

# ONLINE APPENDIX

## Instructions for the Chat Treatment

This is an experiment in the economics of decision making. The instructions are simple, and if you follow them carefully and make good decisions you may earn a **CONSIDERABLE AMOUNT OF MONEY** which will be **PAID TO YOU IN CASH** at the end of the experiment. The currency in this experiment is called tokens. All payoffs are denominated in this currency. The total amount of tokens you earn in the experiment will be converted into US dollars using the rate 50 Tokens = \$1. In addition, you will get a \$5 participation fee if you complete the experiment.

In this experiment you will act as voters. You will distribute funds between yourself and others in a series of Periods. In each Period you will be randomly divided into groups of 5 members each. Each group will decide how to split a sum of money. Proposals will be voted up or down (accepted or rejected) by majority rule. That is, once 3 out of 5 voters approve a proposal, it passes. In any Period you will not know the identity of the subjects you are matched with and your group-members will not know your identity. In each Period you will have to decide how to divide 250 tokens among the 5 voters in your group. One of the 5 voters in your group will be randomly chosen to make a proposal of how to split 250 tokens among the 5 voters (provisional budget proposal). Each voter has the same chance of being selected to make a proposal. Allocations to each member must be between 0 and 250 tokens. All allocations must add up to 250 tokens. After the selected proposer has made his/her allocation, this proposal will be posted on your computer screens with the proposed allocation to you and the other voters clearly indicated. You will then have to decide whether to accept or reject the proposed allocation.

If the proposal passes (gets 3 or more votes), the proposed allocation is implemented and we will move on to the next Period. If the proposal is defeated (gets less than 3 votes), there will be a call for new proposals and the process will repeat itself. However, the amount of money to be divided will be reduced by 20% of the amount of money in the preceding Round and rounded to the nearest integer. Thus, if the proposal in Round 1 is rejected, the new proposal in Round 2 will involve splitting 200 tokens among the 5 voters. And if this new proposal is rejected in Round 2, then in Round 3 you will be splitting 160 tokens. If the proposal is rejected in Round 3, then in Round 4 you will be splitting 128 tokens, etc This process will repeat itself until a proposed allocation is passed (gets 3 or more votes).

To summarize, the steps of the process will work as follows:

1. One voter is randomly selected to make a proposal of how to split 250 tokens.
2. A vote is held (each member of the group votes to accept or reject the proposal of selected voter).
3. If 3 or more out of 5 voters accept it, then the proposal passes and the Period is over. If the proposal is rejected, then the money shrinks by 20%, we move on to the next Round

of this Period and a new voter is chosen to propose the split (each of the 5 voters in a group has equal chance of being chosen). The process repeats itself until a proposal of selected voter passes.

In each Period, you will be randomly re-matched into groups of 5 voters each. Each member of the group is assigned an ID number (from 1 to 5), which is displayed on the top of the screen. Once the Period is over, you will be randomly re-matched to form new groups of 5 voters each and you will be assigned a (potentially) NEW ID. Please make sure you know your ID number when making your decisions. Since ID numbers will be randomly assigned prior to the start of each Period, all voters are likely to have their ID numbers vary between Periods, and, thus, it is impossible to identify subjects using their ID numbers.

In each round, after one voter is selected to propose a split but before he/she submits his/her proposal, members of a group will have the opportunity to communicate with each other using the chat box. The communication is structured as follows. On the top of the screen, each member of the group will be told her ID number. You will also know the ID number of the voter who is currently selected to make a proposal. Below you will see a box, in which you will see all messages sent to either all members of your group or to you personally. You will not see the chat messages that are sent privately to other members. In the box below that one, you can type your own message and send it either to the entire group or to particular members of the group. To select subjects that will receive your message, simply click on the buttons that correspond to the ID numbers of the subjects who you want to receive this message and hit SEND. You can send message to all members of your group by clicking SELECT ALL button.

The chat option will be available until the selected voter submits her proposal. At this moment the chat option will be disabled.

Remember that in each Period subjects are randomly matched into groups and ID numbers of the group-members are randomly assigned. Thus, your ID number is likely to vary from Period to Period, and, therefore, it is impossible to identify your group-members using your ID number.

At the conclusion of the experiment we will sum up all the tokens you earned in the experiment and convert this amount into US dollars using the conversion rate 50 tokens = \$1. In addition, you will receive a \$5 participation fee for completing the experiment.

You are not to reveal your (potential) earnings, nor are you to speak or communicate in any other way with any other subject while the experiment is in progress. This is important to the validity of the study and will be not tolerated.

We will now go slowly through one practice Period to familiarize you with the screen. After the practice Period is over, we will start the experiment, in which you will play 15 Periods for cash.

Review. Let's summarize the main points:

1. The experiment will consist of 15 Periods. There may be several Rounds in each Period.
2. Prior to each Period, you will be randomly divided into groups of 5 voters each. Each subject in a group will be assigned an ID number.
3. At the start of each Period, one subject in your group will be randomly selected to propose a split of 250 tokens between the five of you. Before he/she submits his/her proposal, members of the group can use the chat box to communicate with each other. You may send public messages that will be delivered to all members of your group as well private messages that will be delivered to members that you specify explicitly.
4. Proposals to each voter must be greater than or equal to 0 tokens.
5. If a simple majority accepts the proposal (3 or more voters), the Period ends.
6. If a simple majority rejects the proposal then a potentially new voter will be randomly selected to make a proposal in subsequent Round of a given Period.
7. The amount of money to be divided shrinks by 20% following each rejection of a proposal in a given Period.

Are there any questions?

## Screenshots

Below are the screenshots that show the interface that the proposers and responders faced. Our goal was to make the interface as neutral as possible so as to not influence the subjects. Subjects chose who to send messages, there was no default as to the publicness or privateness of messages.

## Proposer

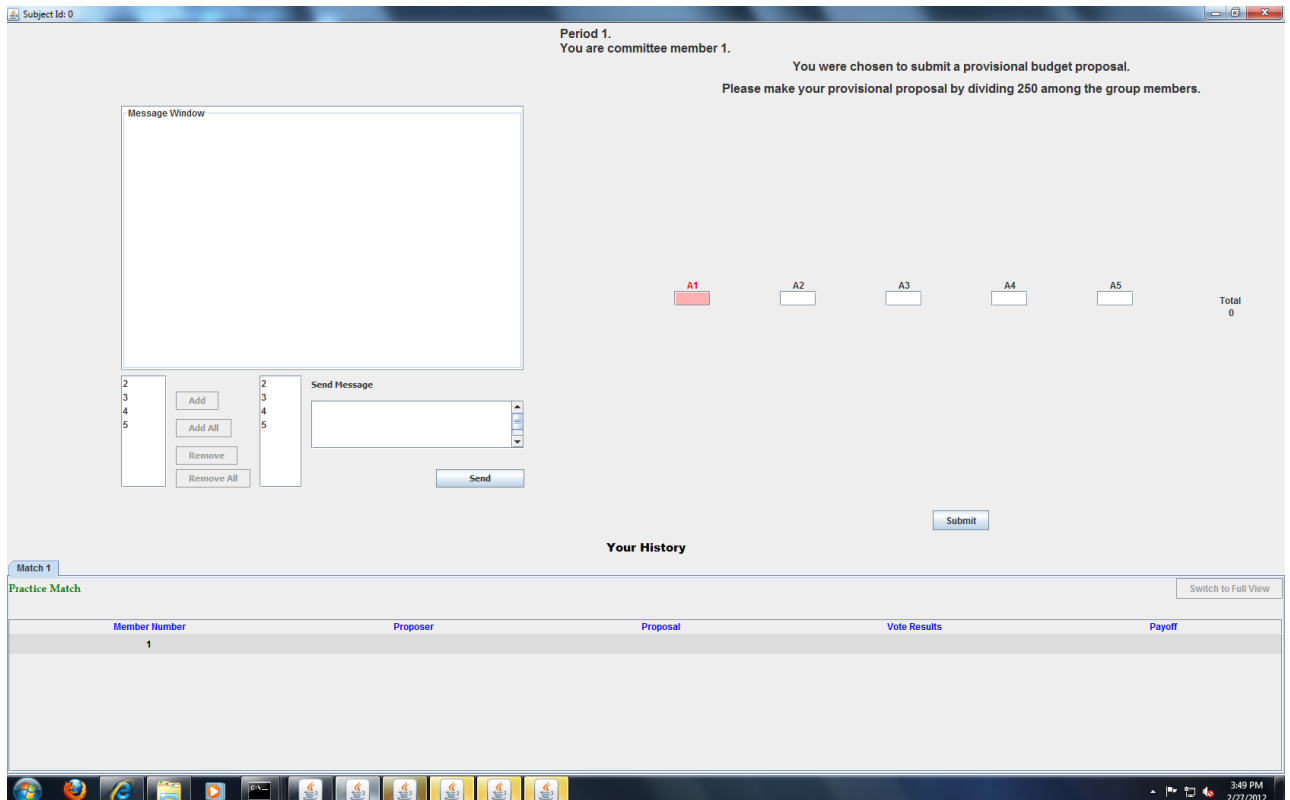


Figure 1: Proposer screenshot

# Non-Proposer

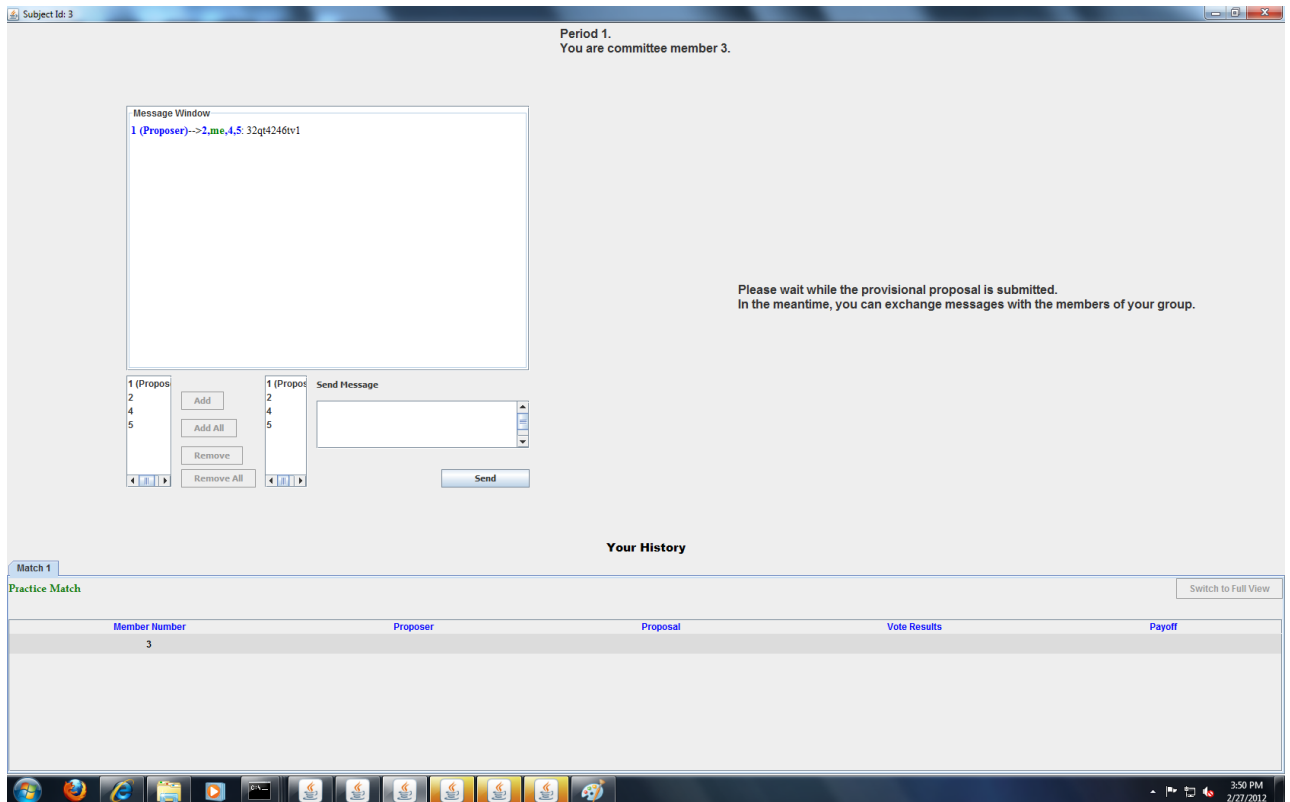
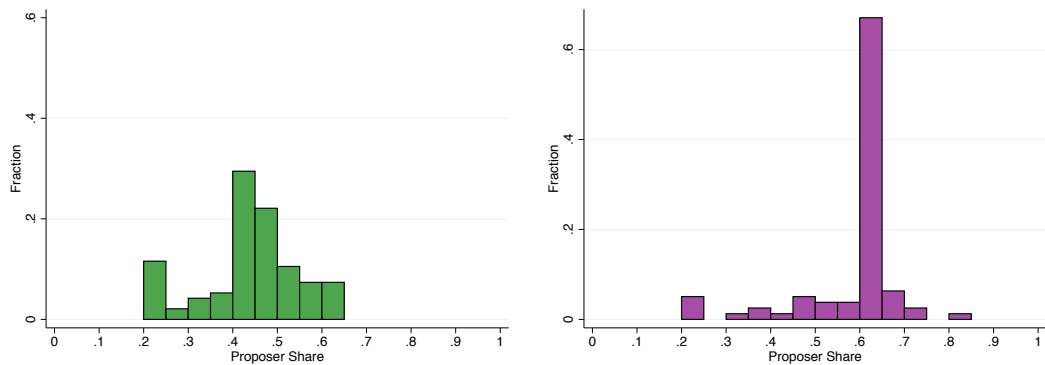


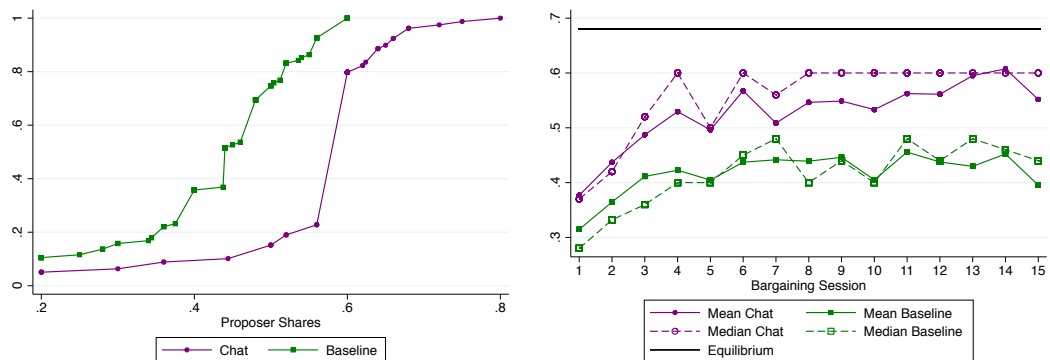
Figure 2: Non-proposer screenshot

## Proposer Power: Further Evidence

In Subsection 4.1 we showed that Proposers extract a significantly higher share of resources in the Chat than in the Baseline treatment. Figure 1 established this result by looking at proposals that passed with no delays in the last 5 bargaining sessions. Figures 3 and 4 below consider two alternative categories of proposals and show that our conclusions follow through irrespective of the category of proposals one focuses on.



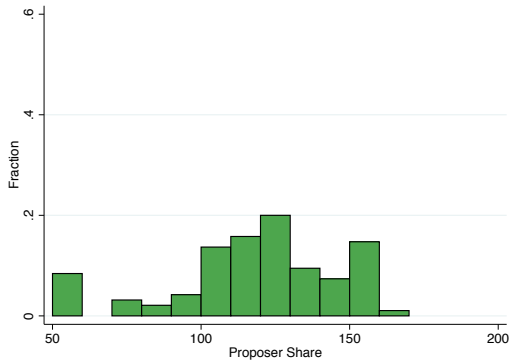
(a) Baseline: Histogram of Proposer shares in the last five bargaining sessions. (b) Chat: Histogram of Proposer shares in the last five bargaining sessions.



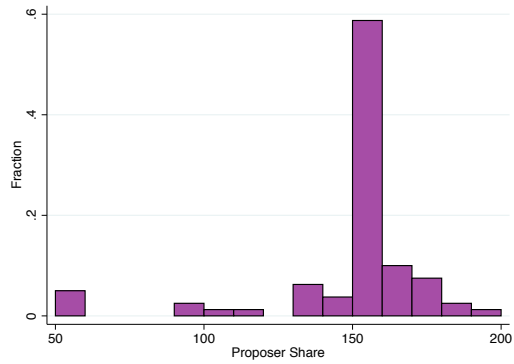
(c) Cumulative distributions of Proposer shares in the last five bargaining sessions. (d) Dynamics of Proposer shares over the course of the game.

Figure 3: Proposer Shares in the last 5 bargaining sessions (all passed proposals).

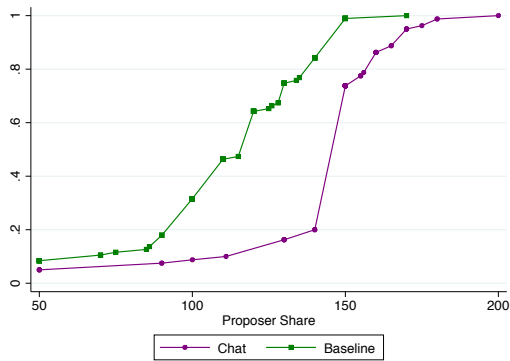
In Figure 3 we include all proposals that were put forward and supported by a majority of votes. In order to compare the shares of the proposers between treatments we express them as a fraction of the total budget to accommodate the fact that some of these proposals are passed in the second bargaining stage following a reduction of the budget. In Figure 4 we look at all proposals that were submitted in the first bargaining stage (irrespective of whether they were accepted or rejected). Both Figures 3 and 4 show very little difference with Figure 1, which shows that our results are robust to changes in the categorizations of proposals.



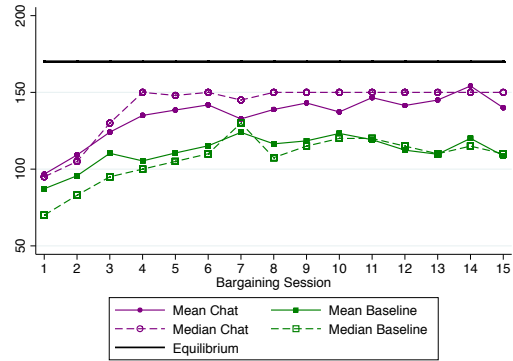
(a) Baseline: Histogram of Proposer shares in the last five bargaining sessions.



(b) Chat: Histogram of Proposer shares in the last five bargaining sessions.



(c) Cumulative distributions of Proposer shares in the last five bargaining sessions.



(d) Dynamics of Proposer shares over the course of the game.

Figure 4: Proposer Shares in the last 5 bargaining sessions (all proposals in the first bargaining stage).

## Marginal Effects

In order to further support the fact that not being part of the coalition in a period leads one to lower his/her reservation price, we present in Figure 5, for each bargaining session, the marginal effect on the probability of lowering one's reservation price if one wasn't part of the coalition in the previous bargaining session.<sup>1</sup>

The marginal effect of not being in the previous bargaining session on the probability of lowering one's bid is significant at the 1% level with a magnitude of 21%. That is, not being in the previous bargaining session's coalition implies a 21% average decrease in the probability of lowering one's reservation price. Notice that this effect is significant not just on average but at each period for all but three periods.

The specification for this regression is:

$$\text{LoweredReservationPrice}_{i,t} = \mathbb{1}[\beta_0 + \beta_1 E_{i,t-1} + \sum_{\tau=2}^{\tau=15} (\gamma_\tau D_{i,\tau}) + \alpha_i + \epsilon_{i,t} \geq 0] \quad (1)$$

Here  $\mathbb{1}[\cdot]$  is an indicator function for a right hand side greater than zero, the time dummy variable  $D_{i,\tau}$  has the value 1 if the observation comes from bargaining session  $t = \tau$  and  $E_{i,t-1}$  is a dummy equal to one if subject  $i$  was excluded from the coalition in bargaining session  $t - 1$ . Finally,  $\alpha_i$  is a subject specific error term and  $\epsilon_{i,t}$  is the idiosyncratic error term.

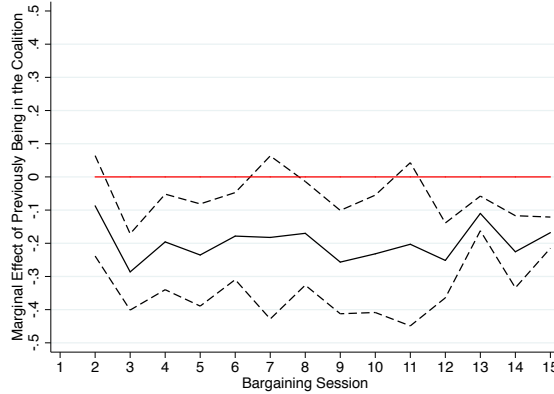


Figure 5: Marginal effect on the probability of lowering one's reservation price if one wasn't part of the coalition in the previous bargaining session, with 95% confidence bounds.

<sup>1</sup>All regression results are available upon request.