

Instructions

Overview

You are about to participate in an experiment in the economics of decision-making. If you follow these instructions carefully and make good decisions you might earn a considerable amount of money that will be paid to you in cash at the end of the session. If you have a question at any time, please feel free to ask the experimenter. We ask that you not talk with one another for the duration of the experiment

In this experiment we will play five games. Each game consists of two stages. In the first stage you will form links with other players. In the second stage you will play 5 rounds of a game with the players with whom you have established links. In each of these 5 rounds you choose between one of two possible actions. Your “score” in each round of a game depends on your action choice and the actions chosen by all the players with whom you are linked - your “neighbors” - as will be explained in more detail below. You will not know the names of your neighbor(s) nor will they know your name, even after the session is over.

Your “economy” and your “neighbor(s)”

Each of you has been randomly assigned to one group of 4 players. We will refer to a group as an “economy”. Each economy is identified by a letter: A, B, or C. You will remain in the same 4 player economy for the entire session. The members of your 4 player economy are not necessarily the subjects closest to you in the physical layout of the laboratory.

Within your 4 player economy, you are identified only by your player ID number, which is either 1, 2, 3, or 4. You will remain in the same economy and have the same player ID number in every round of every game of this session. When the “first-stage” screen appears you will see the letter of the economy you have been randomly assigned to and your player ID number within this economy. Please record your economy letter and player ID number on your record sheet.

On this first-stage screen, you are asked to propose links to the other three players in your economy. Specifically, you are asked: “Which players do you want to be linked to?” There are three check boxes below this question. In the first of the five two-stage games we will tell you the player ID numbers of the players with whom you will establish links - your neighbors. However, we are going to ask you to make these links for us (we will be able to verify that you have done this correctly). Please follow these instructions carefully.

If you are in economy A, then in the first game you will be linked with only 1 of the other three players in your economy. In particular, player numbers 1 and 2 will be linked together as will player numbers 3 and 4. Use your mouse to check the box of the ONE player you are assigned to link with and then click the submit button. For example, player number 3 would click on the box next to player number 4 and then click submit.

If you are in economy B, then in the first game you will be linked with 2 of the other three players in your economy. If you are player number 1 in economy B, you will link with player numbers 2 and 4 only. If you are player number 2 in economy B, you will link with player numbers 1 and 3 only. If you are player number 3 in economy B, you will link with player numbers 2 and 4

only. Finally, if you are player number 4 in economy B you will link with player numbers 1 and 3 only. Use your mouse to check the box of each of the TWO players you are assigned to link with and then click the submit button.

If you are in economy C, then you will be linked with all three members of your economy. Use your mouse to check all 3 of the boxes next to the THREE other members of your economy and then click the submit button.

We will now pause until everyone has completed this last step. If you need help raise your hand.

Instructions on how links are formed in the remaining four two-stage games will be provided following the end of this first two-stage game.

After all links have been implemented, you will see a graphic on your screen showing your direct link(s) to other players in your economy in red. Links between other players in your economy that do not involve you are shown in green. Please do not make any choices until you are prompted to do so. Are there any questions about how players are linked to one another in your economy?

The play of the games

The payoff table for the second stage game you play with your neighbor(s) is shown on your computer screen and will also be drawn on the chalkboard. We will begin by playing the game shown on your screen for 5 rounds. After that you will receive further instruction before playing the next four two-stage games.

In every round of a game, three of the four players in every economy have a choice between the two possible actions which are labeled “X” and “Y.” If you are one of these three players, then your screen will indicate that you are free to choose either X or Y in every round. You do this by clicking on the radio button next to your choice, X or Y. When you are satisfied with your choice you click the submit button. You can change your mind any time prior to clicking the submit button, by simply clicking on the radio button next to either X or Y.

In every game, one member of every four player economy is randomly selected to receive a permanent payoff shock. All four players have an equal chance of being selected at the start of each 5-round game. The one player selected is required to play action Y in all 5 rounds of the game. If you are this player, your computer screen will state: “You have received a payoff shock. You must play action Y.” The program will automatically choose action Y for you in each of the next 5 rounds. You still have to click the submit button every round. The player ID (location) of the one player receiving the payoff shock in each 4 player economy is not known to the three other players in the economy who do not receive the shock, and who are free to choose X or Y in every round.

Your action choice together with the action chosen by your neighbor(s) determines your payoff in points for the round. The payoff table on your screen indicates the number of points that are possible from your choice of action in combination with the choice(s) of your neighbor(s). The payoff table you see on your screen depends on how many links you have (1, 2 or 3). The number in each cell is YOUR payoff in points.

If you have **1 link**, your payoff table looks like this:

		Your Neighbor’s Choice	
		X	Y
Your Choice	X	60	0
	Y	35	35

The 2 rows of the table pertain to your choice of X or Y, while the 2 columns of the table pertain to your neighbor's choice of X or Y. The intersection of your choice and your neighbor's choice is one of the four cells in the payoff table and is your payoff in points for the round. Each point is equal to 1 cent.

If you have **2 links**, your payoff table looks like this:

		Your Neighbors' Choices		
		2X	1X1Y	2Y
Your Choice	X	60	30	0
	Y	35	35	35

The 2 rows of the table pertain to your choice of X or Y, while the 3 columns of the table pertain to the choices of your two neighbors, e.g. 1X1Y means 1 neighbor chooses X, 1 chooses Y. The intersection of your choice and your two neighbors' choices is one of the six cells in the payoff table and is your payoff in points for the round. Each point is equal to 1 cent.

If you have **3 links**, your payoff table looks like this:

		Your Neighbors' Choices			
		3X	2X1Y	1X2Y	3Y
Your Choice	X	60	40	20	0
	Y	35	35	35	35

The 2 rows of the table pertain to your choice of X or Y, while the 4 columns of the table pertain to the choices of your three neighbors, e.g. 1X2Y means 1 neighbor chooses X, 2 choose Y. The intersection of your choice and your three neighbors' choices is one of the eight cells in the payoff table and is your payoff in points for the round. Each point is equal to 1 cent. Note that, since one player in every four player economy is required to play Y, if you have three neighbors and are free to choose X or Y (you do not receive the shock), then the outcome in the table above where you choose X and all 3 of your neighbors choose X (3X) is not possible, though all of the seven other outcomes in the table above are possible.

Note also that, in this first game, if you have $\ell=1,2,3$ links, the neighbors you are linked with also have the same number of links, so your payoff table is the same as their payoff table.

After all players have made their choices the outcome of the round will be revealed to you at the bottom of your screen. You will be reminded of your own choice and you will see your neighbor(s) choices and your payoff for the round. For example, if you are player ID number 2 and have two neighbors, with ID numbers 1 and 3, your neighbors' choices might appear as: 1X 3Y. This tells you that your neighbor, player number 1, chose X and your other neighbor, player number 3 chose Y. Record your own choice for the round in the column of your record sheet with the heading "my choice" and your neighbor(s) choices in the next column under the heading "neighbors' choices"; in the example above you would record your neighbors' choices as: "1X 3Y." Finally, record your payoff in points (cents) in the column under the heading "my payoff." At the end of the session you will be paid your total earnings from all rounds played in cash plus a \$5 participation payment. When you have recorded this information click the OK button that pops up on your screen at the end of each round. If the fifth round has not been played, you may proceed to play the next round. After we have played five rounds of the game shown on your computer, you will receive further instruction on how to play the next four two-stage games.

ARE THERE ANY QUESTIONS BEFORE WE BEGIN?

Instructions, continued

Overview

We will play four more two-stage games. The only difference between the next four games and the first game we played is that in the first stage of these next four games YOU get to decide which players in your 4 player economy you want to be linked with, that is, you get to choose the number of neighbors that you play the game with.

Rules for Forming Links

On the first stage screen, you may check a box next to any of the three players in your economy. If you choose to form a link to a particular player and that player also chooses to be linked to you, then the two of you will be neighbors in the 5 rounds of the game that is played in the second stage. The same holds true for each of the other players in your economy. Thus to establish a link with another player, *both* players must agree to link with one another. If you leave a check box unchecked, that means you do not want to establish a link with that player and therefore, *no link will be established*, even if that other player checked the box next to your player ID number, indicating that he/she wanted to be linked with you.

When all players have submitted their link requests, the computer program will determine which players have mutually agreed to be linked to one another and will then establish these mutually agreed upon links. A graphic will appear on your screen showing your direct link(s) to other players in your economy in red. These include all links you proposed to make which the other player(s) agreed to make as well. Links between other players in your economy that do not involve you are shown in green. The player ID numbers of the players you are and are not linked to can be determined from this graphic.

According to these rules, it is possible for you to be linked with 0, 1, 2 or 3 of the other 3 players in your economy, depending on your link choices and the link choices of the 3 other players. These link choices will be in effect (they cannot be changed) for the duration of the 5 rounds of the second stage of the game.

If you are linked with 1, 2, or 3 players in your economy, then you use the appropriate tables given on pages 2–3 of your instructions (and drawn on the blackboard) to determine your payoffs in each of the 5 rounds of the second stage of the game. You may want to consult these tables in deciding how many players you want to be linked to. As in the first game, the intersection of your choice and your neighbor's(s') choices is one of the four, six or eight cells in the payoff table (depending on whether you have 1, 2 or 3 neighbors) and is your payoff in points for the round (focus only on the first number in each cell). Each point is equal to 1 cent. However, in contrast to the first game, your neighbors may no longer have the same number of links as yourself. You can see exactly how many links each of the players you are matched with has by looking at the graphic on your screen indicating links between all players in your economy. So, for example, if you have ℓ links, and one of the players with whom you are matched has $\ell - 1$ links, you will be playing all five rounds of the game together, and your choices will affect each others' payoffs, but you will have different payoff tables; yours will correspond to the case of ℓ links and your neighbor's will correspond to the case of $\ell - 1$ links. Before playing the game, you may want to consider how

many links your neighbors (those players you are linked to) have, and the payoff tables they face, which again, are given on pages 2–3 and drawn on the blackboard.

If you are not linked with any players (you have 0 links), you will sit out the 5 rounds of the game. (You will still need to click the submit button every round, but you will not be making any decisions). If you have zero links you earn 35 points per round, or a total of $5 \times 35 = 175$ points for the game. Record this amount on your record sheet for each round. Notice that you can always earn 35 points per round by being linked with at least one player and choosing action Y. If you sit out a game, you will have the opportunity to form new links in the first stage of the following game, provided the experiment is continuing.

As in the first game, at the beginning of the second–stage of the second, third, fourth and fifth games (*after* any links have been implemented) one player in every four player economy is randomly selected to receive a permanent payoff shock. All four players have an equal chance of being selected regardless of the number of links they have (0, 1, 2, or 3). The one player selected is required to play action Y in all 5 rounds of the game (if s/he has any links). If you are this player, your computer screen will state: “You have received a payoff shock. You must play action Y.” The program will automatically choose action Y for you. You still have to click the submit button every round. The player ID (location) of the one player receiving the payoff shock in each 4 player economy is not known to the three other players in the economy who do not receive the shock, and who are free to choose X or Y in every round (if they have any links).

In response to the questions asking whether you want to be linked with each of the players in your economy, use your mouse to check the boxes next to the players with whom you want to form links. Remember that you remain in the same four player economy for the duration of today’s session. When you are satisfied with your choices click the submit button. When everyone has done this, you will be informed of the links that you have established with other members of your economy. You will then play 5 rounds of the game with these players.

If you have any links, the payoff table on your screen will look like one of the three payoff tables shown on pages 2–3, and drawn on the blackboard. Before playing any rounds, record the Player ID number(s) of any players with whom you are linked on your record sheet (refer to your red links on the graphic on your screen). You may then play five rounds of this game, clicking next to either X or Y in every round, if you have a choice to make.

When the results of each round become available, please record the outcome on your record sheet under the appropriate headings as you did in the first two–stage game. When you have recorded this information click the OK button that pops up on your screen at the end of each round. If the fifth round has not been played, you may proceed to play the next round. At the start of each new two–stage game, you will again be asked to submit link proposals. You are free to change the link proposals you make in the first stage of every game played.

At the end of the session you will be paid your total earnings from all rounds played. In addition, you will receive \$5 for your participation in today’s session.

ARE THERE ANY QUESTIONS BEFORE WE BEGIN?