

*Basic Instructions: Experiment 1 (inexperienced subjects).*

Instructions

This is an experiment in the economics of decision making. The National Science Foundation and other agencies have provided the funds for this research. The instructions are simple. If you follow them closely and make appropriate decisions, you may make an appreciable amount of money. These earnings will be paid to you, in cash, at the end of the experiment.

1. In this experiment you will be asked to make decisions in several periods. There are two types of agents involved in each decision - “**A**” players and “**B**” players. In each period each **A** player is paired with a **B** player. Each **A** player makes a decision first. Then each **B** player makes a decision after seeing the decision of the **A** player with whom he is paired.
2. **A** players: There are two types of **A** players – type 1 (A1) and type 2 (A2).

Table 1 shows the payoffs for the **A** players. You all have copies of payoff Table 1, please look at it now. **A**'s payoffs depend on their type (whether they are an A1 or A2), the number they have chosen, and the actions of the **B** player they have been paired with for that period (whether the **B** player chooses X or Y). Thus, for example, if an A1 player were to choose 3, and the **B** player they were paired with chose X they would earn 150, and if the **B** player chose Y they would earn 426. Similarly, if an A2 chooses 3, and the **B** player they have been paired with chooses X they would earn 330, and if the **B** player chooses Y they would earn 606. Notice that for each possible choice payoffs for A2's are higher than the payoffs for A1s. Also notice that for any choice payoffs are always higher for the **A** player if the **B** player they have been paired with chooses Y rather than X.

**A** players have no choice over whether they are A1's or A2's. **A**'s type will be determined randomly in each period through a process to be described shortly. **A**'s will always know if they are an A1 or A2 for a given play of the game. This is indicated just below the payoff table on their computer screen next to “Your type”.

In each play of the game **A** players move first by choosing a number. A1 players may choose any number between 1 and 7; A2 players may also choose any number between 1 and 7.

3. **B** players: **B** players make their choices after seeing the number chosen by the **A** player they have been paired with for that period. They do not know if the **A** player they have been paired with is an A1 or A2 type before they make their choice, they only get to see the number chosen by the **A** player they have been paired with.

Table 2 shows the payoffs for the **B** player. You all have copies of Table 2, please look at it now.

For a **B** player if they know (or can guess correctly) that they are facing an A1 player, they earn more if they choose X than if they choose Y (500 versus 250). On the other hand, if they know (or can guess correctly) that they are facing an A2 type, they earn more if they choose Y, than if they choose X (250 versus 200). In cases where the **B** player is uncertain about the type of **A** player they have been paired with, the choice that maximizes earnings depends on your best estimate of the likelihood you are facing an A1 versus an A2 player.

After the **B** player has made her choice, payoffs for both **A**'s and **B**'s will be determined.

4. In each period there is a 50% chance that the **A** player will be an A1 and a 50% chance they will be an A2. In other words, in each period, on average, 1 out of 2 **A** players will be A1, while on average every 1 out of 2 **A** players will be an A2. However, which particular **A** players will be A1's and which will be A2's is determined randomly by the computer in each period.
5. In each period **A** and **B** players will be randomly matched with each other by the computer. The random matching process is such that for each set of six (6) periods, each A player will be paired with each B player only once. You will not know the identity of the other player you are matched with in any period.
6. You will play as both an **A** player and as a **B** player. Your designation as an **A** player or as a **B** player will stay the same for six (6) periods, and then you will switch roles for six (6) periods. This process will repeat 3 times for a total of 36 periods.
7. Before going any further, we want to make sure everyone knows how to read the payoff tables. So please answer the following questions. If you have any trouble with the questions raise your hand and one of our monitors will be around to answer your question. Our monitors will also be around to check your answers.

### Questions

1. Suppose you are an A2 player. If you choose 4 and the B player you have been paired with chooses X your payoff will be \_\_\_\_\_. On the other hand, if you choose 5 and the B player chooses Y your payoff will be \_\_\_\_\_.
2. Suppose you are an A2 player. If you choose 4 and the B player you have been paired with chooses Y your payoff will be \_\_\_\_\_. On the other hand, if you choose 5 and the B player you have been paired with chooses X your payoff will be \_\_\_\_\_.
3. Suppose you are an A1 player. If you choose 2 and the B player you have been paired with chooses X your payoff will be \_\_\_\_\_. On the other hand, if you choose 3 and the B player you have been paired with chooses Y your payoff will be \_\_\_\_\_.
4. Suppose you are an A1 player. If you choose 2 and the B player you have been paired with chooses Y your payoff will be \_\_\_\_\_. On the other hand, if you choose 3 and the B player you have been paired with chooses X then your payoff will be \_\_\_\_\_.
5. Suppose you are a B player. If you choose X and the A player is an A1 type you earn \_\_\_\_\_, while if it is an A2 type you earn \_\_\_\_\_. On the other hand, if you choose Y and the A player is an A2 type you earn \_\_\_\_\_, while if it is A1 type you earn \_\_\_\_\_.

8. First we will do a practice period before we play for cash. In each period the existing A players must choose first. This is done by entering the number chosen at the prompt on the computer screen, and then hitting the "enter" key. The computer will highlight the possible payoffs from that choice. If you are satisfied with your choice simply type "Y" at the verify prompt and hit the "enter" key again. If you wish to change the choice, simply type "N" at the "Verify" prompt and hit the "enter" key. A players, please make your choice now.

B players will see the existing A players choice, then choose between X and Y. This is done by entering 1 (for X) or 2 (for Y). The computer will then highlight the possible payoffs from that choice. If you are satisfied with your choice simply type "Y" at the verify prompt and hit the "enter" key. If you want to change your choice type "N" at the "Verify" prompt and hit the "enter" key. Please make your choice now.

After both As and Bs have chosen the computer will highlight the actual earnings for the period, and display the A players type, and both As and Bs choices. Please record this information on your Subject Record Sheets.

In addition, the decisions of all pairs of A and B players in the current period will be shown on the left, bottom part of your screen. You will see each A players type, the number chosen, and the response of the B player they were paired with for that period.

All A1 players choices are shown first and indicated by the red background color, followed by all A2 players choices which are indicated by the green background color. Your own choice is shown by the little blinking monitor below the choices reported. Note, there are different pairings in each period and the determination of A1 and A2 players is done randomly each period, so this information does not permit you to identify the particular choices of anyone you will be paired with next period.

9. The payoff tables are in francs. Francs will be converted into dollars at the rate of 1 frank = .001 dollars. At the end of the experiment, you will be paid the sum of your earnings for all periods. These total earnings will be paid to you in cash along with your participation fee. **FEEL FREE TO MAKE AS MUCH MONEY AS YOU POSSIBLY CAN.**

Now we are going to play for cash.  
Are there any questions?

Instructions for inexperienced subjects in Experiment 2 modify the payoff values reported in 3 (page 2) to match the payoff tables.

*Summary Instructions for Experienced bidders:*

Summary Instructions

1. You have all participated in an experiment of this sort with exactly the same payoff tables.
2. As before, you will be asked to make decisions in several periods as either an A player or as a B player. There are two types of A players: A1 and A2 (50% of the A players will be A1s, 50% will be A2s). As choose a number between 1 and 7 first, after which the B player decides between X and Y.
3. You will play 6 times as an A player. In each of these periods you will be randomly matched with a B player. You will not know the identity of the B player. You will switch roles after every 6 periods. We will conduct 36 periods in total with this set-up.
4. Payoff tables are exactly the same as you all used the last time you participated in this experiment. In fact everything about the experiment is the same as the last time you all played except for the actual people playing. We have selected subjects from two previous inexperienced subject sessions in order to see what happens with more experienced participants.
5. The process for entering your choices is the same as before. Remember, you must click the red send area at the top of the payoff table to send your choices to the player you have been paired with for the period.
6. The payoff tables are in francs. Francs will be converted into dollars at the rate of 1 franc = .0001 dollars. At the end of the experiment you will be paid your total earnings in CASH along with your \$5.00 participation fee. **FEEL FREE TO MAKE AS MUCH MONEY AS POSSIBLE.**

Are there any questions?

*Instructions for Cross-Over Treatment:* Handed out at the time of the crossover along with the new payoff tables

Cross-over  
HC Es/LC Es

### Summary Instructions

1. Beginning with the next period, you will be playing a game which is similar to the one you have been playing.
2. As before, you will be asked to make decisions in several periods as either an A team or as a B team. There are two types of A teams: A1 and A2 (50% of A1, 50% of an A2)
3. The only difference between what you will be doing now and what you had done before is that the B teams payoff values have changed. These are shown on the new payoff sheets we have distributed and will appear on the B teams computer screen as well.
4. As before A's will make their choices first, after which B's will make their choices.
5. You will play 4 times as an A team. In each of these periods you will be randomly matched with a B team. You will not know the identity of the B team. You will switch roles after every 4 periods. This will repeat for a total of 24 periods.
6. The process for entering your choices and communicating with your partner is the same as before.
7. The payoff tables are in francs. Francs will be converted into dollars at the rate of 1 franc = .0025 dollars. At the end of the experiment you will be paid your total earnings in CASH along with your participation fee. **FEEL FREE TO MAKE AS MUCH MONEY AS POSSIBLE.**

Are there any questions?

*Payoff Table Exp 2 – High Cost Es*

Table 1  
A Player's Payoffs as a Function of B Player's Choice

A's choice	A1 B's Choice		A2 B's Choice		A's choice
	x	y	x	y	
1	150	426	250	542	1
2	168	444	276	568	2
3	150	426	330	606	3
4	132	408	352	628	4
5	56	182	334	610	5
6	-188	-38	316	592	6
7	-292	-126	213	486	7

Table 2  
B's Payoffs

B's Choice	A's Type	
	A2	A1
X (1)	74	300
Y (2)	250	250

*Payoff Table Exp 1 – Low Cost Es*

Table 1  
A Player's Payoffs as a Function of B Player's Choice

A's choice	A1 B' s Choice		A2 B's Choice		A's choice
	x	y	x	y	
1	150	426	250	542	1
2	168	444	276	568	2
3	150	426	330	606	3
4	132	408	352	628	4
5	56	182	334	610	5
6	-188	-38	316	592	6
7	-292	-126	213	486	7

Table 2  
B's Payoffs

B's Choice	A's Type	
	A2	A1
X (1)	200	500
Y (2)	250	250

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8. In this experiment you will be asked to make decisions in several periods. There are two types of firms involved in each decision – *Existing Firms* and firms deciding if they should enter the industry with the existing firm versus some other industry (we will refer to such firms as the *Other Firm*). In each period each Existing Firm is paired with one Other Firm. Each Existing Firm chooses its output level first. After *all* Existing Firms have made their choices, the Other Firms see the output level chosen by the Existing firm they have been paired with, and decide between entering the industry the Existing Firm operates in (THIS) or entering some other industry (OTHER).
9. *Existing Firms*: There are two types of Existing Firms – High cost firms and Low cost firms.

Table 1 shows the payoffs for the Existing Firms. You all have copies of payoff Table 1, please look at it now. The Existing Firms payoffs depend on their type (whether they are an High Cost or Low Cost), the output they have chosen, and the actions of the Other Firm they have been paired with for that period (whether the Other Firm chooses to enter THIS industry or the OTHER industry). Thus, for example, if a High Cost firm were to choose 3, and the Other Firm they were paired with chose to enter THIS industry they would earn 150, and if the Other Firm chose to enter the OTHER industry they would earn 426. Similarly, if a Low Cost firm chooses 3, and the Other Firm they have been paired with chooses to enter THIS industry they would earn 330, and if the Other Firm chooses to enter the OTHER industry they would earn 606. Notice that for each possible choice payoffs for Low Cost Existing Firms are higher than the payoffs for High Cost Existing Firms. Also notice that for any choice payoffs are always higher for the Existing Firm if the Other Firm chooses to enter the OTHER industry compared to THIS industry.

Existing firms have no choice over whether they are High Cost or Low Cost firms. The Existing Firm's type will be determined randomly in each period through a process to be described shortly. Existing Firms will always know if they are a High or Low cost type for a given play of the game. This will be clearly indicated on your computer screens.

In each play of the game Existing Firms move first by choosing an output level. High cost firms may choose any output level between 1 and 7; Low cost firms may also choose any output level between 1 and 7.

10. *Other Firms*: Other Firms make their choices after seeing the output level the Existing Firm they have been paired with chooses for that period. They do not know if the Existing Firm they have been paired with is a Low or High cost type before they make their choice, they only get to see the output level chosen by the Existing Firm they have been paired with.

Table 2 shows the payoffs for Other Firms. You all have copies of Table 2, please look at it now.

If the Other Firm knows (or can guess correctly) that they are facing a High cost firm, they earn more if they choose to enter THIS industry than if they choose to enter the OTHER industry (500 versus 250). On the other hand, if they know (or can guess correctly) that they are facing a Low cost type, they earn more if they choose to enter the OTHER industry than if they choose to enter THIS industry (250 versus 200). In cases where the Other Firm is uncertain about the type of Existing Firm they have been paired with, the choice that maximizes earnings depends on your best estimate of the likelihood you are facing a High Cost versus a Low Cost Existing Firm.

After the Other Firm has made its choice, payoffs for both Existing Firms and Other Firms will be determined.

11. In each period there is a 50% chance that the Existing Firm will be a High Cost type and a 50% chance they will be a Low Cost type. In other words, in each period, on average, 1 out of 2 Existing Firms will be Low Cost, while on average every 1 out of 2 Existing Firms will be a High Cost. However, which particular Existing Firms will be low cost and which will be High Cost is determined randomly by the computer in each period.
12. In each period Existing Firms and Other Firms will be randomly matched with each other by the computer. The random matching process is such that for each set of six (6) periods, each Existing Firm player will be paired with each Other Firm only once. You will not know the identity of the other player you are matched with in any period.
13. You will play as both an Existing Firm and as an Other Firm. Your designation as an Existing Firm or as an Other Firm will stay the same for six (6) periods, and then you will switch roles for six (6) periods. This process will repeat 2 times for a total of 24 periods.
14. Before going any further, we want to make sure everyone knows how to read the payoff tables. So please answer the following questions. If you have any trouble with the questions raise your hand and one of our monitors will be around to answer your question. Our monitors will also be around to check your answers.

## Questions

6. Suppose you are a Low Cost Existing Firm. If you choose output level 4 and the Other Firm you have been paired with chooses to enter THIS industry your payoff will be \_\_\_\_\_. On the other hand, if you choose output level 5 and the Other Firm chooses to enter the OTHER industry your payoff will be \_\_\_\_\_.
7. Suppose you are a Low Cost Existing Firm. If you choose output level 4 and the Other Firm you have been paired with chooses to enter the OTHER industry your payoff will be \_\_\_\_\_. On the other hand, if you choose output level 5 and the Other Firm chooses to enter THIS industry your payoff will be \_\_\_\_\_.
8. Suppose you are a High Cost Existing Firm. If you choose output level 2 and the Other Firm you have been paired with chooses to enter THIS industry your payoff will be \_\_\_\_\_. On the other hand, if you choose output level 3 and the Other Firm chooses to enter the OTHER industry your payoff will be \_\_\_\_\_.
9. Suppose you are a High Cost Existing Firm. If you choose output level 2 and the Other Firm you have been paired with chooses to enter the OTHER industry your payoff will be \_\_\_\_\_. On the other hand, if you choose output level 3 and the Other Firm chooses to enter THIS industry your payoff will be \_\_\_\_\_.
10. Suppose you are an Other Firm. If you choose to enter THIS industry and the Existing Firm is a High Cost type you earn \_\_\_\_\_, while if it is a Low Cost type you earn \_\_\_\_\_. On the other hand, if you choose to enter the OTHER industry and the Existing Firm is a High Cost type you earn \_\_\_\_\_, while if it is a Low Cost type you earn \_\_\_\_\_.
6. Will you be paired with a different firm in each period? (Yes/No) \_\_\_\_\_

Table 1  
Existing Firm's Payoffs as a Function of Other Firm's Choice

Output	High Cost (H) Enter		Low Cost (L) Enter		Output
	THIS (T)	OTHER (O)	THIS (T)	OTHER (O)	
1	150	426	250	542	1
2	168	444	276	568	2
3	150	426	330	606	3
4	132	408	352	628	4
5	56	182	334	610	5
6	-188	-38	316	592	6
7	-292	-126	213	486	7

Table 2  
Other Firm's Payoffs

Existing Firm's Type		
Other Firm Enters	Low Cost	High Cost
OTHER (O)	250	250
THIS (T)	200	500