum of the outside options is smaller than the size of the pie, which means that there are gains from trade. Moreover, the outside option is ensured in case of disagreement. Both things together make opting-in weakly dominant in monetary terms, allowing us to interpret opting-out as evidence of non-monetary costs.

To explore the role of non-monetary costs in the differences across communication channels I run a second treatment. When participants decide whether to opt-in they are uncertain about the probability of agreement and about the agreement itself. Therefore, a greater bargaining propensity in electronic negotiations could be explained either by costs being smaller or by expected earnings being larger. To remove the uncertainty in the opt-in decision, I introduce the asymmetric treatment. In the asymmetric treatment everything remains as in the baseline with one exception: The subject that takes the decision to opt-in now has dictator power in the negotiation. This means that if she chooses to bargain, consensus will not be necessary and she will have the last word on how to split the pie. Giving her full control over the result of the negotiation enables me to interpret the higher avoidance rate face-to-face as evidence of higher costs. Once they have full control on the outcome, if participants still avoid more frequently negotiations face-to-face than electronically it must be not because they hold different expectations about profits, but because non-monetary costs are different. This interpretation is aligned with the answers to the survey I gathered at the end of the experiment. The vast majority of participants declare that they think they do better in terms of earnings when they bargain face-to-face, which is consistent with costs and not expected earnings explaining the lower avoidance rate in electronic negotiations.

To explore the specific role that confrontation plays in the opt-out decision I do three things. First, I shut down alternative explanations by design. In the baseline treatment consensus is necessary. Therefore, participants must persuade the other party to reach an agreement. This gives rise to three alternative explanations for the opt-out decision: First, confrontation is emotionally costly. Second, persuading the other party takes effort. Third, the need to convince the other party could trigger feedback aversion about one's bargaining skills.⁴ The second and the third explanations are ruled out in the asymmetric treatment. Giving the last word in the negotiation to one of the parties removes the need to persuade and reach consensus while it maintains the confrontation aspect of the negotiation. Hence, showing that participants opt out 20% of the time in the asymmetric treatment is an indirect way to show that confrontation costs are sufficient to deter subjects from bargaining.

To gather direct evidence on the mechanism I do two additional things. Once participants finish the experiment, they take the Thomas-Kilmann Conflict Mode Instrument (TKITM). The TKITM is the leading psychological test for assessing how people deal with conflict.⁵ It distinguishes five conflict-management strategies - Avoiding, Competing, Accommodating, Collaborating and Compromising - and measures how frequently someone uses each strategy relative to the general population. According to my hypothesis, negotiations entail conflict and therefore there are people that prefer to avoid them. In line with this, I find a positive correlation between a high score in avoiding conflict in the TKITM and avoiding negotiations in my experiment. Furthermore, participants also take a tailor-made survey that asks them directly about their reasons for opting-out. According to their answers, the negative emotions attached to conflict are the main reason for opting-out in my experiment. Moreover, a majority declare that they pay confrontation costs when they bargain in their daily routines, and almost everyone declares that these costs are higher in face-to-face negotiations.

The existence of confrontation costs in negotiations is aligned with the theory proposed in the seminal work by anthropologists Brown and Levinson (1987) to explain social interactions. They define positive face as the need for one's wishes and desires to be recognized and appreciated. Haggling threatens the positive face of the buyer, who might be accused of being mean, and the positive face of the seller, who could be accused of being greedy. They also define negative face as an individual's need for freedom of action and choice. Haggling threatens the negative face of buyer and seller if they feel forced to reach an agreement once they sit at the bargaining table. Brown and Levison hypothesize that people use politeness strategies to avoid face-threatening-acts. Not bidding for an item that you like because you are afraid that your offer might be considered as an insult is an example of such a strategy.

The willingness of keeping face (Goffman, 1955) has been studied by economists in the context of charitable giving under the name of *social pressure* (DellaVigna, List and

⁴I have borrowed this idea from competition avoidance literature (see Niederle and Vesterlund, 2007). If some subjects suspect their persuasion skills are poor but suffer if that suspicion is confirmed, they might avoid negotiations.

⁵Developed by Kenneth W. Thomas and Ralph H. Kilmann in 1974 (Kilmann and Thomas, 1977), the TKITM is now a commercial tool used by human resources departments worldwide. It has more than 1500 citations in Google Scholar.

Malmendier, 2012) or *avoiding the ask* (Andreoni, Rao and Trachtman, 2017). These papers show that some subjects want to avoid donations, and at the same time keep a positive image of themselves and escape from social pressure. Therefore, they avoid situations in which they are in a position to donate. In this paper I show that this phenomenon extends to bargaining. I show that some subjects are willing to avoid profitable negotiations in order to keep face. This takes the relevance of this phenomenon beyond charitable giving to situations in which subjects face a trade-off between making money for themselves and keeping face.

Moreover, I study how the communication channel affects this trade-off. The finding that confrontation costs are eased if the negotiation is face-to-face is in line with evidence in O'sullivan (2000), Sussman and Sproull (1999), and Gneezy et al. (2017). These studies show that negative information is easier to transmit if one can do it electronically. In this paper I show that something similar happens with negotiations. Arguably, to the extent that bargaining implies rejecting some of the demands of the other party, it is easier to do it if one can hide behind an electronic device.

The rest of the paper is organized as follows. Section 2 presents the experimental design. Section 3 does a brief discussion of the empirical strategy. Section 4 analyzes the results. Section 5 explores the mechanisms. Finally, Section 6 concludes.

2. Experimental Design

This section is structured in two subsections. First I do a description of the full experiment. Then I discuss the important features of the design.

2.1. Description of the Experiment

In the experiment participants are randomly assigned to roles X or Y. Roles are maintained throughout the experiment, and this is public knowledge. X decides whether to bargain with Y on how to split a pie *P*. If X chooses to bargain, she and Y have three minutes to negotiate freely. If they do not reach an agreement, they receive their outside option (denoted by *x* and *y*). If X chooses not to bargain, they wait in their sits and receive their outside option. The sum of the outside options is smaller than the amount they receive to split (x + y < P). This means that there are gains from trade.

Each player takes part in four different rounds. In each round, X is paired with a different anonymous Y and has to decide whether to bargain or skip. Money to split and outside options differ across rounds (see Figure 2). A detailed analysis of the differences between rounds can be found in the appendix.

The timing of the experiment is as follows. First, instructions are read aloud. Then, participants answer to some control questions.⁶ At the beginning of the experiment roles are assigned. All four rounds are presented to player X, who decides whether to bargain

⁶A sample of the instructions and control questions can be found in the appendix.



or not in each round before any negotiation takes place. Figure 3 shows an example of the decision screen.⁷ Once all players X have taken their decisions, round order is randomly determined. The first round starts. Those players X that have chosen to bargain in the first round and their pairs will have three minutes to negotiate. The rest will wait three minutes in silence. This process is repeated in subsequent rounds. After the four rounds take place, all participants answer to a tailored made survey in zTree (Fischbacher, 2007) and a psychological test.⁸

FIGURE 2 Rounds

Round A	Round B	Round C	Round D
Money to split:	Money to split:	Money to split:	Money to split:
20€	20€	20€	16€
Outside option:	Outside option:	Outside option:	Outside option:
Player X: 15€	Player X: 12€	Player X: 12€	Player X: 12€
Player Y: 2€	Player Y: 2€	Player Y: 5€	Player Y: 1€
Gains from trade:	Gains from trade:	Gains from trade:	Gains from trade:
3€	6€	3€	3€

Negotiations are free and unstructured. Participants can reach an agreement at any

⁷The program was written using the software zTree (Fischbacher, 2007).

⁸An explanation of both can be found in section 5.

point during the 3 minutes. All participants have to wait until the three minutes are over to continue with the experiment. Thus, decisions taken in the experiment do not affect its duration. The experiment has 2x2 treatments. To avoid demand effects, I use a between subject design. The first thing that varies across treatments is the communication channel.

FIGURE 3 Decision Screen



In the electronic condition negotiations take place through an electronic chat in the lab (a photo of the lab can be found in Figure B.2 in the appendix). Figure 4 shows the screen elements. In the upper part (element 4) there is information about the remaining time, the round, the size of the pie, and the disagreement payoffs. In the bottom left (element 1) is the chat with a photo of the partner in the upper part. The content and structure of the conversation is absolutely free. Element 2 is the box to make offers. Element 3 is the box to visualize, and eventually accept the offer of one's counterpart. Participants can put, withdraw and accept offers at any time during the three minutes. For a negotiation to be closed with an agreement one of the parties has to accept the other's offer. Negotiations last 3 minutes. If the parties reach an agreement before, the chat remains open until the three minutes are over. If the three minutes go by without an agreement, participants earn their outside options.

In the face-to-face condition those participants that choose to bargain are conducted to the bargaining room (see Figure B.3). In each bargaining table there is a chronometer indicating the remaining time, a recorder and an answer sheet where the parties must introduce the terms in case they reach an agreement. The answer sheet also indicates the round, the size of the pie, and the disagreement payoffs. These elements are included so as to mimic the electronic treatment. The protocol was done to minimize contact outside

FIGURE 4 Electronic Chat



the negotiation.⁹ As in the electronic treatment, if the three minutes go by without an agreement, participants get their outside options.

The second dimension that varies in the 2x2 design is who can set the terms of the agreement. In the baseline treatment agreement requires consensus, while in the asymmetric treatment player X has dictator power. This means that in the asymmetric treatment when X chooses to bargain she can establish unilaterally how to split the pie. She has to go to the bargaining table, but there she has the last word in the negotiation. Everything else remains constant across treatments. I do the minimum changes in instructions, software and procedures to adapt the baseline treatment to the new decision rule.

The experiment was run in the laboratory of experimental economics of the University Carlos III (Madrid, Spain). Between April and May 2018, 406 participants from various degrees where recruited using ORSEE (Greiner, 2015). Subjects X were balanced between men and women across communication channels (see Table 1). This allows me to analyze the entry decision separately by gender and by channel. The average length of the experiment was 80 minutes. The average payment was 15€ including a 6€ show-up fee.

2.2. Important Features of the Design

This subsection discusses the decisions about the outside options, the role of X and Y, the timing of the experiment and the structure of the negotiations.

⁹To minimize contact between pair members outside the negotiation players X were payed first and only after they had left the lab players Y were paid, and this was announced at the beginning of the experiment.

Panel A: Baseline Treatment (n=196)						
	Type X All					
	Men	Women	Men	Women		
Face-to-Face	0.52	0.48	0.54	0.46		
Electronic	0.54	0.46	0.48	0.52		
Panel B: Asymmetric Treatment (n=210)						
Pallel D:	Asymmet	fic freatmen	$\pi (\Pi - 2 I 0)$)		
Pallel D:	Ty	pe X	It (II=210)	All		
	Ty Men	pe X Women	Men	All Women		
Face-to-Face	Asymmet Ty Men 0.40	pe X Women 0.60	Men 0.39	All Women 0.61		

TABLE 1 Participant Descriptives

In this experiment all outside options are chosen so that one party always gets more than half of the pie. This is purposely done to capture the confrontation component that most negotiations entail. Binmore, Shared and Sutton (1989) show that uneven outside options create at least two focal points for agreements: Split-the-difference and deal-meout. In the former subjects split gains from trade equally, while in the later gains from trade go fully to the unfavoured party (player Y in my design). Moreover, following the literature studying other regarding behavior, an equal division of the pie can be identifyed as a third possible focal point.¹⁰ We know from Babcock and Loewenstein (1997) that when people bargain they suffer a self-serving bias: They tend to deem as fair what is in their favor. Thus, when there are competing criteria for fairness, conflict is likely to arise. I generate conflicting focal points and make the negotiation competitive and unidimensional to learn how the possibility of conflict shapes the decision to bargain.¹¹ I use four rounds to introduce variation in gains from trade and I use the distance between focal points as a proxy for conflict potential.

Another relevant feature is that only player X can decide whether she wants to bargain or not, while player Y remains passive at this stage. There are two reasons for that. First, if both roles could decide whether they want to bargain, the opt-in decision would become more complex, as subjects may account for the fact that they are facing a self-selected sample. Moreover, only X faces a tension between making positive profits from opting in and minimizing conflict: Among the three focal points that have been discussed, X only makes money in *split-the-difference*. This means that while player Y could enter the negotiation, go for split-the-difference, get some extra money, and pay no confrontation

¹⁰For a survey of this literature see Cooper and Kagel (2016).

¹¹Arguably, in a hypothetical experiment in which the pie were $20 \in$ and the outside options were even (let's say $8 \in$ and $8 \in$), the focal point of $10 \in$ and $10 \in$ could be so strong that the great majority of participants would enter negotiations and reach an agreement immediately. This would not be informative about the functioning of confrontation costs.

costs, such a strategy is not possible for X. This makes opting-in the dominant strategy for Y no matter how conflict averse she is, which makes the chosen identification strategy only suitable for player X.

Regarding the timing of the experiment, the decision of whether to bargain or not in each round is taken simultaneously for all rounds and the experiment finishes at the same time for everyone. By doing so we simplify the analysis and avoid confounding factors that could explain behavior. If the opt-in decision would be taken before each round takes place, the negotiation experience in one round could affect the decision to bargain in subsequent rounds. Moreover, taking decisions sequentially could induce herding behavior within session. Even though experimental subjects are sit in cubicles, the noise of the keyboard in electronic negotiations, or people moving to the bargaining room in faceto-face negotiations could give participants an idea of whether many or few people have chosen to bargain in previous rounds. This could affect subsequent decisions if people tend to conform. Thus, taking the decision before any round is played ensures there are no peer effects within session nor learning effects. Moreover, by making the experiment duration orthogonal to any decision we ensure that time costs cannot explain behavior.

Finally, with regards to the design of the negotiations, participants are allowed to make offers simultaneously at any point during the three minutes. This avoids that the experiment could turn into an ultimatum game. The two communication conditions are designed so that we introduce the minimum changes between them, besides being in person or not. This is purposely done to focus on how the communication channel might affect confrontation costs. Moreover, the photo is included in the electronic condition to make sure that revelation of identity does not explain differences across communication channels.

3. Empirical Strategy

In this experiment I want to test four hypotheses:

Hypothesis 1: For some subjects, bargaining entails non-monetary costs that prevent them from joining profitable negotiations.

Hypothesis 2: Bargaining electronically can be an effective way of fostering negotiations.

Hypothesis 3: If subjects can opt-out, face-to-face negotiations may not maximize (monetary) gains from trade relative to electronic negotiations.

Hypothesis 4: The reason behind a higher bargaining propensity in e-negotiations is a reduction in confrontation costs.

In this section I describe the identification strategy for each of these hypotheses. To do so, first I present an stylized model for the decision to bargain that helps to illustrate the tests that I am going to perform. Second, I discuss the nature of non-monetary costs in my experiment. Finally, I discuss the limitations and what can and cannot be concluded with respect to gender.

3.1. A Simple Model for the Decision to Bargain

The following reduced form model illustrates in a simple manner player X's decision to join the negotiation. It aims to capture the relevant trade-offs at the entry-decision stage of the experiment. At the end of section 3 I discuss the simplifications I made and the limits they impose on the hypotheses that I can test.

The strategy of X is summarized by d: How much X demands in the negotiation. θ captures the communication channel. The ex-ante probability of agreement for X_i is denoted by $P(Agr|d, i, \theta)$ and $C_i(d, \theta)$ denotes *i*'s bargaining cost. Both depend on X's strategy, on her idiosyncratic characteristics, and on the communication channel. I assume utility is linear.

In the baseline treatment, player X_i chooses to bargain as long as:

$$\max_{d} P(Agr|d, i, \theta) * (d - x) - C_i(d, \theta) \ge 0$$
(1)

Therefore, an agent with no bargaining costs joins the negotiation as long as reaching an agreement has positive probability (otherwise she would be indifferent). I use this condition to test for hypothesis 1. If I observe that bargaining propensity is below one, it would be evidence that for some participants bargaining entails non-monetary costs that prevent them from opting-in.¹²

The second hypothesis of the paper is that electronic communication increases bargaining propensity:

$$\sum_{i=1}^{N} \mathbb{1}\{P(Agr|d^{E}, i, E) * (d^{E} - x) - C_{i}(d^{E}, E) > 0\} >$$

$$\sum_{i=1}^{N} \mathbb{1}\{P(Agr|d^{F}, i, F) * (d^{F} - x) - C_{i}(d^{F}, F) > 0\}$$
(2)

where *E* stands for electronic, *F* for face-to-face, and d^E and d^F are the result of the optimization. To test this hypothesis I compare bargaining propensity across communication conditions in the baseline treatment.

¹²Going back to the design, not making the negotiation strictly dominant also for those who believe that reaching an agreement is impossible seeks to avoid demand effects. Asking for a price to avoid the negotiation might portray opt-out as something desirable for participants. On the other hand, making the disagreement payoffs higher than the opt-out payoffs might be regarded as a test for rationality. This identification strategy relies on the assumption that the odds of subjects choosing consciously a weakly dominated strategy are small.

To test for hypothesis 3 I compare the number of agreements face-to-face and electronically. Notice that in this design the number of agreements is a sufficient statistic for monetary gains from trade.

Finally, to test for hypothesis 4 (whether or not electronic negotiations reduce confrontation costs) some additional information is necessary. As equation 2 shows, a higher rate of entry in the electronic condition can be explained by costs, but also by expected profits. Therefore, analyzing the opt-in decision in the baseline treatment is not enough to compare costs across communication channels.

To test this hypothesis I use the asymmetric treatment. In this treatment X has dictator power in the negotiation. Hence, the entry condition changes to:

$$\max_{d} (d-x) - C_i(d,\theta) \ge 0 \tag{3}$$

If bargaining propensity is higher electronically it means that:

$$\sum_{i=1}^{N} \mathbb{1}\{(d^{E} - x) - C_{i}(d^{E}, E) > 0\} >$$

$$\sum_{i=1}^{N} \mathbb{1}\{(d^{F} - x) - C_{i}(d^{F}, F) > 0\} >$$
(4)

This implies that for some *i*'s:

$$(d^{E} - x) - C_{i}(d^{E}, E) > 0 > (d^{F} - x) - C_{i}(d^{F}, F) > (d^{E} - x) - C_{i}(d^{E}, F)$$
(5)

Given that monetary payoffs in the asymmetric treatment are a choice variable for i, differences in the opt-in decision between communication conditions must be explained by differences in costs. In particular, (5) indicates that making money in a negotiation entails higher costs if the negotiation is face-to-face. Considering that making money is a necessary condition to opt-in, we can conclude that electronic communication fosters negotiations by reducing non-monetary costs.¹³

Using the asymmetric treatment as a way to control for expected profits instead of eliciting them directly presents some advantages. First, an elicitation phase before the negotiation could prime participants artificially by forcing them to go through a cognitive process they would avoid in a more natural setting.¹⁴ Second, eliciting beliefs after the

¹³Subjects with other-regarding preferences might be willing to opt-in even if monetary payoffs are negative. However, random assignment to the face-to-face and electronic conditions ensures that subjects with other-regarding preferences are evenly distributed among communication conditions and do not explain differences in the avoidance rate.

¹⁴Moreover, once they reveal their expectations, they know the experimenter will learn if they have met

negotiation could lead participants to declare that what they got in the negotiation is what they expected (and even what they wanted). This could be a way to justify poor performance, or simply a way to give a straightforward answer if they had no precise prior before bargaining. Similarly, those that chose not to bargain may rationalize their decision claiming that expected profits were low. The asymmetric treatment is a way to circumvent these problems maintaining the confrontation component of the negotiation.¹⁵

3.2. The Nature of the Costs

In this subsection I go over the reasons that could explain why negotiations are not ubiquitous outside the lab and show how I isolate in my design the effect of confrontation costs.

A potentially important reason to avoid negotiations in real life is risk aversion. Sometimes people are afraid that once they sit at the bargaining table they will lose their outside option. In the baseline treatment, I equalize the outside option with the disagreement payoffs to ensure that even for an infinitely risk averse individual bargain is (weakly) dominant. This is a distinctive feature of my design relative to previous work studying bargaining propensity. Similarly, to ensure that lack of trust in the counterpart is not explaining why participants skip negotiations in the experiment, nor the differential effect across treatments, contracts are complete and fully enforceable.

The opportunity cost of time or a high discount factor can also explain why in their daily routines individuals do not bargain over many items. To address this in the experiment I keep the duration fixed no matter whether participants choose to bargain or not. Likewise, in certain contexts fairness concerns can make people skip negotiations. When they purchase something from someone that is poorer, they might be reluctant to haggle about the price. The fact that in my design there are gains from trade and they can be fully transferred to the poorer party makes sitting at the bargaining table also dominant for *intrinsically* fair-minded agents.¹⁶

Hence, if we find that participants skip negotiations in the baseline treatment it must be explained by bargaining being costly in some other dimension. This is interesting *perse*, given that besides monetary costs (hiring lawyers, experts...) and time costs (delay and opportunity cost), no other costs are typically contemplated in bargaining models. Moreover, to further explore the mechanism, in the asymmetric treatment player X has dictator power. This allows me to rule out effort to maximize monetary payoffs and feedback aversion about bargaining skills as alternative explanations. Sometimes people might not want to engage in the effort of designing a negotiation strategy, reading their

them or they have failed to do it. This could cause ill-understood effects both in the elicitation phase and in the negotiation.

¹⁵An alternative to eliciting beliefs from participants would be to use average elicited beliefs from incentivized third parties. This would not work here provided that we care about individual heterogeneity.

¹⁶I borrow the term *intrinsic fariness* from Cappelen et al. (2017) and use it to denote a genuine interest in the well-being of others.

counterpart's intentions or persuading them. Similarly, there could be subjects that prefer to skip negotiations just not to confirm to themselves they are unskilled doing these tasks. To mitigate this confounding motivations the asymmetric treatment removes the coordination/persuasion component of negotiations while it maintains the confrontation aspect, favoring the interpretation given in hypothesis 4: Electronic negotiations reduce confrontation costs.¹⁷ To reinsure the soundness of this interpretation I gather some direct evidence using the survey and the psychological test described in Section 5.

3.3. Gender Analysis

For the shake of simplicity, the utility function presented in equation 1 makes two assumptions: Subjects are selfish and risk neutral. In section 3.2 it has been argued that relaxing this assumptions and accounting for the fact that subjects might be risk averse or have fairness concerns cannot explain why they choose to opt-out. Moreover, random assignment ensures that the differential in confrontation costs by channel can also be studied comparing how frequently participants choose to opt-out electronically vis-a-vis face-to-face in the asymmetric treatment.¹⁸

Obviously, gender cannot be randomly assigned. Therefore, we must check that differences in behavior are not explained by differences in idiosyncratic characteristics of the two groups other than confrontation costs. Previous literature has shown that women are more risk averse (see Croson and Gneezy (2009) and Eckel and Grossman (2008)), slightly more generous (Croson and Gneezy, 2009) and less overconfident than men (Niederle and Vesterlund, 2007). To deal with risk aversion and self-confidence we look at the results of the asymmetric treatment. Once player X has dictator power in the negotiation, self-confidence about bargaining skills cannot explain differences in behavior. Moreover, to the extent that the terms of agreement are now a choice variable, if we assume that own confrontation costs are known to X, risk aversion is no longer an issue the moment uncertainty about payoffs disappears.¹⁹

With regards to differences in intrinsic fairness, things are slightly more complex. An underlying assumption of the model is that bargaining costs are larger the more one demands for himself/herself. This imposes the trade off between minimizing costs and maximizing payoffs when player X chooses her optimal strategy that allows us to identify

¹⁷Potentially, feedback aversion about confrontation costs could exacerbate the effect of confrontation costs. One could consider both of them together as being part of the same phenomenon. Moreover, they way it is defined, it does not seem reasonable that feedback aversion changes depending on the communication channel.

¹⁸Another simplification is that the strategy of X is sumarized by d. Arguably, the strategy of X might be something more complex. Provided that X is going to learn new information once she starts to bargain, her strategy could be a contingent plan. If this were the case, the cost of bargaining would no longer be known ex-ante, but it would be a distribution. This concern is addressed in the asymmetric treatment.

¹⁹Alternatively, if we think that the size of ones own confrontation costs is unknown, then differences between genders should be interpreted as a combination of how costly is to bargain for men and women, and how risk averse they are about the size of these costs.

confrontation costs. However, participants that prefer egalitarian allocations are not affected by this tradeoff. Therefore a higher entry rate among men (women) could be explained either by them having lower confronation costs or by them being more generous. To try to ease this concern I use the results of the tailor made survey and look at the actual choices of those that opted-in to see whether any gender shows a behavior consistent with being more generous. Moreover, if the experimental results go in line with previous findings and bargaining propensity is lower among women, it would be so in spite of the literature having shown they are more generous (Croson and Gneezy, 2009).²⁰

4. Results

In this section I describe the results of the baseline treatment. I analyze together rounds A, C and D, (where gains from trade are $3 \in$) and round B separately (gains from trade equal $6 \in$).²¹ I analyze the probability of avoid the negotiation, the rate of agreements conditional on bargaining, the unconditional rate of agreements, the average gains for X after a negotiation, and the average gains for X after an agreement first by communication channel and then by gender.



FIGURE 5 Bargaining Propensity (Baseline Treatment)

Figure 5 shows bargaining propensity in the baseline treatment. Bargaining propensity is below 1 in all rounds (av: 0.76, se: 0.02). This indicates that bargaining entails costs for

²⁰Another solution would have been to have a direct measure of the social preferences of participants in my experiment. I decided not to do that for two reasons. First and foremost, gender differences in generosity seem to depend on social cues (see Croson and Gneezy (2009)). Therefore, it is not clear that making participants play a standard dictator game at the end of the experiment would have been informative about generosity in negotiations. Second, I thought the experiment was already long enough so as to include an additional phase.

²¹An individual analysis of rounds A, C and D, is carried out in the Appendix.

some participants, in line with hypothesis 1. Moreover, it is significantly lower in rounds A, C and D (av: 0.71, se: 0.03), where gains from trade are smaller, than in round B (av: 0.9, se: 0.03). This is aligned with the proposed model of section 3. As shown in equation 1, to enter a negotiation expected gains must overcome bargaining costs. Results show that the larger gains from trade are, the more willing are participants to join the negotiation.

4.1. Differences by Communication Channel

Table 2 shows the differences across communication channels in the baseline treatment. Panel A shows the difference in the frequency of negotiation avoidance. Pulling all rounds together we find that the probability of avoiding the negotiation is 56% higher (11 pp) and significant if the negotiation is face-to-face instead of electronic. This confirms hypothesis 2: Electronic communication fosters negotiations. If we breakdown this difference by gains from trade, we find that it comes from rounds A, C and D. When gains from trade are smaller, electronic communication permit negotiations that otherwise would not have taken place.

This 56% difference in the probability of opting-out challenges the widespread idea that face-to-face negotiations allow to better capture gains from trade. Face-to-face communication is thought to increase rapport and cooperation (Morris et al., 2002), fostering agreements in negotiations and thus increasing efficiency (Valley, Moag and Bazerman (1998), Valley et al. (2002)). However, previous studies looking at differences in negotiations across channels have neglected the decision to start the negotiation in the first place. I find that even if conditional on bargaining the rate of agreements is significantly larger face-to-face (9 pp), this difference vanishes once we account for a higher avoidance rate in person (see panels B and C in Table 2). Considering all possible negotiations, the likelihood of agreement is not significantly different across communication channels and the point estimate is even larger for the electronic condition (see Figure 6). Once we endogenize the decision to bargain it is no longer true that face-to-face negotiations increase monetary welfare. This confirms hypothesis 3.

Finally, the average gains for X after an agreement are significantly above her average outside option ($\in 13.14 > \in 12.75$, p=0.1). However, while they are closer to split-thedifference in round B, when gains from trade are higher, it cannot be rejected that they coincide with the deal-me-out solution in rounds A, C and D. Moreover, I find no significant differences between communication channels. This is consistent with previous findings in Valley et al. (2002) and Galin, Gross and Gosalker (2004). There is no clear interpretation for the lack of difference across communications channels, as many things might be changing at the same time. Potentially, both bargaining costs and the difficulty to reach an agreement are different face-to-face and electronically. Moreover, individuals that self-select into agreements might have different characteristics depending on the channel. Thus, to further explore the role of confrontation costs in bargaining propensity and terms of agreements and test for hypothesis 4, we should look at the results of the asymmetric treatment in section 5.

Negotiation Outcomes (Baseline Treatment)				
	Panel A: A	Avoidance Rate		
	Electronic	Face-to-Face	Difference	
All	0,19	0,30	0.11**	
	(0.031)	(0.046)	(0.056)	
Rounds A,C,D	0,22	0,36	0.14**	
	(0.039)	(0.051)	(0.064)	
Round B	0,10	0,10	0,00	
	(0.042)	(0.044)	(0.061)	
Panel B	: Rate of Agreeme	ents Conditional on B	argaining	
All	0,85	0,95	-0.09***	
	(0.027)	(0.019)	(0.032)	
Rounds A,C,D	0,87	0,95	-0.08**	
	(0.019)	(0.02)	(0.035)	
Round B	0,80	0,95	-0.15**	
	(0.06)	(0.032)	(0.069)	
P	anel C: Unconditi	onal Rate of Agreeme	ents	
All	0,68	0,66	0,01	
	(0.031)	(0.044)	(0.054)	
Rounds A,C,D	0,66	0,60	0,06	
	(0.039)	(0.049)	(0.062)	
Round B	0,72	0,85	-0.134	
	(0.064)	(0.051)	(0.082)	
Pan	el D: Average Gai	ns for X after a Negot	iation	
All	13,03	13,16	-0,13	
	(0.22)	(0.24)	(0.33)	
Rounds A,C,D	13,04	13,31	-0,27	
	(0.26)	(0.30)	(0.39)	
Round B	13,60	13,92	-0,32	
	(0.29)	(0.23)	(0.37)	
Pan	el E: Average Gair	ns for X after an Agre	ement	
All	13,14	13,21	-0,07	
	(0.23)	(0.26)	(0.35)	
Rounds A,C,D	12,88	12,81	0,07	
	(0.23)	(0.28)	(0.36)	
Round B	14	14	0	
	(0.33)	(0.24)	(0.41)	
# Participants	50	48		

TABLE 2

The full terms of agreements in €



FIGURE 6 Agreements (Baseline Treatment

Showing 90% confidence intervals

4.2. Differences by Gender

Table 3 shows results by gender. The avoidance rate is 56% significantly higher (11 pp) for female than for male participants (see Panel A). This is aligned with previous studies (see for example Bowles, Babcock and Lai (2007), Exley, Niederle and Vesterlund (2016) or Babcock et al. (2006))

The rate of agreements conditional on bargaining is 5 pp weakly higher for female players X (table 3 panel B). This difference comes entirely from round B. There is a tentative explanation for this. Unlike in the case of communication channels, the gender difference in the entry rate also holds for round B. It could be the case that men are overestimating their probabilities of reaching an agreement when gains from trade are high. This would be consistent with evidence in Niederle and Vesterlund (2007) and would explain why they opt-in massively in round B, but then fail to reach an agreement. Moreover, it would explain why the gender difference in bargaining propensity in round B disappears in the asymmetric treatment, but it does not in rounds A, C and D (see table 5 panel C).

I find no statistical differences in the unconditional rate of agreements depending on the gender of player X (table 3 panel C). The same is true for the average gains for X. They are not significantly different depending on the gender of player X (panels D and E, table 3). This is consistent with the evidence collected in the meta-analysis by Mazei et al. (2015). Out of 123 studies, 40 (32.52%) found no effect or women achieving better economic outcomes than men.

Therefore, according to the results of this experiment, gender differences in bargaining appear at the opt-out stage, and not at the bargaining stage. This would be consistent with

	Panel A: A	voidance Rate	
	Male	Female	Difference
All	0,19	0,30	0.11**
	(0.037)	(0.043)	(0.056)
Rounds A,C,D	0,24	0,35	0.11**
	(0.043)	(0.049)	(0.065)
Round B	0,06	0,15	0.09*
	(0.032)	(0.053)	(0.061)
Panel B:	Rate of Agreeme	ents Conditional on	Bargaining
All	0,87	0,92	-0.05*
	(0.025)	(0.023)	(0.034)
Rounds A,C,D	0,91	0,90	0,00
	(0.025)	(0.028)	(0.038)
Round B	0,80	0,97	-0.18***
	(0.058)	(0.026)	(0.064)
Ра	nel C: Unconditio	onal Rate of Agreem	ients
All	0,70	0,64	0,06
	(0.036)	(0.04)	(0.054)
Rounds A,C,D	0,68	0,57	0,11
	(0.042)	(0.045)	(0.061)
Round B	0,75	0,83	-0,08
	(0.06)	(0.057)	(0.042)
Pane	el D: Average Gain	ns for X after a Nego	otiation
All	13,14	13,04	0,10
	(0.22)	(0.25)	(0.33)
Rounds A,C,D	13,03	13,33	-0,30
	(0.26)	(0.29)	-0,39
Round B	13,53	14,04	-0.51*
	(0.26)	(0.27)	(0.37)
Pane	l E: Average Gain	is for X after an Agr	eement
All	13,26	13,1	0,25
	(0.23)	(0.25)	(0.34)
Rounds A,C,D	13	12,7	0,3
	(0.23)	(0.28)	(0.36)
Round B	13,92	14,09	-0,17
	(0.29)	(0.27)	(0.4)
# Participants	52	46	

TABLE 3 BARGAINING DIFFERENCES BY GENDER (BASELINE TREATMENT)

Standard error in parenthesis *p<0.1, **p<0.05,***p<0.01, one sided unpaired t-test Terms of agreements in € Male and Female refers to the gender of Player X

the hypothesis that women earn lower wages because they do not bargain over initial salaries (Babcock et al., 2003).

5. Mechanisms

So far I have tested hypothesis 1, 2 and 3. I have found that in my experiment bargaining entails costs for some subjects, that electronic communication is an effective way of fostering negotiations, and that the unconditional rate of agreements is not significantly different across communication channels.

BARGAINI	NG PROPENSITY:	Asymmetric Trea	TMENT				
	Panel A: Avoi	dance Rate					
All Rounds A,C,D Round B							
All	0,19	0,23	0,08				
	(0.025)	(0.031)	(0.026)				
Panel	B: Avoidance Rate by	Communication Chanr	nel				
	Electronic	Face-to-Face	Difference				
All	0,17	0,22	0,06				
	(0.032)	(0.039)	(0.051)				
Rounds A,C,D	0,19	0,28	0.077*				
	(0.038)	(0.048)	(0.061)				
Round B	0,09	0,06	-0,04				
	(0.038)	(0.048)	(0.052)				
	Panel C: Avoidance	e Rate by Gender					
	Male	Female	Difference				
All	0,15	0,23	0.078*				
	(0.034)	(0.035)	(0.049)				
Rounds A,C,D	0,18	0,27	0.086*				
	(0.041)	(0.043)	(0.06)				
Round B	0,05	0,10	0,05				
	(0.031)	(0.038)	(0.049)				

TABLE 4
BARGAINING PROPENSITY: ASYMMETRIC TREATMENT

Standard error in parenthesis

*p<0.1, **p<0.05,***p<0.01, one sided unpaired t-test

Male and Female refers to the gender of Player X

In this section, I study the mechanisms behind these results. I examine whether electronic communication reduces confrontation costs (hypothesis 4) and analyze the welfare consequences that this has for player X. Moreover, I explore the role that confrontation costs play explaining gender differences. To perform this analysis I study the decisions of subjects in the asymmetric treatment, together with the direct evidence I gather in the survey and the results of the psychological test (TKITM). Altogether, evidence points in the direction that confrontation costs play an important role explaining differences across communication channels and gender.

5.1. Asymmetric Treatment

Studying the opt-out decision in the asymmetric treatment allows us to assess the role that confrontation costs play in the decision to skip negotiations. All the main results of the baseline treatment go through in the asymmetric, albeit with weaker significance.

Table 4 panel A shows that bargaining propensity is still well below one in the asymmetric treatment. This points out that participants dislike the conflict attached to negotiations. As in the baseline treatment, bargaining propensity is higher in round B (92%), where more money stays on the table if the negotiation does not take place, and lower in rounds A, C and D (77%).

When we breakdown the results by channel, the asymmetric treatment allows us not only to distinguish the nature of the cost, but also to disentangle the effect of costs and expected profits in the difference across channels (see section 3.1). As in the baseline treatment, I find that participants are 41% (7.7 pp) more likely to avoid negotiations in the face-to-face treatment in rounds A, C and D and this difference is weakly significant, while I find no significant difference in round B (Table 4 panel B). This goes in line with hypothesis 4: Electronic communication foster negotiations due to a reduction in confrontation cost.

This has important implications. Valley, Moag and Bazerman (1998) and Valley et al. (2002) compare the rate of agreements in face-to-face and written negotiations to claim that bargaining face-to-face is more efficient. To reach this conclusion they argue that a higher rate of agreements face-to-face allows to capture more gains from trade. First, this is no longer true in my experiment. Once I let participants opt-out, the rate of agreements becomes statistically the same (Table 2 panel C) and if anything the point estimate is higher in the electronic condition. More importantly, this analysis is neglecting the effect of bargaining costs on welfare. The fact that confrontation costs are higher for players X face-to-face, together with earnings being the same (see panel D table 2) allow us to conclude that electronic communication improves their well-being in my design.²² This shows that we cannot generally consider that face-to-face negotiations are more efficient, an show instances in which it might actually be the opposite.

With respect to gender, the avoidance rate in rounds A, C, and D is 53% higher for women and marginally significant (Table 4 panel C). As has been discussed in section 3.3, to attribute this difference to confrontation costs we must check first for possible differences in fairness concerns between men and women.

Table 5 shows average gains from trade for X after an agreement.²³ Giving the fi-

²²The experiment is not designed to make claims about the welfare of players Y. However, if we assume that the rank of confrontation costs for Ys is the same as it is for Xs, the same conclusion could be extended to players Y.

²³Even though X has now dictator power, 7.7% of negotiations end up in disagreement. The reasons are presumably two. Some participants said they do not like to impose things. Others might have lost track of the remaining time.

nal word to X removes the persuasion and coordination component of negotiations and allows to interpret differences in gains across channels as a consequence of confrontation costs. In all rounds gains for X are higher electronically. Going back to equation 4, this means that confrontation costs must be smaller. When we look at the results by gender, they cannot be interpreted only in terms of confrontation costs (unlike the communication channel, gender cannot be randomly assigned). They might be reflecting also differences in intrinsic fairness. The fact that female players X are giving more money to Y in rounds A, C and D is telling us that either they are suffering higher confrontation costs, or they are more generous. However, as it was argued in section 3.3, if they are more generous and still they opt-out more than men, it has to be because they also have higher confrontation costs.

GAINS FOR X: ASYMMETRIC TREATMENT						
Pane	Panel A: Average Gains for X after an Agreement					
	Electronic	Face-to-Face	Difference			
All	14.65	13.61	1.04***			
	(0.25)	(0.20)	(0.32)			
Rounds A,C,D	14.33	13.39	0.93***			
	(0.27)	(0.23)	(0.35)			
Round B	15.51	14.03	1.48***			
	(0.32)	(0.22)	(0.39)			
Pane	el B: Average Gains fo	or X after an Agreement				
	Male	Female	Difference			
All	14.30	14.00	0.30			
	(0.30)	(0.18)	(0.36)			
Rounds A,C,D	14.18	13.65	0.56*			
	(0.30)	(0.22)	(0.37)			
Round B	14.99	14.58	0.40			
	(0.37)	(0.23)	(0.43)			

TABLE 5Gains for X: Asymmetric Treatment

Standard error in parenthesis

*p<0.1, **p<0.05, ***p<0.01, one sided unpaired t-test

Male and Female refers to the gender of Player X Terms of agreements in €

Wrapping up, results show confrontation costs are an important reason to avoid negotiations and to explain differences in bargaining propensity by gender and communication channel.

5.2. Thomas-Kilmann Conflict Mode Instrument

To gather some direct evidence on the validity of the mechanism, after the experiment was finished, all participants took the Thomas-Kilmann Conflict Mode Instrument (TKITM). The TKITM is the world leading conflict style inventory in psychology. Developed by Kenneth W. Thomas and Ralph H. Kilmann in 1974 (see Kilmann and Thomas, 1977), it is commercialized by CPP, Inc. to firms worldwide. The TKITM is a test with 30 questions. It gives participants a score in five strategies that are used to deal with conflict: Avoiding, Accommodating, Competing, Collaborating and Compromising. The higher the score in a given category, the more frequently the subject is using that strategy. The test is administered online and connects the results to the historical record of all individuals that have taken the test. This allows CPP to give not only the score but the percentile of the score relative to a large population.

TABLE 6						
		Regres	SION TKI			
	(1) skip	(2) skip	(3) skip	(4) skip	(5) skip	(6) skip
Avoiding	$\begin{array}{c} 0.217^{***} \\ (0.071) \end{array}$	*				0.355^{**} (0.169)
Accommodating		$\begin{array}{c} 0.014 \\ (0.071) \end{array}$				$\begin{array}{c} 0.110 \\ (0.143) \end{array}$
Competing			-0.093^{*} (0.055)			$\begin{array}{c} 0.134 \\ (0.177) \end{array}$
Collaborating				$\begin{array}{c} 0.016 \\ (0.073) \end{array}$		$\begin{array}{c} 0.175 \\ (0.143) \end{array}$
Compromising					-0.077 (0.074)	$\begin{array}{c} 0.073 \\ (0.146) \end{array}$
Female						0.089^{**} (0.036)
Face						0.090^{**} (0.038)
Constant	0.106^{***} (0.033)	0.198^{***} (0.047)	$\begin{array}{c} 0.254^{***} \ (0.035) \end{array}$	0.201^{***} (0.031)	$\begin{array}{c} 0.251^{***} \\ (0.052) \end{array}$	-0.286 (0.366)
$\frac{\text{Observations}}{R^2}$	748 0.022	748 0.000	$748 \\ 0.005$	748 0.000	748 0.003	$748 \\ 0.052$

Standard errors in parentheses

* p < 0.1, ** p < 0.05, *** p < 0.01

Out of the five dimensions, there are two that we should expect to correlate with the decision to opt-out. If negotiations entail confrontation costs, those that score high in *Avoiding* should negotiate relatively less, and those that score high in *Competing* should negotiate relatively more. To test whether this relation holds I run the following regression:

$$Skip_{ir} = \alpha + \beta_1 * TKI_i + \beta_2 * X_i + \epsilon_{ir}$$
(6)

 $Skip_{ir}$ is a dummy variable that takes value 1 if an individual chooses to skip the negotiation in a given round. TKI_i is a vector with the percentile in each category of

the TKITM. X_i is a vector with dummies for the communication channel and the gender of player X_i . ϵ_{ir} is the error term. Table 6 shows the regression results clustered at the individual level.

The relation between the score in the TKITM and bargaining propensity has the expected sign and is significant for the two categories with a clear prior. Moving from the bottom to the top of the distribution in avoiding increases the probability of skipping the negotiation in 21.7 percentage points. This is equivalent to a 300% increase in the probability of opting-out. Analogously, moving from the bottom to the top of the distribution in competing reduces the likelihood of skipping the negotiation in 9.3 percentage points. This is equivalent to a reduction of 36.6% in the probability of opting-out. Thus, the results of the TKITM back up the interpretation of the results of the asymmetric treatment and support their external validity.

5.3. Survey

Beyond the TKI, at the end of the experiment I also ran a tailored made survey to learn about the attitudes of participants towards negotiations. Asked about negotiations in general, a 62% of participants declare that negotiations are emotionally costly (they feel anxious, embarrassed, awkward...). This proportion is significantly higher among women (69% vs. 55%, p<0.01). When I asked those that skipped at least one round about their reasons, a 60% of them declared that asking for more money and/or ending the negotiation with a disagreements would have been emotionally costly. Inquired about the negotiation channel, a 95% declared that emotional costs are higher electronically. Moreover, when I asked participants whether they think they would obtain a better result bargaining face-to-face or electronically, a 69% thought they would do it better face-to-face. Going back to equation 2, this is also consistent with higher non-monetary costs (and not lower expected profits) explaining the higher avoidance rate face-to-face.

Altogether, the answers to the survey confirm my hypothesis that for some people haggling entails confrontation costs, that this costs are higher face-to-face, and higher among women than among men.

6. Discussion

In this paper I explore the existence and nature of negotiation costs. In addition, I study the impact of the communication channel in bargaining propensity and how it relates with bargaining costs. I find that confrontation costs can explain why people skip negotiations, why women do it more often than men, and why bargaining propensity is higher electronically.

Results show that the general belief that face-to-face negotiations are more efficient is not true in all instances. Consistent with previous literature, I find that conditional on bargaining face-to-face communication fosters agreements and therefore does a better job capturing gains from trade. However, once I account for the decision to engage in negotiations, this difference vanishes. A greater ease to coordinate and reach agreements face-to-face is counterbalanced by a higher avoidance rate. Moreover, when I incorporate confrontation costs to make comparisons about total welfare I find that the wellbeing of participants assigned to the electronic condition is actually higher. This result highlights an overlooked consequence of the expansion of peer-to-peer electronic marketplaces: Thanks to the reduction in confrontation costs, this platforms might have promoted negotiations and transactions that otherwise would not have occurred while making the overall process more efficient.

From a gender perspective, there is an ongoing debate on whether encouraging women to bargain might work in favor of closing the gender wage gap. According to the results of this experiment, higher confrontation costs can explain why women are more reluctant to bargain than men. Therefore, it seems reasonable that environments that ease confrontation costs might help women to lean in. This consistent with the evidence found in Small et al. (2007) and in Leibbrandt and List (2014). Small et al. (2007) found that if negotiations are framed as opportunities to ask instead of as opportunities to bargain, the gender gap disappears. In the same line, Leibbrandt and List (2014) found that adding at the end of a job add a sentence indicating that wages are negotiable equalizes bargaining propensity between men and women. According to the evidence found here, it seems a reasonable hypothesis that the mechanism behind the effectiveness of these interventions is a reduction in confrontation costs.

From a methodological point of view, the findings of this paper highlight the relevance of the decision of whether to endogenize or not the opt-out stage in negotiation experiments. According to my results, to derive conclusions that apply to situations in which subjects can choose whether to engage in negotiations or not it is important to consider that decision in the experimental design.

A natural next step would be to bring these questions to the field. This would allow us to rely on a larger subject pool to study further interactions between the gender of the negotiators and the communication channel. It would also show how results change once we enrich the context and add other ingredients that are purposely left aside in the lab experiment as asymmetric information about monetary payoffs, selection, risk aversion or trust.

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A. Round Heterogeneity

In this section I further explore round heterogeneity. A possible approach when I designed the experiment was to elicit the strategy of participants for multiple combinations of pies and outside options using a Becker-DeGroot-Marschak procedure. This has trade offs. On the one hand, it would have given me a richer dataset to calibrate a more complex model of entry. On the other, it would have made instructions more difficult to understand. I considered that the estimation of the average parameters that are common for all subjects in a framework in which subject heterogeneity is playing a key role was not the best approach. Therefore, I chose the simplest design that allows me to test my hypotheses: Negotiations entail confrontation costs, these costs can explain gender differences, and they induce a different behavior depending on the communication channel.

Provided that I was looking for a differential effect in the entry condition, I decided to introduce some heterogeneity in gains from trade, confrontation costs, and outside options. In this section I devote some time to explore if the results I get are aligned with my hypotheses after breaking them down by round. Table A.1 gloss the main characteristics of each round.

Round Characteristics					
	Round A	Round B	Round C	Round D	•
Total Pie	20€	20€	20€	16€	
Outside Option X	15€	12€	12€	12€	
Outside Option Y	2€	2€	5€	1€	
Trade Gains	3€	6€	3€	3€	
Distance Between Focal Points	5€	2€	2€	4€	

TABLE A.1 Round Characteristic

I expect bargaining propensity to be higher when expected gains are higher and when conflict is lower. A proxy for expected gains are trade gains. Likewise, a proxy for conflict is distance between focal points (Babcock and Loewenstein, 1997). In addition, players X might evaluate the potential gains of the negotiation in relation to their outside option. That would mean that the higher X's outside option, the less incentives to enter the negotiation. Similarly, they might care about the gains of player Y. Then the lower Y's outside option, the higher the incentives to enter the negotiation.

To encompass all these elements I modify the model of Section 3 to introduce fairness concerns. Let p denote the total pie, x and y be the outside options of players X and Y,

and let player X's utility function to depend on her own payoffs and the payoffs of her counterpart: u(X, Y). Player X chooses to bargain as long as:

$$\max_{d} P(Agr|d, i, \theta) * [u_i(d, p - d) - u_i(x, y)] - C_i(d, \theta) \ge 0$$

$$\tag{7}$$

The predicted ranking is clearer for rounds A and B, and more ambiguous for rounds C and D. In round A the distance between focal points and the outside option for X are the highest. Therefore, bargaining propensity is expected to be the smallest. Conversely, in round B the distance between focal points is the smallest, and gains from trade are the highest. Thus, bargaining propensity is expected to be the highest. Meanwhile, rounds C and D are in between, and there is not a clear prediction for their relative ranking. The proxy for conflict in round D is higher, and this should make people shy away from negotiations. However, the outside option for Y is the lowest in D, and this should push other-regarding individuals to sit at the bargaining table. In round C things are the opposite. The proxy for conflict is lower, but the outside option for Y is the highest.

Figure A.1 shows bargaining propensity by round. The ranking of rounds A and B is as expected. With regards to rounds C and D, bargaining propensity in the former is lower than in the later. This could seem as evidence against confrontation costs playing a fundamental role in the decision to bargain. However, something that is worth noting is that distance between focal points is a good proxy for conflict as long as individuals suffer a self-serving bias. In round D two things are happening at the same time. First, the fact that the outside option of Y is the lowest is pushing other-regarding participants to join the negotiation. Second, the fact that player X joins the negotiation to give the money to player Y makes distance between focal points a bad proxy in the absence of self-serving bias. Thus, it is not be surprising that in round D the entry rate is relatively high, and not necessarily against the hypothesis that confrontation costs are relevant to explain why people skip negotiations.

To corroborate the hypothesis that fairness concerns are playing a leading role in round D, but not in round C, I look at average agreements. Table A.2 panel A shows the gains of each player by round in the baseline treatment. However, deals in the baseline treatment are a result of a coordination game. To get a better sense of the role fairness concerns are playing we should look at the asymmetric treatment in panel B. There we can see that in round D player Y is getting the largest proportion of surplus. In contrast, in round C is getting the smallest. Therefore, the fact that bargaining propensity in round D is larger than in round C is not at odds with confrontation costs. In round D many people is bargaining, but they are not confronting their counterparts. While in round C those that enter confront the other party. This could reconcile why the order of the relation is not the one that the proxy for confrontation costs would suggest.

One could be tempted to think that following the same argument, conflict in round A is also small. However, this conclusion would be misleading. To explain the puzzle of why so many people join the negotiation in round D we should worry about the confrontation



costs of those who enter. As have been argued, they are likely to be small given that they voluntarily give the majority of the surplus to player Y. On the other hand, to explain why people does not join the negotiation in round A we should look at the confrontation costs of those who do not enter negotiations. Provided that utility and costs are heterogeneous, how those that enter negotiations split surplus gives no information about those that skip.

	Panel A: Gains b	y Round in Bas	eline Treatmen	t		
Round A Round B Round C Round D						
Gains X	-0.44 €	2.01€	0.98 €	-0.02 €		
Gains Y	3.44 €	3.99€	2.02€	3.02€		
Panel B: Gains by Round in Asymmetric Treatment						
	Round A	Round B	Round C	Round D		
Gains X	0.91€	3€	1.94 €	0.76€		
Gains Y	2.09€	3€	1.06€	2.24€		

TABLE A.2 Gains by Round

In table A.3 I show differences across rounds by communication channel and by gender. Differences by channel disappear in round B, when gains from trade double. Meanwhile differences by gender disappear in round D, when fairness concerns push people into negotiations (this is aligned with the literature that argues that women are more egalitarian, see Croson and Gneezy (2009)). Further research is needed to better understand these differences.

Pa	Panel A: Communication Channel					
	Electronic	Face-to-Face	Difference			
Round A	62.0%	45.8%	16.2%*			
	(6.9%)	(7.2%)	(9.9%)			
Round B	90.0%	89.6%	0.4%			
	(4.2%)	(4.4%)	(6.1%)			
Round C	84.0%	66.7%	17.3%**			
	(5.2%)	(6.8)	(8.6%)			
Round D	88.0%	79.2%	8.8%			
	(4.6%)	(5.9%)	(7.4%)			
	Panel B: Gender					
	Male	Female	Difference			
Round A	59.6%	47.8%	11.8%			
	(6.8%)	(7.4%)	(10%)			
Round B	94.2%	84.8%	9.4%*			
	(3.2%)	(5.3%)	(6.2%)			
Round C	86.5%	63.0%	23.5%**			
	(4.7%)	(7.1%)	(8.5%)			
Round D	82.7%	84.8%	-2.1%			
	(5.2%)	(5.3%)	(7.4%)			

TABLE A.3Bargaining Propensity

Standard error in parenthesis *p<0.1, **p<0.05, ***p<0.01, one sided unpaired t-test

B. Figures

FIGURE B.2 LEE UC3M lab



FIGURE B.3 Negotiation Room



C. Instructions

This is an English version of the instructions I used in the baseline electronic treatment. Instructions in other treatments are adapted accordingly. The original set of instructions in Spanish can be sent upon request.

Thanks for participating. This experiment is part of a research project in economics. In this project we are trying to understand how people take decisions. However, we are not expecting any specific behavior. This means there is not such a thing as one correct answer. We just want to learn how people take decisions.

From now on you may not use your cellphones, get up or communicate with other participants unless you are told otherwise. If you have any questions, please raise your hand and an instructor will help you solve them in private. Please do not ask aloud!

This experiment is funded by CEMFI (Centro de Estudios Monetarios y Financieros). You will receive 6 Euros as a show-up fee. If you follow the instructions correctly you may earn more money depending on your decisions.

At the beginning of the experiment your computer will tell you whether you are "Individual X" or "Individual Y". Roles are randomly assigned and they are maintained throughout the experiment. Now we describe the experiment for individual X.

INDIVIDUAL X

The experiment has four rounds. If you are individual X in each round you will be paired with a different anonymous individual Y. In each round you and Y will receive some money as a payment for taking part in the experiment.

You (individual X) can decide whether you want to negotiate how to split this money, or whether you do not:

- If you choose to negotiate, you and individual Y have 3 minutes to bargain electronically. If you do not reach an agreement, you receive the disagreement payoffs.
- If you choose not to negotiate, you and individual Y wait in your respective sits and receive the disagreement payoffs.

These is the money each pair receives in each round and the disagreement payoffs:

Round A	Round B	Round C	Round D		
Money to split:	Money to split:	Money to split:	Money to split:		
20€	20€	20€	16€		
Outside option:	Outside option:	Outside option:	Outside option:		
Player X: 15€	Player X: 12€	Player X: 12€	Player X: 12€		
Player Y: 2€	Player Y: 2€	Player Y: 5€	Player Y: 1€		
Gains from trade:	Gains from trade:	Gains from trade:	Gains from trade:		
3€	6€	3€	3€		

FIGURE C.4 Rounds

The only interaction with individual Y is during the negotiation. You will have no other contact before or after that. If you choose not to bargain, you will have no contact.

At the beginning of the experiment you must indicate with a tic in your computer whether you want to bargain or not in each round:

Round order is randomly determined. This means the order is not necessarily Round A, then Round B, then C, and finally D.

At the end of the experiment you will be paid for the money you have won in one of the rounds chosen at random. Each round has the same probability of being chosen (25% probability). Your decisions in the experiment do not affect these probabilities.

INDIVIDUAL Y

If you are individual Y you will be paired with four anonymous individuals X. In each round X chooses whether to bargain or not how to split the money you have received.

- If she has chosen to bargain, and you reach an agreement, you receive the agreed payoffs.
- If she chooses to bargain, and you do not reach an agreement, you receive the disagreement payoffs.
- If she chooses not to bargain, you receive the disagreement payoffs.

In the next section I give details of the functioning of the negotiation for those pairs in which X has chosen to bargain. Then I will explain the payment method. Finally I will give an example of the full functioning of the experiment.



FIGURE C.5 Opt-in decision

NEGOTIATION

Each pair has three minutes to bargain through the chat. The negotiation is free. Any agreement in which the sum of payments is not higher than the quantity to split is possible.

Now I describe the elements of the bargaining screen:

FIGURE C.6 Electronic Chat

4		Remaining time (secs): 169
You are in round A bargaining how to split	20€. In this round disagreement payoffs are:	
Х:	12	
Y:	5	
1 MESSENGER CHAT Individuo Y: You have a new offer (this is an automatic message) individuo X: Invoid suggest to split the difference half and half, 13.5€ for me and 6.5 for you individuo X: Would suggest to split the difference half and half, 13.5€ for me and 6.5 for you individuo Y: But you are already making more money than me!	2 MAKE AN OFFER Make your offer: Payoffs for you: Payoffs for Y: Make Offer Make Offer	
	OUTSTANDING O	FFER MADE BY Y
	3 Payoffs for you	Payoffs for Y
	12.00	8.00
		Accept Offer

- 1. Chat. In the upper part you see the profile pic of your partner. In the blue bar on the bottom you can type messages. To send a message, push "Enter". Messages will appear in the grey box preceded by "individual X" or "Individual Y" depending on who sent them.
- 2. Here you can introduce your offers.
- 3. Here you can see your partner's offers. To accept an offer click on it, and then click "Accept Offer".
- 4. Here you see the remaining time, the round, the money to split, and the disagreement payoffs.

Both X and Y can make offers simultaneously. To withdraw an offer you just have to click on it in box 2 and then click "Withdraw Offer". Once you have withdrawn your outstanding offer you can make a new one.

The chat is open for three minutes. To close a deal, either X or Y has to accept her counterpart's offer. After the three minutes there will be no more chances to close a deal for that round. Please, if you have any doubts, raise your hand.

PAYOFFS

Everyone finishes the experiment at the same time, independently on their role and their decisions. Once the experiment is over, participants must answer a questionnaire.

Remember that every round has the same probability (25%) of being chosen as the payment round.

Payment is done by check. I will pay first individuals X. After they have all got their checks and left the lab, I will pay individuals Y.

All information will be anonymized and used only for scientific purposes. At no point any participant will be informed about the decisions of other participants.

Now there is an example.

EXAMPLE

The following example is illustrative and does not suggest how to take decisions.

- The computer randomly determines who is individual X and who is individual Y.
- Individual X makes the following choice:



FIGURE C.7 Example

- Round order is randomly determined:
 - 1. Round D
 - 2. Round B
 - 3. Round A
 - 4. Round C
- Round D starts. Individual X has chosen to bargain, so X and Y visualize the negotiation screen. For three minutes they bargain electronically about how to split the 16€. After 3 minutes they do not reach an agreement. Payments for that round equal the disagreement payoffs: 12€for individual X, 1€for individual Y.
- Round B starts. Individual X has chosen not to bargain, so X and Y stay in their sits in front of a blank screen. Payments for that round equal the disagreement payoffs: 12€for individual X, 2€for individual Y.
- Round A starts. Individual X has chosen not to bargain, so X and Y stay in their sits in front of a blank screen. Payments for that round equal the disagreement payoffs: 15€for individual X, 2€for individual Y.
- Round C starts. Individual X has chosen to bargain, so X and Y visualize the negotiation screen. For three minutes they bargain electronically about how to split the 20€. They agree to split them so individual X gets Z€and individual Y gets H€. Z€and H€could be any quantities as long as: Z€+ H€= 20€.

Questionnaire and Payment

- Participants answer to a questionnaire.
- Round A is randomly chosen as payment round. Individual X gets 15€plus the 6€show-up fee: she gets a check of 21€. Individual Y gets 2€plus the 6€show-up fee: she gets a check of 8€.

I will pay first individuals X, and then individuals Y. Remember that any round can be chosen as payment round. You will always receive the 6€show-up fee, irrespectively of your decisions and the payment round.

D. Control Questions

Welcome to the experiment! Before you start, you must answer correctly some control questions. The aim of these questions is to verify that you have correctly understood the instructions. If you have doubts, please raise your hand and a researcher will solve them in private. Thanks!

The following examples are illustrative and do not suggest how to take decisions. In round A, individual X has chosen the following:

FIGURE D.8 Control Question 1

	u A	
Disagreemer	nt payoffs:	
You:	15	
Individual Y:	2	
Individual Y how to split	the 20€ ? Yes	
Individual Y how to split	the 20€ ? Yes No	

Besides the 6€show-up fee:

- How much money will X and Y be able to split in the negotiation?
- How much will X get if they do not reach an agreement?
- How much will Y get if they do not reach an agreement?

In round B, individual X has chosen the following:

FIGURE D.9 Control Question 2

Disagreemer	nt payoffs:
You:	12
Individual Y:	2
ndividual Y how to split	the 20€ ? Yes
ଚ	No

Besides the 6€show-up fee:

- How much money will X get in this round?
- How much money will Y get in this round?