Online Appendix for:

"Behind the Screens: A Replication and Extension of Coasian Bargaining Experiments in the Digital Age" [*]

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Appendix A. Face-to-Face Sessions

A.1 Matching Protocols

Our bargaining partner matching method for each session proceeded as follows. First, after all 12 subjects arrived, each subject was handed a unique identification card that was drawn from a bag without replacement. These cards, numbered 1-12, had been pre-assigned to 6 bargaining stations that were set up within the experimental laboratory (one odd and one even card was randomly assigned to each station). Second, subjects with odd-numbered cards were instructed to enter the laboratory and find the station associated with their card. Subjects with even-numbered cards sat to wait until they were instructed to enter the laboratory and find the station associated with their card. No talking was allowed during any of this time. Third, in the two-shot sessions, the 6 subjects who entered the laboratory and got seated first were the "stationary" bargainers and stayed at that station for the duration of the session. The other 6 who entered and got seated second were the "movers," and were instructed to rotate clockwise to the next bargaining station after all pairs finished making two decisions. Subjects in these sessions bargained 10 times with a total of 5 different partners. A similar structure was used for the one-shot sessions, except after each period all subjects stood up and moved to the back of the room, and then each station was given a new randomly assigned pair of unique identification numbers and subjects were then instructed to sit at the station with their number. Subjects in these sessions bargained 10 times with a total of 10 different partners.

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A.2 Instructions: *Strong* Property Rights, 1-Shot [2-Shot]

You are here today to participate in a simple economic study that will require you to make a series of ten decisions total with [10 different partners (1 decision with each partner)] [5 different partners (2 decisions with each partner)]. Each of you randomly selected a number when entering the lab today. This number will function as your identity for the duration of this experiment. We have generated a list of random number matches that we will use to assign partners to each of you today throughout the experiment. When we begin the experiment, and before each period of play, we will have all participants stand and wait quietly at the back of the lab. Our staff will then match you into pre-designated, randomly generated number pairs.

At the start of each decision-making period, you and your partner will play the Hash Mark Game. This game works as follows: there will be N hash marks in a row. During your turn, you can cross out from 1 to Y hash marks. That is, you can cross out 1,2,3, …, Y hash marks. Whoever crosses out the last hash mark loses the hash mark game. Remember, a player must always cross out at least one hash mark during his or her turn but can never cross out more than Y hash marks during a turn. In odd-numbered periods, the player with the *lower* identity number will have the first move in the game, and in even-numbered periods, the player with the *higher* identity number will move first. We give an example of this game below, where we suppose that N = 5 and Y =2.

At the start of the game, before either you or your partner has moved, you will see:

/ / / / /

Now, suppose that whoever plays first marks out two hash marks:

~~/ /~~ / / /

And that the second player now marks out two hash marks:

~~/ / / /~~ /

Now, we can see that whoever played first must now cross out the last hash mark and therefore loses the game.

Whichever player wins the hash mark game **earns the right** to be the 'Controller' for that decision period. Whoever is the Controller for a given decision period can unilaterally choose a number that corresponds to an allocation from a payoff table that assigns payoffs to both players. The Controller may entertain offers from his/her partner (the Bargainer) who may attempt to persuade the Controller to select a different allocation from the payoff table. Either player may agree to transfer money to the other player to facilitate bargaining.

Once you and your partner finish making a decision, please raise your hand. An experimenter will collect your decision form for that period and ask that you wait quietly until all 6 pairs are finished. Once every pair has finished making a decision the period is over. We will instruct everyone to stand up and go wait along the back wall again, and we will announce everyone's new partner and station to sit at for the next period. We will then provide a new hash mark game to determine the property rights for the next period with your new partner. We will also provide a new decision form for the next period.

Payment

After all 10 periods have been completed, we will randomly select 2 periods, and you will be paid in cash for those 2 periods. We will place cards numbered 1-10 ten into a bag and randomly select 2 cards from the bag. The numbers on the selected cards represent the periods for which you will be paid. You will be paid for both decisions from the selected periods, and a $10 show up fee.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Example of payoff tables and bargaining:
What follows is a simplified version of today's experiment. This is meant as an exercise to help ensure that each participant understands the structure of today's game. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.

Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

In this example, if the number 2 is chosen, A would receive a payoff of $5 and B would receive $2.

Here is the way you will pick the number. Two people will participate in each decision. After playing the hash mark game, one of you will have **earned the right** to be Controller for that period. The Controller can choose a number from the payoff table without agreement or input from the other player. If the Controller decides to make a unilateral decision, they should report this choice on the form provided and turn it in. Alternatively, a pair of participants may reach a joint agreement about the number to be chosen. The person who is *not* the Controller (i.e., the Bargainer) may try to influence the Controller to decide on a more favorable number by agreeing to pay the Controller some or all of his/her earnings associated with a particular number. If a pair of participants reaches a mutual decision, both participants should sign the form and indicate any money to be paid from one player to the other. Here are two examples of how this works.

Example 1: Suppose B is the Controller and B chooses number 3. B would fill out the form and turn it in. B earns 5 and A earns 3.

Example 2: Suppose A is the Controller. A and B could agree to set the number at 3 with B making a payment of 2 to A. A and B would write this on the form, and both would sign it. Then A would earn 5 and B would earn 3.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not talk to anyone except for the person you are paired with. Remember, you will make one decision with each of your partners. You will play this game with ten partners.

Quiz
To check your understanding please answer the following questions about the example Payoff Table below [see Appendix A.3 for the extra example payoff table and example agreement form used in all face-to-face instructions]. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If both players reach a joint decision to choose number 4 and B pays me $2.00, I make $_____.
4. If I am the Controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.

A.3 Instructions: *Weak* Property Rights, 1-Shot [2-Shot]

You are here today to participate in a simple economic study that will require you to make a series of 10 decisions total with [10 different partners (1 decision with each partner)] [5 different partners (2 decisions with each partner)]. Each of you randomly selected a number when entering the lab today. This number will function as your identity for the duration of this experiment. We have generated a list of random number matches that we will use to assign partners to each of you today throughout the experiment. When we begin the experiment today, and before each period of play, we will have all participants stand and wait quietly at the back of the lab. Our staff will then match you into pre-designated, randomly generated number pairs.

At the start of each decision-making period, an experimenter will flip a coin. If the coin lands on heads, the subject with the lowest of the pair's identification numbers will have the property rights. If it lands on tails, the person with the highest number will have the property rights. We call this person with the property rights the Controller. Whoever is the Controller for a given decision period will have the ability to unilaterally choose a number that corresponds to an allocation from a payoff table that assigns payoffs to both players. The Controller may entertain offers from his/her partner (the Bargainer) who may attempt to persuade the controller to select a different allocation from the payoff table. Either player may agree to transfer money to the other player to facilitate bargaining.

Once you and your partner finish making a decision, please raise your hand. An experimenter will collect your decision form for that period and ask that you wait quietly until all 6 pairs are finished. Once every pair has finished making a decision the period is over. We will instruct everyone to stand up and go wait along the back wall again, and we will announce everyone's new partner and station to sit at for the next period. We will then provide a new decision form and flip the coin again to reassign property rights for the next period with your new partner. period.

Payment
After all 10 periods have been completed, we will randomly select 2 periods, and you will be paid in cash for those 2 periods. We will place cards numbered 1-10 into a bag and randomly select 2 cards from the bag. The numbers on the selected cards represent the periods for which you will be paid. You will be paid for both decisions from the selected periods, and a $10 show-up fee.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Example of payoff tables and bargaining:
What follows is a simplified version of today's experiment. This is meant as an exercise to help ensure that each participant understands the structure of today's game. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.

Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

In this example, if the number 2 is chosen, A would receive a payoff of $5 and B would receive $2.

Here is the way you will pick the number. Two people will participate in each decision. One of you has been randomly assigned the role of Controller. The Controller can choose a number from the payoff table without agreement or input from the other player. If the Controller decides to make a unilateral decision, they should report this choice on the form provided and turn it in. Alternatively, a pair of participants may reach a joint agreement about the number to be chosen. The person who is *not* the Controller (i.e., the Bargainer) may try to influence the Controller to decide on a more favorable number by agreeing to pay the Controller some or all of his/her earnings associated with a particular number. If a pair of participants reaches a mutual decision, both participants should sign the form and indicate any money to be paid from one player to the other. Here are two examples of how this works.

Example 1: Suppose B is the Controller and B chooses number 3. B would fill out the form and turn it in. B earns 5 and A earns 3.

Example 2: Suppose A is the Controller. A and B could agree to set the number at 3 with B making a payment of 2 to A. A and B would write this on the form, and both would sign it. Then A would earn 5 and B would earn 3.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not talk to anyone except for the person you are paired with. Remember, you will make one decision with each of your partners. You will play this game with ten partners.

Quiz

To check your understanding please answer the following questions about the example Payoff Table below [see Appendix A.3 for the extra example payoff table and example agreement form used in all face-to-face instructions]. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If both players reach a joint decision to choose number 4 and B pays me $2.00, I make $_____.
4. If I am the Controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.

A.4 Agreement Form: All Face-to-Face Sessions

Payoff Table

Number	Controller	Bargainer
1	0.00	12.00
2	2.00	10.50
3	3.00	11.00
4	5.50	6.50
5	7.00	5.50
6	9.00	3.00
7	12.00	0.00

Player _____ is the Controller for this decision period (please use your assigned number)

Player _____ is ***not*** the Controller for this decision period (please use your assigned number)

Controller: enter your decision here if you do not reach a mutual agreement with your partner.

Controller's Decision (If Applicable)

Number Chosen _____

Signed _____ (Controller)

Both players: use this section if you have reached a mutual agreement.

Joint Agreement

Number Chosen _____

$_____ to be paid from _____ to _____

Signed _____ (Controller)

Signed _____ (Respondent)

Appendix B. Digital Bargaining Sessions

B.1 Instructions: *Strong* Property Rights, 1-Shot

You are here today to participate in a simple economic study that will require you to make a series of 10 decisions total with 10 different partners (1 decision with each partner). Each of you is already situated at a computer station; you will remain at this computer station for the duration of the experiment. Our program will randomly match you with a new partner at the start of each period.

When we begin, we will assign each of you a letter that will serve as your identity for the duration of this experiment. We do this so that you can easily verify that you are matched with a new partner for each period of negotiations.

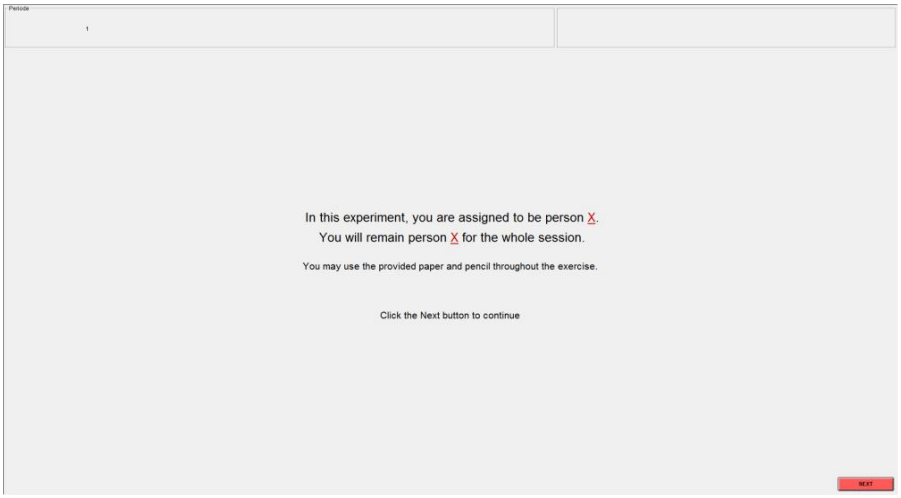

Figure 1. Example of the identity assignment screen

At the start of each period, we will randomly pair you with another player:

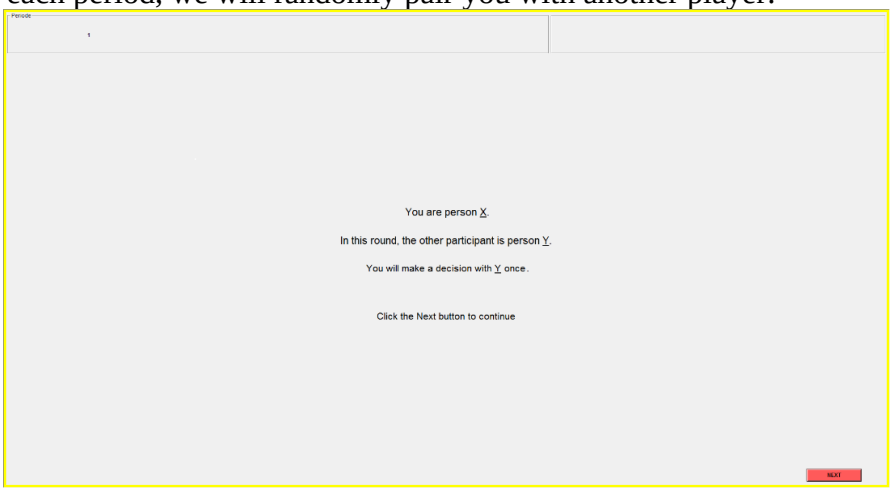

Figure 2. Example of the partner assignment screen

To begin the decision-making period with this player, you will both answer a series of three math questions. Whoever answers all three questions correctly in the shortest amount of time will **earn the right** to dictate how much money both partners earn for that period. We call this person who wins the math game the 'Controller'.

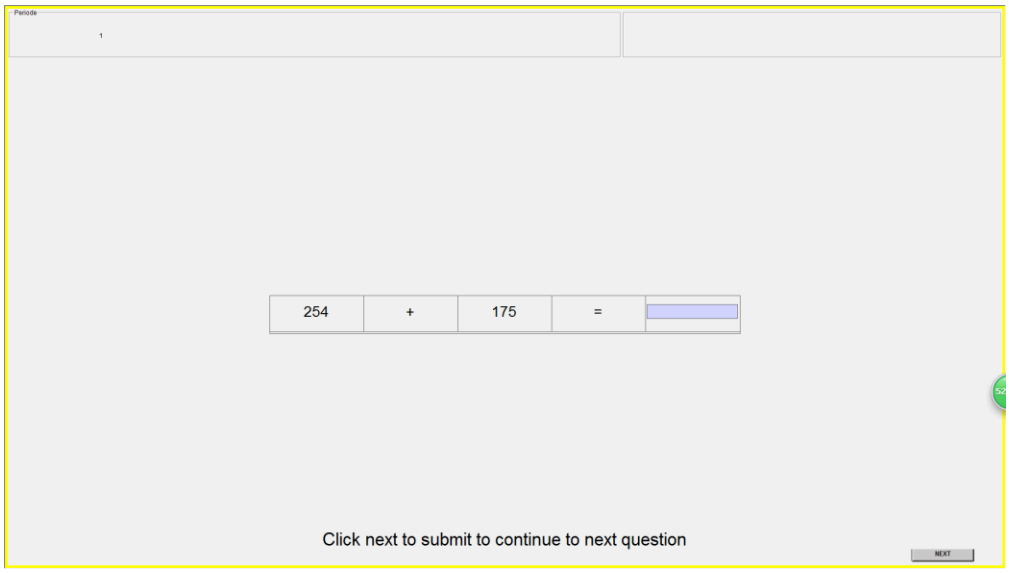

Figure 3. Example of a question from the math game

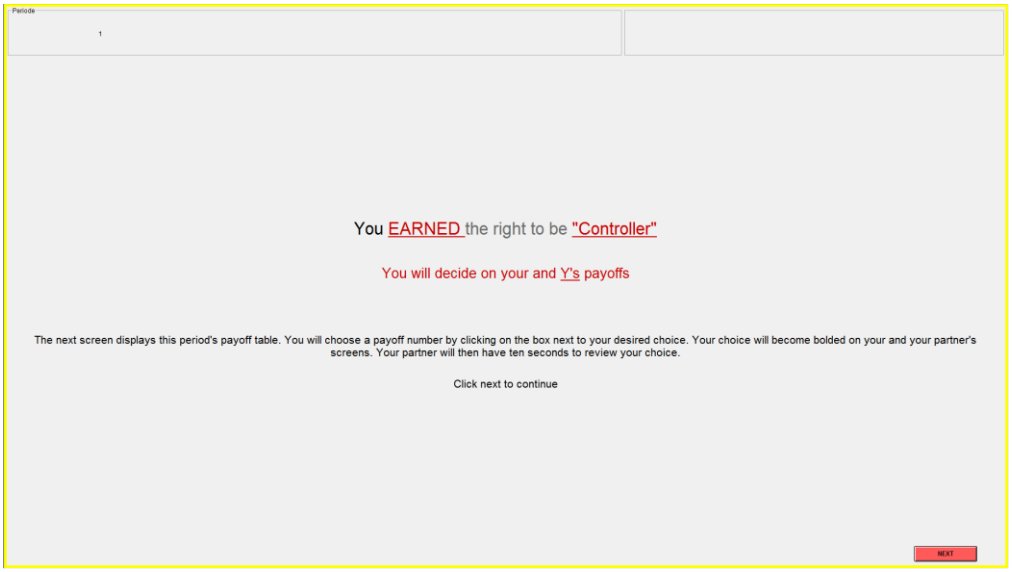

Figure 4. Example of the role assignment screen. This shows you whether you are the Bargainer or the Controller.

Whoever is the Controller for a given decision period will choose a number from a payoff table (see Figure 5) that assigns payoffs to both players. This number is selected without agreement or input from the other player. After the Controller chooses a payoff, his/her partner, termed the 'Bargainer', will have a period of time to review the Controller's decision before both players progress to the bargaining stage.

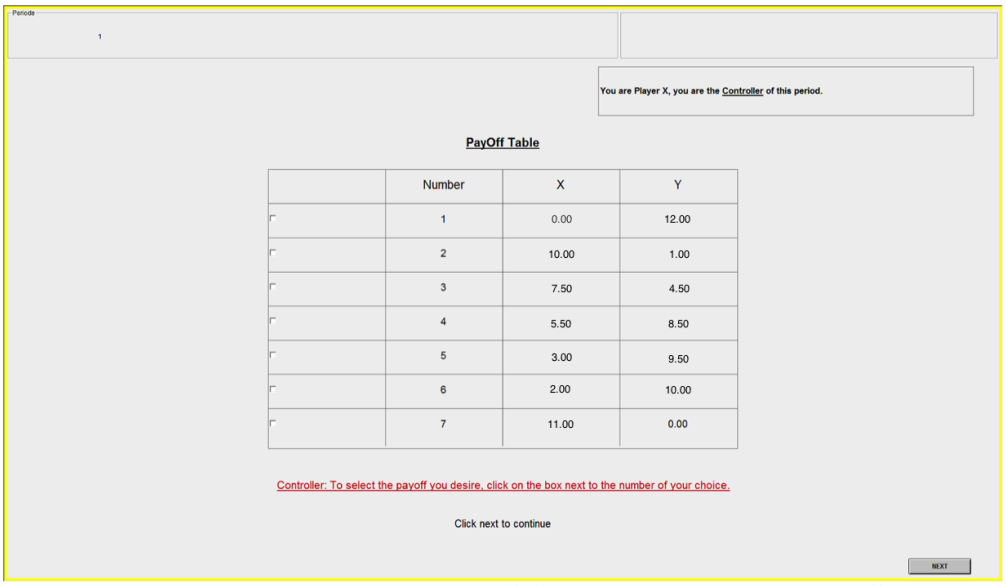

Figure 5. Example screen where Controller can select payoffs for both players. You will select a payoff by clicking on any one of the check boxes in the leftmost column.

During the bargaining stage, the Controller and Bargainer may attempt to jointly agree upon a new allocation by communicating via the provided chat box. Either the Bargainer or the Controller can offer/agree to transfer all or some of their earnings (under payoffs from the new allocation) to the other player as part of this new agreement.

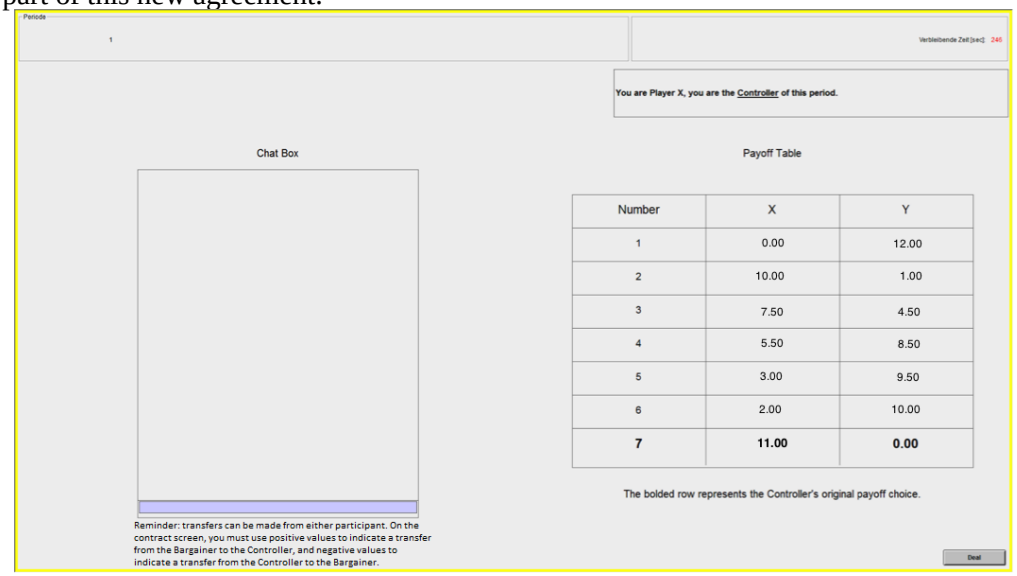

Figure 6. Example of the bargaining stage. Notice the 'Deal' button in the bottom right-hand corner.

The bargaining stage will last for a maximum of 180 seconds. If you and your partner negotiate a new deal, both players can click on the 'Deal' button in the bottom right corner of the screen to proceed. If either of the two players does not click the deal button, the period ends and both players receive payoffs corresponding to the Controller's original decision. For example: if the Controller is uninterested in negotiating a new deal, then he/she can wait for the 180 seconds to pass without clicking the 'Deal' button, which will cause the period to end and both players will receive payoffs corresponding to the Controller's original decision.

If both players click the deal button, the period proceeds to the next stage, where the Bargainer will create a contract consisting of the **newly chosen payoff number** and **any agreed upon money transfer**.

Please note that negative values will represent a transfer of money from the Controller to the Bargainer.

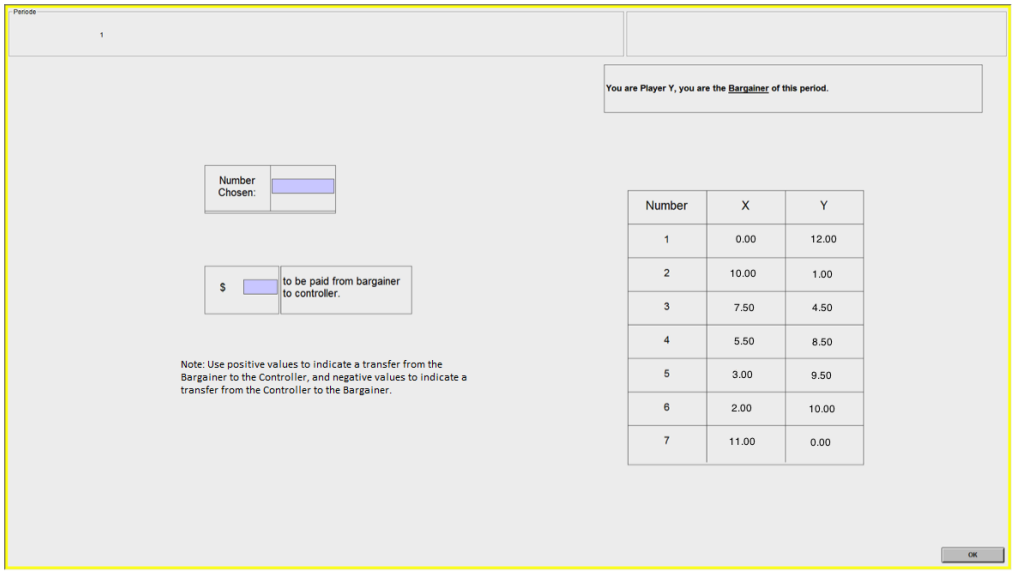

Figure 7. Example of the contract screen. Only the Bargainer will view this screen.

The Bargainer will submit this contract to the Controller by clicking 'Ok'.

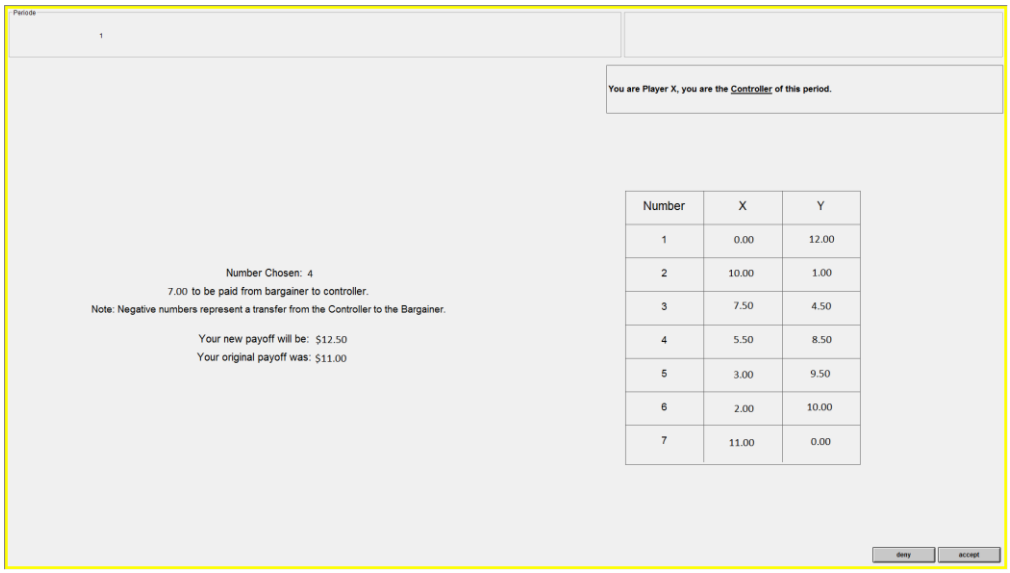

Figure 8. Example of the contract proposal that the Controller will see.

The Controller may either click 'Accept' to accept the contract or 'Deny' to deny the contract. Clicking 'Accept' will implement the new agreement and each player will receive payoffs corresponding to the contract. Clicking 'Deny' will cancel the new contract and each player will receive payoffs corresponding to the allocation originally chosen by the Controller.

A period can thus end in any of the following ways:

- Either player does not click the 'Deal' button during the bargaining stage. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Deny' to deny the contract offered by the Bargainer. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Accept' to accept the contract offered by the Bargainer. In this case, payoffs corresponding to the contract will prevail.

Once you and your partner complete your decision for that period, you will remain at a waiting screen until all other pairs have finished making a decision. Once all pairs have completed the decision period, the next period will begin with a new partner.

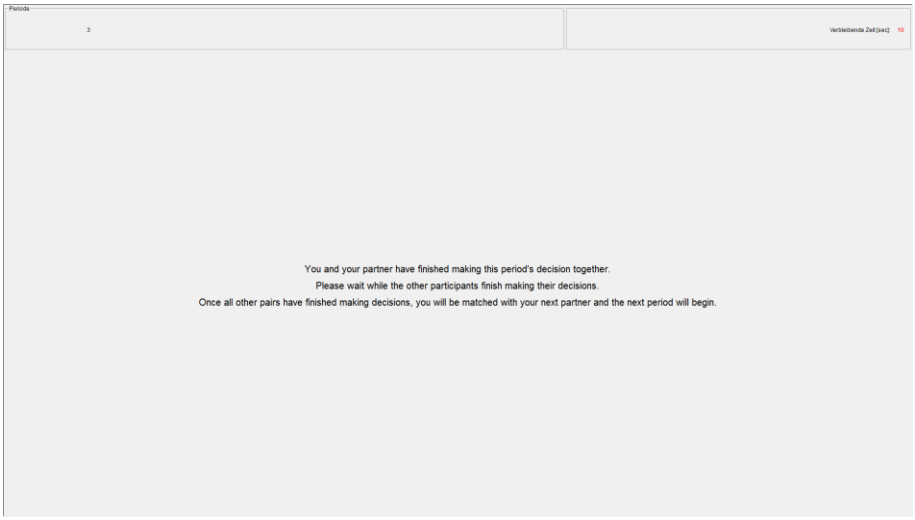

Figure 9. Example of the waiting screen.

Each period will proceed identically to the first. You will complete this process ten times (i.e., for 10 periods), each time with a new, randomly assigned partner.

Payment

Once you've completed all ten periods, our computer program will randomly choose two of the ten periods and we will pay you for the decision made in each of the two periods. Additionally, you will receive a $5.00 show-up fee. We will clearly display the periods for which we will pay you and provide a breakdown of your total payment.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Also notice that we've provided you with paper and a pen. You may use this to assist you with your calculations during each math game and/or use it to record Controller decisions, new agreement terms and payoffs for each period. This is not mandatory and is only available as an aid.

Example of payoff tables and bargaining:
What follows is a simplified version of today's instructions. This is meant as an exercise to help ensure that each participant understands the structure of today's experiment. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.
Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

Example 1: If payoff number 2 is chosen, player A would receive a payoff of $5 and player B would receive a payoff of $2.

Example 2: Suppose player B is the Controller and chooses payoff number 3. Player A will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player A cannot convince player B to change his decision. The game will end once the 180-second time limit expires. In this case, player B earns $5 for the period and player A earns $3 for the period.

Example 3: Suppose player A is the Controller and initially chooses payoff number 2. Player B will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player B offers to transfer $2 to player A, conditional on player A agreeing to implement payoff number 3. Suppose player A agrees. Both players will click 'Deal' and then the Bargainer (here this is player B) will create a contract with the new terms. Player A accepts the terms. Now, player A earns $5 for this period and player B earns $3 for this period.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not speak to anyone except when using the chat box during the bargaining stage of each period. Remember, you will play this game with ten partners, and you will make one decision with each of them.

Quiz
To check your understanding please answer the following questions using the payoff table **below** these questions. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If I reach a reach an agreement with B to choose number 4 and B agrees to pay me $2.00, I make $_____.
4. If I am the controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.
5. My partner and I have completed the first period. In the next period, I will make another decision with my same partner from the first period TRUE or FALSE _____.
6. If I am the Bargainer, I can input a negative value into the contract screen, which implies a transfer of money from the (Controller/Bargainer) to the (Controller/Bargainer)? _____ to the _____.

[Same example Payoff Table as in face-to-face sessions]

B.2 Instructions: *Strong* Property Rights, 2-Shot

You are here today to participate in a simple economic study that will require you to make a series of 10 decisions total with 5 different partners (2 decisions with each partner). Each of you is already situated at a computer station; you will remain at this computer station for the duration of the experiment. Our program will randomly match you with a new partner at the start of each round, which will consist of 2 decision periods with that same partner.

When we begin, we will assign each of you a letter that will serve as your identity for the duration of this experiment. We do this so that you can easily verify that you are matched with a new partner for each round of negotiations.

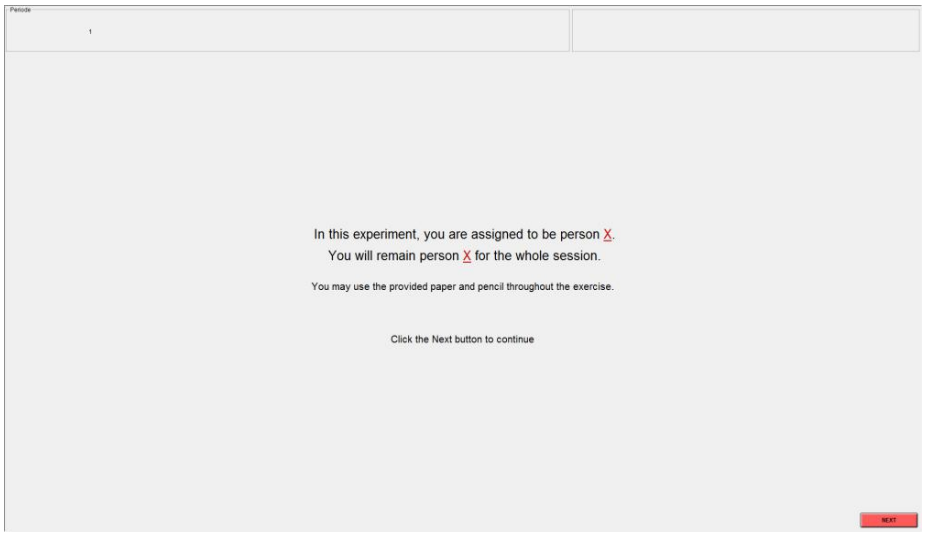

Figure 1. Example of the identity assignment screen

At the start of each round, we will randomly pair you with another player:

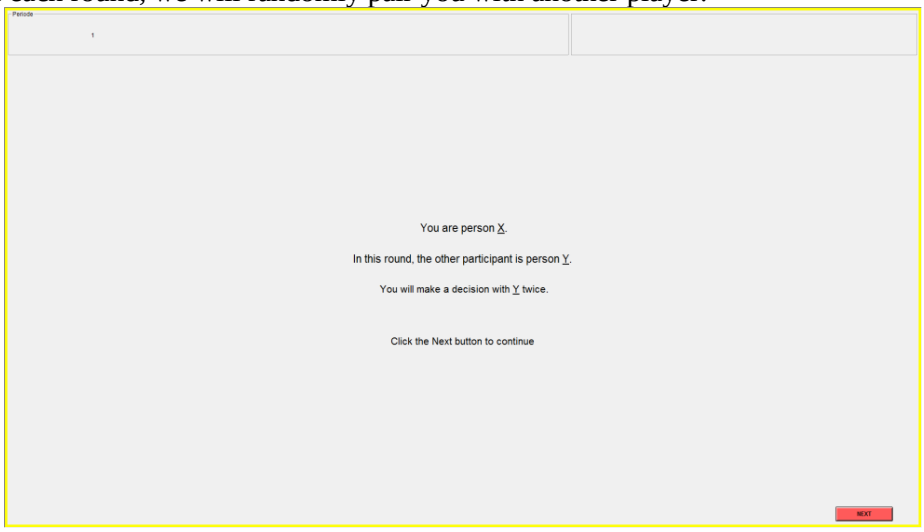

Figure 2. Example of the partner assignment screen

To begin your first decision making period with this player, you will both answer a series of three math questions. Whoever answers all three questions correctly in the shortest amount of time will **earn the right** to dictate how much money both partners earn for that period. We call this person who wins the math game the 'Controller'.

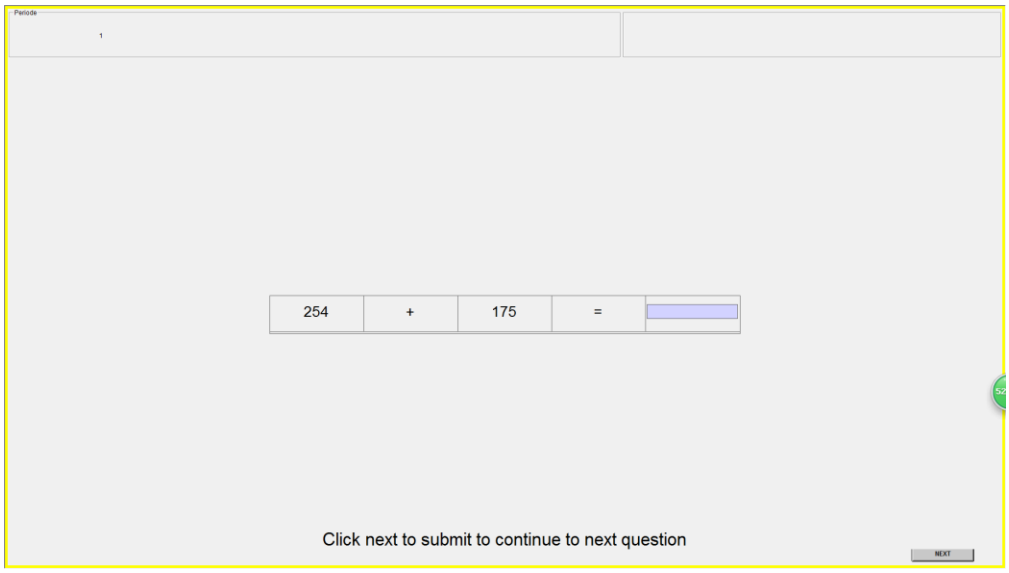

Figure 3. Example of a question from the math game

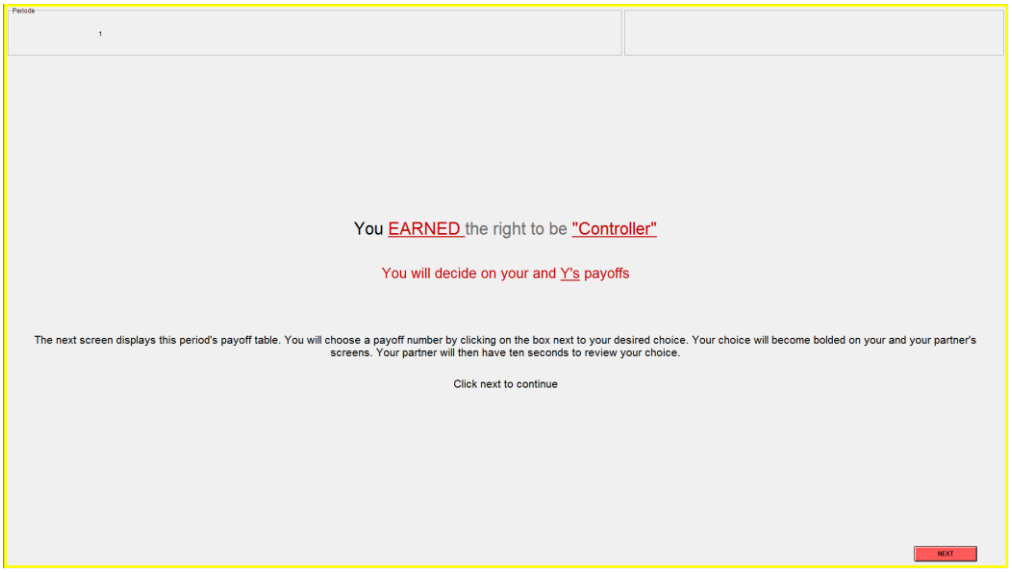

Figure 4. Example of the role assignment screen. This shows you whether you are the Bargainer or the Controller.

Whoever is the Controller for a given decision period will choose a number from a payoff table (see Figure 5) that assigns payoffs to both players. This number is selected without agreement or input from the other player. After the Controller chooses a payoff, his/her partner, termed the 'Bargainer', will have a period of time to review the Controller's decision before both players progress to the bargaining stage.

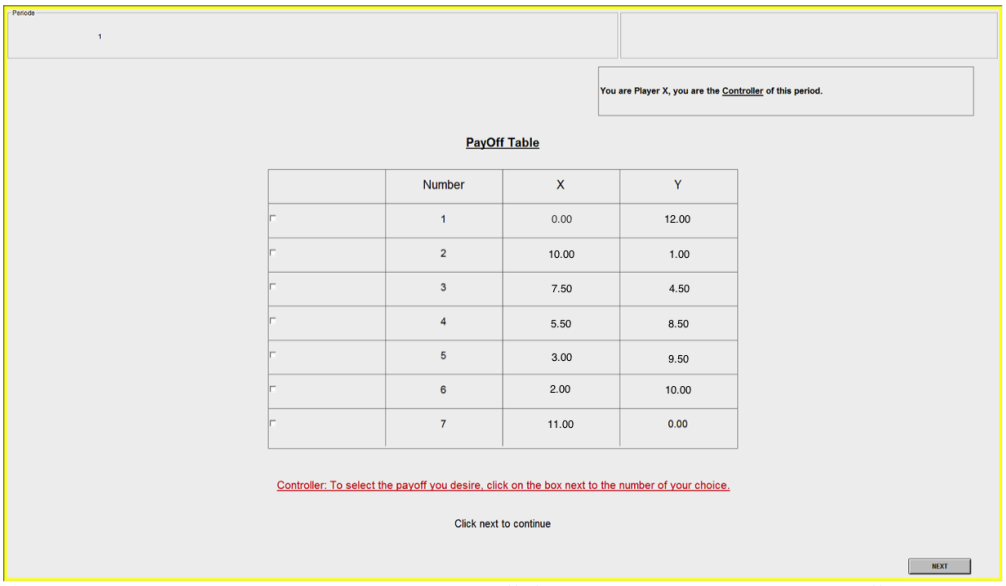

Figure 5. Example screen where Controller can select payoffs for both players. You will select a payoff by clicking on any one of the check boxes in the leftmost column.

During the bargaining stage, the Controller and Bargainer may attempt to jointly agree upon a new allocation by communicating via the provided chat box. Either the Bargainer or the Controller can offer/agree to transfer all or some of their earnings (under payoffs from the new allocation) to the other player as part of this new agreement.

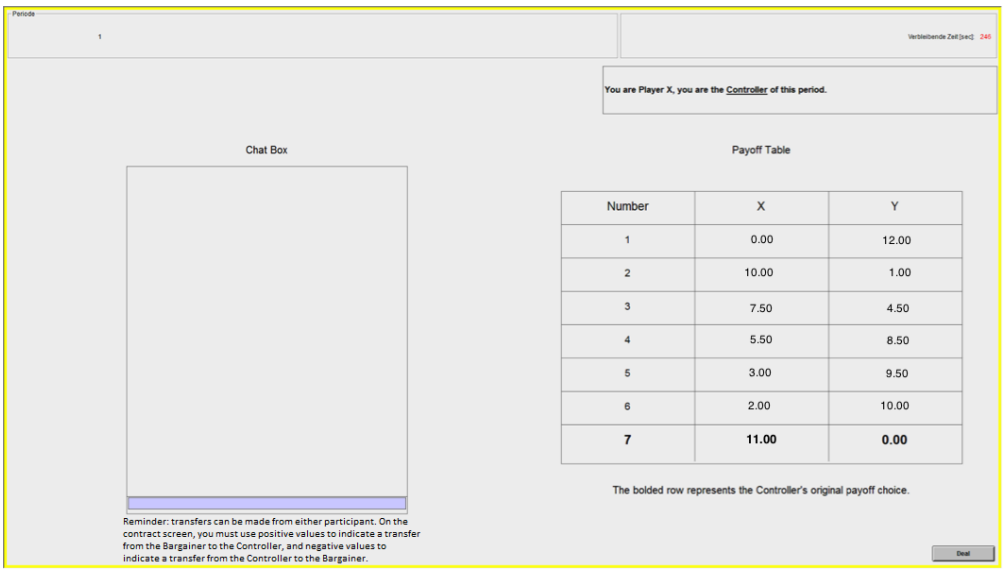

Figure 6. Example of the bargaining stage. Notice the 'Deal' button in the bottom right-hand corner.

The bargaining stage will last for a maximum of 180 seconds. If you and your partner negotiate a new deal, both players can click on the 'Deal' button in the bottom right corner of the screen to proceed. If either of the two players does not click the deal button, the period ends and both players receive payoffs corresponding to the Controller's original decision. For example: if the Controller is uninterested in negotiating a new deal, then he/she can wait for the 180 seconds to pass without clicking the 'Deal' button, which will cause the period to end and both players will receive payoffs corresponding to the Controller's original decision.

If both players click the deal button, the period proceeds to the next stage, where the Bargainer will create a contract consisting of the **newly chosen payoff number** and **any agreed upon money transfer**.

Please note that negative values will represent a transfer of money from the Controller to the Bargainer.

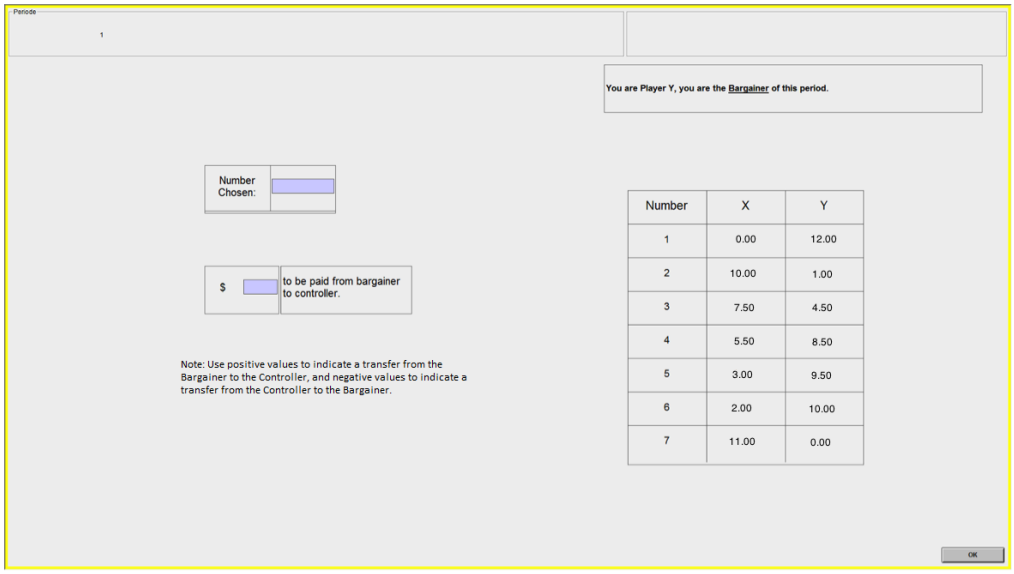

Figure 7. Example of the contract screen. Only the Bargainer will view this screen.

The Bargainer will submit this contract to the Controller by clicking 'Ok'.

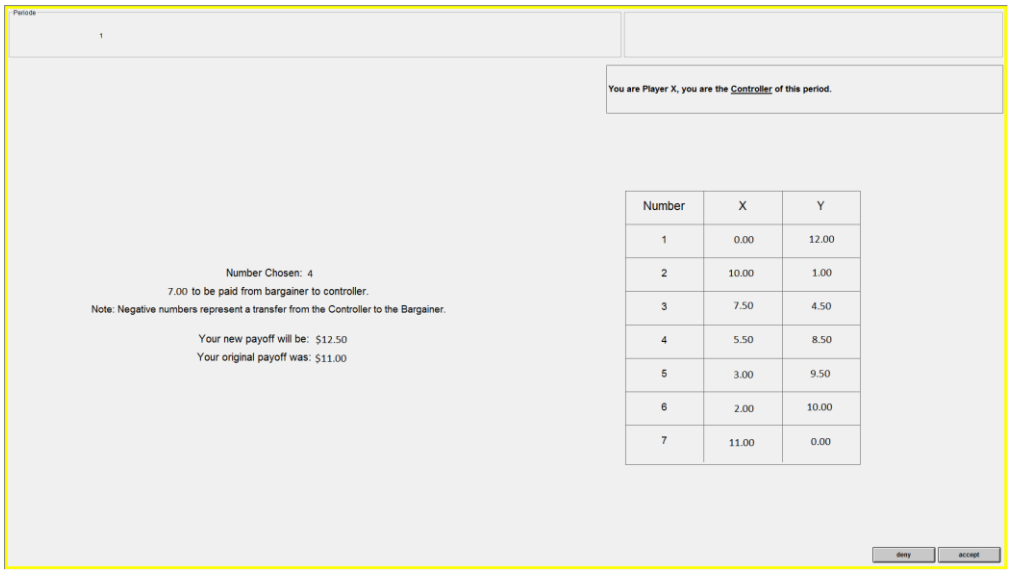

Figure 8. Example of the contract proposal that the Controller will see.

The Controller may either click 'Accept' to accept the contract or 'Deny' to deny the contract. Clicking 'Accept' will implement the new agreement and each player will receive payoffs corresponding to the contract. Clicking 'Deny' will cancel the new contract and each player will receive payoffs corresponding to the allocation originally chosen by the Controller.

A period can thus end in any of the following ways:

- Either player does not click the 'Deal' button during the bargaining stage. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Deny' to deny the contract offered by the Bargainer. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Accept' to accept the contract offered by the Bargainer. In this case, payoffs corresponding to the contract will prevail.

Once you and your partner complete your first of two decision periods, you will remain at a waiting screen until all other pairs have finished making a decision. Once all pairs have completed the first decision period, the second of the round's two decision periods will begin.

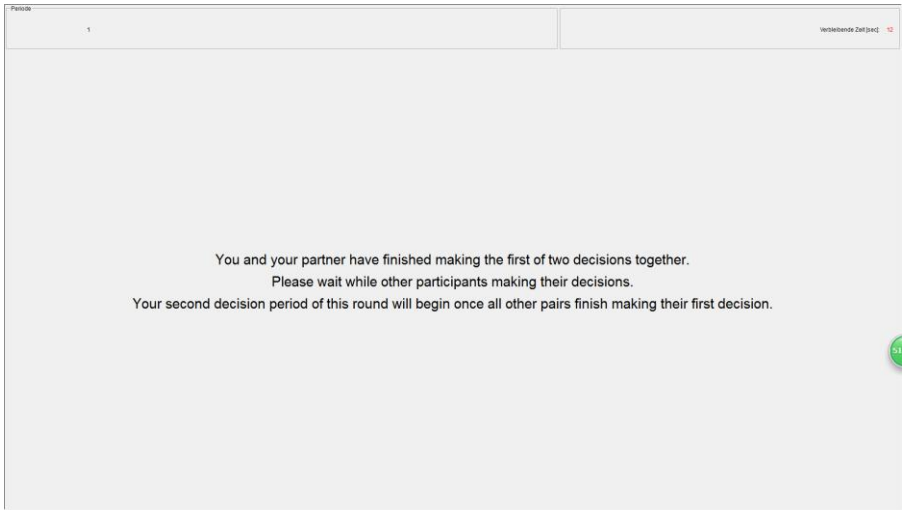

Figure 9. Example of the waiting screen.

This second period will proceed identically to the first. You will complete this two-period process five times (i.e., five rounds), each time with a new, randomly assigned partner.

Payment

Once you've completed all 5 rounds, our computer program will randomly choose one of the five rounds and we will pay you for both decisions you made during that round. Additionally, you will receive a $5.00 show-up fee. We will clearly display the round for which we will pay you and provide a breakdown of your total payment.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Also notice that we've provided you with paper and a pen. You may use this to assist you with your calculations during each math game and/or use it to record Controller decisions, new agreement terms and payoffs for each period. This is not mandatory and is only provided as an aid.

Example of payoff tables and bargaining:
What follows is a simplified version of today's instructions. This is meant as an exercise to help ensure that each participant understands the structure of today's experiment. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.

Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

Example 1: If payoff number 2 is chosen, player A would receive a payoff of $5 and player B would receive a payoff of $2.

Example 2: Suppose player B is the Controller and chooses payoff number 3. Player A will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player A cannot convince player B to change his decision. The game will end once the 180-second time limit expires. In this case, player B earns $5 for the period and player A earns $3 for the period.

Example 3: Suppose player A is the Controller and initially chooses payoff number 2. Player B will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player B offers to transfer $2 to player A, conditional on player A agreeing to implement payoff number 3. Suppose player A agrees. Both players will click 'Deal' and then the Bargainer (here this is player B) will create a contract with the new terms. Player A accepts the terms. Now, player A earns $5 for this period and player B earns $3 for this period.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not speak to anyone except when using the chat box during the bargaining stage of each period. Remember, you will make two decisions with each of your partners. You will play this game with five partners.

Quiz
To check your understanding please answer the following questions using the payoff table **below** these questions. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If I reach an agreement with B to choose number 4 and B agrees to pay me $2.00, I make $_____.
4. If I am the controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.
5. My partner and I have completed the first round. That means we have made _____ decision(s).
6. If I am the Bargainer, I can input a negative value into the contract screen (on page 4 of these instructions), which implies a transfer of money from the (Controller/Bargainer) to the (Controller/Bargainer)? _____ to the _____.

[Same example Payoff Table as in face-to-face sessions]

B.3 Instructions: *Weak* Property Rights, 1-Shot

You are here today to participate in a simple economic study that will require you to make a series of 10 decisions total with 10 different partners (1 decision with each partner). Each of you is already situated at a computer station; you will remain at this computer station for the duration of the experiment. Our program will randomly match you with a new partner at the start of each period.

When we begin, we will assign each of you a letter that will serve as your identity for the duration of this experiment. We do this so that you can easily verify that you are matched with a new partner for each period of negotiations.

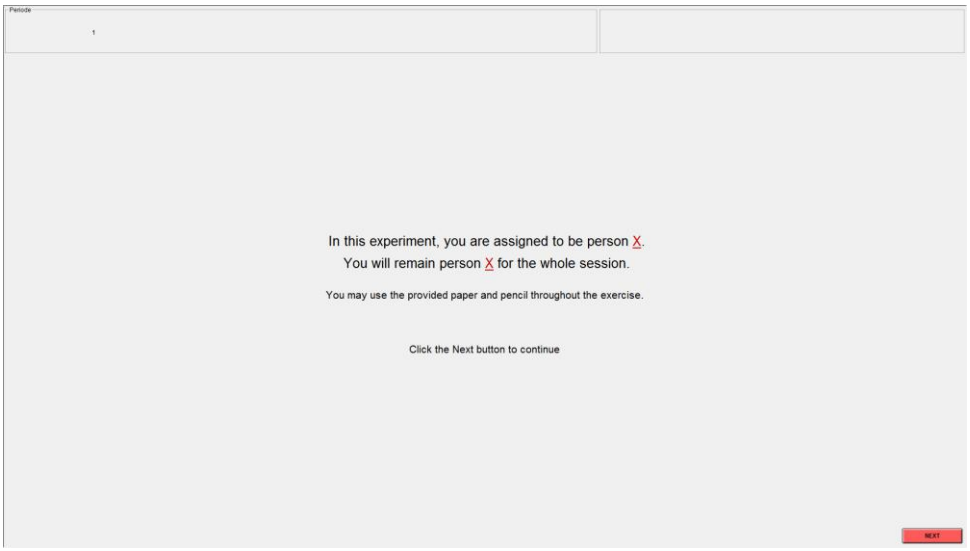

Figure 1. Example of the identity assignment screen

At the start of each period, we will randomly pair you with another player:

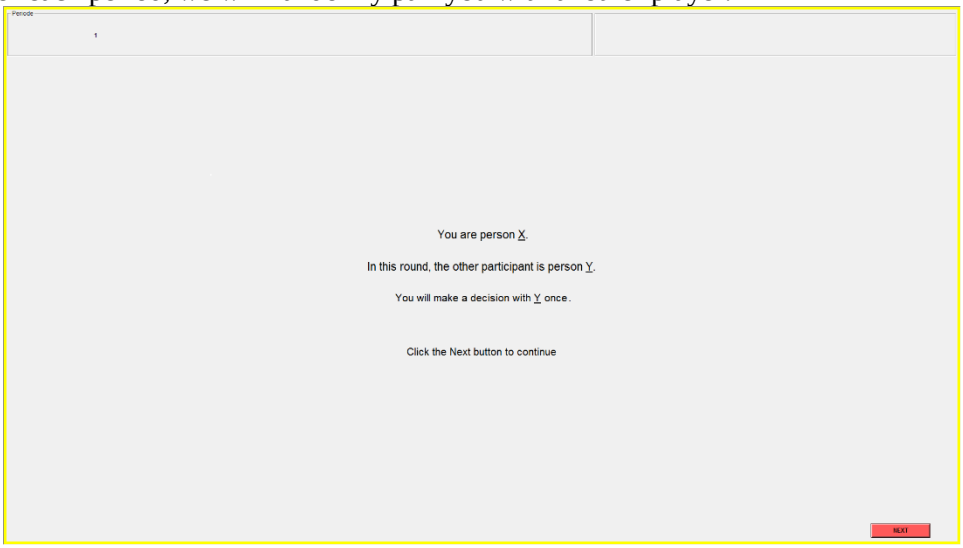

Figure 2. Example of the partner assignment screen

To begin the decision-making period with this player, the computer will **randomly designate** a role to each of you for that period. One of you will be designated as what we call the 'Controller' and will therefore have the right to dictate how much money both partners earn for that period.

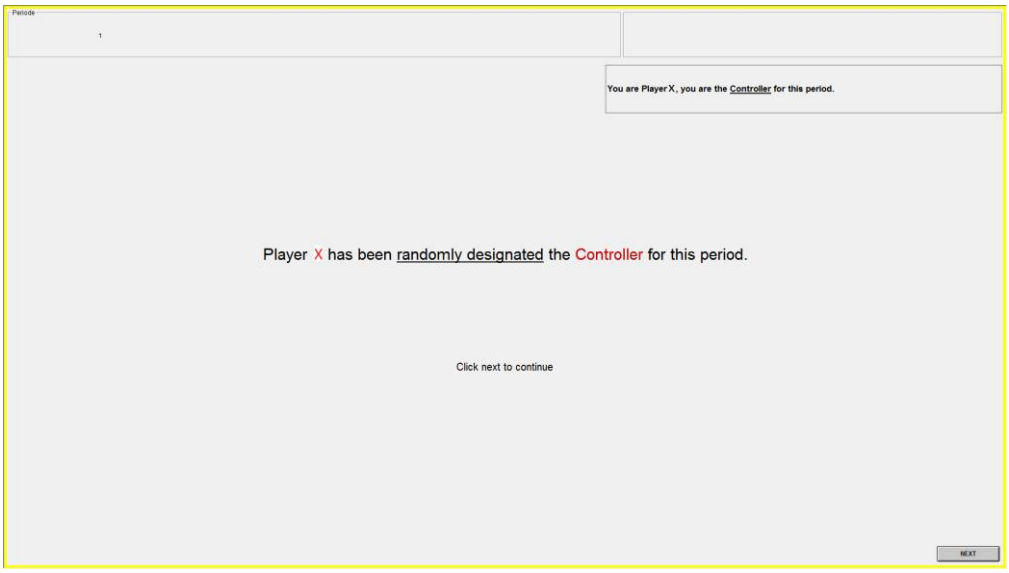

Figure 3. Example of the role designation screen

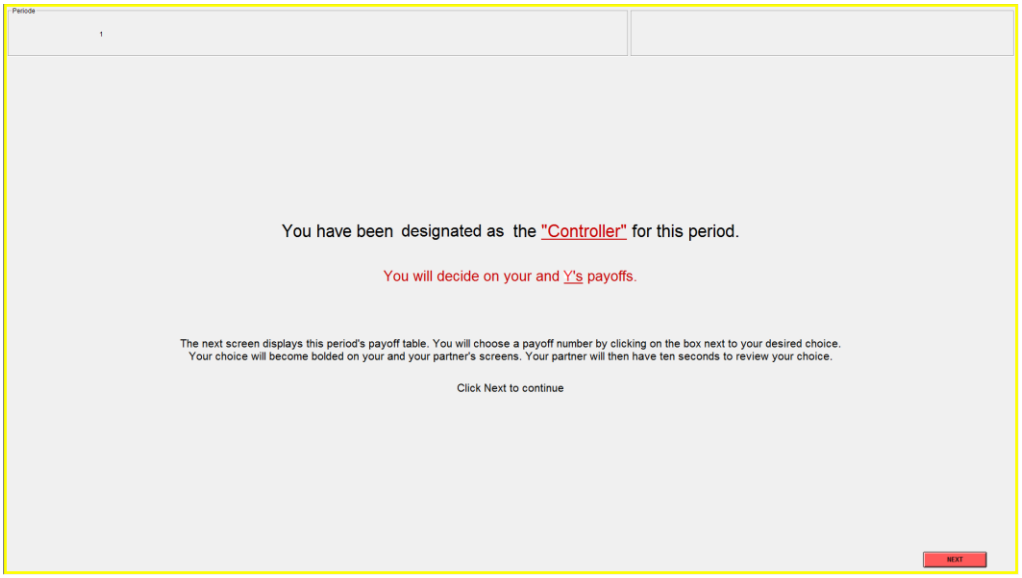

Figure 4. This shows you whether you are the Bargainer or the Controller.

Whoever is the Controller for a given decision period will choose a number from a payoff table (see Figure 5) that assigns payoffs to both players. This number is selected without agreement or input from the other player. After the Controller chooses a payoff, his/her partner, termed the 'Bargainer', will have a period of time to review the Controller's decision before both players progress to the bargaining stage.

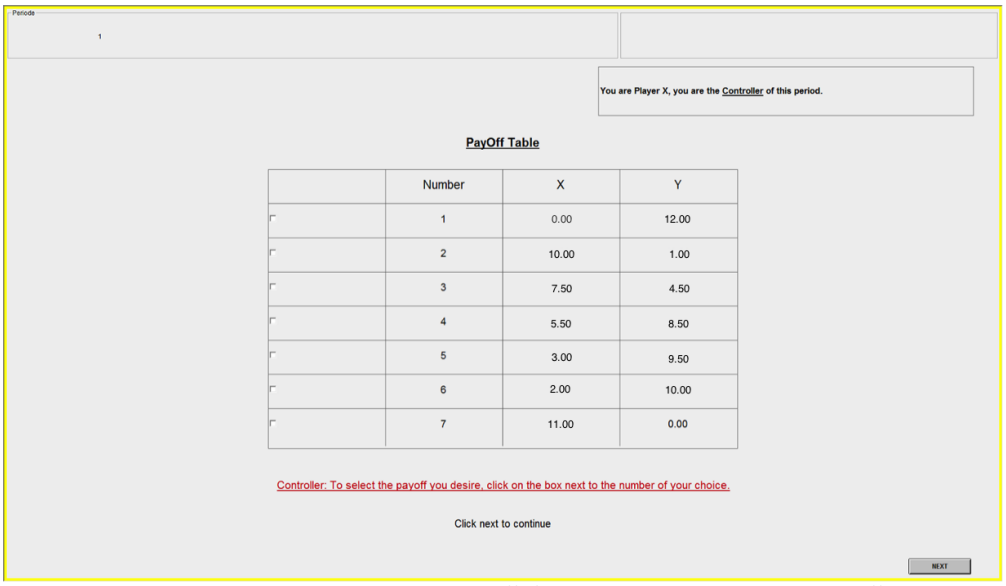

Figure 5. Example screen where Controller can select payoffs for both players. You will select a payoff by clicking on any one of the check boxes in the leftmost column.

During the bargaining stage, the Controller and Bargainer may attempt to jointly agree upon a new allocation by communicating via the provided chat box. Either the Bargainer or the Controller can offer/agree to transfer all or some of their earnings (under payoffs from the new allocation) to the other player as part of this new agreement.

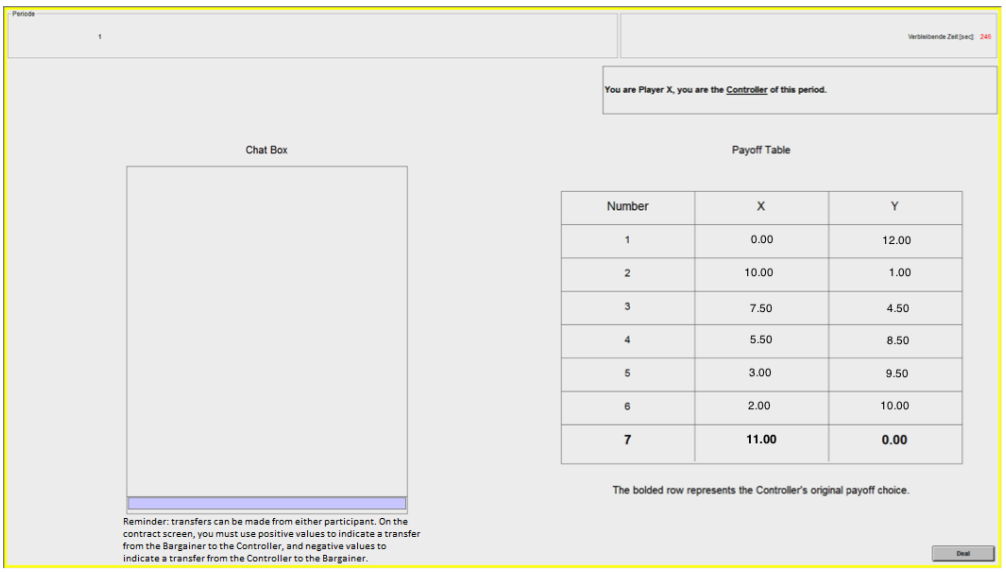

Figure 6. Example of the bargaining stage. Notice the 'Deal' button in the bottom right-hand corner.

The bargaining stage will last for a maximum of 180 seconds. If you and your partner negotiate a new deal, both players can click on the 'Deal' button in the bottom right corner of the screen to proceed. If either of the two players does not click the deal button, the period ends and both players receive payoffs corresponding to the Controller's original decision. For example: if the Controller is uninterested in negotiating a new deal, then he/she can wait for the 180 seconds to pass without clicking the 'Deal' button, which will cause the period to end and both players will receive payoffs corresponding to the Controller's original decision.

If both players click the deal button, the period proceeds to the next stage, where the Bargainer will create a contract consisting of the **newly chosen payoff number** and **any agreed upon money transfer**.

Please note that negative values will represent a transfer of money from the Controller to the Bargainer.

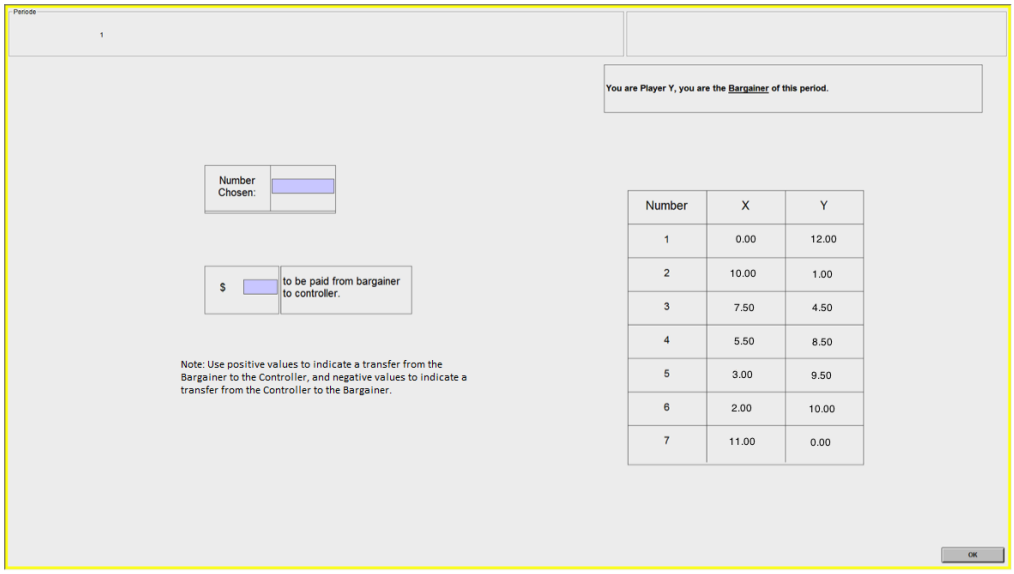

Figure 7. Example of the contract screen. Only the Bargainer will view this screen.

The Bargainer will submit this contract to the Controller by clicking 'Ok'.

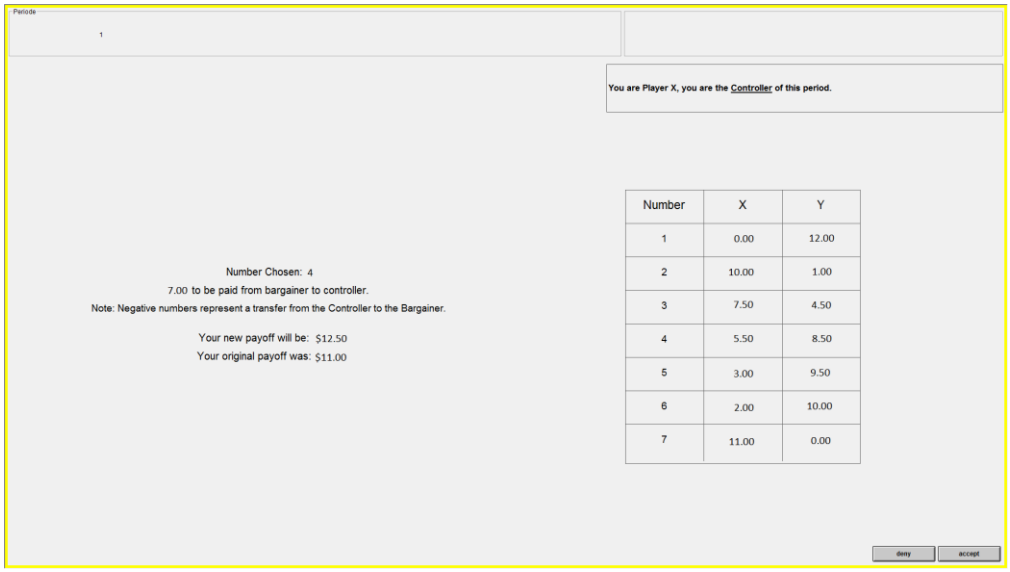

Figure 8. Example of the contract proposal that the Controller will see.

The Controller may either click 'Accept' to accept the contract or 'Deny' to deny the contract. Clicking 'Accept' will implement the new agreement and each player will receive payoffs corresponding to the contract. Clicking 'Deny' will cancel the new contract and each player will receive payoffs corresponding to the allocation originally chosen by the Controller.

A period can thus end in any of the following ways:

- Either player does not click the 'Deal' button during the bargaining stage. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Deny' to deny the contract offered by the Bargainer. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Accept' to accept the contract offered by the Bargainer. In this case, payoffs corresponding to the contract will prevail.

Once you and your partner complete your decision for that period, you will remain at a waiting screen until all other pairs have finished making a decision. Once all pairs have completed the decision period, the next period will begin with a new partner.

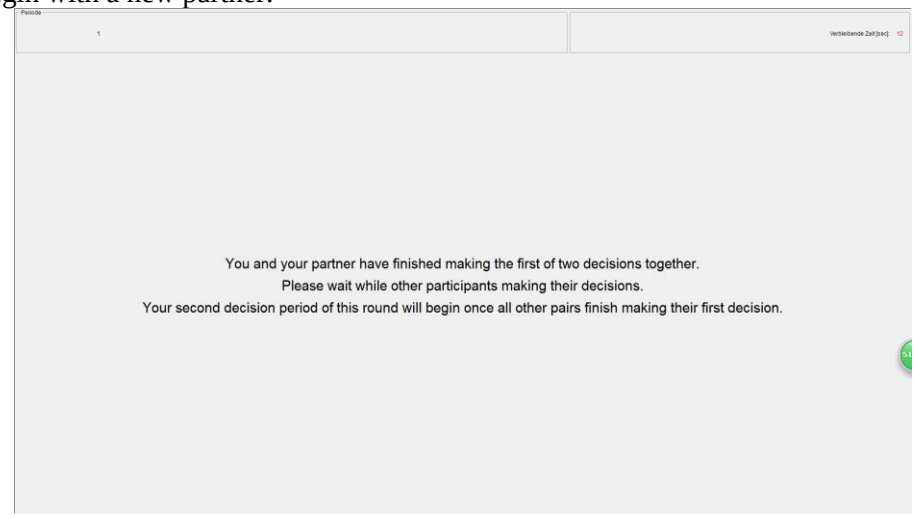

Figure 9. Example of the waiting screen.

Each period will proceed identically to the first. You will complete this process ten times (i.e., for 10 periods), each time with a new, randomly assigned partner.

Payment

Once you've completed all ten periods, our computer program will randomly choose two of the ten periods and we will pay you for the decision made in each of the two periods. Additionally, you will receive a $5.00 show-up fee. We will clearly display the periods for which we will pay you and provide a breakdown of your total payment.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Also notice that we've provided you with paper and a pen. You may use this to assist you in recording things like Controller decisions, new agreement terms and payoffs for each period. This is not mandatory and is only provided as an aid.

Example of payoff tables and bargaining:
What follows is a simplified version of today's instructions. This is meant as an exercise to help ensure that each participant understands the structure of today's experiment. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.

Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

Example 1: If payoff number 2 is chosen, player A would receive a payoff of $5 and player B would receive a payoff of $2.

Example 2: Suppose player B is the Controller and chooses payoff number 3. Player A will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player A cannot convince player B to change his decision. The game will end once the 180-second time limit expires. In this case, player B earns $5 for the period and player A earns $3 for the period.

Example 3: Suppose player A is the Controller and initially chooses payoff number 2. Player B will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player B offers to transfer $2 to player A, conditional on player A agreeing to implement payoff number 3. Suppose player A agrees. Both players will click 'Deal' and then the Bargainer (here this is player B) will create a contract with the new terms. Player A accepts the terms. Now, player A earns $5 for this period and player B earns $3 for this period.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not speak to anyone except when using the chat box during the bargaining stage of each period. Remember, you will play this game with ten partners, and you will make one decision with each of them.

Quiz
To check your understanding please answer the following questions using the payoff table **below** these questions. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If I reach an agreement with B to choose number 4 and B agrees to pay me $2.00, I make $_____.
4. If I am the controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.
5. My partner and I have completed the first period. In the next period, I will make another decision with my same partner from the first period TRUE or FALSE _____.
6. If I am the Bargainer, I can input a negative value into the contract screen (on page 4 of these instructions), which implies a transfer of money from the (Controller/Bargainer) to the (Controller/Bargainer)? _____ to the _____.

[Same example Payoff Table as in face-to-face sessions]

B.4 Instructions: *Weak* Property Rights, 2-Shot

You are here today to participate in a simple economic study that will require you to make a series of 10 decisions total with 5 different partners (2 decisions with each partner). Each of you is already situated at a computer station; you will remain at this computer station for the duration of the experiment. Our program will randomly match you with a new partner at the start of each round, which will consist of two decision periods with that same partner.

When we begin, we will assign each of you a letter that will serve as your identity for the duration of this experiment. We do this so that you can easily verify that you are matched with a new partner for each round of negotiations.

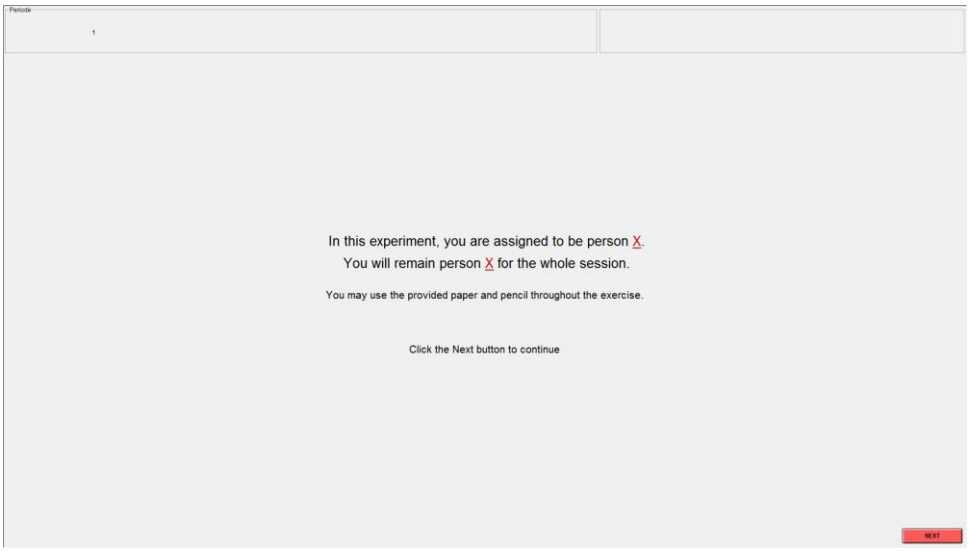

Figure 1. Example of the identity assignment screen

At the start of each round, we will randomly pair you with another player:

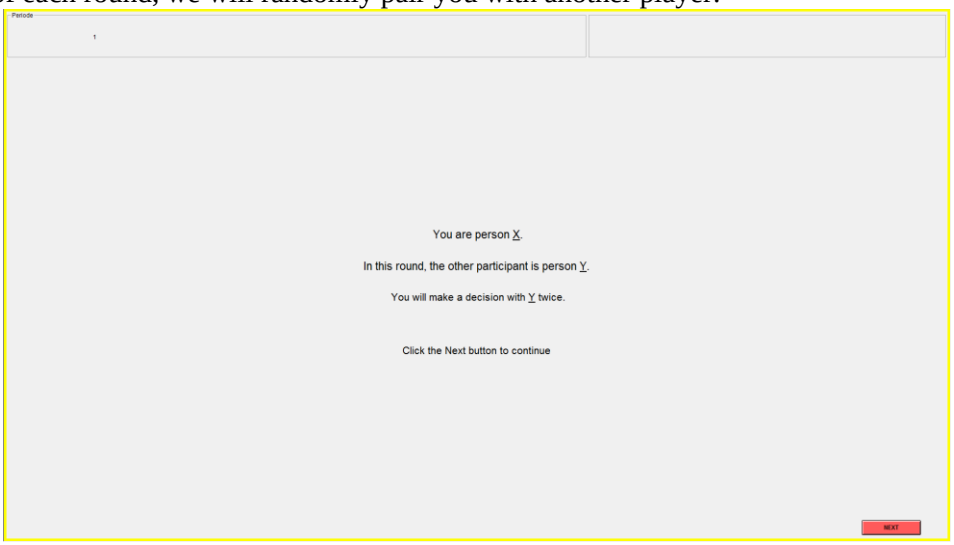

Figure 2. Example of the partner assignment screen

To begin your first decision making period with this player, the computer will **randomly designate** a role to each of you for that period. One of you will be designated as what we call the 'Controller' and will therefore have the right to dictate how much money both partners earn for that period.

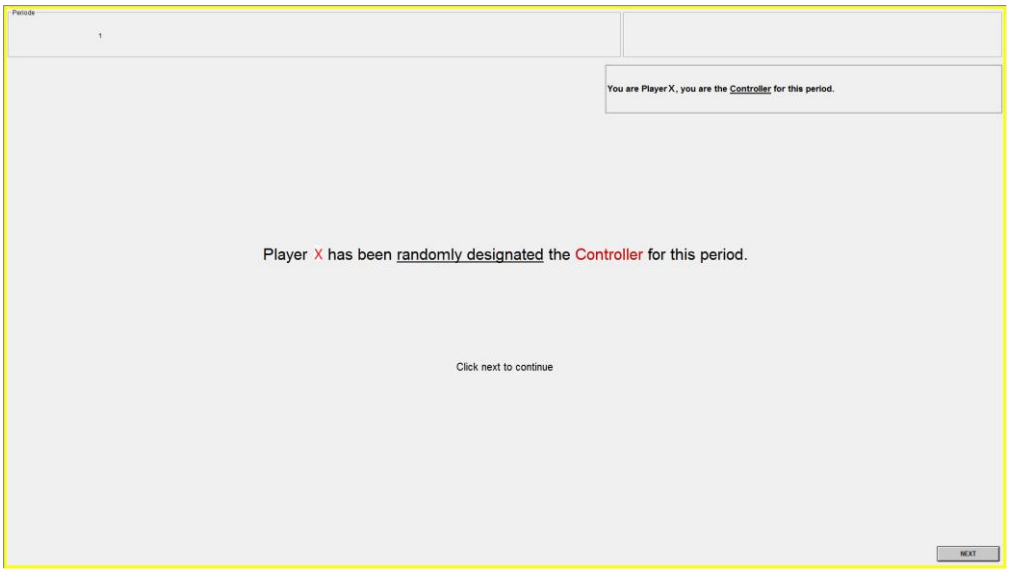

Figure 3. Example of the role designation screen

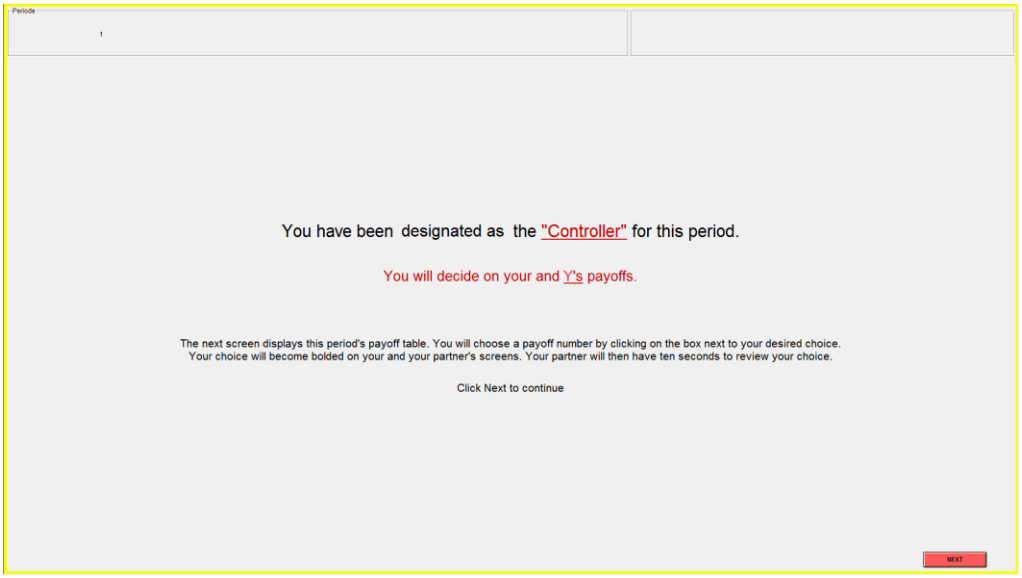

Figure 4. This shows you whether you are the Bargainer or the Controller.

Whoever is the Controller for a given decision period will choose a number from a payoff table (see Figure 5) that assigns payoffs to both players. This number is selected without agreement or input from the other player. After the Controller chooses a payoff, his/her partner, termed the 'Bargainer', will have a period of time to review the Controller's decision before both players progress to the bargaining stage.

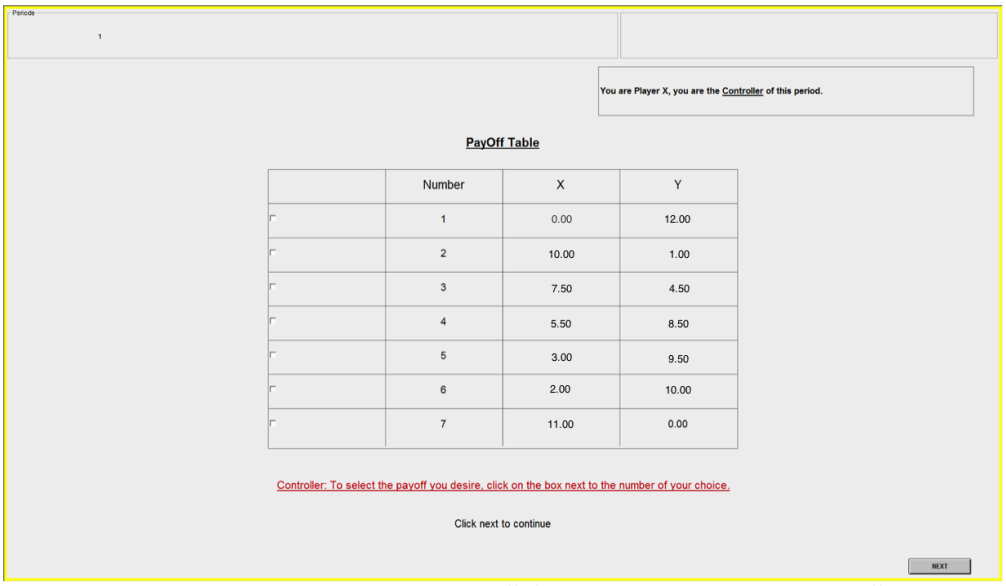

Figure 5. Example screen where Controller can select payoffs for both players. You will select a payoff by clicking on any one of the check boxes in the leftmost column.

During the bargaining stage, the Controller and Bargainer may attempt to jointly agree upon a new allocation by communicating via the provided chat box. Either the Bargainer or the Controller can offer/agree to transfer all or some of their earnings (under payoffs from the new allocation) to the other player as part of this new agreement.

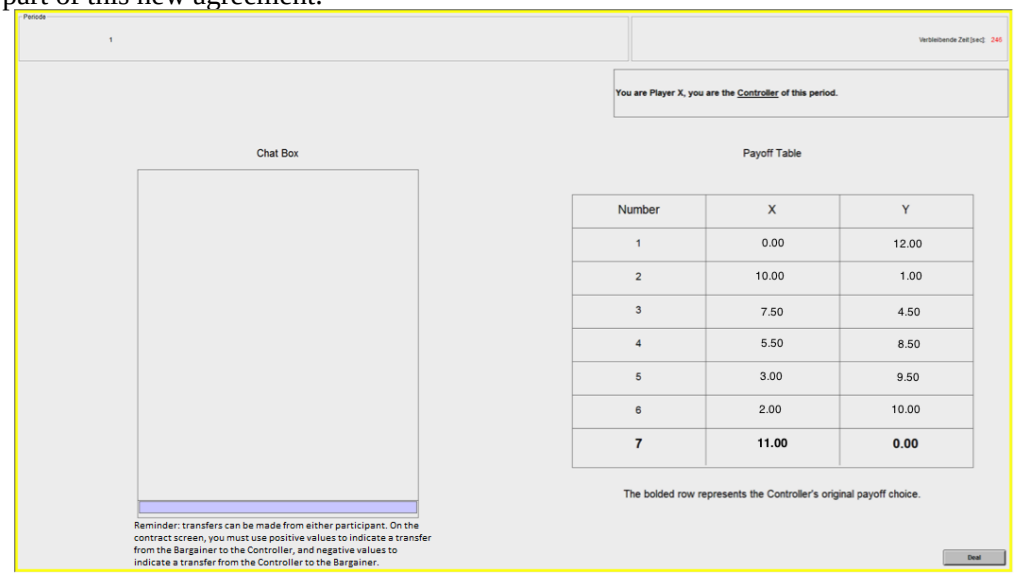

Figure 6. Example of the bargaining stage. Notice the 'Deal' button in the bottom right-hand corner.

The bargaining stage will last for a maximum of 180 seconds. If you and your partner negotiate a new deal, both players can click on the 'Deal' button in the bottom right corner of the screen to proceed. If either of the two players does not click the deal button, the period ends and both players receive payoffs corresponding to the Controller's original decision. For example: if the Controller is uninterested in negotiating a new deal, then he/she can wait for the 180 seconds to pass without clicking the 'Deal' button, which will cause the period to end and both players will receive payoffs corresponding to the Controller's original decision.

If both players click the deal button, the period proceeds to the next stage, where the Bargainer will create a contract consisting of the **newly chosen payoff number** and **any agreed upon money transfer**.

Please note that negative values will represent a transfer of money from the Controller to the Bargainer.

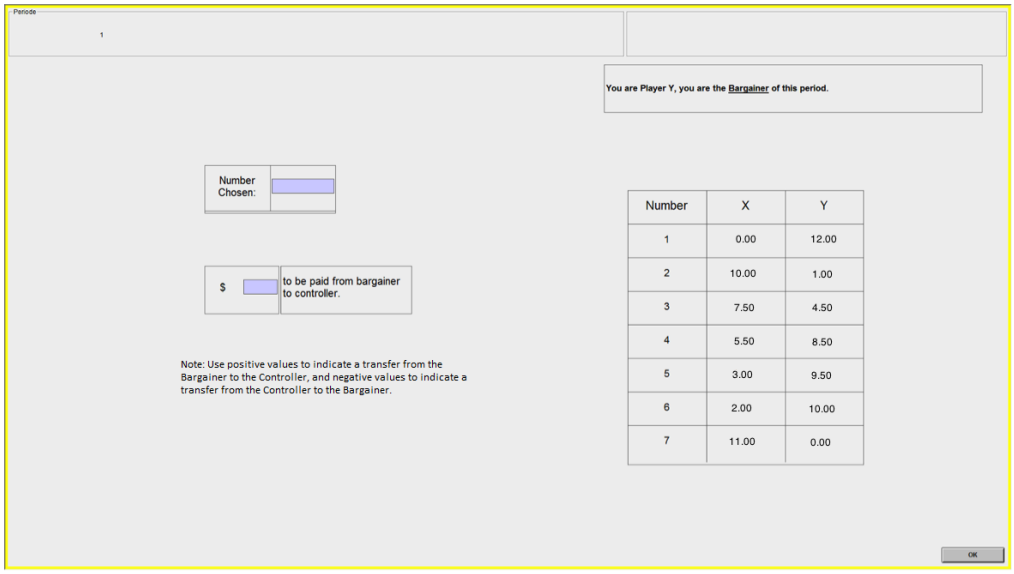

Figure 7. Example of the contract screen. Only the Bargainer will view this screen.

The Bargainer will submit this contract to the Controller by clicking 'Ok'.

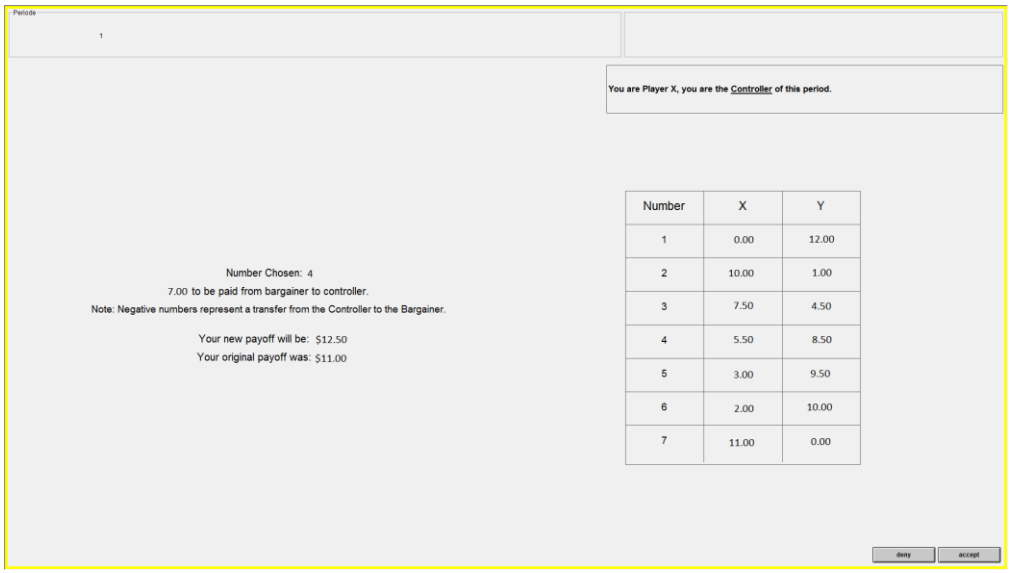

Figure 8. Example of the contract proposal that the Controller will see.

The Controller may either click 'Accept' to accept the contract or 'Deny' to deny the contract. Clicking 'Accept' will implement the new agreement and each player will receive payoffs corresponding to the contract. Clicking 'Deny' will cancel the new contract and each player will receive payoffs corresponding to the allocation originally chosen by the Controller.

A period can thus end in any of the following ways:

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- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Deny' to deny the contract offered by the Bargainer. In this case, payoffs from the Controller's original choice prevail.
- Both players click 'Deal' during the bargaining stage and the Controller clicks 'Accept' to accept the contract offered by the Bargainer. In this case, payoffs corresponding to the contract will prevail.

Once you and your partner complete your first of two decision periods, you will remain at a waiting screen until all other pairs have finished making a decision. Once all pairs have completed the first decision period, the second of the round's two decision periods will begin.

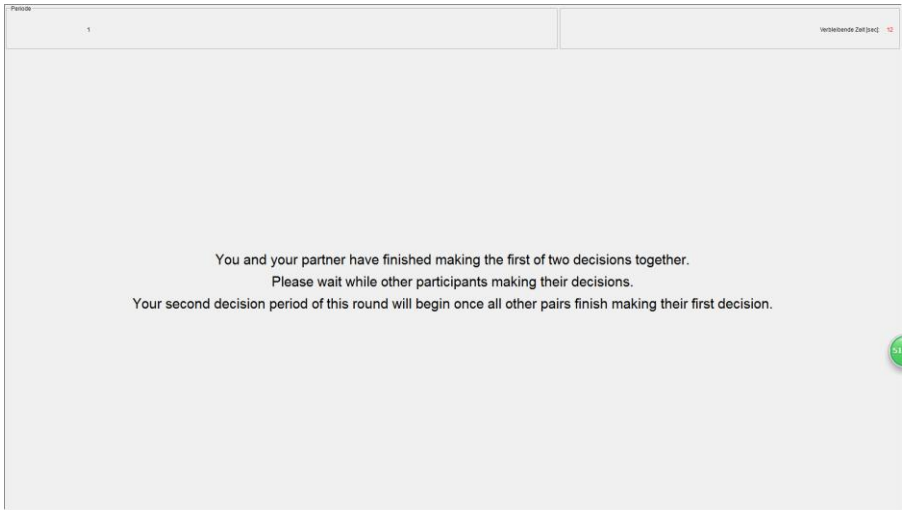

Figure 9. Example of the waiting screen.

This second period will proceed identically to the first. You will complete this two-period process five times (i.e., five rounds), each time with a new, randomly assigned partner.

Payment

Once you've completed all five rounds, our computer program will randomly choose one of the five rounds and we will pay you for both decisions made during that round. Additionally, you will receive a $5.00 show-up fee. We will clearly display the round for which we will pay you and provide a breakdown of your total payment.

Once we complete the experiment, we ask that each of you complete a short survey. After completing the survey, we will provide instructions about where and how to receive your payment.

Also notice that we've provided you with paper and a pen. You may use this to assist you in recording things like Controller decisions, new agreement terms and payoffs for each period. This is not mandatory and is only provided as an aid.

Example of payoff tables and bargaining:
What follows is a simplified version of today's instructions. This is meant as an exercise to help ensure that each participant understands the structure of today's experiment. Please raise your hand at any time if you have questions. It is important that you understand how this game is played so that you can earn as much money as possible.

Example payoff table:

Number	Payoff to A	Payoff to B
1	$4	$1
2	$5	$2
3	$3	$5

Example 1: If payoff number 2 is chosen, player A would receive a payoff of $5 and player B would receive a payoff of $2.

Example 2: Suppose player B is the Controller and chooses payoff number 3. Player A will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player A cannot convince player B to change his decision. The game will end once the 180-second time limit expires. In this case, player B earns $5 for the period and player A earns $3 for the period.

Example 3: Suppose player A is the Controller and initially chooses payoff number 2. Player B will have a chance to review this decision and then both players will proceed to the bargaining stage. Suppose player B offers to transfer $2 to player A, conditional on player A agreeing to implement payoff number 3. Suppose player A agrees. Both players will click 'Deal' and then the Bargainer (here this is player B) will create a contract with the new terms. Player A accepts the terms. Now, player A earns $5 for this period and player B earns $3 for this period.

Are there any questions? If so, please raise your hand. Once the exercise starts, please do not speak to anyone except when using the chat box during the bargaining stage of each period. Remember, you will make two decisions with each of your partners. You will play this game with five partners.

Quiz
To check your understanding please answer the following questions using the payoff table **below** these questions. For each question, assume you are player A. When you are finished, please raise your hand and one of our staff members will go and check your answers at your station.

1. Number _____ makes me the most money. Number _____ makes me the least money.
2. If I become Controller, I can make $_____ even if the other person doesn't agree.
3. If I reach an agreement with B to choose number 4 and B agrees to pay me $2.00, I make $_____.
4. If I am the controller, I may choose the number that corresponds to my maximum payoff without making a joint agreement with the other person TRUE or FALSE? _____.
5. My partner and I have completed the first round. That means we have made _____ decision(s).
6. If I am the Bargainer, I can input a negative value into the contract screen (on page 4 of these instructions), which implies a transfer of money from the (Controller/Bargainer) to the (Controller/Bargainer)? _____ to the _____.

[Same example Payoff Table as in face-to-face sessions]

Appendix C. Payoff Tables

Period 1

Number	Controller	Respondent
1	0.00	12.00
2	4.00	10.00
3	6.00	6.00
4	7.50	4.00
5	9.00	2.50
6	10.50	1.00
7	12.00	0.00

Period 2

Number	Controller	Respondent
1	0.00	12.50
2	1.50	11.00
3	3.00	9.50
4	4.50	8.00
5	6.00	6.50
6	10.00	5.00
7	11.50	1.50
8	13.00	0.00

Period 3

Number	Controller	Respondent
1	0.00	12.00
2	4.00	10.00
3	6.00	6.00
4	8.00	4.00
5	9.00	2.00
6	10.00	1.00
7	11.00	0.00

Period 4

Number	Controller	Respondent
1	0.00	11.00
2	1.00	10.00
3	2.00	8.00
4	4.00	6.00
5	5.50	5.00
6	9.00	4.00
7	10.50	1.00
8	9.00	0.00

Period 5

Number	Controller	Respondent
1	0.00	12.00
2	2.00	11.00
3	4.50	9.00
4	6.00	7.00
5	8.00	6.00
6	10.00	2.00
7	12.00	0.00

Period 6

Number	Controller	Respondent
1	0.00	12.50
2	2.00	10.50
3	4.00	9.00
4	5.50	7.00
5	6.50	6.50
6	11.00	4.00
7	12.00	1.00
8	13.00	0.00

Period 7

Number	Controller	Respondent
1	0.00	12.00
2	2.00	9.00
3	3.00	8.00
4	5.00	7.00
5	10.00	3.00
6	9.00	5.00
7	11.00	0.00

Period 8

Number	Controller	Respondent
1	0.00	11.00
2	1.50	10.50
3	3.00	10.00
4	5.00	6.00
5	5.50	5.50
6	10.00	2.00
7	8.00	3.00
8	9.00	0.00

Period 9

Number	Controller	Respondent
1	0.00	12.00
2	1.50	10.50
3	2.50	9.00
4	6.00	6.00
5	8.00	4.50
6	10.50	3.50
7	12.00	0.00

Period 10

Number	Controller	Respondent
1	0.00	12.50
2	1.00	10.00
3	3.00	9.00
4	4.00	11.00
5	7.00	5.00
6	10.00	2.00
7	8.00	3.00
8	13.00	0.00

Appendix D. Extension Results Using the Full Sample

D.1 Results Using Fisher's Exact Tests

This section uses data on bargaining decisions from all 10 periods to explore the robustness of bargaining behavior in digital and face-to-face environments. As in Sections 2.3 and 3.2, we use Fisher's exact tests to assess statistical differences in the proportions of efficient and sharing allocations within and across both bargaining environments. Table D1 presents the results. We observe stark differences in *efficiency* across the two bargaining environments; 91 percent of bargains in the face-to-face treatments are Pareto efficient whereas only 67 percent are efficient in the digital treatments. Further, this difference in *efficiency* is present regardless of the strength of property rights or whether bargaining is repeated ($p < 0.01$, for all differences except in two-shot bargaining under weak property rights, $p = 0.02$). We also find that the bargaining environment itself impacts *sharing allocations*; 68 percent of outcomes were sharing allocations in our face-to-face treatments compared to only 29 percent in our digital treatments. This difference in *sharing* is present for all treatments ($p < 0.01$) except two-shot bargaining under weak property rights ($p = 0.11$).

Table D1: Pareto Efficient and Sharing Allocations Using Data from All Periods.

			Efficient Decisions			***Sharing Decisions***		
Bargaining Sequence	**Property Rights**	**N_{FtF} | N_{Dig}**	**Face-to-Face**	**Digital**	Fisher's Exact	**Face-to-Face**	**Digital**	Fisher's Exact
1-Shot	Strong	120 | 120	112 (.93)	78 (.65)	$p < 0.01$	54 (.45)	5 (.04)	$p < 0.01$
2-Shot	Strong	120 | 120	110 (.92)	84 (.70)	$p < 0.01$	72 (.60)	12 (.10)	$p < 0.01$
1-Shot	Weak	120 | 120	107 (.89)	70 (.58)	$p < 0.01$	104 (.87)	36 (.30)	$p < 0.01$
2-Shot	Weak	120 | 120	106 (.88)	91 (.75)	$p = 0.02$	97 (.81)	88 (.73)	$p = 0.11$
Pooled		480 | 480	435 (.91)	323 (.67)	$p < 0.01$	327 (.68)	141 (.29)	$p < 0.01$

Notes: This table presents the number of Pareto efficient and sharing decisions (proportion of total decisions in parentheses) by session type in both our face-to-face and digital experiments using all periods of bargaining (N = 120 for each cell; N = 480 in the pooled cells by bargaining environment), with *p*-values for Fisher's exact tests.

D.2 Results Using Econometric Approaches

Efficiency

In Table 7 of the manuscript, we estimate Probit and linear probability models that project a binary variable indicating whether a bargaining outcome was Pareto efficient onto indicator variables that describe the bargaining environment. Columns (1) and (2) present results from Probit models, while columns (3) through (5) report results from linear probability models. Each specification includes period fixed effects, and we construct standard errors in three different ways.

Columns (1) and (3) use robust standard errors, which assumes that observations are independent, though this assumption does not likely hold in our case. To address the likely serial correlation present in bargaining outcomes across periods, columns (2) and (4) cluster robust standard errors at the session level, allowing for within-session correlation. However, given the limited number of clusters (16 sessions), we also use Wild bootstrapped errors in column (5), a method commonly used in settings with as few as five clusters (Cameron et al. 2008).

Across all models and standard error specifications, bargaining digitally leads to a statistically significant decrease 23.3% increase in the probability of achieving an efficient outcome ($p < 0.01$). However, the method of property rights assignment (random or competitive) has no effect on efficiency in any specification ($p > 0.10$). We also find some evidence that repeated bargaining may increase the probability of efficiency ($p < 0.05$), though this result is sensitive to how we specify our standard errors ($p > 0.10$ in specifications with robust standard errors clustered at the session level and in column 5).

We then explore the persistence of efficiency disparities between bargaining environments. Figure D1 shows the aggregate proportion of efficient decisions made in each period by bargaining environment. The efficiency gap between environments narrows over time, but learning plateaus about midway through the digital sessions, and a clear efficiency gap remains. While experiential learning appears to improve efficiency in digital bargaining, outside of period 7, Figure D2 indicates participants do not fully converge to the level of efficiency observed in face-to-face bargaining.

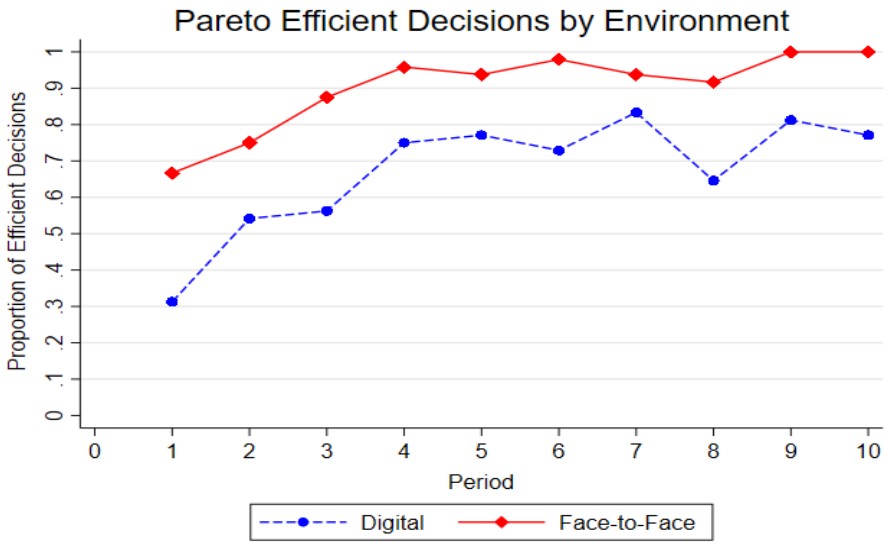

Figure D1: 96 subjects made a total of 48 decisions in each environment for each period. Subjects make significant improvements as they gain experience in early periods but learning levels out around period four. Subjects learned at about the same rate in each environment but subjects in the digital environment failed to converge to complete efficiency as did subjects bargaining in the face-to-face environment.

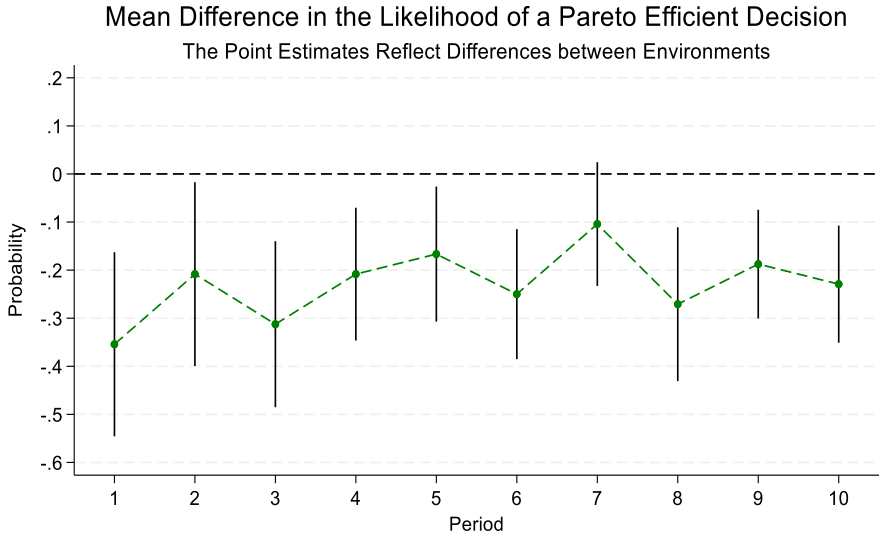

Figure D2: The mean difference in the likelihood of achieving a Pareto efficient decision by period between the digital and face-to-face environments, including 95% confidence intervals.

Figures D3 and D4 further explore efficiency rates by treatment and period. The efficiency difference between bargaining environments persists throughout all 10 periods in the one-shot treatments, and in 9 of 10 periods in the strong, two-shot treatment. In the weak, two-shot treatment, efficiency differences disappear entirely by the 5th period.

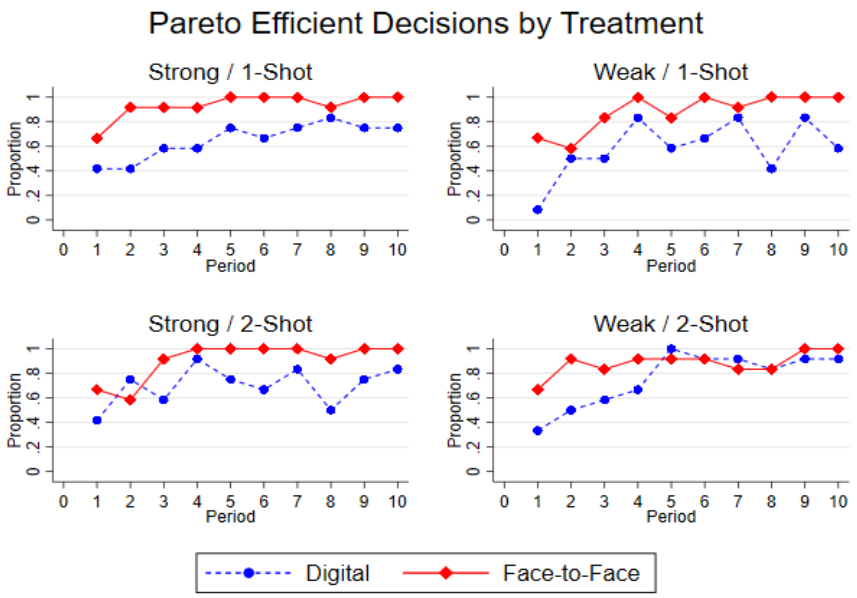

Figure D3: Each panel shows the percentage of efficient decisions made in both face-to-face and digital bargaining environments for each of our four treatment types. Each period comprises 12 decisions made by 24 subjects for each of the face-to-face and digital environments.

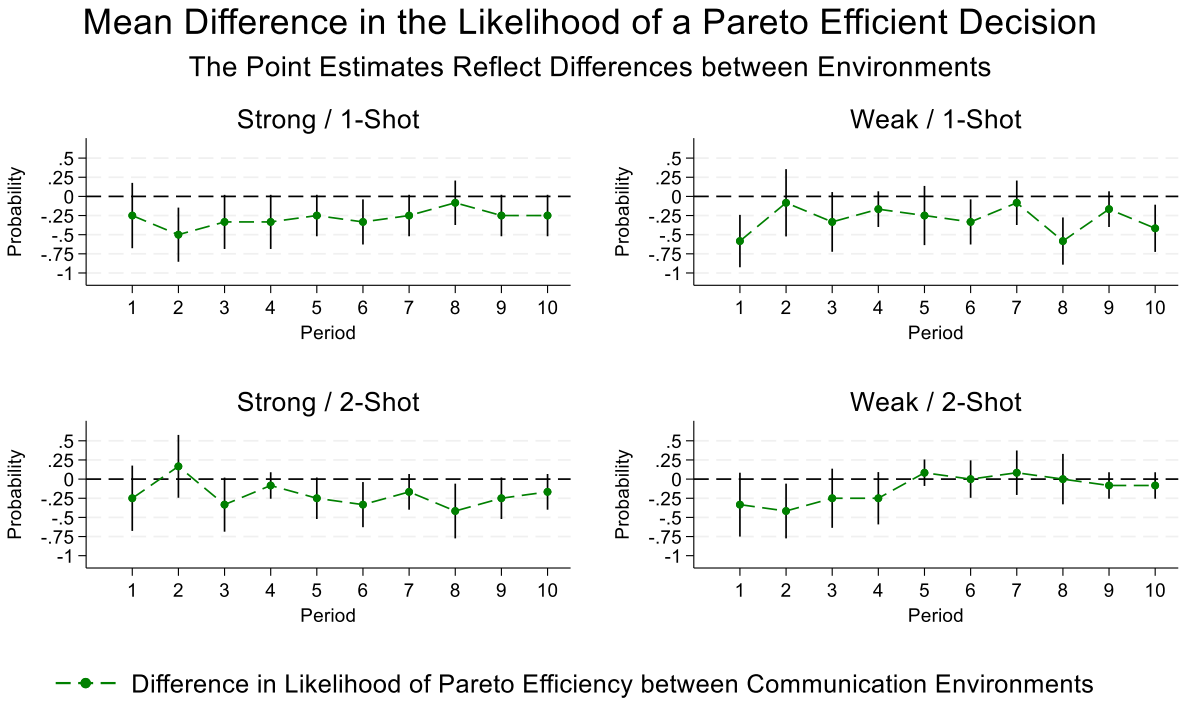

Figure D4: Each panel shows the mean difference in the likelihood of achieving a Pareto efficient decision by period between the digital and face-to-face environments for each treatment, including 95% confidence intervals.

Payoff Distributions

In Table 8 of the manuscript, we estimate Probit and OLS models to examine how the bargaining environment affects sharing behavior. Columns (1) and (2) report Probit results while columns (3) through (6) show pooled OLS results. For each outcome, we report both robust standard errors clustered at the session level (odd numbered columns) and Wild bootstrapped errors (even numbered columns).

The results show that digital bargaining reduces the probability of an equal split by 34.7%, nearly quadruples the amount of money Controllers earn beyond an equal split, and lowers the amount of earnings Controllers are willing to sacrifice (10% for digital vs. 17% for face-to-face Controllers; columns 5 and 6). Additionally, earning property rights through competition decreases the likelihood of equal splits, increases Controller earnings, and reduces their willingness to sacrifice. One-shot bargaining also reduces the likelihood of equal splits, boosts Controller earnings relative to bargainers, and reduces sacrifice.

Table D2 and Figures D5 and D6 compare AGI across bargaining environments by period and by treatment. Panel 1 of Table D2 reports the average AGI, including equal splits, while Panel 2 excludes equal splits. Panel 3 shows the proportion of decisions that were not equal splits.

We find that Controllers are more self-regarding in the digital environment. Digital bargaining increases the AGI from 0.73 to 2.96, as shown in Table D2, Panel 1 ($p < 0.001$, *t*-test). This result is consistent for most treatments, except the weak property rights, two-shot bargaining session, where AGI is similar in both bargaining environments (Figure D6). These results suggest that Controllers behave more individually rational and self-regarding in the digital setting, especially when property rights are clearly defined or when interaction are not repeated.

Table D2. Average Greed Index Using Data from All Periods.

Panel 1: AGI Including Equal Splits

	Pooled	***Weak / 1-Shot***	***Weak / 2-Shot***	***Strong / 1-Shot***	***Strong / 2-Shot***
Face-to-Face	.73	.35	.36	.96	1.25
Digital	2.96	3.04	.71	4.23	3.87
***t*-test**	$p < 0.001$	$p < 0.001$	$p = 0.2413$	$p < 0.001$	$p < 0.001$

Panel 2: AGI Without Equal Splits

	Pooled	***Weak / 1-Shot***	***Weak / 2-Shot***	***Strong / 1-Shot***	***Strong / 2-Shot***
Face-to-Face	1.95	1.75	1.78	1.48	2.79
Digital	3.95	3.73	2.38	4.34	4.26
***t*-test**	$p < 0.001$	$p < 0.001$	$p = 0.609$	$p < 0.001$	$p < 0.001$

Panel 3: Proportion of Non-Equal Splits

	Pooled	***Weak / 1-Shot***	***Weak / 2-Shot***	***Strong / 1-Shot***	***Strong / 2-Shot***
Face-to-Face	.38	.2	.2	.65	.47
Digital	.75	.82	.3	.98	.91
***t*-test**	$p < 0.001$	$p < 0.001$	$p = 0.074$	$p < 0.001$	$p < 0.001$

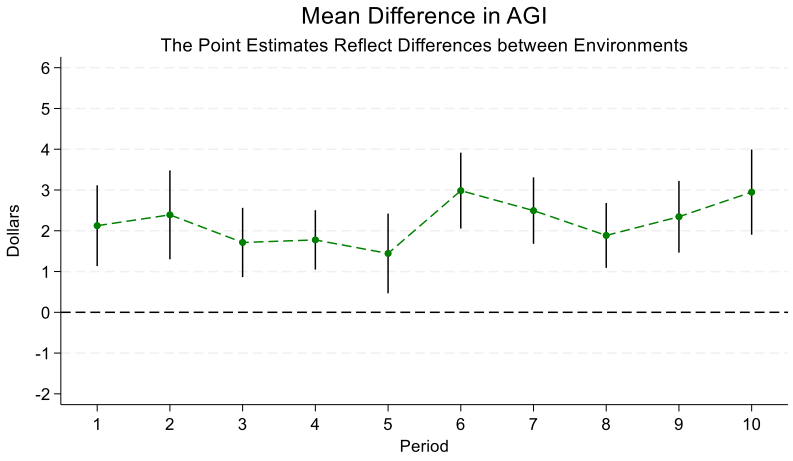

Figure D5: The mean difference in AGI between digital and face-to-face bargaining by period, including 95% confidence intervals.

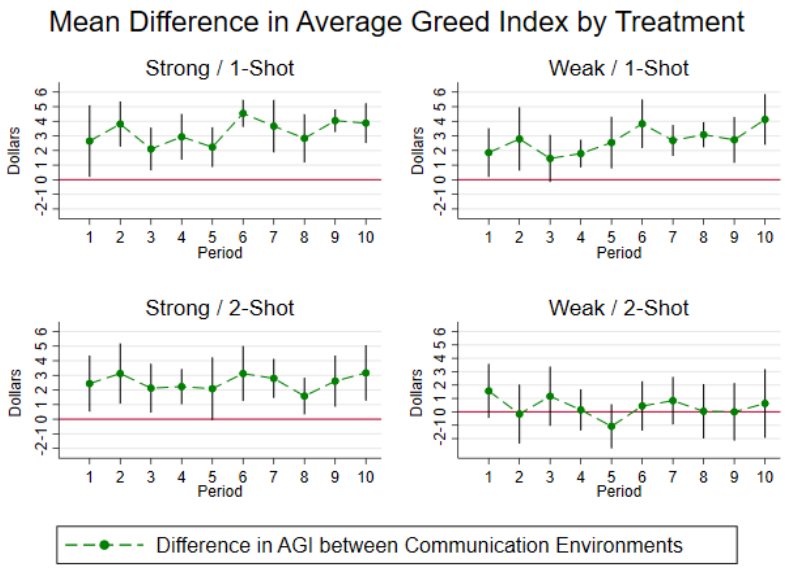

Figure D6: The mean difference in AGI between digital and face-to-face bargaining by period and treatment, including 95% confidence intervals.

We now turn to Figure D7, which displays the proportion of efficient decisions and corresponding payoff distributions (in terms of proportions) for each of our eight treatments. Notably, behavior is most consistent across bargaining environments in our weak property rights, two-shot sessions, both in terms of efficiency and payoff distributions. In fact, Controllers' and Bargainers' per-period average earnings across environments in this treatment are statistically indistinguishable (Table D3).

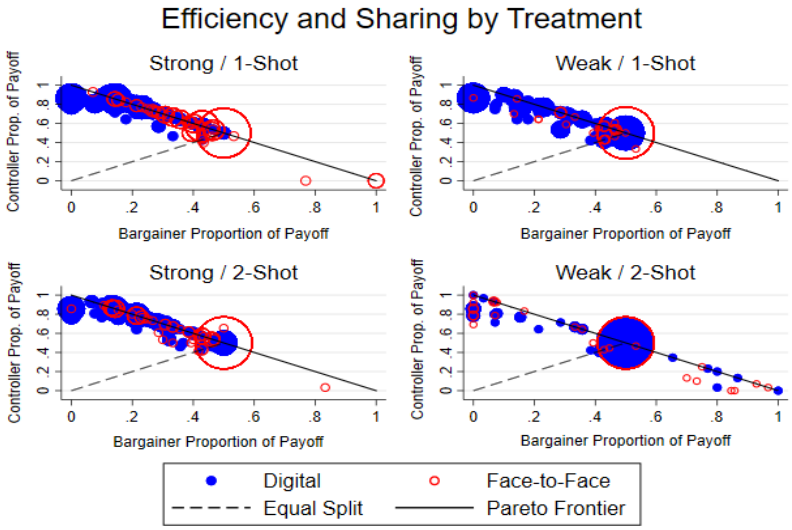

Figure D7: The proportion of efficient decisions and corresponding payoff distributions (in terms of proportions of total payoff), using data from all 10 periods in each treatment (120 observations per treatment in each environment).

Removing the strategic considerations of repeated bargaining or using strong property rights leads to a significant reduction in average Bargainer earnings in digital sessions, but only a minor, weakly significant impact in the face-to-face environment. These changes appear to prompt Controllers in digital sessions to behave in a more strongly self-regarding manner. This suggests that Controllers may prefer self-regarding behavior, but refrain from doing so face-to-face, potentially out of concern for the other player's payoff or to avoid uncomfortable interpersonal interaction in the face-to-face setting.

If other-regarding preferences were truly driving behavior in face-to-face sessions, we would not expect a drastic shift in payoff distributions when moving to a digital environment. However, we observe that digital bargaining shifts payoffs in favor of Controllers in all but the weak, two-shot treatment (Table D3). This suggests that other-regarding preferences alone cannot fully explain the equitable outcomes observed in the face-to-face setting.

Table D3. Differences in Controller and Bargainer Earnings.

	(1)	(2)	(3)	(4)
	Strong / 1-Shot	**Strong / 2-Shot**	**Weak / 1-Shot**	**Weak 2-Shot**
Digital	6.54***	5.22***	5.39***	0.71
	(0.477)	(0.511)	(0.481)	(0.607)
Constant	1.93***	2.508***	0.70**	0.71*
	(0.337)	(0.362)	(0.340)	(0.429)
N	120	120	120	120

Notes: This table reports results from a series of pooled OLS regressions wherein we project the difference between the Controller's and the Bargainer's payoff onto an indicator variable for whether bargaining was digital. Each column denotes results for the bargaining environment described by the column header. A positive coefficient indicates that the average difference between Controller and Bargainer earnings was higher in the digital setting. We use the following to denote statistical significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Experience

In this section, we assess how experience impacts efficiency and allocations by leveraging the longitudinal aspect of our experimental design. Table D4 shows the share of Controllers making unilateral profit-maximizing decisions across treatments. We observe a higher incidence of unilateral decision-making in digital treatments, particularly in the strong property rights, one-shot bargaining treatment, and the lowest incidence in the weak property rights, two-shot treatment.

Table D4. Instances of Unilateral Maximization.

Treatment	Digital	Face-to-Face
Pooled	45.4%	8.95%
Strong / 1-Shot	67.5%	6.7%
Strong / 2-Shot	59.2%	18.3%
Weak / 1-Shot	42.5%	1.7%
Weak / 2-Shot	12.5%	9.2%

Notes: Instances of Unilateral Maximization. This table reports the percentage of bargaining interactions where Controllers unilaterally maximize earnings. Differences in proportions are all highly significant across environments ($p < .001$) except for the weak property rights, two-shot bargaining treatments ($p \approx 0.41$).

Table D5 reports per-period results on requested and actual Controller sacrifice rates, as well as the number of unilateral decisions in digital bargaining. The increase in efficiency observed in later rounds of digital bargaining appears to be driven by Bargainers learning to request and accept less equitable allocations that are Pareto improving compared to the Controller's unilateral maximum. Though Controllers in the digital environment are more likely to make unilateral decisions (Table D4), this tendency decreases in later periods (Table D5). Bargainers initially expect equitable allocations but adjust their expectations as they gain experience, leading to improved efficiency.

We interpret these findings as evidence that the increased efficiency in later digital bargaining rounds stems primarily from changes in Bargainer behavior. Controllers in the digital environment, not facing the same interpersonal pressures as those in face-to-face bargaining, more frequently reject disadvantageous deals. While the effect of anonymity on self-regarding behavior is well documented, this

would be the first time, to our knowledge, that an experiment has shown its impact on efficiency in this type of bargaining environment.

Table D5. Requested vs. Actual Sacrifice Rates Among Digital Controllers.

Period	1	2	3	4	5	6	7	8	9	10
Requested Average Sacrifice	.62	.47	.38	.39	.40	.37	.26	.30	.24	.24
Actual Average Sacrifice	.21	.21	.18	.18	.22	.16	.12	.11	.16	.17
Unilateral Decisions	21	15	13	14	12	15	12	13	8	10

Notes: Requested sacrifice rates in this table are defined identically as before, where S is sacrifice, U is the unilateral maximum amount available to a Controller, and B is the payoff to the Controller conditional on accepting a Bargainer's proposal. Thus, $S = \frac{U-B}{U}$ represents the percentage of Controller earnings that result from unilateral maximization that they would sacrifice by accepting the proposal. Actual sacrifice is calculated similarly but is based on the actual amount of sacrifice observed in a decision.

References

Cameron, A. C., J. B. Gelbach, & D. L. Miller. (2008). Bootstrap-based improvements for inference with clustered errors. *Review of Economics and Statistics*, 90, 414-427.