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DOES PRE-PLAY SOCIAL INTERACTION IMPROVE NEGOTIATION OUTCOMES?*

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Abstract

We study experimentally the impact of pre-play social interactions on negotiations. We isolate the impact of several common components of interactions: conversations, food, and alcoholic or non-alcoholic beverages. Participants perform a standardized negotiation (complex and simple) under six conditions: without interaction, interaction only, and interactions with water, wine, water and food and wine and food. We find that none of the treatments improves the outcomes over the treatment without interactions. We also study trust and reciprocity, where we find the same lack of superiority of interaction.

Keywords: negotiation, trust, business meals, social interactions, alcohol.

JEL numbers: C91, M11, I18

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1. Introduction

Many transactions in economic life take place after social interactions. They are central at the start of business, government, and personal negotiations and other social, political and economic processes. These interactions are important in the culture of organizations all over the globe.

As an example of their perceived importance, the following quote from Harvard's Program on Negotiation¹ is illustrative: *"The reciprocal nature of trust reinforces the value of taking time to get to know the other party and build rapport before you begin to negotiate. Don't assume that you can form a bond simply by exchanging a few friendly e-mails before meeting in person. Rather, try to forge a personal connection by meeting for an informal lunch or two."*

Policymakers have taken this kind of advice to heart. For example, business meals tend to be tax-deductible at least in part. The IRS considers that 50% of such expenses are deductible in general.² The HMRC allows to deduct the part of the expense that is "wholly and exclusively" for the purpose of generating profits.³ However, it is not only a matter for private businesses. Government offices and universities also subsidize business meals. Given this perceived importance, it is rather surprising that there has been very little research effort to ascertain its actual impact to improve substantive economic outcomes.

Real negotiations often involve many issues, over which participants usually have diverse preferences. Under incomplete information about those preferences, it is easy for negotiations outcomes to reach inefficient solutions. Our main goal is to investigate if social interactions with strangers improve negotiations' efficiency through trust building. One initial difficulty to achieve our goal is that these interactions are complicated processes involving many components. The potential success of the complete process might not be able to tell us the role played by its different constituents. For example, the business meal preceding a negotiation involves communication, and other aspects, such as food and beverage intake. Of course, negotiations preceded by communication are commonplace outside business as well, in ceasefire or peace talks, or in political negotiations. As stated in Seabright (2006), "a telling piece of evidence in support of the signalling theory of laughter is the way in which, across all kinds of cultures in the world, people who have made a business deal with each other tend to seal the deal by having a drink together.[...]. At the same time as it disables people's capacity for exercising trust wisely,

¹ <https://www.pon.harvard.edu/daily/dealmaking-daily/dealmaking-negotiations-how-to-build-trust-at-the-bargaining-Table/> Retrieved on September 5, 2017

² <http://www.irs.gov/taxtopics/tc512.html> Retrieved on September 5, 2017

³ <http://www.hmrc.gov.uk/manuals/bimmanual/bim37000.htm> Retrieved on September 5, 2017

alcohol enables people to inspire trust by stimulating that excellent signal of positive affect, namely laughter, that is not under direct voluntary control."

For this reason, we designed an experiment that would allow us to distinguish the effect of different factors on the negotiations. Our main finding is straightforward. We find no significant effect of any of our treatments with social interaction over the baseline of no interaction at all. In the words of the HMRC, the part of the expense that is wholly and exclusively for the purpose of generating profits is, on the basis of our experiment, zero. The same result arises for trust and reciprocity.

The participants in our experiment were master students at the Burgundy School of Business in Dijon. This is an elite business school in the Bourgogne region of France. They were recruited for a wine tasting activity followed (or preceded) by some games. After gathering the participants had 30 minutes to interact, except in the control treatment, where there was no interaction. Then, they read the experimental instructions.

During the *Interaction Phase*, participants were assigned randomly to only one of five treatments, or to the control. The treatments differed depending on the availability of food and drinks. They were as follows (obviously all of them involve interaction): interaction only, water, wine, food and water, food and wine. After the interaction, they participated in a four-player strategy-method trust game (Berg, Dickhaut and McCabe 1995). We made an extra effort so that the setting was as natural as possible. For instance, we allocated desks and participants in circles of four facing each other. An indication that this effort was successful comes from the unexpected high level of trust observed in the entire experiment.

After the interaction phase, participants took part in a incentivized negotiation of a kind that is common in negotiation classes. They negotiate over a labor contract with many attributes, each of which carrying a different number of points for each possible agreement. Participants' payments were a function of their total points, but they knew only their own points. This incomplete information about the others' points, and hence the possible beneficial trade-offs, was meant to create the opportunity for social interaction to increase trust and efficiency. Parties can find solutions that were not obvious if they exchange information.

We study two forms of negotiation (between subjects): Half of the subjects played a “hard” negotiation involving five issues; the other half a “simple” negotiation with two issues.⁴ We administered a de-briefing questionnaire at the end of the experiment.

Regarding the form of pre-play interaction we ran many treatments because our prior belief indicated that some form of pre-play interaction would indeed improve negotiations, and thus we wanted to find out the (possibly synergistic) impact of the different constituents. As it turned out, nothing appears to work better than moving directly into negotiations (no interaction). This is true at the pair level, that is, there is no gain in the total number of points achieved in the negotiations. It is also true at the individual level, as there seems to be no higher dispersion, nor a particular side that gains through communication. We conjecture that the initial interactions serve a psychological need to lighten the load of an unpleasant task. We could say that pre-play social interaction is more of a consumption good than a production input. As such, its tax status might need a revision if future research on this topic confirms our results.

With respect to trust, no treatment improved in a significant way the level of trust from the baseline treatment: trust in the “no interaction” treatment was either equal or, in a couple of cases superior, every other treatment.

In reciprocity we do not find any effect. Hence, there are no significant gains for more complex interaction settings (vs. the no interaction at all).

Our results have important policy implications. There is a general belief both in the business world and in government, that interactions benefit their organizational performance. We have cast serious doubt on that belief. The results are also important to understand the determinants of trust, a very important driver of economic progress.⁵

The structure of the paper is as follows. Section 2 reviews the related literature. Section 3 describes the experimental design. Section 4 establishes the results. Section 5 concludes.

⁴ It may not be clear ex-ante whether two or five issues are “more difficult” generally, since the tradeoffs, and thus agreement possibilities, multiply with a higher number of issues. But the cognitive load of finding those agreements is certainly higher. And our results show that efficiency is indeed higher in what we call simple negotiations.

⁵ Trust has been shown to induce higher growth levels for countries, as in Zak and Knack (2001) and Algan and Cahuc (2010).

2. Related literature

One of the oft-stated purposes of pre-negotiation meetings is the building of “trust”, personal bonds or increase altruism towards the participants. It can also signal intentions or the negotiating type. For example, one could try to establish a certain “toughness” in character. Previous research has established that cheap-talk prior to playing a game can improve efficiency. Cooper et al. (1992), Charness (2000) or Clark et al. (2001) show that cheap-talk increases efficiency in coordination games. Palfrey and Rosenthal (1991) have done the same for public good games, and Charness and Dufwenberg (2006) in trust games. There are also some results in bargaining games that are closer to our object of interest. Valley et al. (2002) studied a double oral auction with and without communication. They found that communication allowed to achieve higher levels of efficiency than predicted by theory. Forsythe et al. (1991) showed that communication during a bargaining game did not improve the efficiency of negotiated outcomes. Our experiments allow for communication in a diverse set of environments; communication is conducted prior to the game, as well as during it, and our negotiation simulations are more realistic.⁶

There is a recent strand of the literature focusing on the effect of alcohol and glucose in various economically relevant contexts. In contrast to that literature, we provide a far more comprehensive look at the problem, since we decompose the social interaction problem in all its constituents, of which alcohol and food consumption are only a part.

Alcohol consumption has been shown to be positively associated with risk taking (Proestakis et al. 2013 however, Burghart et al. 2013 found different results for men and women), rejection of unfair offers (Morewedge et al. 2014) as well as trust (Attanasi et al. 2013)⁷. Interestingly, from the latter paper it appears that it is not generalized trust, but instantaneous trust, related to the specific group sharing the substance. In the lab, results have not been consistent: Corazzini et al. (2015) did not detect any effect of alcohol in depleting subjects’ risk tolerance. However, they found that alcohol intoxication increases impatience and makes subjects less altruistic. Bregu et al. (2017) found no effect of alcohol on decision-making (including games), but contrary to Corazzini et al. (2015), found dictators that are more generous.

This, however, is in stark contrast with the results of Schweitzer and Gomberg (2001) who find that alcohol, even at levels that in some American states are below the legal limits for driving, seriously lowers the efficiency of outcomes, by reducing the total number of earned points, and

⁶ Berkman et al. (2015) study the role of socialisation on cooperation. They also use a pre-play communication phase where subjects interact in pairs under a well-defined structure.

⁷ A caveat in this case is that this is a survey, not an experiment, and certainly not a game.

hence the final payment to both partners. This happens through a variety of processes: they use more aggressive tactics, less integrative tactics (Thompson, 1991) and make more mistakes.

One way to understand the previous conflicting results comes from a different literature, focusing on the effects of glucose in decision-making. Gailliot and Baumeister (2007) use a variety of sources to claim that lower glucose levels reduce self-control. Alcohol consumption depletes glucose levels, and hence self-control, so the joint consumption of food and alcohol might give markedly different effects than alcohol on its own. However, a meta-analysis by Dang (2016) casts serious doubts on the view that glucose depletes self-control.

3. Experimental design

We invited the participants to our experiment to participate in wine tasting activities, followed (or preceded) by modified versions of the classic trust game (Berg et al. 1995) and of the negotiation game introduced by Schweitzer and Gomberg (2001).⁸ Our experiment had a sequential structure intended to fulfil two requirements: constructing a proper setup to study social interactions around a Table and introducing wine and meals in that particular environment as to measure whether the use of those additional activities may affect social interactions.

We recruited 568 participants from the student population of the first year of the Master Grande École from the School of Wine and Spirits Business and the Burgundy School of Business (BSB) from Dijon, France, in November 2015 and November 2016. We chose the timing (very soon after the classes start) and participants (first year students) so that, together with random matching, we minimized the chance that participants were in groups where member had already established a relationship. The BSB school has a good index of social diversity (it is ranked third in France), which means that participants are quite a good representation of the French population (30% of students at BSB are recipients of social scholarships which is the highest percentage in France).⁹ The sample is also externally valid since these student are meant, for more than 90% of them, to become managers or entrepreneurs, and be in charge of negotiations in their future businesses.

⁸ No any participant was deceived. All the participants in the experiment did eventually take part in a wine tasting session. Those for whom wine was not part of the treatment had the wine tasting after the experiment.

⁹ However, note that BSB students enter the school after a 2 years intensive preparation in special schools called “préparatoire” in which they are admitted based on their grades and an exam. Also, at the end of the 2 years, they need to pass a quite selective entrance exam to BSB (which has 4000 applicants for 450 places). This process means that BSB students are very good students, and they come from good high schools, mostly from big cities.

Participants were invited to participate in a wine-testing event (something that occurs often at the BSB) and told they would also play some games. The invitations to such events (and more generally to paid experiments) are familiar and in accordance to the ethical standards of drinking alcohol inside the school (BSB has a main program in the School of Wine) and minimize both selection biases and experimenter demand effects. We reminded participants, as usual, not to consume alcohol before arriving at the study, not to eat for 2 hours prior to the experiment, and to bring a valid form of identification to verify their age. Most experiments started at 11 am.¹⁰ We chose the timing on the advice from experts on wine tasting from the school, because the mouth is best prepared two to three hours after breakfast. The experiment last on average 1 hour 30 minutes, including reading instructions, answering comprehension questions, decisions and payments. Participants earned on average 20.50€ (min 5€, max 38€) in addition to the participation fee of 5€. We assigned participants to a treatment or a session randomly upon arrival. One participant was involved in only one session and one treatment in a typical between-subjects design.

Participants arrived at the laboratory and waited in the corridor as they usually do for experiments. We gave them anonymous numbers, so they had to sit at the numbered places. However, the numbers were given (without specific emphasis) in such a way that this resulted in sitting in the lab in groups of four same-gender individuals.¹¹ In some sessions, at the beginning of the experiment, participants were seated in individual isolated cubicles, and in other sessions, in four-person isolated cubicles, according to the treatment. In case of non-appearance of some participants, some four same-gender groups were incomplete – those participants were seated in mixed groups of four and allowed to participate to the experiment, but the data collected was not used for further analyses. Data from mixed groups (32 participants) are not considered for the analysis.¹² The final sample amount 536 participants.

The Interaction Phase (see Figure 1 below) consisted in a 30 minutes period of (pre-play) communication. In other experiments on pre-play communication, (see e.g. Bornstein and Rapoport 1988, or Bochet et al 2009 for public good games, and Zultan 2012 for ultimatum games) the period of communication is far shorter, a few short minutes. We thought that our more complicated game required a longer period to build the right amount of trust. Some of our participants did not participate to the Interaction Phase, according to the treatment. Participants

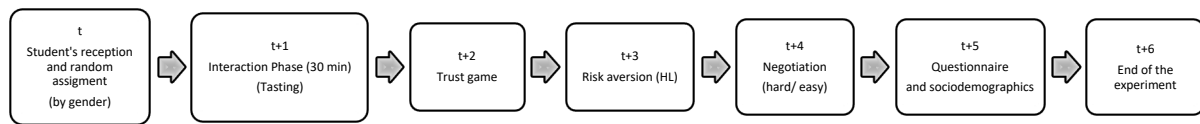
¹⁰ A few sessions needed to be scheduled before or after 11AM due to room availability issues.

¹¹ To be more precise, say the session consisted of X people, $X/2$ men and $X/2$ women. We paired them randomly inside each group. Numbers from 1 to $X/2$ were distributed randomly to men, and numbers between $X/2+1$ and X to the women (or vice versa). Participants were then called by numbers to go to sit a specific Table.

¹² We conducted analysis with these omitted groups for robustness. Results, available upon request, are not affected by their inclusion.

involved in sessions with the Interaction Phase were seated in four-person isolated cubicles and were allowed to talk. We divided this phase in two conditions: in one condition, the Interaction Phase was unstructured – participants simply performed pre-play verbal communication. In the other condition, the Interaction Phase was structured by its concomitance with the Tasting Phase, i.e. the introduction of liquids with or without nibbles. One could interpret this as team-building exercise that participants do together, requiring communication. In this way, Interaction can be viewed as “Unstructured” communication” and Tasting as “Structured” communication. The reason for these variations is that we do not have a good theory for what is it about communication that may help negotiation, so we needed to test different formats.

Figure 1. Experimental phases ($t+1$ is removed for No Interaction)



To avoid any deception, all our participants took part in the Tasting Phase, either at the beginning or at the end of the experimental session. Participants were presented with three standard INAO glasses containing the standard quantity of tasting liquids (1cl). The Tasting Phase was declined in four conditions: the liquid contained in the glasses was water, wine, and in some tasting exercises wine or water were accompanied by side nibbles. Glasses were presented in a "blind" tasting condition, i.e. without any indication of the label, price or other identifying information on the liquid. Glasses were only identified with neutral numerical codes. Participants were instructed to indicate on an individual answer sheet which glass of liquid they preferred at three specific moments: after they first took the first gulp from each of the glasses, after the 5th gulp and after the 10th gulp. This procedure is standard in the tasting exercises, as perception changes with time and sensorial familiarity. However, we motivated the consumption of liquids as participants were by default not allowed to spit (spitting devices were not provided).

At the end of the Tasting Phase, participants were instructed to leave their glasses and the answer sheets on the Table at the exact same places they were when they arrived. After finalising the sessions and before the participants left the room, we conducted Breathalyzer tests on everyone and recorded results from each participant. Participants were not provided with their scores, however, inebriated participants (with a score higher than .05) were asked to remain in

the laboratory to watch a movie, as is the standard procedure in tasting sessions. After the participants left the room, we collected the answer sheets and measured the remaining liquid in each glass as to have a precise measure of the liquid intake.

The Trust Game/Risk Preferences elicitation Phase consisted first in a variant of the traditional trust game. In a (sequential) Trust game, two players played the following roles: the sender (S) is endowed with certain money, P . S may send any fraction x of P (even nothing) to the other player, the receiver (R). Transferred money is tripled, R is entitled to return any amount (even 0). Rules are common knowledge. We interpret S's choices as a signal of trust (the higher the better) while R choices indicate reciprocity (idem). In our variant, participants read the experimental instructions individually in their own cabin. Every subject had an endowment of 10 euros. They played a double role: every participant is both S and R. Each of them played a Trust Game with the other 3 players from its group (sending and receiving, instructions available in Appendix). One decision was paid randomly. Participants were also asked to reveal their expectations about the behavior of others. Then participants completed a Risk Preferences elicitation task (incentivized), following the standard procedure -multiple prices lists- proposed by Holt and Laury (2002).

The Negotiation Phase consisted in a variant of the negotiating exercise from Schweitzer and Gomberg (2001). Participants were paired two by two in same-gender dyads. We separated the genders to avoid the complicated issues that arise from inter-gender negotiations (see e.g. Stuhlmacher and Walter 1999, Babcock and Laschever 2009, Bear and Babcock 2012). The exercise included two roles, an employer and a placement agent who negotiate over a compensation package for a prospective employee. The negotiation involved a Hard or an Easy Negotiation condition, consisting of two or five issues (wage, bonuses, trips, etc...) and included opportunities to create joint gains. Participants were then randomly assigned to the role of either agent or employer. They were described their role and were allowed to make notes on their confidential information sheets. The exercise consisted in structuring a job offer and closing a deal for a previously interviewed candidate. The job description and candidate's resume are included in Appendix A (Experimental instructions – Hard negotiation, Employer). Both participants received private information describing their interests and how these interests converted to point values. The last page of the instructions was a Table of point values including one of the two columns of values represented in the payoff Table in Appendix. Participants were informed that the points they earned in the negotiation would be converted to cash at an exchange rate of 10 points to 1 euro, and that they would earn nothing if they failed to reach an agreement. Once participants reached an agreement, we collected their agreement sheets.

In the Questionnaire Phase we collected data on the questions used in Schweitzer and Gomberg (2001): participants were asked about the negotiation process, their perceptions of how alcohol had affected their negotiation¹³, and general demographic information. They were also measured their height and weighted. Finally, participants were asked demographic information, such as height, weight, age, and gender.

These different phases lead to several treatments (all these variations occur at $t+1$ - see Figure 1): *No-Interaction*, Unstructured Communication (in short *Interaction*), and *Structured Communication* (*StrComm*). These three treatments represent three possible baselines and have variants.

The *StrComm* treatment mimics business meals with water as the base liquid. We run three variations of this treatment:

- *StrComm+W* (identical to the former *StrComm* with wine instead of water),
- *StrComm+N* (identical to *StrComm* plus a Nibble) and
- *StrComm+W+N* which combines the Wine and the Nibble.

In the *No-Interaction* treatment ($t+1$ is absent), participants only participated in the Trust Game, Risk, Negotiation and Questionnaire. To avoid deception the Tasting Phase was placed at the end of the experiment.

In the *Interaction* treatment, the sequence of phases consisted of Interaction, Trust Game, Risk, Negotiation Game and Questionnaire. Again the Tasting Phase was placed at the end.

In the four *Structured Communication* treatments, the phases were as reflected in Figure 1: Interaction and Tasting (simultaneous), Trust Game, Risk, Negotiation and Questionnaire.

All in all, our setup was intended to put participants at ease and relaxed, and to make the situation as natural as possible. Although the sessions were conducted in the laboratory, the physical allocation of desks in circles, the position of participants facing each other and so on had the purpose of reducing the awkwardness of the setting. See some photos in the appendix.

Table 1 describes the number of participants and in parenthesis the number of independent observations per treatment.

¹³ For instance, with respect to the influence of alcohol, in sessions involving alcohol, participants were asked, “How inebriated did you feel during your negotiation?” which was rated on a scale ranging from 1 (not at all inebriated) to 11 (very inebriated), “Do you think alcohol affected your negotiation?” which was rated on a scale ranging from 1 (not at all) to 11 (very much), and “Did alcohol consumption help or hurt your side of the negotiation?”. With respect to the negotiation process, participants were asked, “To reach an agreement, both of you made some concessions. In your negotiation, who made most of the concessions?” which was rated on a scale ranging from 1 (I made all the concessions) to 6 (both about the same) to 11 (the other person made all the concessions).

Table 1. Sample by treatment

	<i>Trust</i>	<i>Recipr.</i>	<i>Hard</i>	<i>Easy</i>
<i>No-Interaction</i>	84 (21)	84 (21)	36 (18)	48 (24)
<i>Interaction</i>	76 (19)	76 (19)	36 (18)	40 (20)
<i>StrComm</i>	108 (27)	108 (27)	68 (34)	40 (20)
<i>StrComm+W</i>	100 (25)	100 (25)	56 (28)	44 (22)
<i>StrComm+N</i>	84 (21)	84 (21)	52 (26)	32 (16)
<i>StrComm+W+N</i>	84 (21)	84 (21)	44 (22)	40 (20)
Total	536 (134)	536 (134)	292 (146)	244 (122)

In Table 2 we show summary statistics by treatment for baseline characteristics. We focus on four observable characteristics of the participants: Gender, Size, Weight and Risk aversion (MPL). The differences are computed with respect the control treatment (*No communication*) where negative values indicate that the referred characteristic is larger in the treatment than in the control.

With the exception of participants *height* in the Interaction treatment which is marginally larger ($p=0.098$) than in the No interaction, overall, the balance tests indicate that assignment to different treatments can be considered random, that is, there are not observable differences between participants allocated to different treatments compare to the control. The later means that the randomisation of participants across treatments worked properly.

Table 2. Balance tests

	Mean	Std. Dev.	Difference	p-value (T-test)
<i>No-Interaction</i>				
<i>Female</i>	0.476190	0.502432	-	-
<i>Height</i>	1.717619	0.088407	-	-
<i>Weight</i>	65.14634	11.28325	-	-
<i>Risk aversion</i>	5.085366	1.664452	-	-
<i>Interaction vs. No-Interaction</i>				
<i>Female</i>	0.421052	0.497008	-0.05513	0.4870
<i>Height</i>	1.740946	0.087510	0.02332	0.0983*
<i>Weight</i>	66.15278	12.82785	1.00644	0.6052
<i>Risk aversion</i>	5.226667	1.341372	0.14130	0.5612
<i>StrComm vs. No-Interaction</i>				
<i>Female</i>	0.481481	0.501986	0.00529	0.9423
<i>Height</i>	1.729796	0.092591	0.01217	0.3677
<i>Weight</i>	65.18557	12.02283	0.03923	0.9822
<i>Risk aversion</i>	5.267327	1.377615	0.18196	0.4195
<i>StrComm+W vs. No-Interaction</i>				
<i>Female</i>	0.480000	0.502116	0.00380	0.9592
<i>Height</i>	1.736869	0.094173	0.01925	0.1582
<i>Weight</i>	64.52020	11.54294	-0.62614	0.7141
<i>Risk aversion</i>	5.291667	1.541815	0.20630	0.3922
<i>StrComm+N vs. No-Interaction</i>				
<i>Female</i>	0.380952	0.488537	-0.09523	0.2147
<i>Height</i>	1.725542	0.084554	0.00792	0.5548
<i>Weight</i>	65.73494	11.82194	0.58860	0.7440
<i>Risk aversion</i>	4.792683	1.420640	-0.29268	0.2276
<i>StrComm+W+N vs. No-Interaction</i>				
<i>Female</i>	0.428571	0.497843	-0.04761	0.5381
<i>Height</i>	1.718571	0.095805	0.00095	0.9467
<i>Weight</i>	65.98049	12.38404	0.83415	0.6527
<i>Risk aversion</i>	5.025000	1.550623	-0.06036	0.8116

Note: * significant at 10%.

4. Results

This section explores four different outcomes from our experiments: hard negotiation (multidimensional), easy negotiation (bi-dimensional), trust and reciprocity. Our hard negotiation treatment exposes the participants to a bargaining situation where negotiations take place over different variables (wage, bonuses, etc.). As explained before we compare a series of environments:

- No pre-play interaction at all (*No Interaction*).
- Pre-play interaction without any communication structure (*Interaction*).
- Pre-play interaction with *StrComm* (only water, only wine, water and nibbles or wine and nibbles).

One first observation is that all negotiations (100% of the groups) reached an agreement (even if often away from the Pareto frontier), so there is no variation in that outcome, and we can conclude with:

Result 0: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - does not change the propensity of either hard or easy negotiation to reach an agreement.

Table 3 presents the analysis for negotiation with all the treatments (including all the variants of *StrComm* and the amount received in the trust game, hereafter trust received). Its main interest is to show in one shot the main conclusion, namely that none of the treatments make any difference in negotiations. One can also see with this analysis that the treatments explain well the variation observed. The R^2 is very high, indicating that our lack of significant results does not result from an insufficient sample to pick up nonzero effects. We can thus establish

Result 1: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - do not improve the efficiency of hard or easy negotiation.

Table 3 reports the coefficients of the regression of negotiation points on the different treatments and other control variables (Model 1a). The reference category is the No Interaction in the *Easy* negotiation. Note that No-Interaction hard is equivalent to a dummy for hard.

One can see directly from the Table that none of the *Easy* negotiation treatments makes any improvement in terms of the negotiation outcomes. In a couple of the cases, interaction worsens the outcome. On the other hand, the *Hard* negotiations are different from the baseline, but as we will test more formally later (see subsection 4.a and Table 4), they are not different from one another.

Table 3. Negotiation regression - pooled sample. Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

<i>Endogenous variable: Negotiation points</i>		<i>1a</i>		<i>1b</i>		<i>1c</i>	
		Coef.	(SE)	Coef.	(SE)	Coef.	(SE)
	<i>Interaction</i>	-6.409***	(2.363)	-3.477	(3.427)		
	<i>StrComm</i>	-4.087**	(1.946)	-2.894	(2.736)		
	<i>StrComm+W</i>	-1.877	(1.624)	-1.127	(1.608)		
	<i>StrComm+N</i>	-2.015	(1.341)	-5.772**	(2.721)		
	<i>StrComm+W+N</i>	-3.568***	(1.308)	-2.892	(1.814)		
	<i>No-Interaction * hard</i>	24.622***	(2.202)	20.58***	(1.439)		
	<i>Interaction * hard</i>	29.295***	(3.114)	23.08***	(3.854)		
	<i>StrComm * hard</i>	25.854***	(2.009)	24.16***	(2.769)		
	<i>StrComm+W * hard</i>	22.860***	(1.897)	20.90***	(2.081)		
	<i>StrComm+N * hard</i>	26.323***	(2.056)	27.08***	(2.779)		
	<i>StrComm+W+N * hard</i>	24.421***	(2.033)	24.89***	(3.229)		
	<i>No-Interaction * male</i>			0.0442	(0.512)		
	<i>Interaction * male</i>			-5.017	(4.387)		
	<i>StrComm * male</i>			-2.665	(3.603)		
	<i>StrComm+W * male</i>			-1.274	(2.890)		
	<i>StrComm+N * male</i>			6.156**	(2.787)		
	<i>StrComm+W+N * male</i>			-1.259	(2.326)		
	<i>No-Interaction * hard * male</i>			7.918**	(3.769)		
	<i>Interaction * hard * male</i>			10.55*	(5.608)		
	<i>StrComm * hard * male</i>			3.450	(3.915)		
	<i>StrComm+W * hard * male</i>			3.515	(3.570)		
	<i>StrComm+N * hard * male</i>			-1.265	(3.750)		
	<i>StrComm+W+N * hard * male</i>			-1.004	(3.928)		
	<i>Employer</i>	2.365**	(1.256)	2.349**	(1.169)		
	<i>Risk aversion</i>	-0.411	(0.318)	-0.400	(0.343)		
	<i>Trust received</i>	0.164	(0.186)	0.0976	(0.172)		
	<i>Male</i>	1.045	(0.860)			1.063	(0.865)
	<i>Hard</i>					25.09***	(0.906)
	<i>Constant</i>	58.906***	(2.467)	60.02***	(2.364)	56.32***	(0.804)
	<i>Obs.</i>	516		516		536	
	<i>R²</i>	0.605		0.617		0.571	
	<i>Adjusted R²</i>	0.593		0.597		0.569	

The analysis is repeated in Model 1b interacting with whether the group was all-male or all female. In this case the baseline is No-Interaction in all-female groups in the *Easy* negotiation. Note that No-Interaction male and No-Interaction hard are equivalent to dummies for male and hard respectively.

There are two significant differences with respect to the No-Interaction benchmark in Model 1b arising from Easy negotiation - one negative and another positive, both at 5% (the latter can be seen in Table 4 which shows the Wald Test to compare whether estimated differences are significant with respect to the relevant baseline). For hard negotiation we also find two significant coefficients: one negative at 10% and another positive at 5%.

All in all, we find only four exceptions, always at 5% or 10%. Two of the them are negative, meaning that the treatments are worse than the No-interaction benchmark and two positives, where the treatment outperforms the control. Remember that these four cases report interactions with gender treatments.

Another way to see that the treatments are not useful to explain negotiation points is by looking at a regression of negotiation points just on the categorical variables *Male* and *Hard* (regression 1c). The unadjusted R^2 for Model 1a is very close to the one for 1a or 1b, and the adjusted R^2 is virtually identical.

Table 4. Wald Tests: Comparisons to baseline.

<i>Endogenous variable: Negotiation points</i>				
	<i>1a</i>		<i>1b</i>	
	Diff. Coef.	(SE)	Diff Coef.	(SE)
<i>Interaction * hard – No-Interaction * hard</i>	4.673	(3.840)	2.501	(4.272)
<i>StrComm * hard – No-Interaction * hard</i>	1.232	(3.039)	3.582	(3.101)
<i>StrComm+W * hard – No-Interaction * hard</i>	-1.762	(2.874)	0.322	(2.426)
<i>StrComm+N * hard – No-Interaction * hard</i>	1.701	(2.918)	6.499**	(3.282)
<i>StrComm+W+N * hard – No-Interaction * hard</i>	-0.200	(3.020)	4.307	(3.648)
<i>Interaction * male – No-Interaction * male</i>			-5.060	(4.398)
<i>StrComm * male – No-Interaction * male</i>			-2.709	(3.696)
<i>StrComm+W * male – No-Interaction * male</i>			-1.318	(2.927)
<i>StrComm+N * male – No-Interaction * male</i>			6.111**	(2.872)
<i>StrComm+W+N * male – No-Interaction * male</i>			-1.302	(2.371)
<i>Interaction * hard * male – No-Interaction * hard * male</i>			2.633	(6.778)
<i>StrComm * hard * male – No-Interaction * hard * male</i>			-4.468	(5.353)
<i>StrComm+W * hard * male – No-Interaction * hard * male</i>			-4.403	(5.160)
<i>StrComm+N * hard * male – No-Interaction * hard * male</i>			-9.182*	(5.492)
<i>StrComm+W+N * hard * male – No-Interaction * hard * male</i>			-8.922	(5.538)

Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4a) Hard negotiation

Figure 2 top shows the total number of points obtained in the complex bargaining across treatment conditions. The last three bars of the same Figure 2 enrich the Interaction with Structured Communication treatment in order to mimic business meals. Figure 2 top already suggests what the regression analysis will show clearly: none of the treatments are different from the baseline without communication (No-Interaction). That is, it does not facilitate negotiations. All in all, the use of wine or nibbles or both does not appear to improve negotiations.

Table 4 shows the Wald Test for the differences between the coefficients of the regression shown in Table 3 for the *Hard* treatments with respect to the baseline in which the negotiation is Hard and there is No-Interaction. Column 1a focuses on hard negotiation without separating by gender. The comparisons are done with respect to *Interaction*, *StrComm*, *+Wine*, *+Nibbles* and *+Wine+Nibbles*. We do not find any single positive and significant effect across the treatments.

Column 1b repeats the same analysis but separates by gender groups. There is in this case a treatment which yield significant (at 5%) and positive effects *StrComm+Nibbles* in the female groups, and the opposite is true for males but marginally ($p < 0.1$). Given that there is only one coefficient significant at conventional levels, and only in the heterogeneity analysis, we think the most likely explanation is the multiple hypotheses we test.

Overall, none of our five treatments clearly outperforms the baseline of No-Interaction. Both males and females are better off with a perfect stranger and the introduction of any sort of socializing does not help to increase efficiency. Result 1a summarizes,

Result 1a: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - do not improve the efficiency of hard negotiation.

Tables 3 and 4 show that most of the estimated coefficients are not statistically significant (or do not improve negotiation). This evidence suggests that interactions among participants does not improve the results of the negotiations. However, the lack of significance of positive coefficients might be caused by the lack of power due to the number of observations.

To check whether power is indeed a problem, we perform different power calculations. In model 1a from Table 3 we have a power of 70% to find an average treatment effect (ATE) higher than 4 negotiations points with respect No-Interaction * hard¹⁴. However, effects lower than 4 points are economically irrelevant since they represent an increase by less than 5% of the average

¹⁴ We concentrate only in doing power calculations for positive coefficients, since they represent an improvement in negotiation.

negotiation points in the No-Interaction * hard. In model 1b we have less power (60%) due the triple interaction of treatments with hard and male. But again, positive coefficients are not particularly concerning. In the worst-case scenario, they represent an increase of less than 9% of the mean with respect to the reference group.

Figure 2. *Hard negotiation. Top: Results by treatment, Bottom: Results with respect to the Pareto frontier (in orange).*

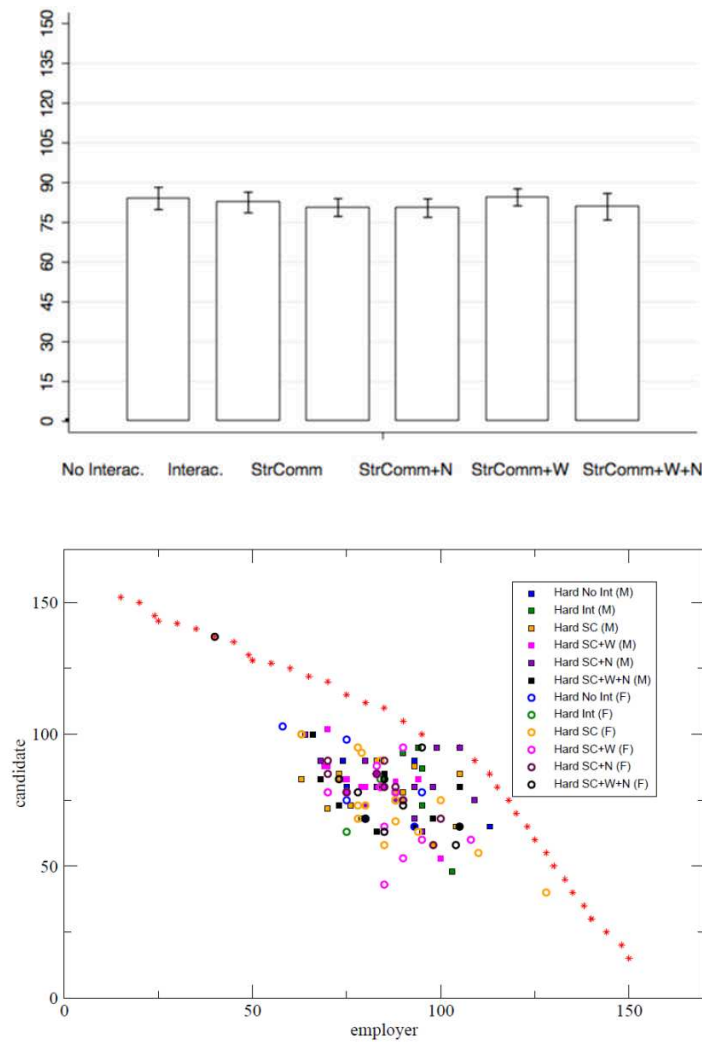


Figure A.1 (in Appendix A) suggests an equivalent result separating by agent and employer. Notice that even though the points achieved by agent and employer are quite similar on average the distribution between them can vary quite a lot in the different pairs, as Figure 2 (bottom) makes clear. Table A.1 (Appendix A) shows that for neither agents nor employers no any treatment provide significant effects. Interacting with gender provides a single significant result at 5% but negative (see also Table A.2. for Wald Test).

Result 1b: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - do not improve the amount of points obtained by either agents or employers of hard negotiation

One reason for communication to be popular could be that it allows “clever” negotiators to obtain advantages. We would then not observe necessarily higher total points, but more “relative” benefit, and thus separate more from the equal division split. Table A.3 (columns 1a and 1b) confirm this observation measuring the distance from the equal distribution for the different treatments.

Result 1c: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - does not increase the dispersion in the distribution of points in the hard negotiation.

Figure 2 (bottom) shows graphically how the different outcomes are located with respect to the Pareto frontier of the game. The frontier is represented in orange and the outcomes for all the different pairs are represented in different colour according to the treatment.

Consistent with the results above 1a 1b and 1c, the colours/treatments are quite evenly spread inside the frontier and no colour dominates in any part of the graph. This merely confirms in a summary graphical way, the results 1a and 1b above. It also shows that generally, the outcomes are not efficient. This should not be surprising, there is a severe asymmetry of information and considerable cognitive complexity in the negotiation, which would make obtaining an efficient solution quite challenging.

In order to understand if the lack of effects we observed were robust to the fact that we are only estimating an average treatment, we interact the treatment with the quantity of liquid consumption, which is a proxy for alcohol inebriation in the treatments with alcohol and found not qualitatively different results (details available upon request).

All in all, results show that there is no effect of liquid consumption among wine treatments (no positive and significant treatment interaction terms).

4b) Easy negotiation

One possible explanation why social interaction does not have an effect for the hard negotiation is that the problem to solve may be too complex. With five issues to discuss, there are too many trade-offs, even if participants are genuinely disposed to have a more profitable agreement. To test if this explanation had merit, we ran treatments where we simplified the very same

bargaining problem to two dimensions: wage and number of trips a month. Now participants only negotiate over these two dimensions. Figure 3 shows the results descriptively. We do not appreciate positive effects for pre-play interactions – structured or not – on negotiation.

Column 1a in Table 3 shows the econometric analysis establishing these results formally for the sample of all groups. Indeed the only significant treatments are negative. There are no treatments that are significantly better than *No Interaction*. Column 1b shows that for females *StrComm+Nibbles* yields negative results. In Table 4 we find that the opposite is marginally true for males.

As in the case of hard negotiation, we have established the following result.

Result 2a: Pre-play interactions do not improve the outcome of easy negotiations. Result 1a is also replicated for easy negotiations.

In this way, we reject the hypothesis that the reason why pre-play communication does not generate positive outcomes in negotiations is because they are complicated.

In a similar way to what happens in hard negotiations, we also do not find that pre-play negotiations make a positive difference, for neither employers nor agents, as suggested in Figure A.2 and confirmed using regression analysis in Table A.1: No any significant and positive effect is found (see also Table A.2 for Wald Test).

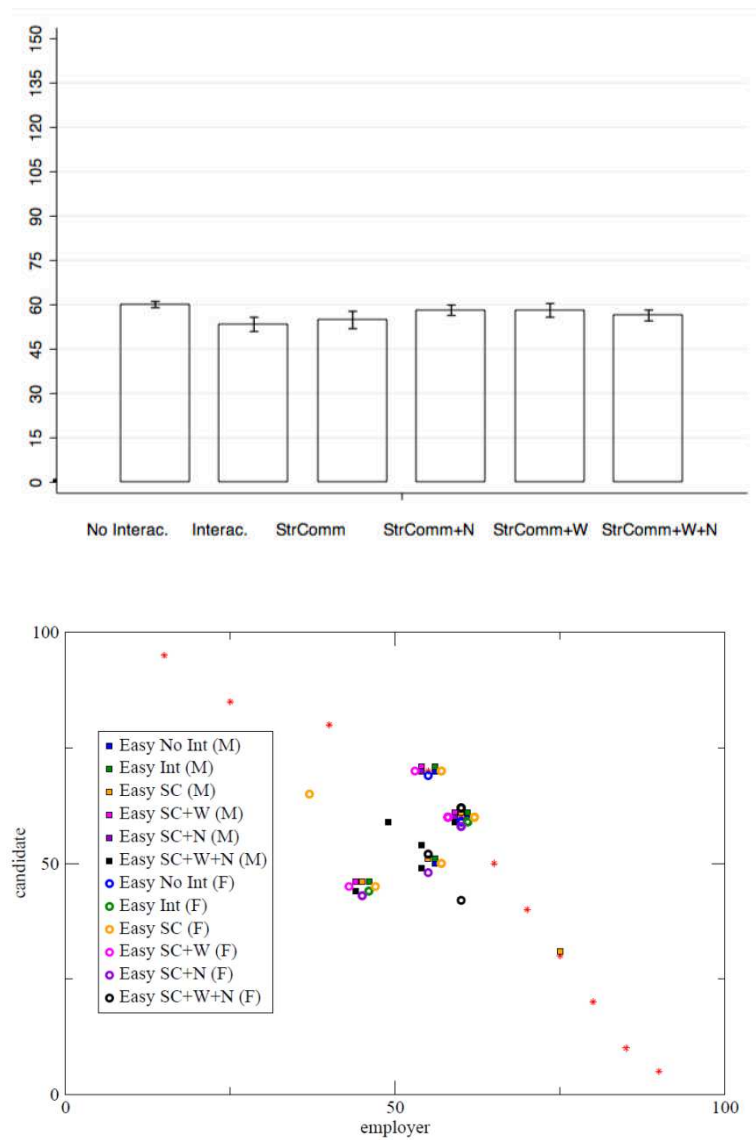
Regarding power, all the estimated coefficients in model 1a (Table 3) are negative for easy negotiation treatments indicating therefore that lack of power is not indeed a problem. In model 1b there only one positive coefficient (*Nibbles + Male*) which is significant at 5% (see also Wald test in Table 4). Therefore, our results are not driven by lack of power.

Result 2b: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles, do not improve the amount of points obtained by either agents or employers of easy negotiation.

In addition, as with the hard negotiations we do not find that the outcomes separate more from the equal division. We show this in Table A.1, columns 2a and 2b thus we have.

Result 2c: Pre-play interactions - be it through free or structured interactions, alcohol or nibbles - does not increase the dispersion in the distribution of points in the easy negotiation.

Figure 3. *Easy negotiation. Top: Results by treatment, Bottom: Results with respect to the Pareto frontier (in orange).*



Let see how compares the easy negotiation with respect to the Pareto frontier. Figure 3 (bottom) shows the outcomes of the different environments. As for the Hard negotiation, it confirms visually the Results 2a, 2b and 2c above. But it also shows that the Easy negotiation environment makes the achievement of an efficient outcome much easier. A majority of the points are concentrated in the Pareto frontier. They are also quite symmetric as both players get very similar points. Clearly, the Easy environment makes the achievement of efficiency less daunting, showing the importance of information and cognitive constraints on negotiation. In that way we can conclude:

Result 2d: Lowering the number of issues in negotiations, and thereby their cognitive costs, increases the efficiency of negotiations.

This analysis reassures us that the treatments do not improve the results of the negotiations.

c) Trust

We might explain the absence of positive results for negotiations shown in previous section by the interplay of several factors. It might be the case that alcohol makes people less thoughtful and more aggressive (Schweitzer and Gomberg, 2001), or that pre-play interaction makes participants less focused on the task (Yuan, Head, and Du 2003). In this section we will focus exclusively on trust among participants. Since trust might be a moderating factor in bargaining – we need trust to reach agreements – we will study now how our participants played the Trust Game using the same treatments as before.

Figure 4 (top) shows the average trust behaviour across treatments. On the left side we show the baseline (No-Interaction) and moving to the right, treatments with an increasing number of characteristics. Table 5 (model 1a) analyses the same problem using double clustered regressions at individual and group level and several independent variables (the treatments), where the reference groups is the “*No-Interaction*Female*” treatment.

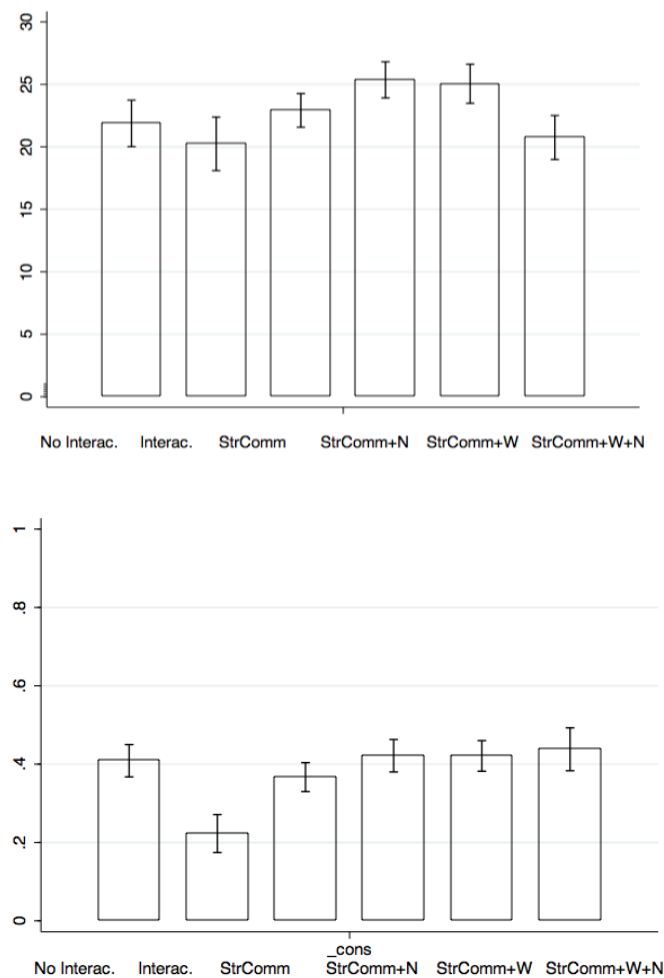
One first observation is that the trust level is higher than observed in many previous experiments. A likely cause for this difference is the fact that trust is higher because our participants interact face-to-face, something that is known to increase trust (see e.g. Wilson et al. 2006) and it is also quite realistic and appropriate given the situations we are trying to mimic. Apart of its intrinsic interest this result indicates that our effort in making the experimental setting natural was successful.

Therefore, the trust resulting from the baseline (No-Interaction) is no different than the one resulting from the other treatments involving social interaction. The double cluster regression (see Table 5a) shows that social interactions do not help to enhance trust among females. For men, we find basically the same result. We run Wald Test to check whether estimated coefficient are significantly different from the control (No-Interaction) and we observe that none of them are providing positive and significant results for trust.

Result 3 summarizes our findings about trust.

Result 3: For both females and males, pre-play interactions - either free or structured ones, alcohol or nibbles - does not improve trust.

Figure 4. *Trust (top) and Reciprocity (bottom)*



d) Reciprocity

Finally, we study whether reciprocity is sensitive to the different types of social conditions.¹⁵ Recall that reciprocity reflects the amount of money an individual would like to return to another participant who previously sent him/her some money. This measure can be also interpreted as gratitude.

Our six treatments cover very different environments, ranging from pure strangers (no pre-play interaction) to a situation akin to a business meal (spending time with the other partner, communicating with him or her, having wine and some food). The question is whether different levels of interaction may create different levels of reciprocity.

¹⁵ Twelve participants did not respond correctly to the Reciprocity questions. As a result, we lost some observations between the trust and reciprocity experiments.

We do not see effects of different forms of social interactions on reciprocity. Figure 4 (bottom) compares the average level of reciprocity among the six treatments. It is straightforward to check that the different forms of interaction we tried do not seem to outperform the complete stranger environment (no pre-play interaction).

Table 5. *Regression analysis (Double cluster. Individual and group level): Trust and Reciprocity*

<i>Endogenous variables</i>	<i>Trust received</i>		<i>Reciprocity</i>	
	<i>1a</i>		<i>1b</i>	
	Coef.	(Std. dev.)	Coef.	(Std.dev.)
<i>Interaction</i>	1.540	(1.316)	-0.147**	(0.0722)
<i>StrComm</i>	0.206	(1.077)	-0.0852	(0.0519)
<i>StrComm+W</i>	2.020*	(1.163)	0.0529	(0.0547)
<i>StrComm+N</i>	1.563	(1.265)	-0.0222	(0.0682)
<i>StrComm+W+N</i>	0.824	(1.150)	-0.00292	(0.0419)
<i>Risk aversion</i>	0.00551	(0.0875)	0.00382	(0.00671)
<i>No-Interaction * male</i>	2.380**	(1.133)	-0.0165	(0.0697)
<i>Interaction * male</i>	-1.490	(1.400)	-0.0777	(0.0875)
<i>StrComm * male</i>	2.682***	(0.726)	0.0557	(0.0613)
<i>StrComm+W * male</i>	0.730	(0.969)	-0.107	(0.0753)
<i>StrComm+N * male</i>	1.223	(1.082)	0.0458	(0.0724)
<i>StrComm+W+N * male</i>	0.133	(1.116)	0.0355	(0.0844)
<i>Constant</i>	6.052***	(0.960)	0.397***	(0.0384)
<i>Obs.</i>	516		506	
<i>R²</i>	0.158		0.124	
<i>Adjusted R²</i>	0.137		0.102	

Note. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5 (model 1b) shows the results using a double cluster regression model. No single independent variable has a positive and significant impact in trust for either males or females. We may conclude as follows.

Result 4: Pre-play interactions do not improve reciprocity. This is true both for male and female participants.

5. Conclusions

In this paper, we have established that pre-play communication does not seem to help improve negotiation outcomes, neither at the aggregate session level, nor in the regression analysis, when we analyse more deeply the individual interactions. The lack of positive effects has been shown in a variety of conditions, with communication being more or less structured, accompanied or not by food and drink, and for both easy and hard negotiations. We have also shown that communication does not enhance trust, a possible pathway to improve negotiation outcomes

As with any laboratory experiment, one potential limitation is the external validity of results. We believe this is less of a problem in our case. Our sample consists of business school students, from an elite business school, with tough exam entrance requirements. At the same time, they are also rather diverse and representative of the French society since as we mention in the design section many are recipients of social scholarships and the diversity index is the third highest in France. They most likely understand they will be negotiators in the future and many of whom have had internships prior to starting their studies and have an appreciation of the business world. They are clearly the kind of people that will do high level negotiations in the future.

One could argue that in an even more diverse setting, perhaps with people from very different socio-cultural origins, the results could be different. That is certainly a possibility worth studying in future research, but at a minimum we have established that an unqualified recommendation to *“try to forge a personal connection by meeting for an informal lunch or two”* is certainly not warranted.

Similarly, it could be argued that in reality it is often one party who invites the other to the informal lunch, and perhaps the act of taking the trouble to call up and invite the other party to the informal communication signals some important personality trait on that party. Again, that is an interesting conjecture that is worth exploring, but even if so, our research shows that it is not the act of communicating *per se* which improves negotiation, but rather something else, the signalling.

On the other hand, our experiment mimics quite well the real business meal. We fixed the starting time of all experimental sessions was at the very same time (11 AM). This was done for two reasons: first, to prevent heterogeneity effects on participants due to glucose (see Danziger et al 2011); second, the timing of the trust and negotiation activities (which happened after the allocation of participants in the rooms and the interaction phase) occurred about noon, which is very close to real business lunchtime in France. Indeed, we made an extra effort so that the setting was a bit more casual. We allocated desks and participants in circles of four facing each

other and they apparently enjoyed their experience. The unexpected high level of trust observed in the entire experiment might be explained by the relaxed atmosphere.

Finally, the policy implications of the paper are very significant. While it would be premature to change the tax codes and practices of many countries based on a single study, we would recommend that tax authorities to pay a lot more attention to the fact that the business lunch, or dinner, could be a form of untaxed in-kind compensation to employees leaking out of badly stretched public finances.

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Appendix A:

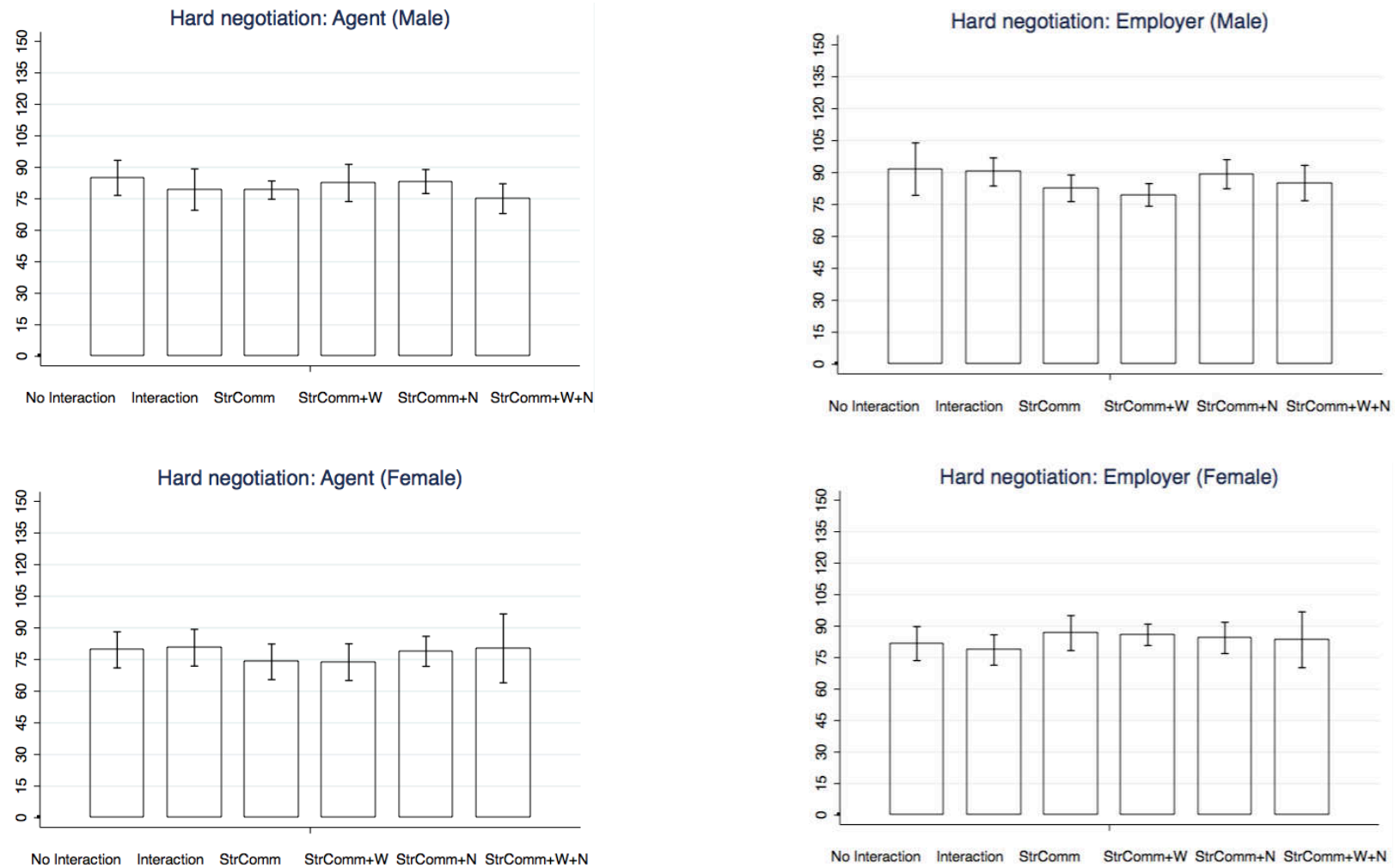


Figure A.1: Results for Hard negotiation (males and females): agent (left) and employer (right)

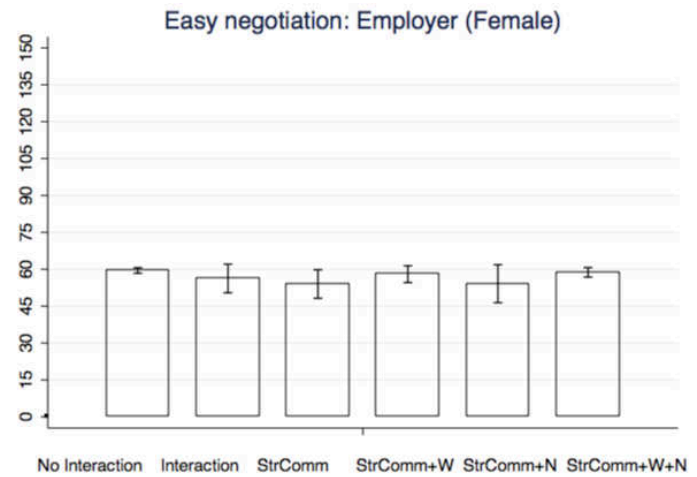
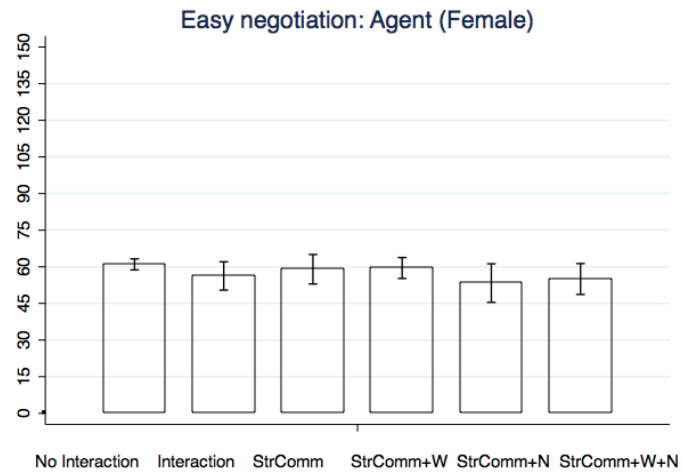
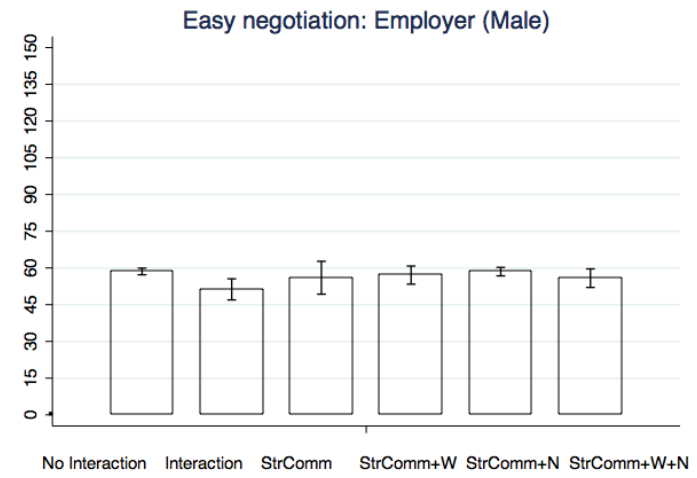
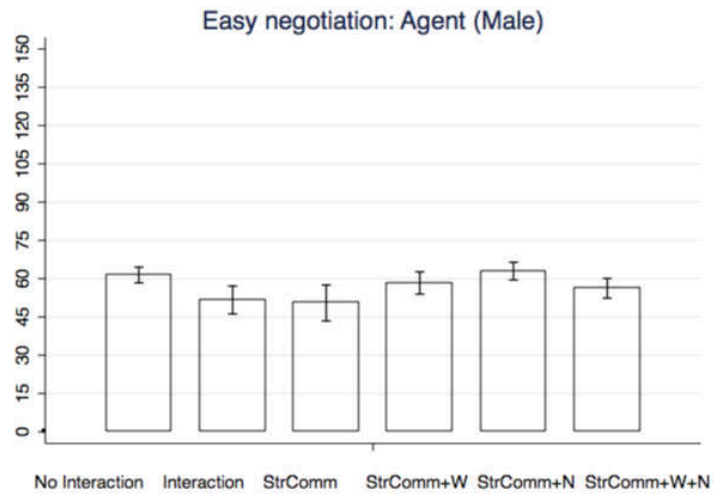


Figure A.2: Results for Easy negotiation (males and females): agent (left) and employer (right)

Table A.1: Regression analysis (Double cluster. Individual and group level): Hard and Easy negotiation (Agent and Employer)

	Agent				Employer			
	1a		1b		1a		1b	
	Coef.	(Std. dev.)	Coef.	(Std. dev.)	Coef.	(Std. dev.)	Coef.	(Std. dev.)
<i>Interaction</i>	-6.287**	(2.488)	-2.866	(3.261)	-5.757**	(2.345)	-3.307	(3.543)
<i>StrComm</i>	-3.613	(2.483)	0.299	(3.373)	-3.989*	(2.304)	-5.767	(3.892)
<i>StrComm+W</i>	-1.532	(2.065)	0.555	(2.354)	-1.568	(1.526)	-1.882	(1.636)
<i>StrComm+N</i>	-1.559	(1.908)	-5.558**	(2.777)	-2.078	(1.449)	-5.590**	(2.697)
<i>StrComm+W+N</i>	-4.598***	(1.605)	-4.626	(3.084)	-2.013	(1.500)	-0.739	(1.526)
<i>No-Interaction * hard</i>	21.98***	(2.949)	18.35***	(4.028)	27.72***	(3.355)	22.82***	(3.427)
<i>Interaction * hard</i>	26.59***	(4.535)	24.38***	(5.409)	31.69***	(3.818)	20.70***	(4.199)
<i>StrComm * hard</i>	20.89***	(3.333)	14.80***	(5.572)	30.69***	(3.590)	34.20***	(6.257)
<i>StrComm+W * hard</i>	20.26***	(3.308)	13.82***	(4.164)	25.01***	(2.244)	27.69***	(2.223)
<i>StrComm+N * hard</i>	22.33***	(2.877)	24.40***	(4.029)	30.38***	(2.643)	29.78***	(3.691)
<i>StrComm+W+N * hard</i>	23.26***	(4.357)	27.40***	(8.310)	25.36***	(4.058)	22.17***	(7.280)
<i>No-Interaction * male</i>			1.051	(1.132)			-1.168	(1.052)
<i>Interaction * male</i>			-5.409	(4.345)			-4.893	(4.380)
<i>StrComm * male</i>			-7.442*	(4.217)			2.204	(4.640)
<i>StrComm+W * male</i>			-2.543	(3.462)			-0.608	(2.812)
<i>StrComm+N * male</i>			7.603**	(3.161)			4.598	(2.932)
<i>StrComm+W+N * male</i>			0.319	(3.190)			-2.796	(2.259)
<i>No-Interaction * hard * male</i>			6.490	(5.276)			10.40*	(5.740)
<i>Interaction * hard * male</i>			3.542	(8.463)			18.21***	(5.838)
<i>StrComm * hard * male</i>			12.30*	(6.479)			-6.573	(7.510)
<i>StrComm+W * hard * male</i>			12.78**	(5.896)			-5.318	(4.126)
<i>StrComm+N * hard * male</i>			-3.502	(5.435)			1.071	(4.873)
<i>StrComm+W+N * hard * male</i>			-7.123	(8.966)			5.025	(8.446)
<i>Risk aversion</i>	-1.006**	(0.480)	-1.035*	(0.549)	-0.00150	(0.426)	0.236	(0.445)
<i>Trust received</i>	0.492	(0.323)	0.226	(0.292)	-0.0255	(0.288)	0.0253	(0.273)
<i>Constant</i>	61.67***	(3.650)	63.45***	(3.453)	59.19***	(3.329)	58.20***	(3.103)
<i>Obs.</i>	259		259		257		257	
<i>R²</i>	0.539		0.572		0.681		0.706	
<i>Adjusted R²</i>	0.515		0.538		0.664		0.682	

Note: (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). Reference group: *No-Interaction*

Table A.2: *Wald tests - Comparisons to baseline:*

	Agent				Employer			
	1a		1b		1a		1b	
	Diff. Coef.	(Std. dev.)	Diff Coef.	(Std. dev.)	Diff. Coef.	(Std. dev.)	Diff Coef.	(Std. dev.)
<i>Interaction * hard – No-Interaction * hard</i>	4.605	(5.521)	6.032	(6.847)	3.964	(5.035)	-2.120	(5.609)
<i>StrComm * hard – No-Interaction * hard</i>	-1.094	(4.665)	-3.547	(7.008)	2.966	(5.059)	11.385	(7.304)
<i>StrComm+W * hard – No-Interaction * hard</i>	-1.724	(4.485)	-4.529	(5.739)	-2.717	(3.988)	4.873	(4.004)
<i>StrComm+N * hard – No-Interaction * hard</i>	0.343	(4.104)	6.051	(5.849)	2.655	(4.132)	6.963	(5.195)
<i>StrComm+W+N * hard – No-Interaction * hard</i>	1.276	(5.007)	9.055	(8.989)	-2.360	(5.260)	-0.645	(7.989)
<i>Interaction * male – No-Interaction * male</i>			-6.460	(4.478)			-3.725	(4.515)
<i>StrComm * male – No-Interaction * male</i>			-8.493*	(4.408)			3.371	(4.888)
<i>StrComm+W * male – No-Interaction * male</i>			-3.594	(3.672)			0.560	(0.852)
<i>StrComm+N * male – No-Interaction * male</i>			6.551*	(3.432)			5.766*	(3.159)
<i>StrComm+W+N * male – No-Interaction * male</i>			-0.732	(3.405)			-1.628	(2.474)
<i>Interaction * hard * male – No-Interaction * hard * male</i>			-2.948	(9.787)			7.813	(8.262)
<i>StrComm * hard * male – No-Interaction * hard * male</i>			5.809	(8.406)			-16.969*	(9.581)
<i>StrComm+W * hard * male – No-Interaction * hard * male</i>			6.292	(7.782)			-15.714**	(7.091)
<i>StrComm+N * hard * male – No-Interaction * hard * male</i>			-9.991	(7.710)			-9.325	(7.678)
<i>StrComm+W+N * hard * male – No-Interaction * hard * male</i>			-13.613	(10.351)			-5.371	(10.114)

Note: (***) $p < 0.01$, (**) $p < 0.05$, (*) $p < 0.1$. Reference group: *No-Interaction*

Table A.3: *Distance from individual outcome to pair equally distributed payoffs*

	<i>Hard</i>		<i>Easy</i>	
	<i>Male</i> <i>1a</i>	<i>Female</i> <i>1b</i>	<i>Male</i> <i>2a</i>	<i>Female</i> <i>2b</i>
<i>No-Interaction</i>	0.5 (0.05)	0.5 (0.06)	0.5 (0.02)	0.5 (0.01)
<i>Interaction</i>	0.5 (0.06)	0.5 (0.049)	0.49 (0.02)	0.5 (0)
<i>StrComm.</i>	0.5 (0.05)	0.5 (0.097)	0.5 (0.07)	0.5 (0.05)
<i>StrComm.+W</i>	0.5 (0.06)	0.5 (0.08)	0.5 (0.01)	0.5 (0.01)
<i>StrComm.+N</i>	0.5 (0.08)	0.5 (0.06)	0.5 (0.02)	0.5 (0.01)
<i>StrComm.+W+N</i>	0.5 (0.06)	0.5 (0.11)	0.5 (0.01)	0.5 (0.03)
Total	0.5 (0.06)	0.5 (0.08)	0.49 (0.03)	0.5 (0.03)

Note. Average (standard deviation)

Experimental instructions – Negotiation game (*Hard, employer*)

Player 1

In this game, you will only interact with player 2. Player 3 interacts with player 4.

You will engage in a discussion process to potentially hire a candidate. His CV appears at the bottom of this page. In this process, you are the *employer* who received the CV for this candidate from a *human resources agent*, which role is adopted by Player 2. You must discuss and agree together on an agreement. The action takes place in 1996.

You have offered the following position:

We are looking for entry-level candidates for a position as a geologist. The candidate should be familiar with modern methods of construction and drilling. The project will consist of the analysis of the large building's foundations and will involve a significant number of trips. We offer a competitive salary and a mutual insurance package will probably be available.

You must find an agreement on five different contract characteristics: salary, signing bonus received by the candidate, starting date, type of mutual insurance, number of trips to achieve per month. To reach an agreement, both sides (you and the agent) have to declare their coincidence at each of the five characteristics. Each line contains the number of points you earn by selecting it. **For the agent, the number of points at each line is different, so this information (conversion into points) must remain strictly private.**

Your total points will be calculated by adding the points you have successfully obtained on each of the five characteristics.

At the end of the experiment, your points will be converted into euros at the rate of 10 points = 1 euro.

You have 15 minutes of discussion, and then you will have to answer a series of questions concerning the contract you have chosen. Here is the candidate's CV:

Bart E. Blackwell
342 19th Avenue
Miami, FL 33246
(305) 499-8235

Objective: Position as Junior Geologist

Education:	BS, Geological Sciences, 1995 Emphasis on Petroleum Geology University of Miami, GPA 3.6
Honors:	Departmental Mention for Senior's Project Award: Petroleum Drilling Methods; Mineral Sciences Competition Finalist 1993
Experience:	Petroleum Driller Assistant, Getty Industries, Summer 1992, Summer 1993, Construction Worker, Erectors Inc., 1990-1991
Skills:	Familiar with seismic analysis and ore mineralogy

Here is your **private** negotiation grid, with conversion into points:

Points

Salary (in euros)

26000	50
28000	45
30000	40
32000	35
34000	30
36000	25
38000	20
40000	15

Signing bonus (in euros)

0	0
1000	5
2000	10
4000	8
6000	4
8000	0

Starting date

4 weeks	25
6 weeks	10
8 weeks	5
1é weeks	0

Mutual assurance decision

Refuse mutual option	25
Mutual paid by the company at 50%	15
Mutual paid by the company at 100%	0

Number of trips per month

1	0
2	10
3	25
4	40

Supplementary Material:

Photos of the session

