ONLINE APPENDIX

A Instruction for the Unanimity Chat

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 unanimity rule. That is, if 5 out 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 all 5 votes), the proposed allocation is implemented and we will move on to the next Period. If the proposal is defeated (gets fewer than 5 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 in 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 all 5 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 the selected voter).

3. If all 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 the proposal of the selected voter for that Round passes.

At the start of 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 you wish to send this message to and hit SEND. You can send a message to all members of your group by clicking the SELECT ALL button.

The chat option will be available until the voter selected to make a proposal 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 all 5 voters accept the proposal, the Period ends.
6. If one or more voters reject the proposal then a (potentially) new voter will be randomly selected to make a proposal in the next Round of that 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?

B Analysis of Chat Protocols

Below we list the various variables, together with a short explanation, that the coders used in interpreting subjects' statements.

1. "Ask Amount." This is the explicit amount that a non-proposer is requesting. You can also record here an amount that someone says he will accept in exchange for a vote.
2. "Own Vague." Responder just asking for tokens (unspecified amount).
3. "Ask Equal." Responder asking for equality.
4. "Social Vague." Responder asking proposer to be nice or fair or something like that.
5. "Responding." This is equal to 1 if this statement is in response to a question on type of split by the proposer. This is accompanied by a 1 in either AskAmount, OwnVauge, AskEqual or SocialVague.
6. "Proposer Direct." Dummy indicating that the proposer is trying to figure out how much someone wants.
7. "Proposer Own." Proposer is indicating that he/she will get a higher share than at least some others.
8. "Proposer Equal." Proposer is indicating that he/she intends to split equally.
9. "Unsure." Dont know where to put a 1 but could fit in one of these categories.
10. "Relevant." Anything you cant categorize but thats relevant: discussions about rules, anything that is related to the game.

C Additional Data Analysis

C.1 Efficiency

In Table 7 we present the 95% confidence intervals for the efficiency measures reported in Table 1 in the main text of the paper, where observations are clustered at the session level to account for the interdependencies of observations that come from the same session.

As we discuss in Section 4.1.2, there is no statistical differences between treatments in all three efficiency measures (probability of delays, number of bargaining stages, and the proportion of initial pie realized) in the very first game our subjects play. However, as subjects gain more experience with the game, the stark differences emerge. The most notable ones are the lower probability of delays occurring in the Chat compared with Baseline treatment, which results in the higher proportion of initial pie realized in the Chat than in the Baseline treatment.

Table 7: Efficiency and Delays (95% confidence intervals)

	Unanimity Baseline		Unanimity Chat	
	game 1	last 5 games	game 1	last 5 games
Probability of Delays	$(-0.22, 0.34)$	$(0.27, 0.60)$	$(-0.16, 0.43)$	$(0.05, 0.19)$
Number of Bargaining Stages	$(0.51, 1.82)$	$(-1.61, 7.89)$	$(0.89, 1.35)$	$(0.96, 1.17)$
Proportion of Initial Pie Realized	$(0.88, 1.08)$	$(0.82, 0.89)$	$(0.91, 1.03)$	$(0.96, 1.01)$

Remarks: We report the 95% confidence intervals of probability of delays which measures the likelihood that the first stage proposal was rejected, the number of bargaining stages and the proportion of initial pie realized, where the observations are clustered at the session level.

C.2 Proposed Budgets and Final Allocations

In Table 8 we report the 95% confidence intervals of first-stage submitted, passed and rejected proposals as well as the final allocations. Results reported in this table confirm what we report in Section 4.1.3. In particular, focusing on the proposals submitted in the last 5 games, we observe that in committees that do not have access to communication between members, proposers tend to appropriate a higher share of resources than coalition partners. At the same time, proposer under-exploit their power relative to the equilibrium predictions, according to which a proposer should appropriate 90 tokens. However, once committee members can chat with each other, we observe no differences between proposers' and non-proposers' shares. Final allocations display similar patterns, i.e., the availability of communication removes proposers' power all together.

C.3 Results over time

In this section, we replicate the main analysis of the data breaking all 15 bargaining games played within each experimental session into three time periods: the first five bargaining games, the second five bargaining games, and the last five bargaining games. The goal of this section is to document learning behavior of subjects as they gain experience with the game over the course of the experiment.

Table 9 depicts three measures of efficiency: the probability of observing delays in reaching agreements, the average number of bargaining stages prior to the agreements, and the percentage of pie that subjects realized as a result of the bargaining. All three efficiency measures are quite stable across the three time periods in both Unanimity Baseline and Unanimity Chat treatments. Indeed, delays are very likely and happen more than 30% of the time right from the beginning of the experiment in the Unanimity Baseline treatment, reaching 44% in the last five bargaining games. These delays are costly, since the budget available for division shrinks as subjects take longer to reach agreement. On the contrary, subjects learn to avoid costly delays when they communicate with each other in the Unanimity Chat treatment. While in the first 5 bargaining games delays happen 13% of the time, by the end of the experiment, the fraction of delays is not significantly different from theoretically predicted 0%. As a result of this learning, by the end of the experiment, subjects in the Unanimity Chat treatment appropriate more than

Table 8: First-stage Proposals and Final Allocations (95% confidence intervals)

	Baseline		Chat	
	game 1	last 5 games	game 1	last 5 games
FIRST STAGE				
Submitted Proposals				
Proposer's Share	$(46.8, 68.0)$	$(60.7, 75.6)$	$(49.5, 58.8)$	$(49.9, 51.7)$
Max Non-proposer's Share	$(40.1, 52.2)$	$(44.6, 47.3)$	$(47.7, 50.3)$	$(49.6, 50.1)$
Passed Proposals				
Proposer's Share	$(57.9, 61.3)$	$(51.4, 76.3)$	$(47.7, 53.9)$	$(49.7, 50.7)$
Max Non-proposer's Share	$(47.2, 48.0)$	$(43.4, 49.6)$	$(49.2, 50.5)$	$(49.9, 50.1)$
Rejected Proposals (for $n > 2$)				
Proposer's Share	n/a	$(68.3, 79.1)$	n/a	$(52.5, 65.9)$
Max Non-proposer's Share	n/a	$(44.4, 46.0)$	n/a	$(46.5, 49.5)$
FINAL ALLOCATIONS				
Proposer's Share	$(51.9, 64.9)$	$(40.0, 64.2)$	$(43.6, 55.1)$	$(48.0, 51.0)$
Max Non-proposer's Share	$(41.8, 51.2)$	$(39.2, 41.3)$	$(46.1, 50.9)$	$(48.2, 50.5)$

Remarks: We report the 95% confidence intervals for share of the proposer and the highest share among coalition partners in tokens, where observations are clustered at the session level. "n/a" indicates that there are fewer than 3 observations in the category.

99% of the budget. This learning takes time, however, as in the first five bargaining games subjects appropriate significantly less than 100% of available resources (97% to be exact).

Table 10 reports shares of the proposers and coalition partners in each time period in first-stage proposals as well as in the final allocations agreed upon. All main comparisons between treatments documented in the last 5 bargaining games hold true both in the first 5 bargaining games and in the second 5 bargaining games. Specifically, looking at the first-stage submitted proposals, we note that proposers request a higher share of resources in the Unanimity Baseline treatment compared with the Unanimity Chat treatment right from the start of the experiment. Indeed, in the first 5 bargaining games, shares requested by the proposers are higher in the Unanimity Baseline than in the Unanimity Chat treatment ($p = 0.001$). Furthermore, there are significantly more equal split coalition proposals in the Unanimity Chat treatment compared with the Unanimity Baseline treatment starting from the very first 5 bargaining games ($p < 0.001$). Both these patterns continue to hold throughout the experiment and remain intact not only for the first-stage submitted proposals but also for the final allocations. [23] Just like in the last 5 bargaining games, rejected proposals in the first 5 bargaining games feature significantly

[23]Considering all final allocations, we note that proposers' shares are significantly higher in the Unanimity Baseline treatment compared with the Unanimity Chat treatment in the first 5 bargaining games ($p = 0.003$). Moreover, final allocations are much more likely to be exact equal splits in the Unanimity Chat treatment than in the Unanimity Baseline treatment in the first 5 bargaining games ($p < 0.001$).

Table 9: Efficiency and Delays

	Unanimity Baseline		
	games 1-5	games 6-10	games 11-15
Probability of Delays	0.33^{***} (0.02)	$0.39^{***}(0.01)$	0.44^{***} (0.07)
Nb of Bargaining Stages	1.45 (0.03)	3.34 (1.46)	3.14 (1.10)
% Pie Realized	0.91^{***} (0.01)	0.89^{***} (0.01)	0.85^{***} (0.01)
		Unanimity Chat	
	games 1-5	games 6-10	games 11-15
Probability. of Delays	0.13^{***} (0.01)	$0.16^{*}(0.04)$	0.07 (0.03)
Nb. of Bargaining Stages	1.12 (0.01)	1.16 (0.04)	1.06 (0.03)
% Pie Realized	0.97^{***} (0.00)	0.97^{*} (0.01)	0.99 (0.01)

Remarks: Probability of delays measures the likelihood that the first stage proposal was rejected. Number of bargaining stages and Proportion of initial pie realized report the average quantities across sessions and cluster-robust standard errors are in parentheses, where the observations are clustered at the session level. For the probability of delays and the proportion of initial pie realized we also report whether the observed quantity is significantly different from the theoretically predicted one with ***,** ,* indicating significance at the 1, 5 and 10% levels, respectively.

higher proposer shares than passed proposals ($p = 0.035$ in the Unanimity Baseline treatment, and $p = 0.079$ in the Unanimity Chat treatment).

Table 11 reports the breakdown of group-level conversations into three categories: relevant conversations (those that contain some discussion about the game, players' strategies, and/or payoffs), irrelevant conversations, and groups that refrained from talking in the three time periods defined above. Right from the beginning of the experiment, subjects mostly discuss things that are relevant to the game. Irrelevant conversations are quite rare both at the beginning of experimental sessions and at the end. There is some non-negligible fraction of groups that do not communicate with each other: this fraction starts at 7% in the first 5 bargaining games and reaches 16% by the end of the experiment in the last 5 bargaining games.

Table 12 depicts the frequency and content of individual messages sent by proposers and non-proposers in the Unanimity Chat treatment in each time period. The analysis of content of individual messages throughout the experiment reveals that subjects use the chats throughout the session in a consistent manner. Specifically, the main features of chat protocols are the same in each time period of the experiment: (a) most subjects send public messages that are delivered to the entire group throughout the session; (b) private messages are rare both at the beginning of the experiment and at the end; (c) public messages are used mostly to lobby for fairness and equality rather than lobby for one's own interests.

Table 10: First-stage Proposals and Final Allocations

	Baseline			Chat		
	games 1-5	games 6-10	games 11-15	games 1-5	games 6-10	games 11-15
FIRST STAGE						
Submitted Proposals						
Proposer's Share	67.9 (2.33)	68.25 (2.60)	68.2 (1.72)	52.9 (0.74)	51.0 (0.52)	50.8 (0.21)
Max Non-proposer's Share	45.4 (0.55)	45.5 (0.63)	46.0 (0.32)	49.3 (0.18)	49.8 (0.11)	49.9 (0.06)
Fraction of Equal Splits	21.3%	23.8	7.5%	85.3%	78.7%	88.0%
Passed Proposals						
Proposer's Share	61.4 (1.44)	62.2 (3.60)	63.9 (2.9)	50.2 (0.15)	50.1 (0.07)	50.2 (0.12)
Max Non-proposer's Share	47.2 (0.38)	47.0 (0.89)	46.5 (0.72)	50.0 (0.03)	50.0 (0.03)	50.0 (0.02)
Fraction of Equal Splits	31.5%	38.8%	13.3%	98.46%	93.7%	94.3%
Rejected Proposals (for $n > 2$)						
Proposer's Share	81.5 (5.18)	77.80 (1.23)	73.7 (1.25)	70.4 (5.86)	55.8 (4.85)	59.2 (1.56)
Max Non-proposer's Share	41.5 (1.20)	43.1 (0.58)	45.2 (0.18)	44.8 (1.37)	48.7 (1.15)	48.0 (0.35)
Fraction of Equal Splits	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FINAL ALLOCATIONS						
Proposer's Share	55.1 (1.26)	55.0 (2.09)	52.1 (2.81)	48.8 (0.20)	47.9 (0.95)	49.5 (0.35)
Max Non-proposer's Share	43.2 (0.34)	42.1 (1.06)	40.3 (0.24)	48.7 (0.06)	48.4 (0.36)	49.3 (0.27)
Fraction of Equal Splits	36.3%	35.9%	28.8%	98.7%	93.3%	94.7%

Remarks: We report the average share of the proposer and the highest share among coalition partners in tokens together with robust standard errors in parentheses, where observations are clustered at the session level. In Equal Split allocations all members of the committee receive the exact same number of tokens (in the first stage proposals this is exactly 50 tokens).

Table 11: Frequency of Group-level Conversations in the First Bargaining Stage of Unanimity Chat treatment.

	games 1-5			games 6-10			games 11-15		
	relevant	irrelevant	no chat	relevant	irrelevant	no chat	relevant	irrelevant	no chat
Conversation	89% ($n = 67$)	4% ($n = 3$)	7% ($n = 5$)	77% (n=58)	4% (n=3)	19% (n=14)	79% ($n = 59$)	5% ($n = 4$)	16% ($n = 12$)
Chat Duration in sections	62.2	28.0	n/a	54.0	19.9	n/a	55.8	29.8	n/a

Notes: Relevant conversations are defined as conversations that contain any mention of the game being played. We use a conservative measure of relevance and label conversation as relevant only if both coders marked it as relevant.

Table 12: Frequency and content of individual messages in Unanimity Chat treatment

	games 1-5		games 6-10		games 11-15	
	Non-Proposer	Proposer	Non-Proposer	Proposer	Non-Proposer	Proposer
Total subjects	75	46	75	50	75	54
Nb (%) subj. relevant chats	66 (88.0%)	18 (39.2%)	65 (86.7%)	15 (30.0%)	61 (81.3%)	25 (46.3%)
Public Messages						
% send public messages	**98.5%**	**100.0%**	**96.9%**	**93.3%**	**96.7%**	**96.0%**
% lobby fairness	87.7%	83.3%	79.4%	57.1%	75.6%	58.3%
% lobby for self	6.2%	27.8%	11.1%	42.9%	8.5%	29.2%
% exclusively public	**98.5%**	**94.4%**	**84.6%**	**73.3%**	**90.2%**	**96.0%**
Private Messages[a]						
% send private messages	**1.5%**	**5.6%**	**15.4%**	**26.7%**	**9.8%**	**4.0%***
% exclusively private messages	**1.5%**	**0.0%**	**3.08%**	**6.7%**	**4.0%**	**4.2%***

[a]We generally have few observations here, so we do not present the fraction of subjects who lobby for fairness or themselves

Notes: The content analysis pertains to those subjects who have sent at least one relevant message in the first stage of the first, middle or last five games.