Replication of

Spontaneous Giving and Calculated Greed

by Rand, D. G. / Greene, J. D. / Nowak, M. A. (2012)
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Replication Authors:
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In a conceptual priming experiment on Amazon Mechanical Turk (AMT), Rand et al. (2012) randomize subjects to one out of four priming treatments ("intuition-bad", "reflection-bad", "intuition-good", or "reflection-good") before conducting a 4 person public goods game (PGG). The priming involves writing a paragraph (8–10 sentences) describing a time in which intuition/reflection led to a negative/positive outcome. The two priming treatments intended to promote intuition ("intuition-good" and "reflection-bad") are compared to the two priming treatments intended to promote reflection ("intuition-bad" and "reflection-good"). They find that the priming to promote intuition leads to higher contributions to the public good than the priming to promote reflection. The paper included 10 studies. Studies 1–5 are correlational studies, studies 6–7 test the effect of time pressure on contributions to a public good and study 7 is included in an ongoing Registered Replication Report study (study 6 is similar to study 7, but done on AMT instead of in the lab). We therefore included study 8 in this replication study (as it was the first non-correlation study not subject to an ongoing Registered Replication Report study).

Hypothesis to replicate and bet on:

Priming intuition increases cooperation in a public goods game compared to priming reflection (a comparison of the mean contribution in a public goods game between the "intuition-good"/"reflection-bad" treatments and the "intuition-bad"/"reflection-good" treatments; a Tobit regression (with robust standard errors) with a treatment dummy variable, regression equation (1) in Table S11; $z = 2.617$, $p = 0.0089$ in a z-test of the treatment dummy variable coefficient).

Power Analysis and Criteria for Replication: First Data Collection

The original sample size was 343 observations (after excluding 521 subjects for not having written at least 8 sentences in the priming manipulation), and the standardized effect size measured as the correlation coefficient (r) was 0.141. To achieve 90% power to detect 75% of the original effect size a sample size of 942 (after excluding subjects) is required. The criteria for replication is an effect in the same direction as the original study and a p-value < 0.05 (in a two-sided test).

Power Analysis and Criteria for Replication: Second Data Collection

If the original result is not replicated in the first data collection a second data collection of

1185 (after excluding subjects) additional individuals will be carried out so that the total sample size is 2127 (after excluding subjects). If a second data collection is carried out, it will be tested if the original result replicates in the pooled sample of the first and second data collection.

To have 90% power to detect 50% of the original effect size a sample size of 2127 is required; i.e. a sample size of 1185 in the second data collection to have a sample size of 2127 in total for the first and second data collection pooled. The criteria for replication is an effect in the same direction as the original study and a p-value < 0.05 (in a two-sided test) in the pooled data.

Sample

The sample size in the first data collection consists of 942 individuals from AMT (after excluding subjects). We will use a new requester account on AMT when recruiting for this study. We will start the recruitment using AMT, and if necessary extend recruitment to comparable samples such as Rapidworkers, Samasource or Microworkers.

If the original result is not replicated in the first data collection (two-sided p-value < 0.05 in the original direction) a second data collection of 1185 additional individuals from AMT will be carried out so that the total sample size is 2127 (after excluding subjects using the same exclusion criteria as in the original study).

Materials

Since the original study was run using a now-outdated survey platform called LimeSurvey, which is no longer available, we will program a similar survey using Qualtrics. We will use the same instructions as in the original study which are available in the Supplementary Information. The instructions will be the same with the exception that a consent form is added to the replication (a consent form was not included in the original study). Original author David Rand will give feedback on the survey to maximize similarity between the two surveys.

Procedure

We follow the procedure of the original article (with the exception of the higher compensation for completing the HIT, adding a question to the demographic questionnaire and measuring the time spent on each screen). Subjects are recruited using AMT and told they will receive a $1.00 show-up fee (rather than $0.50 as used in the original study) for participating, and will have the chance to earn up to an additional $1.00 based on the outcome of the experiment. If necessary to recruit a sufficient number of participants the show-up fee will be increased.

The following summary of the experimental procedure is based on section 3 (p. 429) and section 8 (pp. 118–119) of the Supplementary Information.

After accepting the task, subjects were redirected to a website where they participated in the study. Subjects first completed a screen in which they were asked to write a paragraph recalling an episode from their life. Subjects were instructed to write 8–10 sentences about one of four particular types of episodes based on the treatment to which they were randomly assigned. Only subjects that wrote at least 8 sentences were included in the analysis. The instructions for each of the four treatments are listed below:

Intuition-bad: Please write a paragraph (approximately 8–10 sentences) describing a time your intuition/first instinct led you in the wrong direction and resulted in a bad outcome.

Reflection-bad: Please write a paragraph

(approximately 8–10 sentences) describing a time carefully reasoning through a situation led you in the wrong direction and resulted in a bad outcome.

Intuition-good: Please write a paragraph (approximately 8–10 sentences) describing a time your intuition/first instinct led you in the right direction and resulted in a good outcome.

Reflection-good: Please write a paragraph (approximately 8–10 sentences) describing a time carefully reasoning through a situation led you in the right direction and resulted in a good outcome.

After the subjects finished writing the paragraph they continued to the Instructions Screen. At the Instructions Screen they read a set of instructions describing the following one-shot public goods game: Players interacted in groups of 4; each player received 40 cents; players chose how many cents to contribute to the group (in increments of 2 to avoid fractional cent amounts) and how many to keep; all contributions to the group were doubled and split equally by all group members. After they were finished reading the instructions, subjects clicked 'Next' and were taken to the Contribution Screen. Here they entered their contribution decision and clicked 'Next'.

After entering their contribution amount, subjects were taken to the Comprehension Screen in which they answered two comprehension questions to determine whether they understood the payoff structure: "What level of contribution earns the highest payoff for the group as a whole?" (correct answer = 40) and "What level of contribution earns the highest payoff for you personally?" (correct answer = 0). Only subjects who answered both comprehension questions correctly were given the payoff from the PGG, the rest received only the show-up fee. Subjects were then taken to a demographic questionnaire and given a completion code. Following a recommendation by the original authors, we will add an additional question to the demographic questionnaire asking whether respondents had participated in a similar experiment before and measure the time spent on each screen.

Once the decisions of all subjects had been collected, subjects were randomly matched into groups of 4, payoffs were calculated and payoffs were paid through AMT.

The experiment will be in English as in the original study.

Analysis

The analysis will be performed exactly as in the original article. In the analysis the "intuition-good" and "reflection-bad" treatments are combined into a "promote intuition treatment" and the "intuition-bad" and "reflection-good" treatments are combined into a "promote reflection treatment". A dummy variable is created for "promote intuition" (1 = "intuition-good, reflection-bad"; 0 = "intuition-bad, reflection-good"). Results are analyzed in a Tobit regression with robust standard errors with the contribution level in the public goods game as the dependent variable and the "promote intuition" dummy variable as the independent variable (regression equation (1) in Table S11 in the Supplementary Information).

In the original article the "promote intuition" dummy variable had a coefficient of 10.95 ($SE = 4.184$) and a p-value of 0.0089 based on a z-test of the regression coefficient. The same test will be used in the replication.

Subjects that wrote less than 8 sentences in the priming part were excluded from the analysis in the original article. We will do the test in exactly the same way and therefore also exclude subjects who wrote less than 8 sentences in the priming part. The sample

sizes reported above is the sample sizes after excluding these subjects.

The results will first be estimated based on the first data collection. If the original result is replicated in the first data collection (a two-sided p-value < 0.05 in the same direction as the original study), the second data collection will not be carried out. If the original result is not replicated in the first data collection a second data collection will be carried out. The above statistical test will then be estimated for the pooled sample of the first and second data collection to test if the original result replicated (a two-sided p-value < 0.05 in the same direction as the original study).

Differences from Original Study

The replication procedure is the same as that of the original study, with some deviations. The replication will be performed at AMT between September 2016 and September 2017, whereas the data in the original study was carried out at AMT in 2010. The participation payment (show-up fee) for completing the HIT was \$0.50 in the original study and will be \$1.00 in the replication, to be able to recruit a sufficient number of participants to the study. If necessary to recruit a sufficient number of participants the \$1.00 show-up fee will be increased.

The original study was implemented using a now outdated survey platform and we will therefore use Qualtrics to program the survey using the instructions and information provided in the supplementary information. A consent form is also added to the replication. Original author David Rand will give feedback on the survey to maximize similarity between the two surveys. Following a recommendation of the original authors an additional question regarding previous participation will be added to the demographic questionnaire and the time spent reading on each screen will be measured.

The original paper contains ten studies: for the replication the focus is only on study 8 (as it was the first study reporting treatment effects not subject to an already ongoing Registered Replication Report study (the Registered Replication Report study focus on study 7, but study 6 of the original paper uses a similar design as study 7 but on AMT; studies 1–5 of the original paper are correlational studies).

Replication Results for the First Data Collection (90% power to detect 75% of the original effect size)

[To be added when replication experiments have been completed.]

Replication Results for the First and Second Data Collection Pooled (90% power to detect 50% of the original effect size)

[To be added when replication experiments have been completed.]

Unplanned Protocol Deviations

[To be added when replication experiments have been completed.]

Discussion

[To be added when replication experiments have been completed.]

References

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