Replication of

Expectations as Endowments: Evidence on Reference-Dependent Preferences from Exchange and Valuation Experiments

by Marzilli Ericson, K.M./Fuster, A. (2011)
in: The Quarterly Journal of Economics, 126(4), pp. 1879–1907.

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In a valuation experiment, Marzilli Ericson and Fuster randomize subjects to a high or low probability of obtaining an item (a mug) and elicit their willingness-to-accept it. They find that the high probability treatment increases the valuation of the item. The paper includes two experiments where other things are also tested. Experiment 2 was chosen as it was the last experiment.

Hypothesis to bet on:

The willingness to accept (WTA) for a mug is higher for a high probability of receiving the mug for free compared to a low probability of receiving the mug for free (a comparison of the mean WTA between the treatment MH (80% chance of receiving the mug for free at the end of the experiment) and the treatment ML (10% chance of receiving the mug for free at the end of the experiment) in Experiment 2).

Power Analysis

The original p-value is 0.03 (independent samples t-test of the difference between the MH and the ML treatments, the measure used is the $ln(WTA)$ for the mug minus the $ln(WTA)$ for a pen also elicited in the experiment, observations with 0 WTA for any of the two goods are dropped (footnote 25), p. 1896)): *"However, when we consider the subject level difference between $ln(WTA_{mug})$ and $ln(WTA_{pen})$, we find a mean of 0.33 for subjects in the* MH *treatment and 0.01 for subjects in the* ML *treatment. This difference is statistically significant ($p = 0.03$, t-test)."*

The original sample size is 112 participants (52 in the MH treatment and 60 in the ML treatment). To achieve 90% power the required sample size is 250 participants.

Sample

The sample for replication consists of 250 students from Harvard University (their Harvard IDs will be checked). Apart from having participated in the original experiment, there are no exclusion criteria.

Materials

We use the material of the original experiment. That is, we will be working in a computer lab with carrels, with a mug on each. Other material that will be brought into the lab, except mugs, are coins that are labeled with 1 and 8 on each sides, index cards, ten sided dies (with numbers 0 to 9) and pens. Mugs and pens are supposed to be as similar as possible to those used in the original experiment, i.e., a university travel mug and a silver metal university pen.

Procedure

We follow the procedure of the original article, with only slight but unavoidable deviations as outlined below. The following summary of the experimental procedure is therefore based on the section "III.B. Procedures" (pp. 1894–1895) in the original study.

The experiment is performed in a lab environment. Each subject is placed at a carrel with a computer and a mug. The experimenter first flips a coin with sides labeled 1 and 8 for each subject. Then the subject is given an index card with this number written on it.

The next step for the subjects is to start reading the instructions on the computer screen in front of them. The subjects are told that the experimenter roles a ten sided die (one time for each subject) at the end of the experiment. If the die comes up with a number strictly lower than the number on the index card, the subject will receive the mug for free. The subjects are also told that if the die comes up 9 they will be able to choose between the mug and a randomly determined amount between \$0 and \$10.

This implies that subjects who have index cards with 1 (8) have a 10% (80%) chance of walking away with the mug given that the die comes up 0 (0-7). The subjects with a 1 (8) on their index cards are in the treatment ML (MH) for low (high) probability of getting the mug. For all subjects there is a 10% chance to be able to choose between the mug and money.

Then the experimenter reads important parts of the instructions out loud. Subjects start to fill out a personality questionnaire in two parts. In the middle they get reminded that they may get the mug for free or have the possibility to choose between the mug and money. When the questionnaire is done the subjects are asked to make choices between different monetary amounts from \$0 to \$9.57 with increments of \$0.33 or to keep the mug. They are told that if the die comes up 9 one of these rows will be chosen randomly otherwise their decisions will not be revealed to the experimenter. Further instructions are then given and the subjects are told that if the die comes up 8 they will be able to choose between a pen and a randomly determined dollar amount. The subjects are then given the pen to inspect it and are then asked to make choices between different monetary amounts, from \$0 to \$9.57 with increments of \$0.33, or to keep the pen.

To summarize the game: All subjects have a mug on their desk and are at one point given the pen to inspect it. All subjects have a 10% chance of getting the choice between mug and money (if the die comes up 9) and a 10% chance of getting the choice between a pen and money (if the die comes up 8). There are two treatments and who is in which treatment is randomly determined by a coin flip. In treatment MH the subjects have an 80% chance of getting the mug (if the die comes up 0-7) and in ML they have a 10% chance of getting the mug (if the die comes up 0).

After the subjects have made their decision and the die has been rolled (for each subject individually), subjects will be privately paid in cash using the same show-up fee (\$10) as in the original study.

Analysis

The analysis will be performed exactly as in the original article. That is, the mug/money choices for the different amounts of money give a measure of each subject's willingness-to-accept (WTA_{mug}) for the mug. Similarly, the pen/money choices give the WTA for the pen (WTA_{pen}). For the analysis we estimate the difference between $ln(WTA_{mug})$ and $ln(WTA_{pen})$ for each subject ($diff_i$). As in the original paper we test if this variable ($diff_i$) is significantly different between the two treatments using a t-test.

In the original article the mean of $diff_i$ was 0.33 for subjects in the MH treatment and 0.01 for subjects in the ML treatment. This difference was statistically significant with a p-value corresponding to 0.03 when estimated with a t-test. Since Mrzilli Ericson and Fuster used $ln(WTA)$ subjects that indicated a \$0 WTA

for either the mug or the pen were dropped. There were three such subjects in ML and five in MH (two of which indicate a \$0 WTA for both items). We will do the test in exactly the same way and therefore also exclude subjects with a zero WTA for the mug or the pen.

Differences from Original Study

The replication procedure is the same as that of the original study, with some unavoidable deviations. This replication will be performed at the Harvard Decision Science Laboratory at Harvard University in Cambridge MA, USA, in 2015, with students at Harvard. The original data was gathered at the Harvard Decision Science Laboratory at Harvard University in Cambridge MA, USA, in 2010, with undergraduate students and graduate students at Harvard. The experiment will be in English as in the original study.

The paper contains two experiments: for the replication the focus is only on Experiment 2 as it is the last experiment in the paper.