

## C Experimental Instructions

### C.1 Instructions for Medium\_TW

*[The instructions for High\_TW, Low\_T and Low\_W are omitted here since they only differ in terms of the entry fee and minimum amount of investment.]*

You are about to participate in an experiment. The instructions are the same for all participants. Please read them carefully. No communication is allowed during the experiment. If you have any question, please raise your hand and an experimenter will come to help you.

You have received 15 Yuan for showing up on time. You may earn more money by making decisions in the experiment. The points you may earn depends on your decision and on other participants' decisions. At the end of the experiment, all points you earn will be converted to RMB at the rate of 25 points for 1 RMB. Both your identity and your decisions are strictly anonymous throughout the experiment.

#### Overview

This experiment consists of 20 periods. At the beginning of each period, you will be randomly matched into a group of 3 participants. Thus, you will be in a different group every period.

In each round, you must first decide whether to enter into a contest to compete against other group members to win a prize. The value of the total prize depends on the number of group members who choose to enter:

- If you choose **not to enter into the contest**, then you have no further decision to make in this round.
- If you choose **to enter into the contest**, then you must pay an entry fee worth 10.5 points and also decide how much resource to invest in the contest.

At the beginning of each round, each participant will receive an endowment of 300 points to cover the entry fee and investment cost in the contest.

In the following, we will explain in detail the determination of the total prize and the contest rule.

#### Total prize

The total prize will consist of two components:

1. The base prize: 120 points.
2. The total amount of entry fees collected from all contestants

Therefore, **the total prize in each round = 120 + n\*entry fee**, where n is the number of contestants in your group. For example, if two group members choose to enter in a round, the total prize in that round is equal to 120 + 2\*entry fee.

Note: you will not be informed about how many group members choose to enter or about the exact value of the total prize until the end of each round.

### **Prediction of the number of contestants**

Whether or not you choose to enter in a round, you will be asked to predict the number of contestants in your group (including yourself). If your prediction is correct, you will earn additional 10 points.

### **Investment cost**

If you choose to enter, then you also need to decide how much resource to invest in the contest. Your investment cost is equal to:

$$\text{Investment cost} = \text{invested resource} / \text{productivity}$$

where **productivity** can take any value from **1.00 to 2.00 (up to 2 decimal points)**. That is, the higher your productivity, the lower your investment cost for a given amount of invested resource. The computer will randomly and independently draw the productivity value for everyone in your group. In every period everyone will have new draws.

Note: at the beginning of each period ,you will be informed of your productivity value. But you will not know other group members' productivity values.

### **Contest rule**

If you choose to enter, your earnings from the contest are determined by the following conditions:

- Condition 1: whether any other group members choose to enter.
  - Case 1: if no other group member chooses to enter, then no matter how much resource you invest, you will automatically win the total prize, i.e., **the base prize of 120 points plus your returned entry fee**. Your earnings in this round is:  $300 - \text{investment cost} + 120$ .
  - If at least one other group member chooses to enter, then we consider Condition 2.
- Condition 2: whether at least one contestant's invested resource is greater than 30.5, i.e., the minimum amount of investment.
  - Case 2: if no contestant's invested resource is greater than 30.5, then all contestants (those who enter) **share the total prize, i.e., sharing the base prize of 120 points plus your returned entry fee**. Your earnings in this round is:  $300 - \text{investment cost} + 120/n$ , where  $n$  is the number of contestants (including yourself).
  - If at least one contestant's invested resource is greater than 30.5, then we consider Condition 3.
- Condition 3: whether you invest the highest amount of resource.

- Case 3: if you invest the highest amount of resource, then you will win the total prize all by yourself, i.e., **the base prize of 120 points plus all contestants' entry fees (including yours)**. Your earnings in this round is:  $300 - \text{investment cost} + 120 + n \times \text{entry fee} - \text{entry fee} = 300 - \text{investment cost} + 120 + (n - 1) \times \text{entry fee}$ , where  $n$  is the number of contestants (including yourself).
- Case 4: if you invest the highest amount of resource but there are also other group members investing the same amount, then all winners share the total prize, i.e., **the base prize of 120 points plus all contestants' entry fees (including yours)**. Your earnings in this round is:  $300 - \text{investment cost} + (120 + n \times \text{entry fee})/m - \text{entry fee}$ , where  $m$  is the number of contestants who invest the highest amount of resource (including yourself),  $n \geq m$ .
- Case 5: if your invested resource is not the highest, then you do not win the prize. Your earnings in this round is:  $300 - \text{investment cost} - \text{entry fee}$ .

**Note: the situations where your entry fee will be returned include 1) only you enter into the contest; 2) no contestant's invested resource is greater than 30.5; 3) your invested resource is the highest. In other words, only when someone else but not you invests the highest amount of resource exceeding 30.5 will your entry fee not be returned.**

If you decide not to enter into in the contest, your earnings are equal to your endowment of 300 points.

Below we will demonstrate the payoff calculation through two examples.

#### Example 1

ID	Productivity	Enter	Resource	Investment Cost	Win?	Entry fee returned?	Payoff calculation
1	1.50	No	0	0	Yes	Yes	$300 - 0 + 120/2 = 360$
2	2.00	Yes	30	15	Yes	Yes	$300 - 15 + 120/2 = 345$
3	1.00	No	/	/	No	/	300

#### Example 2

ID	Productivity	Enter	Resource	Investment Cost	Win?	Entry fee returned?	Payoff calculation
1	1.50	Yes	150	100	No	No	$300 - 100 - 10.5 = 189.5$
2	2.00	Yes	200	100	Yes	Yes	$300 - 100 + 120 + (3 - 1) \times 10.5 = 341$
3	1.00	Yes	20	20	No	No	$300 - 20 - 10.5 = 269.5$

#### Feedback and final payoff

At the end of each period, you will be informed about the number of contestants, the highest invested resource, and your period earnings. At the end of the experiment, **five out of 20 periods**

will be drawn randomly to determine your earnings. The earnings you receive in these five periods will be summed and converted into RMB.

Some common questions: What if my earnings are negative? They will be compensated with your other gains. If at the end of the session your earnings are negative, you will receive 15 Yuan, the participation payment. Are there any questions?

## C.2 Instructions for Zero\_W

You are about to participate in an experiment. The instructions are the same for all participants. Please read them carefully. No communication is allowed during the experiment. If you have any question, please raise your hand and an experimenter will come to help you.

You have received 15 Yuan for showing up on time. You may earn more money by making decisions in the experiment. The points you may earn depends on your decision and on other participants' decisions. At the end of the experiment, all points you earn will be converted to RMB at the rate of 25 points for 1 RMB. Both your identity and your decisions are strictly anonymous throughout the experiment.

### Overview

This experiment consists of 20 periods. At the beginning of each period, you will be randomly matched into a group of 3 participants. Thus, you will be in a different group every period.

In each round, you must first decide whether to enter into a contest to compete against other group members to win a prize.

- If you choose **not to enter into the contest**, then you have no further decision to make in this round.
- If you choose **to enter into the contest**, then you must also decide how much resource to invest in the contest.

At the beginning of each round, each participant will receive an endowment of 300 points to cover the investment cost in the contest.

In the following, we will explain in detail the determination of the total prize and the contest rule.

### Total prize

The total prize will be 120 points.

Note: you will not be informed about how many group members choose to enter until the end of each round.

### Prediction of the number of contestants

Whether or not you choose to enter in a round, you will be asked to predict the number of

contestants in your group (including yourself). If your prediction is correct, you will earn additional 10 points.

### **Investment cost**

If you choose to enter, then you also need to decide how much resource to invest in the contest. Your investment cost is equal to:

$$\text{Investment cost} = \text{invested resource} / \text{productivity}$$

where **productivity** can take any value from **1.00 to 2.00 (up to 2 decimal points)**. That is, the higher your productivity, the lower your investment cost for a given amount of invested resource. The computer will randomly and independently draw the productivity value for everyone in your group. In every period everyone will have new draws.

Note: at the beginning of each period, you will be informed of your productivity value. But you will not know other group members' productivity values.

### **Contest rule**

If you choose to enter, your earnings from the contest are determined by the following conditions:

- Condition 1: whether at least one contestant's invested resource is greater than 36.5, i.e., the minimum amount of investment.
  - Case 1: if no contestant's invested resource is greater than 36.5, then no one will obtain any prize. Your earnings in this round is:  $300 - \text{investment cost}$ .
  - If at least one contestant's invested resource is greater than 36.5, then we consider Condition 2.
- Condition 2: whether you invest the highest amount of resource.
  - Case 2: if you invest the highest amount of resource, then you will win the total prize all by yourself. Your earnings in this round is:  $300 - \text{investment cost} + 120$ .
  - Case 3: if you invest the highest amount of resource but there are also other group members investing the same amount, then all winners share the total prize. Your earnings in this round is:  $300 - \text{investment cost} + 120/m$ , where  $m$  is the number of contestants who invest the highest amount of resource (including yourself).
  - Case 4: if your invested resource is not the highest, then you do not win the prize. Your earnings in this round is:  $300 - \text{investment cost}$ .

If you decide not to enter into in the contest, your earnings are equal to your endowment of 300 points.

Below we will demonstrate the payoff calculation through two examples.

### **Example 1**

ID	Productivity	Enter	Resource	Investment Cost	Win?	Payoff calculation
1	1.50	No	0	0	No	$300-0=300$
2	2.00	Yes	30	15	No	$300-15=285$
3	1.00	No	/	/	No	300

### Example 2

ID	Productivity	Enter	Resource	Investment Cost	Win?	Payoff calculation
1	1.50	Yes	150	100	No	$300-100=200$
2	2.00	Yes	200	100	Yes	$300-100+120=320$
3	1.00	Yes	20	20	No	$300-20=280$

### Feedback and final payoff

At the end of each period, you will be informed about the number of contestants, the highest invested resource, and your period earnings. At the end of the experiment, **five out of 20 periods** will be drawn randomly to determine your earnings. The earnings you receive in these five periods will be summed and converted into RMB.

Some common questions: What if my earnings are negative? They will be compensated with your other gains. If at the end of the session your earnings are negative, you will receive 15 Yuan, the participation payment. Are there any questions?

## C.3 Instructions for Zero\_T

You are about to participate in an experiment. The instructions are the same for all participants. Please read them carefully. No communication is allowed during the experiment. If you have any question, please raise your hand and an experimenter will come to help you.

You have received 15 Yuan for showing up on time. You may earn more money by making decisions in the experiment. The points you may earn depends on your decision and on other participants' decisions. At the end of the experiment, all points you earn will be converted to RMB at the rate of 25 points for 1 RMB. Both your identity and your decisions are strictly anonymous throughout the experiment.

### Overview

This experiment consists of 20 periods. At the beginning of each period, you will be randomly matched into a group of 3 participants. Thus, you will be in a different group every period.

In each round, you must first decide whether to enter into a contest to compete against other group members to win a prize.

- If you choose **not to enter into the contest**, then you have no further decision to make in this round.

- If you choose **to enter into the contest**, then you must also decide how much resource to invest in the contest.

At the beginning of each round, each participant will receive an endowment of 300 points to cover the investment cost in the contest.

In the following, we will explain in detail the determination of the total prize and the contest rule.

### **Total prize**

The total prize will be 120 points.

Note: you will not be informed about how many group members choose to enter until the end of each round.

### **Prediction of the number of contestants**

Whether or not you choose to enter in a round, you will be asked to predict the number of contestants in your group (including yourself). If your prediction is correct, you will earn additional 10 points.

### **Investment cost**

If you choose to enter, then you also need to decide how much resource to invest in the contest. Your investment cost is equal to:

$$\text{Investment cost} = \text{invested resource} / \text{productivity}$$

where **productivity** can take any value from **1.00 to 2.00 (up to 2 decimal points)**. That is, the higher your productivity, the lower your investment cost for a given amount of invested resource. The computer will randomly and independently draw the productivity value for everyone in your group. In every period everyone will have new draws.

Note: at the beginning of each period, you will be informed of your productivity value. But you will not know other group members' productivity values.

### **Contest rule**

If you choose to enter, your earnings from the contest are determined by the following conditions:

- Condition 1: whether any other group members choose to enter.
  - Case 1: if no other group member chooses to enter, then no matter how much resource you invest, you will automatically win the total prize. Your earnings in this round is: 300 - investment cost + 120.
  - If at least one other group member chooses to enter, then we consider Condition 2.
- Condition 2: whether you invest the highest amount of resource.

- Case 2: if you invest the highest amount of resource, then you will win the total prize all by yourself. Your earnings in this round is:  $300 - \text{investment cost} + 120$ .
- Case 3: if you invest the highest amount of resource but there are also other group members investing the same amount, then all winners share the total prize. Your earnings in this round is:  $300 - \text{investment cost} + 120/m$ , where  $m$  is the number of contestants who invest the highest amount of resource (including yourself).
- Case 4: if your invested resource is not the highest, then you do not win the prize. Your earnings in this round is:  $300 - \text{investment cost}$ .

If you decide not to enter into in the contest, your earnings are equal to your endowment of 300 points.

Below we will demonstrate the payoff calculation through two examples.

#### Example 1

ID	Productivity	Enter	Resource	Investment Cost	Win?	Payoff calculation
1	1.50	No	0	0	No	$300-0=300$
2	2.00	Yes	30	15	Yes	$300-15+120=405$
3	1.00	No	/	/	No	300

#### Example 2

ID	Productivity	Enter	Resource	Investment Cost	Win?	Payoff calculation
1	1.50	Yes	150	100	No	$300-100=200$
2	2.00	Yes	200	100	Yes	$300-100+120=320$
3	1.00	Yes	20	20	No	$300-20=280$

#### Feedback and final payoff

At the end of each period, you will be informed about the number of contestants, the highest invested resource, and your period earnings. At the end of the experiment, **five out of 20 periods** will be drawn randomly to determine your earnings. The earnings you receive in these five periods will be summed and converted into RMB.

Some common questions: What if my earnings are negative? They will be compensated with your other gains. If at the end of the session your earnings are negative, you will receive 15 Yuan, the participation payment. Are there any questions?