

**Paul J. Ferraro and Christian A. Vossler (2010). The Source and Significance of Confusion in Public Goods Experiments. The B.E. Journal of Economic Analysis and Policy.**

*Experiment 4 - Human player treatment*

- This is an experiment about decision-making.
- You will never be asked to reveal your identity during the experiment.
- Your name will never be associated with any of your choices.
- Keep your decisions private. Please do not reveal your choices to any other participant.
- These instructions will explain to you the choices that you will be making. They will also explain how you will enter your choices on the computer.
- You can write on these instructions if you wish. Feel free to refer back to them at any time during today's experiment.
- During the experiment do not speak or communicate with the other participants. If you have a question while we are going through these instructions or while the experiment is going on, please raise your hand and one of us will come to your seat to answer it.

**THIS EXPERIMENT**

This experiment is a study of group and individual decision making. The amount of money you earn depends on the decisions that you and the other participants make and thus you should read the instructions carefully. The money you earn will be paid privately to you, in cash, at the end of the experiment. A research foundation has provided the funds for this study.

You will be in a group consisting of four players: you and three others. The other players in your group are people sitting in this room, but you will not be told who is in your group.

Each member in your group will be given tokens. You may choose to keep all of your tokens. Alternatively, you may choose to donate some or all of your tokens to the other three members of your group.

**KEEPING TOKENS:** For every token you keep you (and only you) will earn 6 cents. Examples are given below:

Example: Suppose you keep 3 tokens. Then you would earn \$0.18 (18 cents) from doing so.

Example: Suppose you keep 5 tokens. Then you would earn \$0.30 from doing so.

Example: Suppose you keep 0 tokens. Then you would earn nothing (\$0.00) from doing so.

**DONATING TOKENS**: Every token you donate will earn your group 12 cents. This amount will be shared equally between all members of your group (including yourself). Said another way, every token you donate earns you and the three other people in your group 3 cents each. Tokens donated by any of the other three people in your group also earn you 3 cents. Thus your earnings from donations will depend on the TOTAL NUMBER OF TOKENS that you and the other three members of your group donate. The process is best explained through a number of examples, given below:

Example: Suppose that you decided not to donate any tokens to the group, but that the three other members donate a **total** of 10 tokens. Then **your** earnings from donations would be \$0.30 (3 cents for each of the 10 tokens). Everyone else in your group would also earn \$0.30 from donations.

Example: Suppose that you decided to donate 4 tokens to the group, and the three other members donate a **total** of 9 tokens. This makes a **total** of 13 tokens donated to the group. Then **your** earnings from donations would be \$0.39 (3 cents for each of the 13 tokens). Everyone else in your group would also earn \$0.39 from donations.

Example: Suppose that you decided to donate 6 tokens to the group, but that the three other members donate nothing. Then you, and everyone else in the group, would each earn \$0.18 from the donations (3 cents for each of the six tokens). As you can see, every token donated to the group will earn 3 cents for EVERY member of the group, not just the person who donated it. IT DOES NOT MATTER WHO DONATES TOKENS TO THE GROUP. EVERYONE WILL GET A RETURN FROM EVERY TOKEN DONATED — WHETHER THEY DONATE TO THE GROUP OR NOT. A table has been provided for your reference during the experiment. The table lists what your payoff would be from group donations given the number of tokens donated in each round of the experiment.

**THE DECISION TASK**: In each decision round, you will be given an Endowment of **10 tokens**. Your task is to decide how many of the **10 tokens** to keep and how many to donate. You are free to keep some tokens and donate some tokens. Alternatively, you can keep all of them or donate all of them. Your earnings in a decision round are the sum of the earnings from the tokens you keep **plus** the earnings from the **total** number of tokens donated by your group.

**Your earnings = 6 cents\*(The Number of Tokens You Keep) + 3 cents\*(Total Number of Tokens Donated)**

**NUMBER OF DECISIONS:** You will have the same decision task in each of 25 rounds. You will be grouped with the same three people each round, but as noted above, you will not know the identities of the people with whom you are paired (you will all remain anonymous to each other).

You will be paid the total of your earnings from all 25 rounds.

**The Earnings Table** It is very important for our research that you understand how earnings are determined in the experiment. We hope that it is important to you as well, as a better understanding of the experiment will likely lead to higher earnings for you. To help you understand these calculations, we provide you with a table that describes your earnings and the average earnings of your group members for all possible decisions that you might make. We encourage you to refer to the table, as well as the instructions, throughout the experiment.

Each row corresponds to one of your possible donations. The first row corresponds to a decision where you donate 0 tokens (and this implies you keep 10 tokens). The fifth row corresponds to a decision where you donate 5 tokens (and so 5 tokens are kept).

Each column corresponds to the average amount that your three group members may donate, rounded to whole numbers. Since your group members also have 10 tokens to allocate, these values range from 0 to 10 tokens. So the first column (with 0 at the top) corresponds to a case where the other three group members donate 0 tokens. The 8th column (with 8 at the top) corresponds to the situation in which the other three group members donate, on average, 8 tokens (a total of 24 tokens: 8 tokens x 3 people).

So each row represents your possible decisions and each column represents the possible decisions of your group members. Each cell that is formed by the intersection of a row and a column represents one possible outcome in the experiment.

Thus the first cell in the upper left-hand corner (first row, first column) corresponds to the outcome in which you donate 0 tokens, and your group members donate 0 tokens. Your earnings are listed first and are in bold font. You earn \$0.60 (six cents per token kept and \$0.00 from donations because there are no tokens donated). The other group members also earn \$0.60 each.

The cell below the upper left-hand cell (second row, first column) corresponds to the outcome in which you donate 1 token, and your group members donate 0 tokens. You earn \$0.57 (6 cents for each of 9 tokens kept and 3 cents for the one token donated). The other group members earn \$0.63 each (6 cents for each of 10 tokens each kept and 3 cents for the one token you donated).

The cell to the right of the upper left-hand cell (first row, second column) corresponds to the outcome in which you donate 0 tokens, and your group members donate, on average, 1 token (a total of 3 tokens donated from the group because there are three other people in your group). You earn \$0.69 (6 cents for each of 10 tokens kept and 3 cents for each of the 3 tokens donated). On average, the other group members earn \$0.63 each (on average, each kept 9 tokens, earning 54 cents, and received an additional 9 cents from the three tokens donated).

A few points that you should notice about the earnings calculations:

- (1) By looking across a row, you should notice that your earnings increase with increases in the average donations of your group members. This relationship holds no matter how many tokens you donate. Please confirm this by looking across the rows.
- (2) By looking down a column, you should notice that your earnings decrease with increases in your donations. This relationship holds no matter how many tokens others in your group donate. Please confirm this by looking down columns.
- (3) An individual makes the least amount of money (\$0.30) when he or she donates all 10 tokens and the other group members donate 0 (bottom left-hand corner of table). Please confirm this by looking at the table.
- (4) An individual makes the most amount of money (\$1.50) when he or she donates 0 tokens and the other group members donate 10 tokens (top right-hand corner of table). Please confirm this by looking at the table.
- (5) A group makes the least amount of money when all four members donate 0 tokens (upper left-hand corner):  $\$0.60/\text{person} \times 4 \text{ people} = \$2.40$  total. Please confirm this by looking at the table.
- (6) A group makes the most amount of money when all four members donate 10 tokens (lower right-hand corner):  $\$1.20/\text{person} \times 4 \text{ people} = \$4.80$  total. Please confirm this by looking at the table.

If any of these points is not clear, please raise your hand and someone will come by to answer it. It is in your best interest to ensure that you understand the way in which earnings are calculated.

**Questions of understanding, part 1.** To make sure you understand how to read this table, please answer the following three questions. You will be paid \$1 if you answer all questions correctly.

1. You donate 0 tokens to the group (thus keeping 10 tokens) and the other group members donate 0 tokens,
  - a. What are your earnings? \_\_\_\_\_
  - b. What are the average earnings of each of your group members? \_\_\_\_\_
2. You donate 10 tokens to the group (thus keep 0 tokens) and the other group members donate 0 tokens,
  - a. What are your earnings? \_\_\_\_\_
  - b. What are the average earnings of each of your group members? \_\_\_\_\_

3. You donate 0 tokens to the group and the other group members each donate 10 tokens, on average, to the group,
  1. What are your earnings? \_\_\_\_\_
  2. What are the average earnings of each of your group members? \_\_\_\_\_

Raise your hand when you are finished so that the moderator may check your answers. If you finish these questions before the others, we advise you to think about additional examples to further familiarize yourself with the table.

**Questions of understanding, part 2.** To make sure you understand how to read this table, please answer the following four questions. You will be paid \$1 if you answer all questions correctly.

4. You donate 10 tokens to the group and the other group members donate 10 tokens, on average, to the group,
  - a. What are your earnings? \_\_\_\_\_
  - b. What are the average earnings of each of your group members? \_\_\_\_\_
5. You donate 5 tokens to the group and the other group members donate 6 tokens, on average, to the group,
  - a. What are your earnings? \_\_\_\_\_
  - b. What are the average earnings of each of your group members? \_\_\_\_\_
6. You donate 6 tokens to the group and the other group members donate 5 tokens, on average, to the group,
  - a. What are your earnings? \_\_\_\_\_
  - b. What are the average earnings of each of your group members? \_\_\_\_\_
7. Now make up an example on your own.
  - a. You donate \_\_\_\_\_ tokens to the group (thus you keep \_\_\_\_\_ tokens).
  - b. Your group members donate, on average, \_\_\_\_\_ tokens to the group.
  - c. What are your earnings? \_\_\_\_\_
  - d. What are the average earnings of each of your group members? \_\_\_\_\_

Raise your hand when you are finished so that the moderator may check your answers. If you finish these questions before the others, we advise you to think about additional examples to further familiarize yourself with the table.

**USING THE COMPUTER:** Please look at your computer screen. At the beginning of each round you will be given an Endowment of **10 tokens**. You will also be reminded of the round number and the number of members in your group. You select the number of tokens you want to keep and donate by using the slide bar below the question “How many tokens do you want to donate to the group?” You simply enter the number of tokens you want to donate to the group. Using your mouse, put the arrow cursor on the slide bar and hold down the left-hand click button. You can then slide the arrow to the amount that you want to donate. The number of tokens you keep will change automatically so that the sum of the tokens you keep and donate is equal to your endowment, 10 tokens. The other players in your group will also have 10 tokens to allocate. You must make your decisions each round **WITHOUT** knowing the decisions of your group members.

When you are **certain** of your decision, click on the **SUBMIT** button located at the top of your screen. **DO NOT CLICK THE “SUBMIT” BUTTON UNTIL YOU ARE SURE OF YOUR DECISION.**

When all players have submitted their decisions, you will be told the total number of tokens donated that round as well as your earnings from that round. At any time during the experiment, you can click on the **Transaction History** button and see the history for each round, including a record of (1) the number of tokens you kept and donated, (2) the number of tokens donated by all group members other than you, (3) the total number of tokens donated, and (4) your earnings for that round. To return to the decision screen, just click Close.

You have now completed the instructions.

Please remember to remain quiet during the experiment.

If you have any questions, raise your hand and someone will come to your desk to answer it.

Please be sure that you have understood the instructions before continuing.

*Complete payoff table given to every subject (on paper) is Figure 4 in main text.*