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# Eager beavers v. lazy slugs: Selection effects in experiments with social preferences

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### Abstract

We ask whether social preferences measured in subjects who come to the laboratory when invited are systematically different from those of subjects who only respond when an online option is available. Subjects participated in two types of third-party (other-other) dictator games and a trust game, either in the lab or on-line. In the third party dictator games, the dictator divides \$20 between two other individuals, one of whom is a member of their in-group. (We also varied types of in-group between a real group and an artificial group.) In the trust game, the first-mover decides how much of the endowment to send to the second-mover. The second-mover receives the amount sent tripled by the experimenter and decides how much to send back to the trustee. Across all the games, we find no statistically significant differences in social preferences measured in-lab and on-line.

**Keywords:** online experiment, methodology, social preferences

**JEL Classification:** C81 , C90

## Statements and Declarations

### Acknowledgments

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### Competing Interests

The authors declare they have no competing interests.

## 1 Introduction

When COVID-19 disrupted laboratory experiments around the world, many researchers turned to online experiments. While maintaining control over human subjects in the laboratory is considered the gold standard for conducting experiments, circumstances often lead to relaxing that control. Now that the pandemic is less of a threat scholars have the luxury of staying online or returning to the lab. Subjects, too, have the choice to participate in laboratory experiments or opt for experiments carried out online. Does it matter if subjects self-select into their venue?

When measuring social preferences, this question is especially important. The lab may attract more socially motivated subjects, leading to a finding of more generous social preferences in the lab. On the other hand, going to the lab is a significant time commitment, which might tend to push results the other way. Those who participate online may translate their time savings into more generous behavior. Other factors, such as the closer observation of lab subjects, or uncertainty about the existence of a partner in an online setting, can also play a role. As researchers, how much should we worry about the impact on our results of self-selected subjects in lab and online settings?

In this study we invited all subjects who were part of a longitudinal panel to participate in a study measuring social preferences. Those who signed up first (the eager beavers) completed the task in a traditional laboratory setting. After the laboratory experiments were completed we recontacted the remaining members of the panel (the lazy slugs) and asked them to complete an online version using the same protocol. We fully expected that the online subjects would behave differently due in part to selection. To our surprise, we find no significant differences in behavior between the two groups of subjects. This should provide some reassurance to researchers when choosing one setting or another.

## 2 Motivation

It is well-known that online experiments are vulnerable to numerous threats to validity, including subject distraction, absence of experimenter monitoring, expectations about payments, beliefs about their counterparts, selective dropouts, and outside

1 consultation (Dandurand et al. (2008), Clifford and Jerit (2014), Eckel and Wilson  
2 (2006), Horton et al. (2011)). In addition, the online environment may increase per-  
3 ceived social distance, systematically dampening social preferences (Akerlof (1997)).  
4 Nevertheless, most studies conclude that online experiments are comparable to lab  
5 experiments (Horton et al. (2011), Brañas-Garza et al. (2018), Brañas-Garza et al.  
6 (2023)). We stress-test such results by asking whether this equivalence holds when  
7 subjects self-select into lab or online experiments.

8 When studying social preferences, evidence from prior studies generally support  
9 equivalence, but is somewhat mixed. Buso et al. (2021) conduct standard dictator,  
10 ultimatum, and public goods games and find no systematic differences in pro-social  
11 behavior across different settings: in-lab, online with video monitoring, and online  
12 without video monitoring. However, while Hergueux and Jacquemet (2015) find  
13 "strong parallelism" between online and lab behavior, they note that online partic-  
14 ipants display slightly more pro-social behavior than their lab counterparts. Prissé  
15 and Jorrat (2022) find that most behaviors are consistent between the lab and online  
16 venues. However, in a dictator game with a charity recipient, online participants are  
17 slightly more likely to give zero. They ascribe such a difference to social distance and  
18 experimenter monitoring. Generally, these studies indicate that there are only minor  
19 differences due to venue.

20 In these experiments, researchers are careful to use individuals taken from the same  
21 subject pool, who participate at roughly the same time and are randomly assigned to  
22 the type of venue. Subjects are unable to choose how they would like to participate. If  
23 they are able to choose when and where they participate, will that affect the findings?

### 25 **3 Experimental Design and Procedure**

26 A random sample of two-thirds of Rice University's 2016 entering freshman class was  
27 recruited prior to arriving on campus and participated in an on-line experiment as  
28 part of a longitudinal panel study. A total of 553 of the 661 contacted completed  
29 Phase 1 of the study (992 matriculated). Three months after starting classes, those  
30 who completed Phase 1 were invited to participate in Phase 2 of the study. A total of  
31 521 subjects participated beginning in early November 2016.

32 In Phase 2 subjects were recruited in two ways. First, all panelists were sent recruit-  
33 ment emails asking them to sign up for an in-lab experiment. From November 2, 2016  
34 through November 23, 2016 a total of 22 lab sessions were run with 236 subjects.  
35 Second, the remaining panelists who had not yet participated were recruited for an  
36 online experiment, which was open from November 28, 2016 – April 28, 2017.<sup>1</sup> This  
37 yielded another 285 subjects. The experimental interface was identical for both the  
38 lab and online experiments (see the Supporting Information (SI) - Section 2). Note  
39 that subjects were not randomly assigned to one form of participation or the other.

40 In this paper, we focus on two third-party dictator games and a standard trust  
41 game (details are in the SI - Section ??). In the third-party dictator games, the dictator

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42 <sup>1</sup>The online portion of the experiment coincided with the end of the academic term. Over 93 percent of  
43 the subjects completed the online study by February 1, 2017.

1 divides \$20 between two other individuals, one of whom is a member of their in-group, and the other of whom is not. Dictators were paid a fixed fee of \$5.00 for the decision.  
2 The third-party dictator games differed from one another in that the ingroup  
3 recipients were either from their own residential college relative to someone who is in  
4 a different residential college (a *real* group) or part of a *minimal* ingroup relative to  
5 someone who is in the outgroup. Subjects completed the two games in random order,  
6 and we control for the order effects in our discussion (for further details about these  
7 treatments, see Eckel et al. (2022)).  
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9 The trust game is widely accepted as a measure of interpersonal trust and trust-  
10 worthiness (Berg et al. (1995)). Each actor earned an initial endowment of \$10 for  
11 completing a 40-item risk survey. In the game, the first-mover (the truster) decides how  
12 much of the endowment to send to the second-mover. The second-mover (the trustee)  
13 receives an amount equal to three times the amount sent (tripled by the experimenter)  
14 and decides how much to send back to the trustee. Subjects used the strategy method  
15 to decide how much to return conditional on all possible amounts sent.

16 All subjects completed all of the tasks, and were informed that their counter-  
17 parts were also participants in the study. One of the tasks was randomly selected for  
18 payment. For the dictator games subjects were randomized to role (the dictator, the  
19 in-group member, or the out-group member). In-group and out-group members were  
20 paid based on the allocation of the \$20. For the trust game, subjects played both roles  
21 - truster and trustee - and at the end of the experiment were randomly assigned to  
22 one position. Thus both games have a "role uncertainty" design (Iribarri and Rey-Biel  
23 (2011)). Subjects were not told which task was paid until the end of the experiment  
24 and the tasks were randomly chosen for each subject. All of the randomization and  
25 matching to positions was computerized. For subjects in the lab, matching was within  
26 session. For subjects who were online, matching was with others participating online  
27 and payments were delayed until the end of the experiment. Subjects spent less than  
28 30 minutes, either in the lab or on-line and earned an average of \$21.37.  
29

## 30 31 32 4 Experimental Results

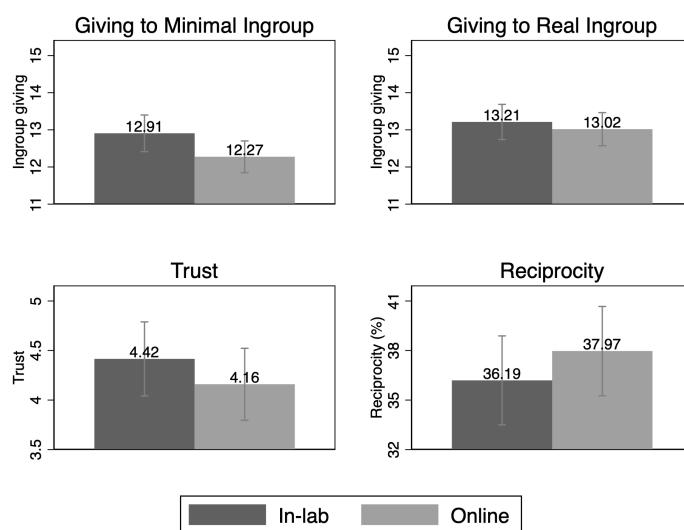
33 The analysis proceeds as follows. Using the third-party dictator games, we compare  
34 in-group favoritism in the lab and online for the two games (real and minimal groups).  
35 Next, we turn to the trust game data and focus on two measures. The first is the  
36 amount sent by the first mover (a measure of trust). The second is the average percent-  
37 age returned (reciprocity). Under the strategy method subjects specified how much  
38 they would return contingent on each whole dollar that could be sent. The percentage  
39 returned is calculated for each strategic choice and the average per subject is used as  
40 the measure.  
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42 First, we find that there are few differences between the type of subjects opting for  
43 the laboratory and those taking up the online option. Table 1 uses several standard  
44 demographic measures and we find that the eager beavers are very similar to the lazy  
45 slugs. There is balance between males and females. Asians are more likely to show  
46 up in the lab than Caucasians. When we look at a measure of risk aversion collected  
47 prior to matriculation, we find no difference between the two sets of participants.  
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The same is true for a measure of time preferences.<sup>2</sup> There are no differences in GPA measured in several ways. Finally, across the five personality inventory items, we find no significant differences. The differences we note disappear when adjusting for multiple hypothesis testing Westfall and Young (1993). All-in-all the two groups are balanced across multiple measures.

Table 2 presents the social preferences measured in this study and shows the mean differences and *p*-values of t-tests. The first two rows show giving to an ingroup member (relative to a non-ingroup-member) from the \$20 budget. Both rows show ingroup favoritism (amounts greater than \$10, more than half of the budget, are sent to the ingroup members). Adjusting for multiple hypothesis testing leads to no significant differences being detected.<sup>3</sup> The last two rows point out there are no significant differences in trust or reciprocity.<sup>4</sup>

Figure 1 graphs the mean for each incentivized measure and includes the 95 percent confidence interval. This figure illustrates what is detailed in Table 2. There is ingroup bias in the dictator games and the effect is true for both laboratory and online subjects. There are no differences for the trust game.



**Fig. 1** Means for Social Preference Measures

<sup>2</sup>These incentivized measures were collected prior to matriculation. A discussion of these measures is reported in Eckel et al. (2023).

<sup>3</sup>We are also concerned with ordering effects for the dictator games. Analysis reported in the SI - section ?? shows there is no difference when adjusting for multiple hypothesis testing.

<sup>4</sup>In the online study, two observations were lost due to a programming error. Hence the differences in n's between the dictator games and the trust game.

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Table 1 Sample Characteristics

	In-lab		Online		Difference		$H_0$ : In-lab = Online	
	Mean	SE	Mean	SE	Mean	SE	Unadj. $p$ -val	Adj. $p$ -val
<b>Demographics</b>								
Female	0.53	0.03	0.48	0.03	0.04	0.04	0.31	0.98
Ethnicity:								
Black	0.06	0.01	0.05	0.01	0.00	0.02	0.90	1.00
Asian	0.33	0.03	0.22	0.02	0.11	0.04	0.01	0.08
White	0.28	0.03	0.39	0.03	-0.11	0.04	0.01	0.16
Hispanic	0.14	0.02	0.16	0.02	-0.02	0.03	0.59	1.00
Citizen	0.83	0.02	0.87	0.02	-0.04	0.03	0.20	0.94
Political Inclination	2.46	0.06	2.44	0.05	0.02	0.08	0.77	1.00
<b>Pre-matriculation measures</b>								
Risk Aversion	3.21	0.11	3.18	0.09	0.03	0.14	0.86	1.00
Time Preference	2.49	0.08	2.59	0.08	-0.10	0.11	0.38	0.98
<b>Academic achievement</b>								
GPA in the first semester	3.61	0.03	3.55	0.03	0.06	0.04	0.18	0.93
Cumulative GPA by Fall 2021	3.62	0.02	3.59	0.02	0.03	0.04	0.37	0.98
Number of completed hours by Fall 2021	139.16	1.49	138.28	1.32	0.88	1.99	0.66	1.00
<b>Short Form Personality Inventory</b>								
Extraversion	4.12	0.11	3.94	0.10	0.18	0.15	0.23	0.95
Agreeableness	4.96	0.08	4.84	0.08	0.11	0.11	0.32	0.98
Conscientiousness	5.38	0.08	5.38	0.07	0.01	0.10	0.94	1.00
Emotional Stability	4.60	0.09	4.87	0.08	-0.28	0.12	0.03	0.30
Openness to New Experiences	5.34	0.07	5.26	0.06	0.08	0.09	0.36	0.98

*Note:* Westfall and Young (1993) adjusted  $p$ -values are estimated using 10,000 bootstraps. Stata command *wyoung* (Jones et al. (2019)) is used. *Political Inclination* ranges from 1 (liberal) to 5 (conservative). Except for one who started in Spring 2017, our sample started the first (regular) semester in Fall 2016. 5 started in Summer Semester 2016.

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**Table 2** Means for Social Preference Measures

	In-lab	Online	Difference	Unadj. <i>p</i> -val	Adj. <i>p</i> -val
Giving to Minimal Ingroup	12.907 (0.251)	12.274 (0.218)	0.633 (0.331)	0.056	0.179
	n=236	n=285			
Giving to Real Ingroup	13.212 (0.241)	13.018 (0.227)	0.194 (0.332)	0.559	0.674
	n=236	n=285			
Trust	4.415 (0.190)	4.159 (0.185)	0.256 (0.267)	0.337	0.674
	n=236	n=283			
Reciprocity	36.193 (1.371)	37.965 (1.376)	-1.772 (1.959)	0.366	0.674
	n=236	n=283			

*Note:* Standard errors in parentheses. Adjusted *p*-values are calculated using Stata command *wyoung* (Jones et al. (2019)).

## 5 Conclusion

We conclude that online and in-lab measures of social preferences are robustly consistent for early and late-takers in an experiment where subjects in the online version are recruited from those who fail to sign up for the lab version. We find minor differences in demographics (Asians are more likely, and Whites less likely, to enroll in a lab setting), and no significant differences in behavior in the two settings. This result should be reassuring for those who are concerned that online measures of social preferences are fundamentally different from their in-lab versions. Both yield similar patterns and outcomes. Once they engage with the experiment, eager beavers and lazy slugs are equally trusting and trustworthy, and favor their ingroup members to the same extent.

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## Supporting Information: Eager beavers v. lazy slugs: Selection effects in experiments with social preferences.

### 1 Sample

The sample for this project is based on individuals who were part of a longitudinal panel study. The initial sample was drawn from a random sample of two-thirds of Rice University's entering freshman class (992 students). These subjects were contacted prior to arriving on campus in the late summer of 2016 (from July 14 – August 12, 2016). A total of 553 of the 661 contacted students completed this portion of the study. The study was carried out online.

The current project recontacted the 553 students who completed the initial study. All subjects were invited to participate in an in-lab experiment and asked to sign up for a particular time slot (see the text of the email in Section 4).

Recruitment for the laboratory experiments took place at the end of the academic semester from November 2, 2016 through November 23, 2016. This resulted in a total of 22 lab sessions with 236 subjects. Those who did not participate in the lab were then solicited to participate online from November 28, 2016 – April 28, 2017. This yielded another 285 subjects. Of those subjects participating online, over 82 percent completed the study prior to classes beginning on January 8, 2017. Only 9 subjects completed the study in March or April 2017. It is important to note that subjects were not randomly assigned to one form of participation or the other. The eager beavers were those who signed up for the in-lab experiments. The lazy slugs were those who waited until later.

### 2 Task Descriptions

In the current study subjects faced 5 distinct tasks: a 40-item risk instrument for which subjects were paid \$10 to complete; a third-party dictator game (used in this study); a trust game; a second third-party dictator game (used in this study); and a 19-item demographic survey. Tasks 1, 3 and 5 were presented in fixed order. The third-party dictator games had either a strong group (the subject's own college) or a minimal group and were randomly ordered at the level of the subject. As noted, subjects were given a fixed amount (\$10) for filling out a questionnaire. This was designed to serve

as money that was used in the trust game. One of the 3 incentivized tasks was randomly chosen for payment.

Subjects read the following instructions before beginning making a choice in the (strong) third-party dictator game. In this game subjects decided how to allocate a \$20 budget between someone from their college or someone from a different college. All students matriculating at Rice are randomly assigned to a residential college. They live in those colleges for their four years at Rice. College attachments are very strong.

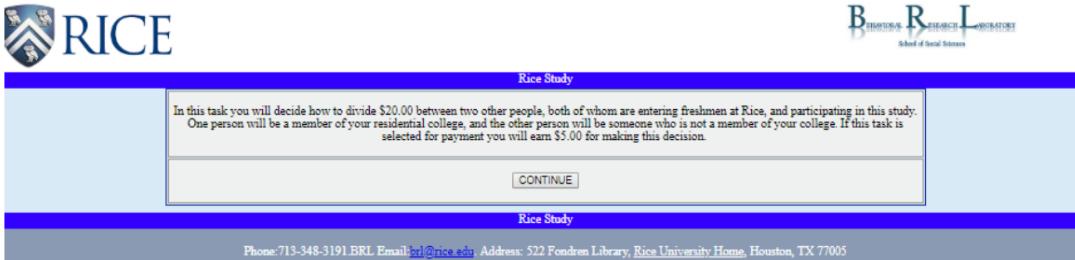


Figure 1: Instructions for (Strong) Third-Party Dictator Game

Allocation to Someone in My College	Your Choice:	Allocation to Someone in a Different College
\$20.00	<input type="radio"/>	\$0.00
\$18.00	<input type="radio"/>	\$2.00
\$16.00	<input type="radio"/>	\$4.00
\$14.00	<input type="radio"/>	\$6.00
\$12.00	<input type="radio"/>	\$8.00
\$10.00	<input type="radio"/>	\$10.00
\$8.00	<input checked="" type="radio"/>	\$12.00
\$6.00	<input type="radio"/>	\$14.00
\$4.00	<input type="radio"/>	\$16.00
\$2.00	<input type="radio"/>	\$18.00
\$0.00	<input type="radio"/>	\$20.00

**Rice Study**

You have a total of \$20.00 to allocate between two people. One is someone from your residential college and the other is from a different college. Please select one of the values below. When you select a value the SUBMIT button will appear.

**SUBMIT**

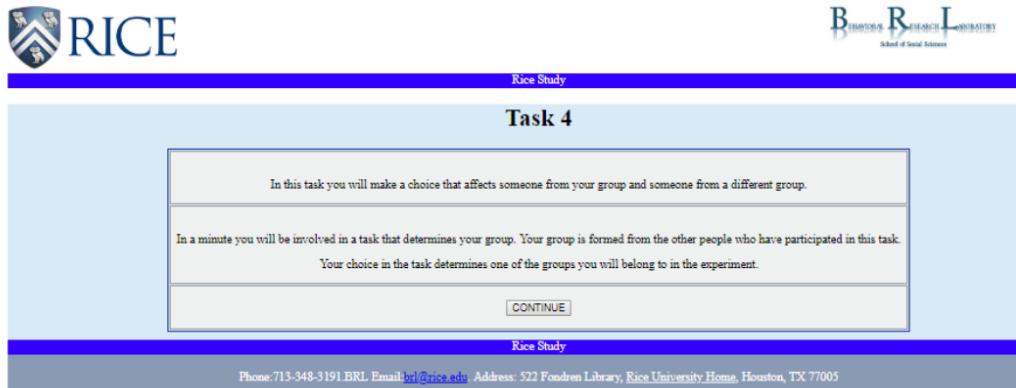
If you wish to review the instructions please Click REVIEW

**REVIEW**

Figure 2: Decision Screen for (Strong) Third-Party Dictator Game

The (minimal) third-party dictator game was similar. Before making a choice subjects were shown a screen with dots for four seconds. asked to estimate how many dots appeared on their screen were told how they would be assigned to groups. Those instructions are reproduced here. Figure 10 notes the decision screen viewed by subjects in the minimal group condition.

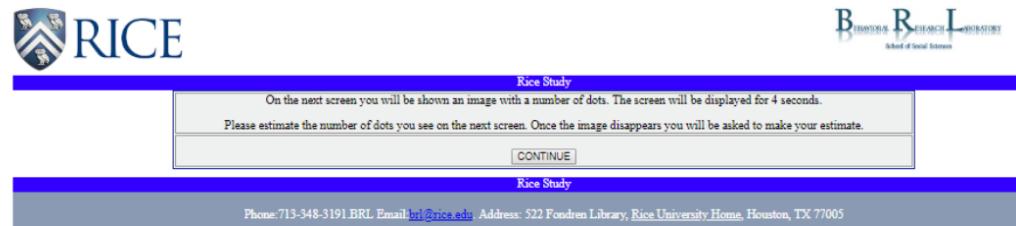
### Part I: Group Assignment



The screenshot shows a web-based study interface. At the top left is the Rice University logo with the word "RICE". To the right is the logo for the "BENEDICT RESEARCH LABORATORY School of Social Sciences". A blue header bar contains the text "Rice Study". Below this is a section titled "Task 4" in bold. Inside a light blue box, there are two paragraphs of text. The first paragraph states: "In this task you will make a choice that affects someone from your group and someone from a different group." The second paragraph states: "In a minute you will be involved in a task that determines your group. Your group is formed from the other people who have participated in this task. Your choice in the task determines one of the groups you will belong to in the experiment." At the bottom of this box is a "CONTINUE" button. A grey footer bar at the bottom contains the text "Phone: 713-348-3191 BRL Email: [bri@rice.edu](mailto:bri@rice.edu) Address: 522 Fondren Library, Rice University Home, Houston, TX 77005".

Figure 3: Phase 2 page 1 instructions for minimal group assignment

### Part I: Group Assignment



The screenshot shows a continuation of the study interface. It features the same top elements: Rice University logo, Benedict Research Laboratory logo, and "Rice Study" header. Below is a section titled "Task 4". Inside a light blue box, there is a single paragraph: "On the next screen you will be shown an image with a number of dots. The screen will be displayed for 4 seconds. Please estimate the number of dots you see on the next screen. Once the image disappears you will be asked to make your estimate." At the bottom of this box is a "CONTINUE" button. A grey footer bar at the bottom contains the text "Phone: 713-348-3191 BRL Email: [bri@rice.edu](mailto:bri@rice.edu) Address: 522 Fondren Library, Rice University Home, Houston, TX 77005".

Figure 4: Phase 2 page 2 instructions for minimal group assignment



Figure 5: Phase 2 page 3 instructions for minimal group assignment. This is the dot estimation task that they faced.

**Estimate**



**B R E A K T H R O U G H R E S E A R C H L A B O R A T O R Y**  
School of Social Sciences

Rice Study  
About how many dots did you see on the previous screen? Pick one of the values below.

<input type="radio"/>	38
<input type="radio"/>	42
<input checked="" type="radio"/>	53
<input type="radio"/>	66
<input type="radio"/>	74
<input type="radio"/>	81

**CONTINUE**

Figure 6: Phase 2 page 4 instructions for minimal group assignment. On this screen subjects guessed the number of dots from the previous page.

**Group Assignment Result**



**B R E A K T H R O U G H R E S E A R C H L A B O R A T O R Y**  
School of Social Sciences

Rice Study  
The guessing task you completed recorded the speed with which people make a choice and not the accuracy of the response. All responses were sorted according to speed.

The two groups from this task are GREEN and YELLOW. There are 6 members in each group.  
Participants that had similar response times as you are in group **GREEN**. The rest of the participants that had response times more similar to each other are in group **YELLOW**.

You are a member of the **GREEN** group.

**CONTINUE**

Figure 7: Phase 2 page 5 instructions for minimal group assignment. On this screen subjects were assigned to their group.



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**You are in group GREEN**

In the previous pages you were assigned to group GREEN based on how quickly you guessed the number of dots in an image.

In this task you will make a decision about how to allocate money between someone from your group (GREEN) and someone from the other group (YELLOW).

The next page will take you to the instructions.

**CONTINUE**

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Figure 8: Phase 2 page 6 instructions for minimal group assignment

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In this task you will decide how to divide \$20.00 between two other people participating in this study. One person is a member of your GREEN group and the other person is someone from the YELLOW group. If this task is selected for payment and you are selected as the allocator you will earn \$5.00 for making this decision.

If this task is randomly selected for payment you might be selected to be a recipient. If so you would receive your share as a member of the GREEN group.

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Figure 9: Phase 2 page 7 instructions for minimal group assignment

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You have a total of \$20.00 to allocate between two people. One is someone from your GREEN group and the other is from the YELLOW group. Please select one of the values below. When you select a value the SUBMIT button will appear.

Allocation to Someone in My GREEN Group	Your Choice:	Allocation to Someone in the YELLOW Group
\$20.00	<input type="radio"/>	\$0.00
\$18.00	<input type="radio"/>	\$2.00
\$16.00	<input type="radio"/>	\$4.00
\$14.00	<input type="radio"/>	\$6.00
\$12.00	<input checked="" type="radio"/>	\$8.00
\$10.00	<input type="radio"/>	\$10.00
\$8.00	<input type="radio"/>	\$12.00
\$6.00	<input type="radio"/>	\$14.00
\$4.00	<input type="radio"/>	\$16.00
\$2.00	<input type="radio"/>	\$18.00
\$0.00	<input type="radio"/>	\$20.00

If you wish to review the instructions please Click REVIEW

Figure 10: Decision Screen for Phase 2 Minimal Group Third-Party Dictator Game

Screen shots for the Trust Game.

The screenshot shows the introduction page for Task 3 of the Trust Game. At the top left is the Rice University logo, followed by the word "RICE". At the top right is the logo for the Behavioral Research Laboratory, School of Social Sciences. A blue header bar contains the text "Rice Study". Below the header is a section titled "Task 3". Inside this section, there is a box containing instructions: "In this task you will be randomly paired with another person in today's experiment. You will not know who that person is and that person will not know who you are." and "One of you will be randomly assigned to be the first mover and the other will be the second mover. You will not know the role to which you were assigned until the end of today's experiment and if this task is chosen for payment." Another instruction states: "Each role involves making different kinds of decisions, so pay careful attention to the instructions. You will not know the role to which you are assigned, so you will have to make both decisions." A "CONTINUE" button is located at the bottom of the box. At the very bottom of the page is a grey footer bar with the text "Phone: 713-348-3191 BRL Email: [bri@rice.edu](mailto:bri@rice.edu) Address: 522 Fondren Library, [Rice University Home](#), Houston, TX 77005".

Figure 11: Introduction to the Trust Game

The screenshot shows the second page of instructions for the Trust game. At the top left is the Rice University logo, followed by the word "RICE". At the top right is the logo for the Behavioral Research Laboratory, School of Social Sciences. A blue header bar contains the text "Rice Study". Below the header is a section titled "Task 3". Inside this section, there is a box containing instructions: "Both you and your counterpart earned \$10.00 at the beginning of today's study from filling out a questionnaire. If you are assigned the role of first mover, then you need to decide how much, if any, of your \$10.00 you would send to your counterpart." and "Whatever you send will be tripled by the experimenter and given to your counterpart. For example, if you sent \$1.00 it would be tripled to \$3.00 and given to your counterpart. If you sent \$9.00 it would be tripled to \$27.00 and given to your counterpart." Another instruction states: "Your counterpart would then decide how much of the tripled amount, if anything, to send back to you. Once the decisions are made you both receive your money and there are no more actions to take. You will not know who your counterpart is and your counterpart will not know you." Below the box is a "CONTINUE" button. At the very bottom of the page is a grey footer bar with the text "Phone: 713-348-3191 BRL Email: [bri@rice.edu](mailto:bri@rice.edu) Address: 522 Fondren Library, [Rice University Home](#), Houston, TX 77005".

Figure 12: Trust game instructions page 2

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### Task 3

As a first mover you would have to decide how much (if any) of your \$10.00 you want to send to your counterpart. In this example move the slider bar to indicate how much you would send to your counterpart. Then continue to the next page of instructions.

(Keep in mind this is only an example).

You can send up to \$10.00

Amount You Wish to Send \$:   
slider

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Figure 13: Trust game instructions page 3

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### Task 3

If you are assigned the role of second mover you will need to decide how much you would like to return to your counterpart. You will make that decision based on the tripled amount sent by your counterpart.

Because you do not know which role you will be assigned and because you have not been assigned a counterpart you do not know how much has been sent. Consequently you have to make a decision about how much to return for every amount that has been sent.

As you saw, a first mover can only send whole dollars. This means you have 10 decisions to make. The next page will give you a limited number of examples of what you need to decide.

The next page takes you to an example of what you will see as a second mover.

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Figure 14: Trust game instructions page 4

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### Task 3

As a second mover you would have to decide how much (if any) of the tripled amount you want to return to your counterpart. In this example move the different slider bars to indicate how much you would return if your counterpart sent the (tripled) amount. Remember that whatever you send back IS NOT tripled. You will see several examples. When you are ready continue to the next page of instructions.

(Keep in mind this is only an example).

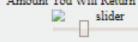
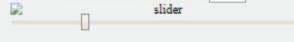
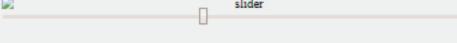
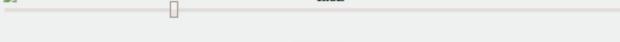
Triples Amount Sent	
You can send up to \$3	Amount You Will Return \$: <input type="text" value="1"/>  <input type="button" value="Confirm"/>
You can send up to \$12	Amount You Will Return \$: <input type="text" value="3"/>  <input type="button" value="Confirm"/>
You can send up to \$21	Amount You Will Return \$: <input type="text" value="9"/>  <input type="button" value="Confirm"/>
You can send up to \$30	Amount You Will Return \$: <input type="text" value="8"/>  <input type="button" value="Confirm"/>
<input type="button" value="Continue"/>	

Figure 15: Trust game instructions page 5

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### Task 3

You are now finished with the instructions for this task. If you have questions, you may review the instructions.

Remember you do not know which role you will be assigned. Nor do you know who your counterpart will be. As a consequence you are going to have to make decisions as both a first mover and a second mover.

If this task is randomly chosen for payment, you will be told which role you were randomly assigned. You will be reminded of what you chose to do. You will also be told what your counterpart decided.

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Figure 16: Trust game instructions page 6



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### Task 3

On the next page you will decide how much you wish to send your counterpart. Keep in mind that both you and your counterpart have \$10 that was earned from filling out the survey.

Remember that what you send to the counterpart will be tripled. The counterpart can choose to return any amount.

**CONTINUE**

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Figure 17: Trust game instructions page 7



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### Task 3

Move the slider bar to decide how much you want to send to your counterpart. Then continue to the next page.

You can send up to \$10.00

Amount You Wish to Send \$:  slider

**SUBMIT**

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Figure 18: Trust game decision



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### Task 3

You decided to send \$2.00 to your counterpart.

Below, please guess how much you think your counterpart will send back to you? If this task is chosen for payment, if you are chosen to be the first mover and you guess correctly, you will receive a bonus of \$2.50.

Amount You Believe Your Counterpart Will Return \$:  slider

**SUBMIT**

If you wish to change your mind, Click RETURN.

**RETURN**

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Figure 19: Trust game beliefs elicitation

**Task 3**

At the end of this study, if this task is picked for payment, you will be randomly matched with someone else. You will be randomly assigned to be either the first mover or the second mover. Because your role has not yet been assigned, you need to make decisions as a second mover.

On the next page you will be asked how much, if anything, you would return to your counterpart. Because you do not know how much was sent, you will have to pick a value for each possible amount that could be sent.

Keep in mind that whatever the first mover sends is tripled. The amount that you choose to return is your decision.

**[CONTINUE]**

Figure 20: Trust game reciprocity

**Task 3**

Here you can choose how much you want to send to your counterpart. Move the slider bar to an amount that you would return if your counterpart sent (the tripled) amount. When you have made all of the decisions click **CONTINUE** to go to the next page.

Tripled Amount Sent	
You can return up to \$3	Amount You Will Return \$: <input type="text" value="1"/>  slider <input type="button" value="Confirm"/>
You can return up to \$6	Amount You Will Return \$: <input type="text" value="2"/>  slider <input type="button" value="Confirm"/>
You can return up to \$9	Amount You Will Return \$: <input type="text" value="3"/>  slider <input type="button" value="Confirm"/>
You can return up to \$12	Amount You Will Return \$: <input type="text" value="4"/>  slider <input type="button" value="Confirm"/>
You can return up to \$15	Amount You Will Return \$: <input type="text" value="5"/>  slider <input type="button" value="Confirm"/>
You can return up to \$18	Amount You Will Return \$: <input type="text" value="7"/>  slider <input type="button" value="Confirm"/>
You can return up to \$21	Amount You Will Return \$: <input type="text" value="3"/>  slider <input type="button" value="Confirm"/>
You can return up to \$24	Amount You Will Return \$: <input type="text" value="7"/>  slider <input type="button" value="Confirm"/>

Figure 21: Trust game reciprocity decision

You can return up to \$27	 Amount You Will Return \$: <input type="text" value="8"/> slider <input type="button" value="Confirm"/>
You can return up to \$30	 Amount You Will Return \$: <input type="text" value="16"/> slider <input type="button" value="Confirm"/>
<input type="button" value="Continue"/>	

Figure 22: Trust game reciprocity decision



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### Task 3

Now that you have completed all of your decisions, how much do you expect your counterpart will send you? If this task is chosen for payment, if you are chosen to be the second mover and you guess correctly, you will receive a bonus of \$2.50.

Your counterpart can send up to \$10<sup>00</sup>

Amount You Believe Your Counterpart will Send \$:   
 slider

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Figure 23: Trust game reciprocity beliefs



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### Task 3

You have completed this task. You will now move on to the next task.  
 Please click CONTINUE when you are ready.

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Figure 24: End of the Trust Game

### 3 Additional Analysis

Table 1 details the means and  $p$ -values for the incentivized measures of social preferences. This table imposes a control for ordering effects for the dictator games. There is a difference between the lab and online subjects when the minimal group treatment is administered first. However, adjusting for multiple hypothesis testing, this difference disappears.

Table 1

	In-lab	Online	Difference	Unadj. $p$ -val	Adj. $p$ -val
Giving to Minimal Ingroup					
Order 1	13.712 (0.365)	12.676 (0.333)	1.036 (0.494)	0.037	0.178
	$n = 118$	$n = 139$			
Order 2	12.102 (0.329)	11.890 (0.280)	0.211 (0.429)	0.623	0.849
	$n = 118$	$n = 146$			
Giving to Real Ingroup					
Order 1	13.847 (0.364)	13.353 (0.329)	0.495 (0.489)	0.313	0.824
	$n = 118$	$n = 139$			
Order 2	12.576 (0.307)	12.699 (0.312)	-0.122 (0.444)	0.783	0.849
	$n = 118$	$n = 146$			
Trust	4.415 (0.190)	4.159 (0.185)	0.256 (0.267)	0.337	0.824
	$n = 236$	$n = 283$			
Reciprocity	36.193 (1.371)	37.965 (1.376)	-1.772 (1.959)	0.366	0.824
	$n = 236$	$n = 283$			

*Notes:* Standard errors in parentheses. Adjusted  $p$ -values are calculated using Stata command *wyoung* (Jones, Molitor, and Reif 2019). Order 1 = minimal first and real second; order 2 = minimal second, real first

Figure 25 graphs the mean for each incentivized measure and includes the 95 percent confidence interval. This figure illustrates what is detailed in Table 1. There is in-group bias in the dictator games and the effect is true for both laboratory and online subjects. There are no differences for the trust game.

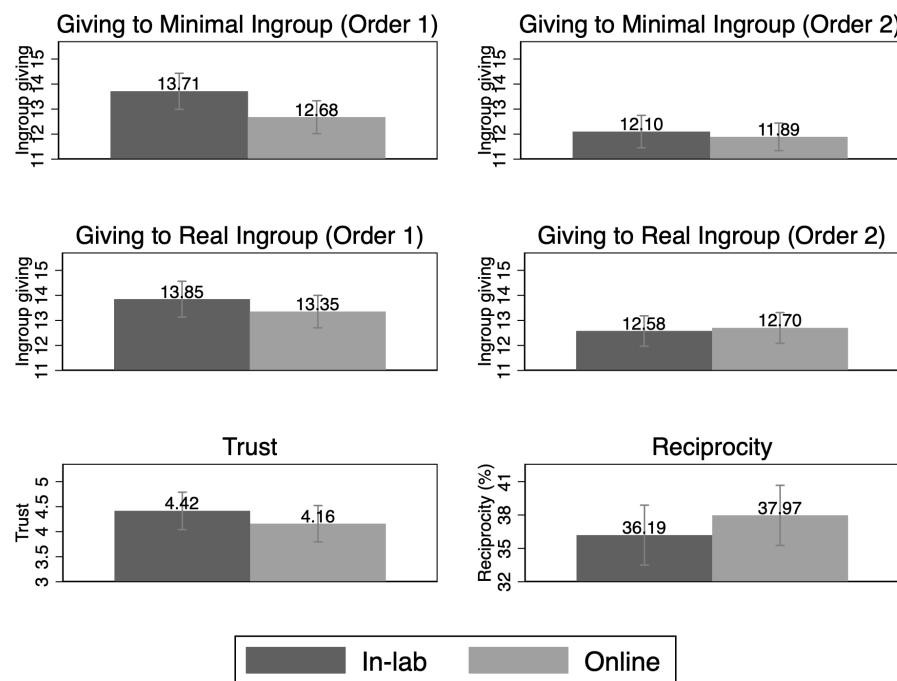


Figure 25

## 4 Recruitment Emails

The following are copies of the recruitment emails sent to subjects.

Michelle Harris (notification):

The Behavioral Research Lab (BRL) invites you to participate in a decision making study. The study will last less than 60 minutes and you will be paid for your participation. You will need to come to the BRL to participate. You are eligible to participate at a time and date of your own choosing.

To see what times are available please go to: <http://brl.rice.edu/Study2020> . There you will be able to pick a time to participate.

Play games! Earn money! Help science!

This research study has been reviewed and approved by Rice University Institutional Review Board. If you have concerns regarding this study or questions regarding your rights as a study participant, please contact Stephanie Thomas, Compliance Administrator -IRB, at Rice University.

Email: [irb@rice.edu](mailto:irb@rice.edu) or Telephone: 713-348-3586

Rick K. Wilson, Director BRL and Department of Political Science

Figure 26: Copy of email sent to subjects asking them to signup for an in-lab experiment.

## Initial Email To All Subjects

Make any last minute changes here. Once you hit the button to Send Mail this message will be sent to everyone!

Subject Line:  
Rice University - BRL On-Line Study

(Note This line is inserted on the next page,  
(first name) (last name) you are invited to participate in the Rice Study 2016b!

The Behavioral Research Lab (BRL) invites you to participate in an on-line decision making study. The study will last about 15 minutes and you will be paid for your participation.

Play games! Earn money! Help science!

Professor Rick K. Wilson is conducting online research with a variety of Rice students. You have been randomly selected to participate in this research.

To participate go to: <http://brl.rice.edu/Study2016c>

The study lasts about 15 minutes and you can participate in it

This research study has been reviewed and approved by Rice University Institutional Review Board. If you have concerns regarding this study or questions regarding your rights as a study participant, please contact Stephanie Thomas, Compliance Administrator -IRB, at Rice University. Email: [irb@rice.edu](mailto:irb@rice.edu) or Telephone: 713-348-3586

Figure 27: Copy of email sent to subjects asking them to begin an online experiment.