

Supplementary materials for

# A Self-Funding Reward Mechanism for Tax Compliance

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## Appendix A: Dominant strategy

By evading rather than complying a player's decision earnings are increased by  $10 - y$ . In the event the player is audited (i.e. with probability  $1/3$ ) selection earnings are decreased by  $f + E$ , where  $E$  are the expected selection earnings when compliant and audited. Thus, assuming risk neutrality, the net benefit from evading rather than complying, is  $10 - y - (1/3)(f + E)$ .

For our *Symbolic* treatment  $E = 0.05$ . The net benefit is decreasing in  $y$  and  $f$  and so is least when  $y = 2$  and  $f = 6$ . Thus, the net benefit from evading is at least

$$10 - 2 - (1/3)(6 + 0.05) \approx 5.98$$

and so it is a dominant strategy to evade in any of our parameterizations in *Symbolic*.

In the other treatments  $E$  is a function of  $n$ , the number of other subjects who are non-compliant.

For our *Targeted* treatment

$$E = (f/2)(n/8)(1 - (n-1)/7) + (f/2)(1 - (n/8))(n/7) + 2f(n/8)(n-1)/7$$

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$$= (6 + n) n f / 56.$$

$E$  is increasing in  $n$  and  $f$ , and so for our parameters takes the maximum value when  $n = 8$  and  $f = 6$ . Thus, the net benefit from evading rather than complying, is

$$10 - y - (1/3)(f + (6 + n) n f / 56) \geq 2.$$

Thus for any beliefs about the number of others complying,  $n$ , and for any of our  $(y, f)$  parameterizations the dominant strategy is to evade in *Targeted*.

For our *Untargeted* treatment

$$\begin{aligned} E &= (f/8)(n/8)(1 - (n-1)/7) + (f/8)(1 - (n/8))(n/7) + (2f/7)(n/8)(n-1)/7 \\ &= (48 + n) n f / 1568. \end{aligned}$$

Again, this is increasing in  $n$  and  $f$  and so for our parameters the net benefit from evading rather than complying, is

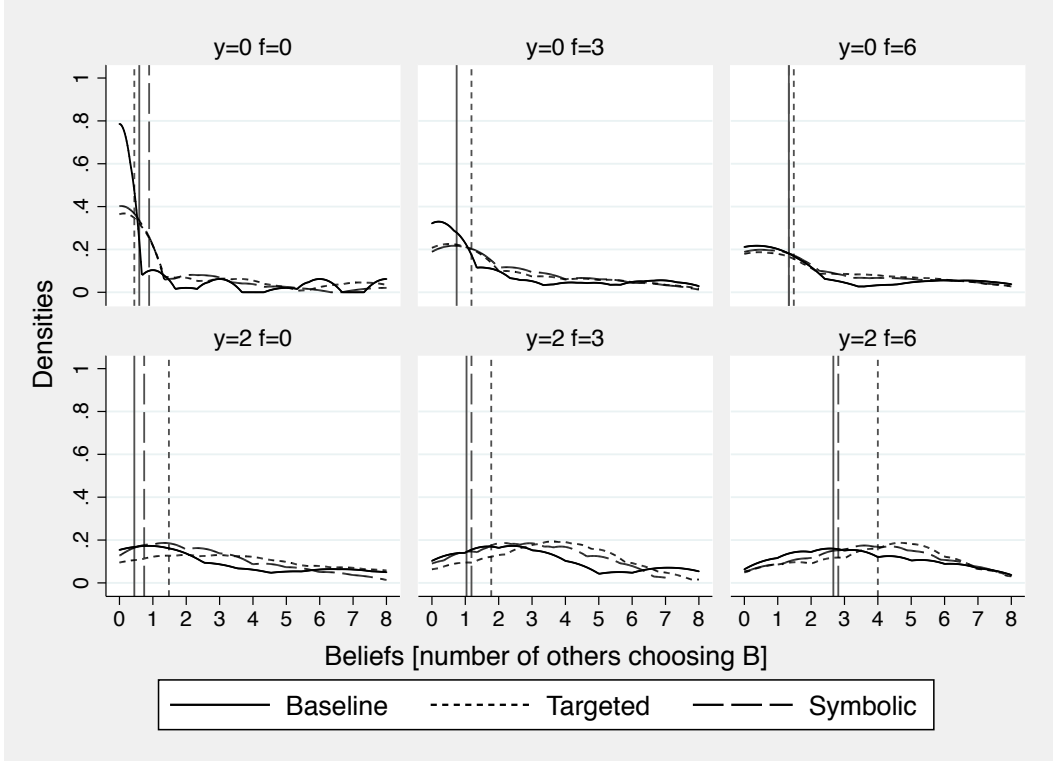
$$10 - y - (1/3)(f + (48 + n) n f / 1568) \geq 38/7.$$

Again, a player has a dominant strategy to evade.

## Appendix B: Additional quantitative analysis

Figure B1 shows the distribution of beliefs against mean choices in all three treatments and for all  $(y, f)$  combinations. There are clearly no robust differences across distributions, though beliefs track mean choices along the lines discussed in the main text.

**Figure B1: Distribution of beliefs (densities) and mean choices (vertical lines)**



*Notes:* The density functions reflect the proportion of subjects believing that a given number of other subjects has chosen B for each  $(y, f)$  combination and treatment. The grey lines are the mean number of B choices for each  $(y, f)$  combination and treatment.

Table B1 analyzes the interaction between actions and beliefs in each treatment and condition. The table compares beliefs about the number of other participants complying (up to 8, as elicited in the experiment) with the average number of others complying. The table also presents separately the average beliefs of subjects who complied with those who did not. In all treatments and for all  $(y, f)$  combinations, subjects over-estimate the compliance rates of others. Also, compliant subjects tend to expect higher compliance rates from others compared with non-compliant subjects, and this difference between the beliefs of compliant and non-compliant subjects is significant in a few cases. Of course, this correlation says nothing about the direction of causality. It could be that subjects have preferences to conform with others so that higher expectations about compliance lead to more compliance, or the pattern could reflect a false

consensus effect whereby people tend to overestimate the extent to which their own behavior is also exhibited by others (Ross et al., 1977)

**Table B1: Actions and beliefs**

		y=0			y=2		
		f=0	f=3	f=6	f=0	f=3	f=6
Untargeted	Action	0.59 (2.11)	0.74 (2.34)	1.33 (3.01)	0.44 (1.85)	1.04 (2.71)	2.67 (3.81)
	<i>Beliefs by action A/B</i>	1.1/2.0	1.5/3.6	1.9/1.7	2.6/3.0	3.1/3.1	2.8/4.8
	<i>P value</i>	0.4451	0.1274	0.8073	1.0000	1.0000	<b>0.0246</b>
	Belief	1.17 (2.33)	1.70 (2.43)	1.85 (2.66)	2.59 <sup>a</sup> (2.81)	3.09 (2.48)	3.48 (2.28)
	Targeted	Action	0.44 (1.85)	1.19 (2.87)	1.48 (3.14)	1.48 (3.14)	1.78 (3.36)
	<i>Beliefs by action A/B</i>	1.4/2.3	1.5/3.6	1.8/3.6	3.2/4.4	3.2/4.5	3.5/4.5
	<i>p value</i>	0.4179	0.0615	0.0995	0.3190	0.1274	0.1748
	Belief all	1.46 (2.39)	1.85 (2.31)	2.13 (2.49)	3.44 (2.62)	3.52 (1.96)	4.00 2.15
Symbolic	Action	0.89 (2.54)	1.19 (2.87)	1.33 (3.01)	0.74 (2.34)	1.19 (2.87)	2.81 (3.86)
	<i>Beliefs by action A/B</i>	.5/4.7	1.6/3.6	1.7/4.1	2.3/4.0	2.8/4.5	3.5/4.5
	<i>p value</i>	<b>0.0036</b>	0.0615	<b>0.0459</b>	0.1463	0.4895	<b>0.0045</b>
	Belief all	1.00 (1.93)	1.91 (2.22)	2.09 (2.47)	2.46 <sup>b</sup> (2.19)	2.93 (1.81)	3.81 (2.07)

Notes:

*Beliefs* refers to the average individual belief about the number of other participants in the group choosing B (from 0 to a maximum of 8), in each treatment and condition; standard deviations between brackets.

*Actions* refers to the actual number of participants choosing B in each treatment and condition, normalized to a maximum of 8, to make data comparable; standard deviations between brackets.

*p-values* refers to the outcome of Wilcoxon rank-sum tests between the beliefs of participants choosing A and those choosing B as an action, in each treatment and condition, bolded when significant at least at the 5% level.

P-values have been adjusted using the False Discovery Rate method to account for multiple hypotheses testing.

## Appendix C: Instructions

Welcome to this experiment on decision making. The instructions are simple and if you follow them carefully you will privately get an amount of money in cash at the end of the experiment. Talking is forbidden during the experiment. You cannot use your mobile phones while in the laboratory. If you have any questions, raise your hand and your question will be answered in private.

This experiment consists of two parts. In each part you will complete 6 tasks. In all tasks you are in a group with eight other people. The composition of each group is randomly determined at the beginning of the experiment and will not change. You will never know the identity of the other group members and they will not know yours. Your earnings for each task depend on the choices made in your group.

At the end of the experiment one task from each part will be selected at random for your group and your payment from today's experiment will be based on your earnings in those tasks. You will be paid in private and in cash. Each task has an equal chance of being selected, so please consider each task carefully.

We will continue with the instructions for Part One. After you have completed Part One we will give additional instructions for Part Two.

### Instructions for Part One

You have to make a decision for each of six tasks. For each task you make your decision at the same time that the other members of your group are making their decisions. You will not be informed of the decisions made by other members of your group. At the end of the experiment one of these tasks will be randomly selected, and you will be informed of your earnings from this task.

#### Your earnings from a task

For each task in Part One you make two types of earnings, *decision* earnings and *selection* earnings. Note that the *selection* earnings might be negative. Your *final* earnings will be the sum of your *decision* earnings and your *selection* earnings:

$$\text{Final earnings} = \text{decision earnings} + \text{selection earnings}$$

#### How your *decision* earnings are determined

In each task you choose between two alternatives: A and B.

If you choose A, you will get £10 and the other group members will get nothing from your decision.

If you choose B, you and all the other group members will get £Y each from your decision.

At the same time, the other eight members of your group will also be choosing between A and B, and your earnings will depend on their decisions in the same way. If one of the other group members chooses A, that person gets £10 and you get nothing from this particular decision. If that group member chooses B, you and all the other group members will receive £Y each from this particular decision.

So, your *decision* earnings will always depend on the choices of all the group members. Let us show you a simple example using a particular value of Y.

**Example**

Suppose  $Y = £2$ . Following the logic described above, *decision* earnings will be a function of the decisions of all the group members and your screen would show you the following table (where all amounts are in British pounds):

Decision earnings:										
Overall number of group members choosing B:	0	1	2	3	4	5	6	7	8	9
Earnings of a group member who chooses A	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	-
Earnings of a group member who chooses B	-	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00

For example, if no one chooses B, you and everyone else earn £10 and, if you choose B while no one else does (so 1 person overall chooses B), you earn £2 while everyone else earns £12.

As another example, if everyone chooses B, you and everyone else earn £18 and, if you choose A while everyone else chooses B (so 8 people overall choose B), you earn £26 while everyone else earns £16.

Note that  $Y$  may change from task to task. In each task you will be informed of  $Y$  on your computer screen before making any decision. Your screen will also show the relevant table with all possible *decision* earnings for that value of  $Y$ . All amounts shown on the screen will be in British pounds.

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Now answer the following questions, whose only purpose is to check and ensure your understanding of the experiment. Please raise your hand if anything is unclear.

1. Using the table above with  $Y = £2$ , assume that you and 2 other group members (so 3 people overall) choose B.

What would be your *decision* earnings? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose A? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose B? \_\_\_\_\_

2. Again using the table above with  $Y = £2$ , assume now that 4 other group members choose B, but you and the other 4 choose A.

What would be your *decision* earnings? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose A? \_\_\_\_\_

What would be the *decision* earnings of the group members who chose B? \_\_\_\_\_

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### How your *selection* earnings are determined

After all participants make their decisions, three will be randomly selected in each group. If a selected group member chose A, he/she will make a payment of £P, and if they chose B they will not have to make a payment of £P.

There are 9 group members and every group member has an equal chance of being selected. Thus you have a 3 out of 9, or approximately 33%, chance of being selected.

*Selection* earnings depend exclusively on the decisions made by the selected group members. There are four possible cases.

Case 1: All selected group members chose B

No payment is made by the selected group members. *Selection* earnings are zero for all group members.

Case 2: Two selected group members chose B and one selected group member chose A

The selected group member who chose A will make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payment will be redistributed to the other eight group members, and each of these will receive *selection* earnings  $\text{£} (P / 8)$ .

Case 3: One selected group member chose B and two selected group members chose A

The selected group members who chose A will each make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payments will be redistributed to the other seven group members, and each of these will receive *selection* earnings  $\text{£} (2P / 7)$ .

Case 4: All selected group members chose A

Each selected group member will make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payments will be redistributed to the other six group members, and each of these will receive *selection* earnings  $\text{£} (3P / 6)$ .

### Example

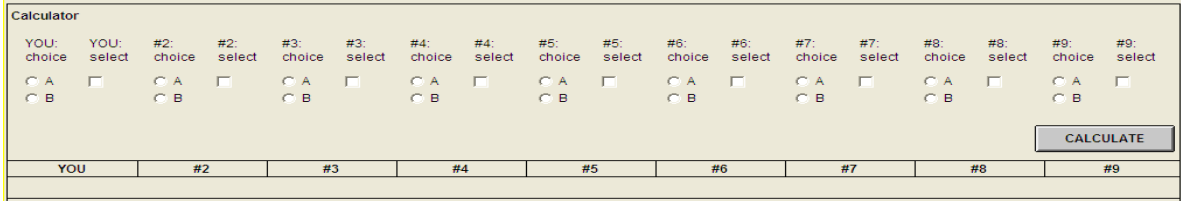
Assume again that Y is £2. Suppose the payment is  $P = \text{£}2$ .

- If all three selected group members chose B, the *selection* earnings are zero for all the participants in the group.
- If two selected group members chose B and one selected group member chose A, the selected group member who chose A gets *selection* earnings of  $-\text{£}2$ . The other eight group members each get *selection* earnings  $\text{£}2 / 8 = \text{£}0.25$ .
- If one selected group member chose B and two selected group members chose A, the selected group members who chose A each get *selection* earnings of  $-\text{£}2$ . The other seven group members each get *selection* earnings  $\text{£}4 / 7 = \text{£}0.57$ .
- If all three selected group members chose A, the selected group members each get *selection* earnings of  $-\text{£}2$ . The other six group members each get *selection* earnings  $\text{£}6 / 6 = \text{£}1$ .

Note that the payment P may change from task to task. In each task you will be informed of P on your computer screen before making any decision. The amounts shown on the screen will be in British pounds.

**Earnings Calculator**

You will get an earnings calculator on the screen to help you make decisions. The calculator is simple. You just need to enter a decision (A or B) for each group member and indicate three group members to be selected. When you click the button CALCULATE, the computer will show you the *final* earnings (= *decision* earnings + *selection* earnings) of each group member. All amounts shown on the screen will be in British pounds.



Use the earnings calculator that will now appear on your screen to go through the following example questions, whose only purpose is to check and ensure your understanding of the experiment. Please raise your hand if anything is unclear.

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1. Using the earnings calculator on the screen, please tick A for you and B for everyone else. Tick three other group members as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the group members being selected? \_\_\_\_\_

2. Again, tick A for you and B for everyone else. Tick yourself and two others as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the other group members being selected? \_\_\_\_\_

What would be the *final* earnings of the group members not being selected? \_\_\_\_\_

3. Using again the earnings calculator on the screen, now tick B for yourself and group member #2, and A for everyone else.

What would be your *final* earnings if you and group members #2 and #3 are selected? \_\_\_\_\_

What would be your *final* earnings if you and group members #3 and #4 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #3, #4 and #5 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #2, #3 and #4 are selected? \_\_\_\_\_

4. Now again tick B for yourself and group member #2, and A for everyone else.

What would be the *final* earnings of group member #3 if he/she and group members #4 and #5 are selected? \_\_\_\_\_

What would be the *final* earnings of group member #3 if he/she and group members #2 and #5 are selected? \_\_\_\_\_



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Please now answer the following final questions, again with the only purpose to check your understanding of the experiment.

1. How likely is it that you will be selected in the one task out of 6 for which you will be paid?

- (a) Very unlikely (less than 10% chance)
- (b) More unlikely than likely (between 10% and 39% chance)
- (c) Around even chance (between 40% and 60% chance)
- (d) More likely than unlikely (more than 61% and 90% chance)
- (e) Very likely (more than 90% chance)

2. Are the following statements true or false?

“In each task the other participants will be able to see my decision before they make their own decisions.” True \_\_\_\_\_ False \_\_\_\_\_

“In each task participants will be able to see the decisions made by other participants in previous tasks”. True \_\_\_\_\_ False \_\_\_\_\_

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### *Instructions for part one of the Targeted treatment*

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one of these tasks will be randomly selected, and you will be informed of your earnings from this task.

**Your earnings from a task**

For each task in Part One you make two types of earnings, *decision* earnings and *selection* earnings. Note that the *selection* earnings might be negative. Your *final* earnings will be the sum of your *decision* earnings and your *selection* earnings:

$$Final\ earnings = decision\ earnings + selection\ earnings$$

**How your *decision* earnings are determined**

In each task you choose between two alternatives: A and B.

If you choose A, you will get £10 and the other group members will get nothing from your decision.

If you choose B, you and all the other group members will get £Y each from your decision.

At the same time, the other eight members of your group will also be choosing between A and B, and your earnings will depend on their decisions in the same way. If one of the other group members chooses A, that person gets £10 and you get nothing from this particular decision. If that group member chooses B, you and all the other group members will receive £Y each from this particular decision.

So, your *decision* earnings will always depend on the choices of all the group members. Let us show you a simple example using a particular value of Y.

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For example, if no one chooses B, you and everyone else earn £10 and, if you choose B while no one else does (so 1 person overall chooses B), you earn £2 while everyone else earns £12.

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Note that  $Y$  may change from task to task. In each task you will be informed of  $Y$  on your computer screen before making any decision. Your screen will also show the relevant table with all possible *decision* earnings for that value of  $Y$ . All amounts shown on the screen will be in British pounds.

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What would be your *decision* earnings? \_\_\_\_\_

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2. Again using the table above with  $Y = £2$ , assume now that 4 other group members choose B, but you and the other 4 choose A.

What would be your *decision* earnings? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose A? \_\_\_\_\_

What would be the *decision* earnings of the group members who chose B? \_\_\_\_\_

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### **How your *selection* earnings are determined**

After all participants make their decisions, three will be randomly selected in each group. If a selected group member chose A, he/she will make a payment of  $£P$ , and if they chose B they will not have to make a payment of  $£P$ .

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Case 1: All selected group members chose B

No payment is made by the selected group members. *Selection* earnings are zero for all group members.

Case 2: Two selected group members chose B and one selected group member chose A

The selected group member who chose A will make a payment, and receive *selection* earnings  $-£P$ .

The payment will be redistributed to the other selected group members who chose B, and these group members will each receive *selection* earnings  $£(P/2)$ . The *selection* earnings of the other group members will be zero.

Case 3: One selected group member chose B and two selected group members chose A

The selected group members who chose A will each make a payment, and receive *selection* earnings  $-£P$ .

The payments will be redistributed to the other selected group member who chose B, and this group member will receive *selection* earnings £ (2P). The *selection* earnings of the other group members will be zero.

Case 4: All selected group members chose A  
 Each selected group member will make a payment, and receive *selection* earnings –£P.  
 The payments will be redistributed to the other six group members, and each of these will receive *selection* earnings £ (3P / 6).

**Example**

Assume again that Y is £2. Suppose the payment is P = £2.

- If all three selected group members chose B, the *selection* earnings are zero for all the participants in the group.
- If two selected group members chose B and one selected group member chose A, the selected group member who chose A gets selection earnings of –£2. The other two selected group members each get selection earnings £2 / 2 = £1.
- If one selected group member chose B and two selected group members chose A, the selected group members who chose A each get selection earnings of –£2. The selected group member who chose B gets selection earnings £4.
- If all three selected group members chose A, the selected group members each get selection earnings of –£2. The other six group members each get selection earnings £6 / 6 = £1.

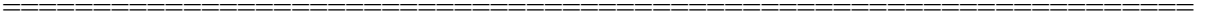
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YOU:		#2:		#3:		#4:		#5:		#6:		#7:		#8:		#9:	
choice	select	choice	select	choice	select	choice	select	choice	select	choice	select	choice	select	choice	select	choice	select
<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>
<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>	<input type="radio"/> B	<input type="checkbox"/>
<input type="button" value="CALCULATE"/>																	
YOU	#2		#3		#4		#5		#6		#7		#8		#9		

Use the earnings calculator that will now appear on your screen to go through the following example questions, whose only purpose is to check and ensure your understanding of the experiment. Please raise your hand if anything is unclear.



1. Using the earnings calculator on the screen, please tick A for you and B for everyone else. Tick three other group members as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the group members being selected? \_\_\_\_\_

2. Again, tick A for you and B for everyone else. Tick yourself and two others as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the other group members being selected? \_\_\_\_\_

What would be the *final* earnings of the group members not being selected? \_\_\_\_\_

3. Using again the earnings calculator on the screen, now tick B for yourself and group member #2, and A for everyone else.

What would be your *final* earnings if you and group members #2 and #3 are selected? \_\_\_\_\_

What would be your *final* earnings if you and group members #3 and #4 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #3, #4 and #5 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #2, #3 and #4 are selected? \_\_\_\_\_

4. Now again tick B for yourself and group member #2, and A for everyone else.

What would be the *final* earnings of group member #3 if he/she and group members #4 and #5 are selected? \_\_\_\_\_

What would be the *final* earnings of group member #3 if he/she and group members #2 and #5 are selected? \_\_\_\_\_

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Please now answer the following final questions, again with the only purpose to check your understanding of the experiment.

1. How likely is it that you will be selected in the one task out of 6 for which you will be paid?

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- (c) Around even chance (between 40% and 60% chance)
- (d) More likely than unlikely (more than 61% and 90% chance)
- (e) Very likely (more than 90% chance)

2. Are the following statements true or false?

“In each task the other participants will be able to see my decision before they make their own decisions.” True \_\_\_\_\_ False \_\_\_\_\_

“In each task participants will be able to see the decisions made by other participants in previous tasks”. True \_\_\_\_\_ False \_\_\_\_\_

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### *Instructions for part one of the SYMBOLIC treatment*

Welcome to this experiment on decision making. The instructions are simple and if you follow them carefully you will privately get an amount of money in cash at the end of the experiment. Talking is forbidden during the experiment. You cannot use your mobile phones while in the laboratory. If you have any questions, raise your hand and your question will be answered in private.

This experiment consists of two parts. In each part you will complete 6 tasks. In all tasks you are in a group with eight other people. The composition of each group is randomly determined at the beginning of the experiment and will not change. You will never know the identity of the other group members and they will not know yours. Your earnings for each task depend on the choices made in your group.

At the end of the experiment one task from each part will be selected at random for your group and your payment from today's experiment will be based on your earnings in those tasks. You will be paid in private and in cash. Each task has an equal chance of being selected, so please consider each task carefully.

We will continue with the instructions for Part One. After you have completed Part One we will give additional instructions for Part Two.

#### **Instructions for Part One**

You have to make a decision for each of six tasks. For each task you make your decision at the same time that the other members of your group are making their decisions. You will not be informed of the decisions made by other members of your group. At the end of the experiment one of these tasks will be randomly selected, and you will be informed of your earnings from this task.

#### **Your earnings from a task**

For each task in Part One you make two types of earnings, *decision* earnings and *selection* earnings. Note that the *selection* earnings might be negative. Your *final* earnings will be the sum of your *decision* earnings and your *selection* earnings:

$$\text{Final earnings} = \text{decision earnings} + \text{selection earnings}$$

#### **How your *decision* earnings are determined**

In each task you choose between two alternatives: A and B.

If you choose A, you will get £10 and the other group members will get nothing from your decision.

If you choose B, you and all the other group members will get £Y each from your decision.

At the same time, the other eight members of your group will also be choosing between A and B, and your earnings will depend on their decisions in the same way. If one of the other group members chooses A, that person gets £10 and you get nothing from this particular decision. If that group member chooses B, you and all the other group members will receive £Y each from this particular decision.

So, your *decision* earnings will always depend on the choices of all the group members. Let us show you a simple example using a particular value of Y.

**Example**

Suppose  $Y = \text{£}2$ . Following the logic described above, *decision* earnings will be a function of the decisions of all the group members and your screen would show you the following table (where all amounts are in British pounds):

Decision earnings:										
Overall number of group members choosing B:	0	1	2	3	4	5	6	7	8	9
Earnings of a group member who chooses A	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	-
Earnings of a group member who chooses B	-	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00

For example, if no one chooses B, you and everyone else earn £10 and, if you choose B while no one else does (so 1 person overall chooses B), you earn £2 while everyone else earns £12.

As another example, if everyone chooses B, you and everyone else earn £18 and, if you choose A while everyone else chooses B (so 8 people overall choose B), you earn £26 while everyone else earns £16.

Note that  $Y$  may change from task to task. In each task you will be informed of  $Y$  on your computer screen before making any decision. Your screen will also show the relevant table with all possible *decision* earnings for that value of  $Y$ . All amounts shown on the screen will be in British pounds.

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Now answer the following questions, whose only purpose is to check and ensure your understanding of the experiment. Please raise your hand if anything is unclear.

1. Using the table above with  $Y = \text{£}2$ , assume that you and 2 other group members (so 3 people overall) choose B.

What would be your *decision* earnings? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose A? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose B? \_\_\_\_\_

2. Again using the table above with  $Y = \text{£}2$ , assume now that 4 other group members choose B, but you and the other 4 choose A.

What would be your *decision* earnings? \_\_\_\_\_

What would be the *decision* earnings of the other group members who chose A? \_\_\_\_\_

What would be the *decision* earnings of the group members who chose B? \_\_\_\_\_

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### How your *selection* earnings are determined

After all participants make their decisions, three will be randomly selected in each group. If a selected group member chose A, he/she will make a payment of £P, and if they chose B they will not have to make a payment of £P and instead will receive a payment of £0.05.

There are 9 group members and every group member has an equal chance of being selected. Thus you have a 3 out of 9, or approximately 33%, chance of being selected.

*Selection* earnings depend exclusively on the decisions made by the selected group members. There are four possible cases.

Case 1: All selected group members chose B

No payment is made by the selected group members. *Selection* earnings are zero for all non-selected group members. *Selection* earnings are £0.05 each for all selected group members.

Case 2: Two selected group members chose B and one selected group member chose A

The selected group member who chose A will make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payment will be redistributed to the other eight group members. Each of the non-selected group members will receive *selection* earnings  $\text{£} (P / 8)$ . Each of the selected group members who chose B will receive *selection* earnings  $\text{£} (P / 8) + \text{£}0.05$ .

Case 3: One selected group member chose B and two selected group members chose A

The selected group members who chose A will each make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payments will be redistributed to the other seven group members. Each of the non-selected group members will receive *selection* earnings  $\text{£} (2P / 7)$ . The non-selected group member who chose B will receive *selection* earnings  $\text{£} (2P / 7) + \text{£}0.05$ .

Case 4: All selected group members chose A

Each selected group member will make a payment, and receive *selection* earnings  $-\text{£}P$ .

The payments will be redistributed to the other six group members, and each of these will receive *selection* earnings  $\text{£} (3P / 6)$ .

### Example

Assume again that Y is £2. Suppose the payment is  $P = \text{£}2$ .

- If all three selected group members chose B, the *selection* earnings are zero for all the non-selected participants in the group. The *selection* earnings are £0.05 each for all the selected participants in the group.
- If two selected group members chose B and one selected group member chose A, the selected group member who chose A gets selection earnings of  $-\text{£}2$ . The six non-selected group members each get selection earnings  $\text{£}2 / 8 = \text{£}0.25$ . The two selected group members who chose B each get selection earnings  $\text{£}2 / 8 + \text{£}0.05 = \text{£}0.30$ .
- If one selected group member chose B and two selected group members chose A, the selected group members who chose A each get selection earnings of  $-\text{£}2$ . The six non-selected group members each get selection earnings  $\text{£}4 / 7 = \text{£}0.57$ . The selected group member who chose B gets selection earnings  $\text{£}4 / 7 + \text{£}0.05 = \text{£}0.62$ .



- If all three selected group members chose A, the selected group members each get selection earnings of –£2. The other six group members each get selection earnings £6 / 6 = £1.

Note that the payment P may change from task to task. In each task you will be informed of P on your computer screen before making any decision. The amounts shown on the screen will be in British pounds.

### Earnings Calculator

You will get an earnings calculator on the screen to help you make decisions. The calculator is simple. You just need to enter a decision (A or B) for each group member and indicate three group members to be selected. When you click the button CALCULATE, the computer will show you the *final* earnings (= *decision* earnings + *selection* earnings) of each group member. All amounts shown on the screen will be in British pounds.

Calculator																	
YOU: choice	YOU: select	#2: choice	#2: select	#3: choice	#3: select	#4: choice	#4: select	#5: choice	#5: select	#6: choice	#6: select	#7: choice	#7: select	#8: choice	#8: select	#9: choice	#9: select
<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>
<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B	
																	CALCULATE
YOU	#2	#3	#4	#5	#6	#7	#8	#9									

Use the earnings calculator that will now appear on your screen to go through the following example questions, whose only purpose is to check and ensure your understanding of the experiment. Please raise your hand if anything is unclear.

1. Using the earnings calculator on the screen, please tick A for you and B for everyone else. Tick three other group members as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the group members being selected? \_\_\_\_\_

2. Again, tick A for you and B for everyone else. Tick yourself and two others as being selected.

What would be your *final* earnings? \_\_\_\_\_

What would be the *final* earnings of the other group members being selected? \_\_\_\_\_

What would be the *final* earnings of the group members not being selected? \_\_\_\_\_

3. Using again the earnings calculator on the screen, now tick B for yourself and group member #2, and A for everyone else.

What would be your *final* earnings if you and group members #2 and #3 are selected? \_\_\_\_\_

What would be your *final* earnings if you and group members #3 and #4 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #3, #4 and #5 are selected? \_\_\_\_\_

What would be your *final* earnings if you are not selected and group members #2, #3 and #4 are selected? \_\_\_\_\_

4. Now again tick B for yourself and group member #2, and A for everyone else.

What would be the *final* earnings of group member #3 if he/she and group members #4 and #5 are selected? \_\_\_\_\_

What would be the *final* earnings of group member #3 if he/she and group members #2 and #5 are selected? \_\_\_\_\_

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Please now answer the following final questions, again with the only purpose to check your understanding of the experiment.

1. How likely is it that you will be selected in the one task out of 6 for which you will be paid?

- (a) Very unlikely (less than 10% chance)
- (b) More unlikely than likely (between 10% and 39% chance)
- (c) Around even chance (between 40% and 60% chance)
- (d) More likely than unlikely (more than 61% and 90% chance)
- (e) Very likely (more than 90% chance)

2. Are the following statements true or false?

“In each task the other participants will be able to see my decision before they make their own decisions.” True \_\_\_\_\_ False \_\_\_\_\_

“In each task participants will be able to see the decisions made by other participants in previous tasks”. True \_\_\_\_\_ False \_\_\_\_\_

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*Instructions for part two (Untargeted, Targeted and SYMBOLIC treatments)*

**Instructions for Part Two**

In this part of the experiment there are also 6 tasks, and you will be paid for one of them, randomly selected at the end of the experiment. Each task is based on the decisions made in your group in the Part One tasks. For each task you completed in Part One, you must make a prediction about how many of the other group members chose B.

**Description of Part Two tasks**

On your computer screen you will be reminded of the particular values of Y and P used in one of the Part One tasks. You will also get the earnings calculator on the screen in case you need to use it again. You must indicate how many out of the other eight group members chose B in this Part One task. If your prediction is *exactly* correct, you will receive £3. If the difference between your prediction and the actual number is plus or minus one you will receive £1.50. If you are incorrect by two or more, you will receive £0.

**Example**

Suppose  $Y = £2$  and  $P = £2$ . Your screen would look as follows (where all amounts are in British pounds):

The value of Y is equal to: 2.00

Decision earnings:

Overall number of group members choosing B:	0	1	2	3	4	5	6	7	8	9
Earnings of a group member who chooses A	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	-
Earnings of a group member who chooses B	-	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00

The value of P is equal to: 2.00

How many of the other 8 participants in your group chose B in this task?

**SUBMIT**

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**Calculator**

YOU: choice	YOU: select	#2: choice	#2: select	#3: choice	#3: select	#4: choice	#4: select	#5: choice	#5: select	#6: choice	#6: select	#7: choice	#7: select	#8: choice	#8: select	#9: choice	#9: select
<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>	<input type="radio"/> A	<input type="checkbox"/>
<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B		<input type="radio"/> B	

**CALCULATE**

YOU	#2	#3	#4	#5	#6	#7	#8	#9

If you indicate that six of the other eight group members chose B, then if six did choose B you will receive £3. If five or seven chose B you will receive £1.50. If less than five or more than seven chose B you will receive £0.

## Final Questionnaire

(after the tasks, before payment screen)

A. Demographic questions unless asked at the recruitment stage (age, gender, degree being taken, nationality)

B. In making your decisions, on a scale between 0 (not at all) and 4 (very much), how much attention did you pay to the following factors?

1. The value of the return X if A is chosen
2. The value of the return Y if B is chosen
3. The value of the fine F
4. The possibility of being selected
5. What I expected others to do
6. What I expected others to get
7. What I expected others to expect of me
8. Being quick

C1. How do you see yourself: Are you in general a person who prepared to take risks or do you try to avoid risks?

Please tick a box on the scale, where the value 0 means: 'not at all willing to take risks' and the value 10 means: 'very willing to take risks'

C2. Suppose that in a lottery game the possibility to win £1,000 is 10%. How much would you pay at most to buy a lottery ticket?

D. Marlowe-Crowne (10) Social Desirability Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1. I never hesitate to go out of my way to help someone in trouble. (T)
2. I have never intensely disliked anyone. (T)
3. There have been times when I was quite jealous of the good fortune of others. (F)
4. I would never think of letting someone else be punished for my wrong doings. (T)
5. I sometimes feel resentful when I don't get my way. (F)
6. There have been times when I felt like rebelling against people in authority even though I knew they were right. (F)
7. I am always courteous, even to people who are disagreeable. (T)
8. When I don't know something I don't at all mind admitting it. (T)
9. I can remember "playing sick" to get out of something. (F)
10. I am sometimes irritated by people who ask favors of me. (F)

### Scoring Algorithm

For each answer the respondent provides that matches the response given above (i.e., T=T or F=F) assign a value of 1. For each discordant response (i.e., the respondent provides a T in place of an F or an F in place of a T) assign a value of 0. Total score can range from 10 (when all responses "match") to 0 (when no responses "match").

E. What do you think was the objective of the experiment? [Open text box]