

Instructions

These are the instructions for treatment "3". The instructions were appropriately adjusted for the other treatments.

You are now taking part in an economic experiment. If you read the following instructions carefully, you can, depending on your decisions and of those made by the others, earn a considerable amount of money. It is therefore important that you take your time to understand the instructions.

The instructions which we have distributed to you are for your private information. Please do not communicate with the other participants during the experiment. Should you have any questions please ask us.

During the experiment we shall not speak of Pounds, but of Experimental Currency Units (ECU). Your entire earnings will be calculated in ECUs. At the end of the experiment the total amount of ECUs you have earned will be converted to Pounds at the rate of **1 ECU = 4 p** and will be immediately paid to you in cash.

At the beginning of the experiment the participants will be randomly divided into groups of four. You will therefore always be in a group with 3 other participants. The groups will remain the same throughout the experiment. This means that you will always interact with the same three participants. The experiment lasts 10 periods and each period is divided in two stages.

The first stage:

In every period, at the beginning of the first stage each participant will receive 20 ECUs. In the following, we shall refer to this amount as the "endowment". Your task is to decide how to use your endowment. In particular, **you have to decide how many of the 20 ECUs you want to contribute to a project (from 0 to 20) and how many of them to keep for yourself**. The consequences of your decision are explained in detail below.

Once all the players have decided their contribution to the project you will be informed about, the group's total contribution, your income from the project and your payoff in this stage. Your payoff from the first stage in each period is calculated using the following formula. If you have any difficulties, do not hesitate to ask us.

$$\text{Income at the end of the stage} = \text{Endowment of ECUs} - \text{Your contribution to the Project} + 0.4 * \text{Total contribution to the Project}$$

This formula shows that your income at the end of the period consists of two parts:

- 1) The ECUs which you have kept for yourself (endowment – contribution)
- 2) The income from the project, which equals to the 40% of the group's total contribution.

The income of each group member from the project is calculated in the same way. This means that each group member receives the same income from the project. Suppose the sum of the contributions of all group members is 60 ECUs. In this case, each member of the group receives an income from the project of: $0.4 * 60 = 24$

ECUs. If the total contribution to the project is 9 ECUs, then each member of the group receives an income of: $0.4 * 9 = 3.6$ ECUs from the project, regardless of how much they individually contributed to the project.

You always have the option of keeping the ECUs for yourself or contributing them to the project. Each ECU that you keep raises your end of period income by 1 ECU. Supposing you contributed this point to the project instead, then the total contribution to the project would rise by 1 ECU. Your income from the project would thus rise by $0.4 * 1 = 0.4$ ECU. However, the income of the other group members would also rise by 0.4 ECUs each, so that the total income of the group from the project would be 1.6 points. Your contribution to the project therefore also raises the income of the other group members. On the other hand you also earn an income for each point contributed by the other members to the project. In particular, for each point contributed by any member you earn 0.4 ECUs.

In addition to the 20 ECUs per period, each participant receives a one-off lump sum payment of 25 ECUs at the beginning of this part of the experiment. Note that this lump sum payment should not be used to calculate the "End of period income". It will only be added to your total income from all the periods at the very end.

The second stage:

At the second stage of each period you will be informed how much each group member contributed individually to the project at the first stage. At this stage you can **reduce or leave equal** the income of **each** member of your group. The other group members can also reduce your income if they wish to.

To reduce another player's income you will have to **distribute points**. Each point will cost you 1 ECU and will reduce the income of the person you assign it to by 3 ECU. If you choose 0 points for a particular group member, you do not change his or her income.

Example: Supposing you give 2 points to player 1 this costs you 2 ECU and reduces player 1's income by 6 ECU.

Your total income from the two stages is therefore calculated as follows:

$$\begin{aligned} & \text{Total income (in ECUs) at the end of the period} = \\ & = \text{Income from the 1st stage} - 3 * \text{Points you receive} - \text{Points you give} \end{aligned}$$

Please note that your income in ECUs at the end of the period can be negative. If your income becomes zero or negative at the end of the second stage you can simply use your 25 ECUs that we gave you in the beginning in order to pay this off.

If you have any further questions please raise your hand and one of the supervisors will come to help you.

Control Questionnaire

Please answer the following questions. When ready raise your hand to attract the attention of the experimenter. These questions are not meant to test your mathematical ability. They are simply aimed at helping you understand the experiment.

1. Each group member has an endowment of 20 ECUs. Nobody (including you) contributes any ECUs to the project. How high is:
 - a. Your income at the end of the period?
 - b. The income of the other group members.....

2. Each group member has an endowment of 20 ECUs. You contribute 20 ECUs to the project. All other group members contribute 20 ECUs each to the project. What is:
 - a. Your income at the end of the period?
 - b. The income of the other group members?.....

3. Each group member has an endowment of 20 ECUs. The other three group members contribute together a total of 30 ECUs to the project. What is:
 - a. Your income at the end of the period if you contribute 0 ECUs to the project?
 - b. Your income at the end of the period if you contribute 15 ECUs to the project?

4. Each group member has an endowment of 20 ECUs. You contribute 8 ECUs to the project. What is:
 - a. Your income at the end of the first stage if the other group members together contribute a further total of 7 ECUs to the project?.....
 - b. Your income at the end of the first stage if the other group members together contribute a further total of 22 ECUs to the project?.....

5. Your income from the first period is 25 ECU. How much will your income at the end of the period be if:
 - a. You receive 2 points, but do not assign any yourself?
 - b. You receive 2 points and assign 3 points yourself?.....

Oral Summary

- At the beginning of the experiment, the computer will randomly match you with 3 other people in the lab. The composition of your group will remain the same throughout the experiment.
- Please pay extra attention to the following point as it was not part of your instructions. At the beginning of each period, each player will be randomly given a number that will change from period to period. This means that he, who is player 2 in the 1st period, might be player 1 in the 2nd and player 3 in the 3^d period. You should, therefore, not base your decisions on what went on in the previous periods.
- The experiment is divided into 2 stages.
- In the 1st stage your task is to decide how many of the 20 ECUs you will contribute to the project and how many you will keep for yourself. Your income from the 1st stage will be equal to *Your Endowment of ECUs - Your contribution to the Project + 0.4*Total contribution to the Project*.
- In addition we give you once at the beginning of the experiment 25 ECUs that will be added to your final payoff at the end of the experiment. The purpose is to pay for any negative payoffs during the experiment.
- In the 2nd stage, after you find out how much each player contributed in the 1st stage, you can, if you wish, purchase points to reduce the other players' incomes or simply leave them as they are.
- Every point that you assign reduces the recipient's income by 3 ECU and will cost you 1 ECU. So if you assign 3 points to another player he will lose 9 ECU and you will have a cost of 3 ECU.
- Hence, your income at the end of the period will be given by the following formula:

$$\text{End of Period Income} = \text{Income from the first stage} - 3 * \text{Total Points Received} - \text{Total Points Given to Others}$$

- Your total income at the end of the experiment will be equal to the sum of your income in each period plus the 25 ECUs.
- For the first 2 periods you will have 2 minutes to make each decision and afterwards you will have 1 minute to make each decision.