

AN EXPERIMENTAL STUDY OF COSTLY COORDINATION

DATA AND INSTRUCTIONS APPENDIX

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The instructions for the $c = 0.25$ treatment begin in the next page. The data for all sessions follow the instructions.

Appendix A: Instructions (for the $c = 0.25$ treatment)

Introduction

You are going to take part in an experimental study of decision making. The funding for this study has been provided by several foundations. The instructions are simple, and by following them carefully, you may earn a considerable amount of money. At this time, you will be given \$6 for coming on time. All the money that you earn subsequently will be yours to keep, and your earnings will be paid to you in cash today at the end of this experiment. We will start by reading the instructions, and then you will have the opportunity to ask questions about the procedures described.

Earnings

The experiment consists of a number of periods. In each period, you will be randomly matched with another participant in the room. The decisions that you and the other participant make will determine the amount earned by each of you. At the beginning of each period, you will choose a number or "effort level" between 110 and 170. Effort choices will be made by writing the effort level on a decision sheet that is attached to these instructions. Your effort choice may be any amount between and including 110 and 170. That is, we allow fractions. The person who you are matched with will also choose an effort level between and including 110 and 170. Your earnings are determined as follows: you will receive a penny amount that equals the minimum of the two effort levels chosen, minus the cost of your effort, which is .25 times your own effort choice. So if the effort levels are equal, both players receive their effort level minus .25 times their effort level (in pennies). If the effort levels are not equal, both players get the lower of the two effort levels, minus .25 times their effort level.

Example: Suppose that your effort is X and the other's effort is Y .
If $X = Y$, you get $X - (.25) X$, and the other gets $Y - (.25) Y$.
If $X > Y$, you get $Y - (.25) X$, and the other gets $Y - (.25) Y$.
If $X < Y$, you get $X - (.25) X$, and the other gets $X - (.25) Y$.

To reiterate, you each earn a number of pennies that equals the minimum effort, minus the cost of your own effort. In addition to the earnings determined in this manner, you will earn a fixed amount of 60 cents per round.

Record of Results

Now, each of you should examine the record sheet for part A. This sheet is the last one attached to these instructions. Your identification number is written in the top-right part of this sheet. Now, please look at the columns of your record sheet for part A. Going from left to right, you will see columns for the "period," "your effort," "other's effort," "minimum effort," "effort cost," and "your earnings." You begin by writing down your effort choice in the appropriate column. As mentioned above, this effort must be greater than or equal to 110 and less than or equal to 170, and the effort can be any amount in this range, (i.e. fractional effort levels are allowed). Use decimals to separate fractions. For example, $wxy.z$ indicates wxy units of effort plus $z/10$ of a unit.

After you make and record your decision for period one, we will collect all decision

sheets. Then we will draw numbered ping pong balls to match each of you with another person. Here we have a container with ping pong balls, each ball has one of your identification numbers on it. We will draw the ping pong balls to determine who is matched with whom. After we have matched someone with you, we will write the other's effort decision, the minimum effort, the cost of your own effort, and your earnings in the relevant columns of your decision sheet and return it to you. Then, you make and record your decision for period two, we collect all decision sheets, draw ping pong balls to randomly match you with another person, and calculate your earnings as above. This same process is repeated a total number of ten times. Notice that the far right column in record sheet lists the additional 60 cents that you earn each round.

Summary

To begin, participants make and record their effort choices by writing the effort level in the appropriate column of the decision sheet. Then the decision sheets are collected and participants are randomly matched using draws of numbered ping pong balls. Once the matching is done, the other's effort, the minimum effort, the effort cost, and the earnings are written on each person's decision sheet. Then decision sheets are returned, and participants make and record their effort levels for the next period. The decisions determine each person's earnings in pennies as described above (you will receive an amount that equals the minimum of your effort and the other person's effort, minus the cost of your effort, which is (.25) times your effort level). Note that a new random matching is done in each period. After we finish all periods, we will read to you the instructions for a different experiment.

Final Remarks

At the end of today's session, we will pay to you, privately in cash, the amount that you have earned. We will add together your earnings from all parts of this exercise to determine your total earnings (earnings will be rounded off to the nearest penny amount). You have already received the \$6 participation payment. Therefore, if you earn an amount X during the exercise that follows, you will receive a total amount of $\$6.00 + X$. Your earnings are your own business, and you do not have to discuss them with anyone.

During the experiment, you are not permitted to speak or communicate with the other participants. If you have a question while the experiment is going on, please raise your hand and one of us will come answer it. At this time, do you have any questions about the instructions or procedures? If you have a question, please raise your hands and one of us will come to your seat to answer it.

Identification Number: _____

Choose an effort level that is greater than or equal to 110 and less than or equal to 170, using decimals to indicate fractions; e.g. wxy.z. Please only make a decision for period 1 at this time, which is recorded in the top row.

period	your effort	other's effort	minimum effort	effort cost (.25) * your effort	your earnings in cents	additional payment
1						+ 60
2						+ 60

Appendix B: Data for the Minimum-Effort Game

Session 1: Effort Decisions (Other's Decision) for Effort Cost $c = 0.25$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9	subject 10
period 1	135 (140)	140 (155)	120 (110)	110 (120)	140 (135)	135.25 (148)	120 (170)	170 (120)	155 (140)	148 (135.25)
period 2	143.5 (170)	170 (143.5)	115.9 (170)	130 (140)	140 (130)	153.52 (130)	170 (115.9)	130 (153.52)	150 (128)	128 (150)
period 3	155 (111.9)	160 (140)	111.9 (155)	135 (170)	140 (140)	140 (138.9)	170 (135)	140 (140)	140 (160)	138.9 (140)
period 4	140 (140)	160 (150)	135.5 (145)	145 (135.5)	140 (140)	142.85 (170)	170 (142.85)	150 (139)	150 (160)	139 (150)
period 5	150 (150)	150 (150)	140.5 (140)	135.5 (145.28)	140 (140.5)	145.28 (135.5)	160 (139.9)	139.9 (160)	155 (138.9)	138.9 (155)
period 6	155.5 (149.9)	150 (160)	160.5 (140)	140 (155)	140 (148.52)	148.52 (140)	140 (160.5)	160 (150)	155 (140)	149.9 (155.5)
period 7	145 (140)	160 (160)	140.5 (170)	140 (153)	140 (145)	145.98 (150)	170 (140.5)	150 (145.98)	153 (140)	159 (160)
period 8	140 (146.54)	160 (140.5)	140.5 (160)	145 (140)	140 (145)	146.54 (140)	160 (145)	145 (160)	150 (169)	169 (150)
period 9	150 (164)	160 (140)	140 (160)	143 (140)	140 (143)	146.02 (160)	150 (155)	160 (146.02)	155 (150)	164 (150)
period 10	170 (170)	160 (155)	141.1 (140)	143 (160)	140 (141.1)	146.22 (149)	170 (170)	160 (143)	155 (160)	149 (146.22)

Session 2: Effort Decision (Other's Decision) for Effort Cost $c = 0.75$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9	subject 10
period 1	150 (139.8)	125 (148)	150 (170)	125 (160)	139.8 (150)	148 (125)	170 (150)	135.2 (110)	160 (125)	110 (135.2)
period 2	136.1 (170)	170 (130)	150 (150)	135 (129.6)	129.6 (135)	169 (140.5)	170 (136.1)	140.5 (169)	130 (170)	120 (120)
period 3	134.7 (170)	170 (110)	170 (134.7)	125 (140)	155 (150)	125 (125)	110 (170)	150 (155)	140 (125)	125 (125)
period 4	138.1 (145)	110 (135)	145 (138.1)	140 (140)	149 (125)	125 (149)	170 (145.5)	145.5 (170)	140 (140)	135 (110)
period 5	141.2 (110)	110 (135)	160 (140)	140 (170)	160 (129.6)	135 (110)	170 (140)	129.6 (160)	140 (160)	110 (141.2)
period 6	135 (145)	110 (150)	150 (110)	150 (140)	130.8 (115)	125 (125)	140 (150)	155.7 (125)	145 (145)	115 (130.8)
period 7	139 (125)	110 (140)	140 (140)	140 (140)	116 (145)	125 (125)	140 (110)	125 (125)	145 (116)	125 (139)
period 8	137 (125)	110 (150)	150 (110)	140 (130)	120 (140)	125 (137)	140 (120)	130 (140)	140 (125)	125 (140)
period 9	131 (140)	110 (135.4)	140 (131)	140 (140)	120 (125)	135 (140)	140 (140)	135.4 (110)	140 (135)	125 (120)
period 10	135 (135)	110 (121)	135 (135)	140 (120)	121 (110)	135 (140)	140 (125)	125 (140)	140 (135)	120 (140)

Session 5: Effort Decision (Other's Decision) for Effort Cost $c = 0.25$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9	subject 10
period 1	157.2 (140)	110 (140)	140 (110)	170 (130)	160 (150)	130 (170)	150 (160)	150 (130)	140 (157.2)	130 (150)
period 2	143 (135)	140 (160)	135 (143)	110 (140)	160 (150)	170 (140)	150 (160)	140 (170)	160 (140)	140 (110)
period 3	161.3 (140)	145 (160)	150 (150)	140 (161.3)	150 (150)	150 (160)	150 (110)	160 (150)	160 (145)	110 (150)
period 4	159.9 (130)	160 (170)	130 (159.9)	150 (170)	170 (160)	170 (150)	170 (170)	170 (170)	170 (130)	130 (170)
period 5	132 (150)	170 (170)	150 (132)	150 (170)	170 (140)	170 (150)	140 (170)	170 (170)	160 (130)	130 (160)
period 6	141.8 (146)	170 (160)	146 (141.8)	170 (160)	160 (170)	160 (170)	150 (130)	170 (160)	160 (170)	130 (150)
period 7	142.6 (170)	170 (160)	142 (160)	170 (142.6)	160 (142)	160 (170)	150 (140)	170 (160)	160 (170)	140 (150)
period 8	140.4 (135.5)	165 (144)	144 (165)	160 (150)	170 (170)	170 (170)	150 (160)	170 (170)	170 (170)	135.5 (140.4)
period 9	145.1 (170)	170 (145.1)	151 (160)	160 (151)	170 (170)	170 (170)	150 (170)	170 (150)	170 (140)	140 (170)
period 10	146.5 (150)	170 (170)	147 (170)	170 (140)	170 (147)	170 (170)	150 (146.5)	170 (170)	170 (170)	140 (170)

Session 6: Effort Decision (Other's Decision) for Effort Cost $c = 0.75$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9	subject 10
period 1	110 (170)	170 (110)	140 (150)	159 (110)	130 (170)	110 (159)	150 (140)	120 (140)	140 (120)	170 (130)
period 2	170 (110)	170 (120)	140 (150)	120 (140)	140 (170)	110 (170)	150 (140)	120 (170)	140 (120)	170 (140)
period 3	135.15 (170)	170 (140)	170 (110)	111 (170)	170 (111)	110 (170)	150 (170)	170 (150)	140 (170)	170 (135.15)
period 4	141.67 (140)	140 (130)	140 (170)	130 (140)	130 (145)	145 (130)	170 (140)	150 (170)	140 (141.67)	170 (150)
period 5	137.19 (130)	140 (140)	140 (140)	110.1 (160)	130 (170)	130 (137.19)	160 (110.1)	150 (140)	140 (150)	170 (130)
period 6	158.75 (129)	140 (130)	140 (140)	150 (130)	140 (160)	130 (140)	160 (140)	130 (150)	140 (140)	129 (158.75)
period 7	116.85 (135)	135 (116.85)	140 (145)	110.1 (160)	145 (140)	130 (140)	160 (110.1)	140 (129)	140 (130)	129 (140)
period 8	140 (146)	128 (130)	140 (130)	130 (140)	130 (129)	130 (128)	160 (120)	120 (160)	140 (140)	129 (130)
period 9	140.10 (130)	130 (130)	140 (160)	130 (140)	120 (140)	130 (130)	160 (140)	130 (129)	140 (120)	129 (130)
period 10	125.87 (160)	130 (125)	140 (130)	129.9 (129)	130 (160)	130 (140)	160 (125.87)	125 (130)	160 (130)	129 (129.9)

Appendix C: Data for the Three Person Median-Effort Game
Session 1: Effort Decisions (Others' Decision) for Effort Cost $c = 0.10$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9
period 1	170 (130, 140)	110 (150, 170)	150 (110, 170)	140 (170, 130)	130 (170, 140)	170 (150, 110)	120 (110, 135)	135 (110, 120)	110 (120, 135)
period 2	170 (150, 140)	110 (110, 170)	135 (160, 140)	140 (150, 170)	160 (140, 135)	170 (110, 110)	150 (170, 140)	110 (110, 170)	140 (160, 135)
period 3	170 (110, 170)	110 (160, 150)	170 (110, 170)	110 (170, 170)	110 (150, 170)	150 (160, 110)	170 (110, 150)	160 (150, 110)	150 (110, 170)
period 4	170 (150, 165)	150 (110, 170)	170 (110, 150)	110 (150, 170)	110 (150, 170)	170 (110, 150)	165 (150, 170)	150 (110, 170)	150 (165, 170)
period 5	170 (150, 170)	150 (170, 170)	170 (110, 150)	110 (150, 170)	170 (170, 150)	170 (170, 150)	150 (110, 170)	150 (170, 170)	170 (150, 170)
period 6	110 (150, 170)	150 (110, 170)	170 (130, 170)	110 (160, 170)	170 (110, 150)	170 (130, 170)	130 (170, 170)	160 (110, 170)	170 (110, 160)
period 7	170 (160, 170)	170 (110, 160)	170 (165, 170)	165 (170, 170)	170 (160, 170)	170 (165, 170)	110 (160, 170)	160 (110, 170)	160 (170, 170)
period 8	170 (170, 170)	170 (170, 170)	170 (110, 170)	110 (170, 170)	170 (110, 170)	170 (115, 160)	115 (160, 170)	170 (170, 170)	160 (115, 170)
period 9	170 (170, 170)	170 (110, 160)	170 (170, 170)	110 (160, 170)	170 (170, 170)	170 (120, 160)	120 (160, 170)	160 (120, 170)	160 (110, 170)
period 10	110 (160, 170)	170 (150, 170)	150 (170, 170)	170 (160, 170)	170 (160, 170)	170 (150, 170)	170 (110, 160)	160 (170, 170)	160 (110, 170)

Session 2: Effort Decisions (Other Player's Decision) for Effort Cost $c = 0.60$

	subject 1	subject 2	subject 3	subject 4	subject 6	subject 7	subject 8	subject 9	subject 10
period 1	110 (146, 150)	117 (110, 170)	170 (110, 117)	112 (110, 140)	155 (110, 146)	146 (110, 150)	110 (117, 170)	140 (112, 110)	110 (112, 140)
period 2	110 (110, 110)	110 (110, 110)	110 (110, 110)	110 (110, 133)	120 (110, 120)	133 (110, 110)	110 (120, 120)	120 (110, 120)	110 (110, 133)
period 3	110 (110, 110)	112 (115, 167)	110 (110, 115)	110 (110, 110)	115 (112, 167)	167 (112, 115)	110 (110, 115)	115 (110, 110)	110 (110, 110)
period 4	110 (110, 150)	150 (110, 110)	110 (110, 150)	110 (128, 145)	145 (110, 128)	128 (110, 145)	110 (110, 110)	110 (110, 110)	110 (110, 110)
period 5	110 (110, 145)	113 (117, 110)	110 (110, 145)	110 (110, 110)	145 (110, 110)	117 (113, 110)	110 (110, 110)	110 (110, 110)	110 (113, 117)
period 6	110 (110, 111)	111 (110, 110)	110 (110, 110)	110 (110, 110)	111 (110, 125)	125 (111, 110)	110 (110, 110)	110 (110, 111)	110 (111, 125)
period 7	110 (110, 141)	110 (110, 110)	110 (110, 110)	110 (110, 110)	120 (110, 110)	141 (110, 110)	110 (110, 120)	110 (110, 120)	110 (110, 141)
period 8	110 (110, 110)	115 (112, 115)	110 (110, 110)	110 (110, 110)	115 (112, 115)	112 (115, 115)	110 (110, 110)	110 (110, 110)	110 (110, 110)
period 9	110 (110, 110)	120 (117, 121)	110 (110, 110)	110 (110, 110)	117 (120, 121)	121 (117, 120)	110 (110, 110)	110 (110, 110)	110 (110, 110)
period 10	110 (110, 125)	118 (110, 118)	110 (110, 125)	110 (110, 110)	118 (110, 118)	125 (110, 110)	110 (110, 110)	110 (110, 110)	110 (118, 118)

Session 3: Effort Decisions (Others' Decision) for Effort Cost $c = 0.40$

	subject 1	subject 2	subject 3	subject 4	subject 5	subject 6	subject 7	subject 8	subject 9
period 1	150 (169, 110)	110 (150, 169)	140 (110, 110)	110 (140, 110)	110 (110, 170)	170 (110, 110)	169 (110, 150)	110 (110, 170)	110 (140, 110)
period 2	110 (140, 150)	111 (170, 170)	170 (111, 170)	110 (111, 170)	170 (111, 170)	150 (110, 140)	111 (110, 170)	170 (110, 111)	140 (110, 150)
period 3	110 (110, 113)	113 (110, 110)	170 (110, 140)	110 (110, 113)	145 (140, 150)	140 (110, 170)	150 (140, 145)	110 (140, 170)	140 (145, 150)
period 4	110 (140, 169)	170 (170, 170)	170 (170, 170)	169 (110, 140)	170 (170, 170)	140 (110, 110)	140 (110, 169)	110 (110, 140)	110 (110, 140)
period 5	110 (110, 155)	120 (140, 170)	170 (120, 140)	170 (110, 130)	110 (110, 155)	130 (110, 170)	155 (110, 110)	110 (130, 170)	140 (120, 170)
period 6	110 (130, 140)	160 (170, 140)	170 (145, 170)	170 (160, 140)	170 (145, 170)	130 (110, 140)	145 (170, 170)	140 (160, 170)	140 (110, 130)
period 7	110 (110, 145)	110 (110, 170)	170 (110, 170)	110 (170, 170)	170 (110, 170)	110 (110, 145)	145 (110, 110)	170 (110, 110)	110 (110, 170)
period 8	110 (110, 170)	170 (154, 170)	170 (110, 110)	154 (170, 170)	170 (154, 170)	130 (110, 140)	110 (110, 170)	140 (130, 110)	110 (130, 140)
period 9	110 (110, 140)	170 (170, 140)	170 (110, 140)	170 (170, 140)	110 (110, 140)	140 (110, 110)	110 (140, 170)	140 (170,170)	140 (110, 170)
period 10	110 (110, 170)	170 (110, 110)	110 (110, 140)	110 (110, 170)	170 (110, 110)	110 (110, 140)	110 (110, 170)	140 (110, 110)	110 (110, 140)

