

# Measuring Experimenter Demand: Pre-analysis Plan

Jonathan de Quidt\*      Johannes Haushofer†      Chris Roth‡

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## 1 Introduction

Experimenter demand effects pose an important challenge to understand and interpret results from laboratory and field experiments (Rosenthal, 1966; Zizzo, 2010). For example, experimenter demand effects are an important obstacle to interpreting effect sizes and they constitute a threat to the external validity of experiments. Experimenter demand effects also affect the optimal design of experiments; however, little or no empirical evidence exists that studies how design features affect the relevance of experimenter demand effects. Moreover, experimental economists have a very limited understanding of the relative importance of experimenter demand effects for different outcome measures or experimental paradigms.

In this experiment we manipulate subjects' beliefs about the intentions and desires of the experimenters. In particular, we are interested in the extent to which people's behavior in economic games is elastic to experimenter demand. Our estimates in turn provide us with a bound for the importance of experimenter demand effects for experimental economics. In our experiment, we manipulate our subjects' beliefs in three different standard preferences measures: a dictator game, an investment game as well as convex time budgets.

Subjects are randomly assigned to one of three main treatment conditions: in the first one, we induce "positive demand", for example by telling them that they would do us a favor if they give more to the other participant than they normally would in the dictator game. In the second treatment condition, we induce "negative demand" for example by telling our participants that

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\*Institute for International Economic Studies (IIES); e-mail: jonathan.dequidt@iies.su.se.

†Department of Psychology and Public Affairs, Princeton University; e-mail: Haushofer@princeton.edu.

‡Department of Economics, University of Oxford and CSAE; e-mail: christopher.roth@economics.ox.ac.uk.

they would do us a favor if they give less to the other participant than they normally would in the dictator game. In the third condition, we do not induce any demand. Similarly, we induce both positive, negative and no demand in the investment game as well as in our time- preference measure. Subjects are randomly assigned to play either of the three different games and we also cross-randomize whether our subjects' choices involve real money or are hypothetical.

This document proceeds as follows: first, we outline the experimental design. Then in section 3, we describe the setting as well as the sample size. Subsequently, we describe the hypotheses. In section 5, we describe the analysis we would like to conduct. Finally, in section 6, we define all of our outcome variables of interest.

## 2 Experimental Design

At the start our respondents complete a screener (Berinsky et al., 2014) that allows us to examine whether they are paying attention to our instructions. Then, our respondents are randomly assigned to play one of the three following games:<sup>1</sup>

### 2.1 Dictator Game

We let our respondents play a standard dictator game:

*In this task you will allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her. You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself.*

We have three main treatment arms:

- **Positive Demand:** Our subjects receive the following instructions: *You will do us a favor if you give more to the other participant than you normally would.*
- **Negative Demand:** Our participants get the following instructions: *You will do us a favor if you give less to the other participant than you normally would.*
- **No Demand:** We do not induce any demand.

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<sup>1</sup>We record our participants' response times to the games.

## 2.2 Investment Game

We let our respondents play an investment game (Gneezy and Potters, 1997):

*You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project. Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).*

- *If the project is successful, you will receive 3 times the amount you chose to invest.*
- *If the project is unsuccessful, you will receive nothing.*

We have three main treatment arms:

- **Positive Demand:** Our subjects receive the following instructions: *You will do us a favor if you invest more in the project than you normally would.*
- **Negative Demand:** Our participants receive the following instructions: *You will do us a favor if you invest less in the project than you normally would.*
- **No Demand:** We do not induce any demand.

## 2.3 Convex Time Budget

We let our respondents complete one item from convex time budgets (Andreoni et al., 2013; Balakrishnan et al., 2015):

*As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days. As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.*

We have three main treatment arms:

- **Positive Demand:** Our subjects receive the following instructions: *You will do us a favor if you choose to receive more money in seven days than you normally would.*

- **Negative Demand:** Our participants receive the following instructions: *You will do us a favor if you choose to receive less money in seven days than you normally would.*
- **No Demand:** We do not induce any demand.

## 2.4 Hypothetical or incentivized

In addition, we also randomize whether our respondents' choices are hypothetical or real. Depending on our respondents' treatment condition we provide them with the following piece of information before completing the behavioral measure:

- **Incentivized:** *We will now ask you to complete a task which involves real money.*
- **Hypothetical:** *We will now ask you to complete a hypothetical task, i.e. this task does not involve real money.*<sup>2</sup>

## 2.5 Updated Beliefs

Thereafter our respondents complete a set of questions on their beliefs about the experimenters' intentions and their hypotheses. In particular, we ask the following two questions:

- What do you think is the result that the researchers of this study want to find?
  - They want to find that on average people invest a large share of the \$1.
  - They want to find that on average people invest a small share of the \$1.
- What do you think was the hypothesis of this research study?
  - The experimenters hypothesized that on average participants would invest a large share of the \$1 in the project.
  - The experimenters hypothesized that on average participants would invest a small share of the \$1 in the project.

## 2.6 Demographics

Finally, we ask participants to complete a questionnaire on demographics, which includes variables on gender, age, education, income etc.

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<sup>2</sup>We also prepend the game instructions with "Imagine".

### 3 Setting, Sample Size and Power

We will run our experiment on Amazon Mechanical Turk, an online platform which is widely used to conduct experiments. We will only recruit participants who currently live in the United States. Moreover, workers must have completed at least 500 HITs, and they must have an overall rating of more than 95 percent. We plan to recruit 4500 participants, with 1500 participants randomly assigned to each of the three different games, 1500 participants randomly assigned to each of the three different demand conditions. Also, half of our participants are assigned to complete these tasks for real money.

For our main test of interest, i.e. comparing the behavior of people in the positive and negative demand condition we have a power of .8 to detect standardized effect sizes of .105 at  $\alpha = 0.05$ . To test for heterogeneous treatment effects by incentives and gender we have a power of .8 to detect effect sizes of .145 at  $\alpha = 0.05$  respectively. Finally, to test for heterogeneous responses to demand for the three different games, we can detect effect sizes of .18 with power .8 at  $\alpha = 0.05$ .

### 4 Main Hypotheses

**Hypothesis 1 (Positive Demand):** We hypothesize that individuals in the “positive demand condition” will donate more money to another mTurker, will invest more in the investment game and will want more money later than now relative to participants in the control group.

**Hypothesis 2 (Negative Demand):** We hypothesize that individuals in the “negative demand condition” will donate less money to another mTurker, will invest less in the investment game and will want less money later than now relative to participants in the control group.

**Hypothesis 3 (Monetary Incentives):** We hypothesize that individuals playing the games with real money will respond less strongly to experimenter demand relative to participants playing the hypothetical games as it becomes more costly for them to distort their choices to please the experimenter.

## 5 Analysis

### 5.1 Baseline Balance

We will test for baseline balance for the following variables:

- gender
- age
- log income (income is the midpoint of the interval specified by the respondent)
- household size
- ethnicity (dummies for White, Black, Hispanic, and Asian)
- employment status (dummies for unemployed, part-time employed, and employed full-time)
- education (dummy for person with at least bachelor degree)
- experience on MTurk (number of HITs completed on MTurk)
- political orientation (taking value one for Republicans and zero otherwise)

We will regress each of these variables on a treatment indicator to see if there are imbalances. We will account for multiple hypothesis testing by regressing the treatment indicator on all of the variables, and we will conduct a joint F-test, to see if the coefficients are jointly different from zero.

### 5.2 Main Specifications

#### 5.2.1 Summary of main results

We present our main results by providing the means and standard deviations for each of our main games separately for each of the following conditions:

- Positive Demand with incentives
- Negative Demand with incentives
- No Demand with incentives
- Positive Demand without incentives

- Negative Demand without incentives
- No Demand without incentives

Thus in total, we present 18 means and standard deviations for our treatment arms of interest. We will also present these results graphically by the means of bar charts and by providing conventional 95 percent confidence intervals around the mean. We will also report the equivalent game-level regressions, with standard errors uncorrected for multiple comparisons. We next turn to our main specifications of interest.

### 5.2.2 Test 1: does demand affect choices?

First, we simply compare the behavior of people in the positive demand group and in the negative demand group with that of people in the control group. We z-score our outcome variables at the paradigm-incentive level, using the mean and s.d. for the no-demand group (Kling et al., 2007). For our main specification we pool together the z-scored outcomes for all three different games. We regress our z-scored outcome variable,  $ZY_i$ , on a treatment indicator,  $POS_i$ , which takes value one for people who receive the positive demand treatment, and value zero for all the other participants and on a dummy,  $NEG_i$  taking value one for people who receive the negative demand treatment, and value zero for all the other participants. Specifically, the equation that we estimate is:

$$ZY_i = \beta_0 + \beta_1 POS_i + \beta_2 NEG_i + \varepsilon_i$$

We conduct three main tests:

- Do people increase their giving, their investment and their patience when exposed to positive demand?  $\beta_1 > 0$
- Do people decrease their giving, their investment and their patience when exposed to negative demand?  $\beta_2 < 0$
- Is the overall response to demand non-zero?  $\beta_1 - \beta_2 = 0$

We correct for multiple hypothesis testing in these three tests by using the “sharpened q-value approach” (Anderson, 2008; Benjamini et al., 2006). In particular, we will adjust our p-values for a false discovery rate of .05.

### 5.2.3 Test 2: does demand respond to incentives?

In a next step, we test whether incentives affect experimenter demand. To do so, we regress our normalized outcome variables, pooled across games, on the same set of regressors as above as well as an indicator variable,  $M_i$ , taking value one when people are in the incentive condition, and the interaction between  $M_i$  and the demand treatment indicators,  $POS_i$  and  $NEG_i$ .

$$ZY_i = \beta_0 + \beta_1 POS_i + \beta_2 NEG_i + \beta_3 M_i \times POS_i + \beta_4 M_i \times NEG_i + \varepsilon_i$$

To test whether incentives affect experimenter demand, we run the following test:

$$\beta_3 - \beta_4 = 0$$

which tests whether the difference between behavior under positive and negative demand, i.e. the magnitude of our demand effect, responds to incentives.

### 5.2.4 Test 3: Does demand differ between games?

Subsequently, we test whether experimenter demand varies by the type of game that our respondents play. In particular, we interact dummy variables for the different games with our “demand treatment indicators”. Specifically,  $RP_i$  takes value one for participants randomly assigned to play the investment game and zero otherwise.  $TP_i$  takes value one for participants randomly assigned to complete the convex time budgets and zero otherwise. To identify differential effects across games we estimate the following equation:

$$\begin{aligned} ZY_i = & \beta_0 + \beta_1 POS_i + \beta_2 NEG_i + \beta_3 RP_i \times POS_i + \beta_4 RP_i \times NEG_i \\ & + \beta_5 TP_i \times POS_i + \beta_6 TP_i \times NEG_i + \varepsilon_i \end{aligned}$$

First, we conduct an omnibus test to test whether there is any heterogeneous response to experimenter demand for any of the games:

$$H_0^{DTR} : \beta_3 - \beta_4 = \beta_5 - \beta_6 = 0, H_1^{DTR} : \text{not } H_0^{DTR}$$

Moreover, we test whether the effects of demand differ between (i) the dictator game and the investment game, (ii) the convex time budgets and the dictator game, (iii) and the convex time

budgets and the investment game. In particular, we run the following tests.

$$\begin{aligned}
H_0^{DR} : \beta_3 - \beta_4 = 0, & \quad H_1^{DT} : \beta_3 - \beta_4 \neq 0 \\
H_0^{DT} : \beta_5 - \beta_6 = 0, & \quad H_1^{DR} : \beta_5 - \beta_6 \neq 0 \\
H_0^{TR} : \beta_3 - \beta_4 = \beta_5 - \beta_6, & \quad H_1^{TR} : \beta_3 - \beta_4 \neq \beta_5 - \beta_6
\end{aligned}$$

We correct for multiple hypothesis testing in these three tests by adjusting our p-values for a false discovery rate of .05 (Anderson, 2008), as above.

### 5.2.5 Test 4: does demand differ between men and women?

Subsequently, we test whether the elasticity of behavior to experimenter demand differs for men and women. To do so, we interact our demand indicators with a dummy,  $Male_i$ , taking value one for males. More precisely, we estimate the following equation:

$$ZY_i = \beta_0 + \beta_1 POS_i + \beta_2 NEG_i + \beta_3 MALE_i \times POS_i + \beta_4 MALE_i \times NEG_i + \beta_5 MALE_i + \varepsilon_i$$

To test for gender differences in response to demand we conduct the following test:

$$\beta_3 - \beta_4 \geq 0$$

which tests whether the size of the demand effect (difference in behavior under positive and negative demand) differs by gender.

### 5.2.6 Test 5: does demand differ by attention?

Finally, we also test whether the elasticity of behavior to experimenter demand differs for attentive vs. inattentive subjects. To do so, we interact our demand indicators with a dummy,  $Attention_i$ , taking value one for all subjects correctly responding to the attention check. More precisely, we estimate the following equation:

$$\begin{aligned}
ZY_i = \beta_0 + \beta_1 POS_i + \beta_2 NEG_i + \beta_3 Attention_i \times POS_i + \beta_4 Attention_i \times NEG_i \\
+ \beta_5 Attention_i + \varepsilon_i
\end{aligned}$$

To test differences in response to demand by attention we conduct the following test:

$$\beta_3 - \beta_4 \geq 0$$

which tests whether the size of the demand effect (difference in behavior under positive and negative demand) differs by attention.

### 5.2.7 Test 6: Beliefs about experimental hypotheses

To check whether the demand treatments affected people’s beliefs about what the researchers want to find and hypothesized, we estimate the following equation:

$$Belief_i = \alpha_0 + \alpha_1 POS_i + \alpha_2 NEG_i + \varepsilon_i$$

As before, we conduct three main tests:

- Are people more likely to believe we wanted/hypothesized a “high” action when exposed to positive demand?  $\alpha_1 > 0$
- Are people more likely to believe we wanted/hypothesized a “low” action when exposed to positive demand?  $\alpha_2 < 0$
- Is there an overall effect of demand on beliefs?  $\alpha_1 - \alpha_2 = 0$

As above, we account for multiple hypothesis adjustment by adjusting the p-values for these six tests (three per beliefs question, two questions) for a false discovery rate of .05 (Anderson, 2008).

## 5.3 Dealing with Imbalances

If there are imbalances between the treatment group and the control group, we will also estimate the above equations with a set of controls. We will choose as controls all of the variables for which there are imbalances.

## References

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# Experimental Instructions

## A Introduction and consent form

This study is conducted by the Busara Center for Behavioral Economics. This research has received ethics clearance by Princeton University Institutional Review Board. No deception is involved and the study does not pose any risk to the participants. Participants will be asked to answer a few questions about their preferences, as well as a set of demographic questions. Participation in the study typically takes 3 minutes and is strictly anonymous. In order to be paid, it is necessary to finish the survey. If you complete the survey, you will receive a fixed payment of \$0.50, and on top of that you may receive a bonus. Each person is only allowed to participate in the experiment once. If you encounter a technical problem, please do not restart the experiment, but contact us at [mturk@busaracenter.org](mailto:mturk@busaracenter.org). If participants have further questions about this study or their rights, or if they wish to lodge a complaint or concern, they may contact us at [mturk@busaracenter.org](mailto:mturk@busaracenter.org).

Consent form:

- I have read the information provided on the previous page.
- I have had the opportunity to ask questions about the study.
- I understand that I may withdraw from the study at any time.
- I understand that this project has been reviewed and approved by Princeton University Institutional Review Board.
- I understand how personal data will be published and stored.
- I understand how to raise a concern or make a complaint.
- I understand that I can only participate in this experiment once.
- I understand that close attention to the survey is required for my responses to count.

## B Screener

When a big news story breaks people often go online to get up-to-the-minute details on what is going on in the world. We want to know which websites people trust to get this information.

We also want to know if people are paying attention to the question. To show that you've read this much, please ignore the question and select ABC News and The Drudge Report as your two answers.

When there is a big news story, which is the one news website would you visit first? (Please only choose one)

## **C Instructions: Dictator Game**

### **C.1 Control (Incentives)**

We will now ask you to complete a task which involves real money. In this task you will allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself. What amount would you like to give to the other MTurk participant?

### **C.2 Positive Demand (Incentives)**

We will now ask you to complete a task which involves real money. In this task you will allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself.

**You will do us a favor if you give more to the other participant than you normally would.**

What amount would you like to give to the other MTurk participant?

### **C.3 Negative Demand (Incentives)**

We will now ask you to complete a task which involves real money. In this task you will allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed

that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself.

You will do us a favor if you give less to the other participant than you normally would.

What amount would you like to give to the other MTurk participant?

#### **C.4 Control (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine that you allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself. What amount would you like to give to the other MTurk participant?

#### **C.5 Positive Demand (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine that you allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself.

You will do us a favor if you give more to the other participant than you normally would.

What amount would you like to give to the other MTurk participant?

## C.6 Negative Demand (No Incentives)

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine that you allocate \$1 between yourself and another randomly chosen participant from MTurk who will be informed that another MTurker had the chance to split money with him or her.

You will simply decide how much of the \$1 you want to send to the other person. You will get to keep the rest of the money for yourself.

You will do us a favor if you give less to the other participant than you normally would.

What amount would you like to give to the other MTurk participant?

## C.7 Beliefs

What do you think is the result that the researchers of this study want to find?

- They want to find that on average people give a large share of the \$1 to the other person.
- They want to find that on average people give a small share of the \$1 to the other person.

What do you think was the hypothesis of this research study?

- The experimenters hypothesized that on average participants would send a large share of the \$1 to the other person.
- The experimenters hypothesized that on average participants would send a small share of the \$1 to the other person.

# D Instructions: Investment Game

## D.1 Control (Incentives)

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project. Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

What amount would you like to invest in the risky project?

## D.2 Positive Demand (Incentives)

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project. Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

You will do us a favor if you invest more in the project than you normally would.

What amount would you like to invest in the risky project?

## D.3 Negative Demand (Incentives)

We will now ask you to complete a task which involves real money.

You are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project. Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

You will do us a favor if you invest less in the project than you normally would.

What amount would you like to invest in the risky project?

#### **D.4 Control (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine you are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project.

Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

What amount would you like to invest in the risky project?

#### **D.5 Positive Demand (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine you are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project.

Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

You will do us a favor if you invest more in the project than you normally would.

What amount would you like to invest in the risky project?

#### **D.6 Negative Demand (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money. Imagine you are endowed with \$1 and you can choose how much of the \$1 to keep or invest in a risky project.

Money that is not invested in the risky project is yours to keep. The risky project has a 40 percent chance of success (that is a 4 out of 10).

- If the project is successful, you will receive 3 times the amount you chose to invest.
- If the project is unsuccessful, you will receive nothing.

You will do us a favor if you invest less in the project than you normally would.

What amount would you like to invest in the risky project?

## D.7 Beliefs

What do you think is the result that the researchers of this study want to find?

- They want to find that on average people invest a large share of the \$1.
- They want to find that on average people invest a small share of the \$1.

What do you think was the hypothesis of this research study?

- The experimenters hypothesized that on average participants would invest a large share of the \$1 in the project.
- The experimenters hypothesized that on average participants would invest a small share of the \$1 in the project.

## E Instructions: Time Preferences

### E.1 Control (Incentives)

We will now ask you to complete a task which involves real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

What amount would you like to get today and what amount would you like to get in seven days?

## **E.2 Positive Demand (Incentives)**

We will now ask you to complete a task which involves real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

You will do us a favor if you choose to receive more money in seven days than you normally would.

What amount would you like to get today and what amount would you like to get in seven days?

## **E.3 Negative Demand (Incentives)**

We will now ask you to complete a task which involves real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. You can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

You will do us a favor if you choose to receive less money in seven days than you normally would.

What amount would you like to get today and what amount would you like to get in seven days?

#### **E.4 Control (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. Imagine that you can now make a choice between extra money today and in seven days.

You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days. As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

What amount would you like to get today and what amount would you like in seven days?

#### **E.5 Positive Demand (No Incentives)**

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. Imagine that you can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

You will do us a favor if you choose to receive more money in seven days than you normally would.

What amount would you like to get today and what amount would you like in seven days?

## E.6 Negative Demand (No Incentives)

We will now ask you to complete a hypothetical task, i.e. this task does not involve real money.

As we have already told you, you will receive 25 cents today for completing our survey. We will also pay you an additional 10 cents in 7 days. Imagine that you can now make a choice between extra money today and in seven days. You can use the slider below to choose how much money you would like to receive today vs. how much money you would like to receive in seven days.

As you move the slider to the right, the amount of the payment in seven days increases and the amount of the payment today decreases. As you move the slider to the left, the amount of the payment in seven days decreases and the amount of the payment today increases. For every 1 cent you give up today, you will receive 1.2 cents in 7 days.

You will do us a favor if you choose to receive less money in seven days than you normally would.

What amount would you like to get today and what amount would you like in seven days?

## E.7 Beliefs

What do you think is the result that the researchers of this study want to find?

- They want to find that on average people choose to receive a large amount in seven days.
- They want to find that on average people choose to receive a small amount in seven days.

What do you think was the hypothesis of this research study?

- The experimenters hypothesized that on average participants would choose to receive a large amount in seven days.
- The experimenters hypothesized that on average participants would choose to receive a small amount in seven days.

## F Demographics

The main part of the survey is now over. We will now just ask you some general questions about yourself.

Which of these describes you more accurately? [Male, Female]

What year were you born?

In which state do you currently reside?

How many people are there in your household including yourself?

What was your annual household income (before taxes) in 2015? [Less than \$10,000, Between \$10,000 and \$19,999, Between \$20,000 and \$29,999, Between \$30,000 and \$39,999, Between \$40,000 and \$49,999, Between \$50,000 and \$59,999, Between \$60,000 and \$69,999, Between \$70,000 and \$79,999, Between \$80,000 and \$99,999, More than \$100,000]

What is the highest level of education you have completed? [12th grade or less; Graduated high school or equivalent; Some college, no degree; Associate degree; Bachelor's degree; Post-graduate degree]

What is your religion? [Christianity, Judaism, Islam, Hinduism, None, Other]

What is your ethnicity? [White, Black, Hispanic, Asian, Other]

What category would best describe your political orientation? [Democrat; Republican; Other]

Pick the category that describes you best: [Mechanical Turk is my main source of income. I work on Mechanical Turk to supplement my income. I work on Mechanical Turk as a hobby. Other]

Which of these describes your current situation most accurately? [Employed full-time, Employed part-time, Unemployed and looking for a job, Unemployed but not looking for a job, Retired, Other]

How many HITs have you already completed on Amazon Mechanical Turk? [dropdown menu]