Pre-Analysis Plan (Part 2 Attachment)

06/04/2021

Preliminaries

1. The main outcome of interest is the strength of preference for the offer being made or not, measured by a participant's willingness-to-pay (WTP) (subsequently abbreviated "D1" or "outcome 1").
2. For this outcome, I define three types of participants (cf. Ambuehl et al., 2015). An "ethicist" is a participant whose WTP to disapprove the offer increases from LOW to HIGH (or, if you will, whose WTP to approve the offer decreases from LOW to HIGH); an "economist" is a participant whose WTP not to make the offer decreases from LOW to HOW; "neutralists" have the same WTP to approve or disapprove the offer in both LOW and HIGH. To get a sense of the data, I will present the distribution of WTPs (D1).
3. From the multiple price list, I can also obtain a second (discrete) outcome based on the decisions the participants make without monetary consequences for themselves, i.e. the first rows of the multiple price lists (labelled "D2" or "outcome 2").
4. For this second outcome, I define four types of participants: A "true ethicist" approves of making the offer in LOW but not in HIGH (in the first row of the multiple price list); a "true economist" approves of the offer in HIGH but not in LOW; a "libertarian" approves of the offer in both LOW and HIGH; a "deontologist" disapproves of making the offer in both LOW and HIGH. As an alternative classification, I consider a participant to be indifferent if they have a WTP of zero and use an analogous classification.[1] To get a sense of the data, I will present the distribution of the discrete choices (D2).

Analysis

In the subsequent outline of the analysis, I will always state the treatment/part of the experiment that I analyze, before specifying what I specifically intend to analyze and what I hypothesize. "NEW TREATMENTS" refers to the treatments SOCIAL, LOTTERY, and MEDIUM.

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[1] To be precise, a participant is then a true ethicist if she approves of making the offer in LOW but is indifferent or disapproves in HIGH *or* if she approves or is indifferent in LOW but disapproves in HIGH. Equally, a participant is a true economist if she disapproves of making the offer in LOW but is indifferent or approves in HIGH *or* if she disapproves or is indifferent in LOW but approves in HIGH. Note that the four types only represent a subset of all participants, because some participants might be indifferent between approving the offer or not in both LOW and HIGH.

Main Analysis

1. LOW and HIGH: D1: Analysis of the distribution of the ethical types defined by D1 using a histogram and by plotting the WTPs in HIGH by the WTPs in LOW.[2] Analysis of the distribution of the ethical types defined by D2 using a histogram.

2. RESERVATION PRICE REPLICATION vs. HIGH: D1: Two-sided t-test testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from HIGH for participants defined as ethicists. This allows testing the main hypothesis, i.e., that ethicists with information about the reservation price of the person receiving the offer have a stronger preference for approving the repugnant transaction than ethicists without this information. Analogous for D2 based on participants defined as true ethicists using a one-sided test of proportions[3] of the fraction of participants approving the offer as well as a test of equality of distributions.

3. RESERVATION PRICE REPLICATION vs. NEW TREATMENTS: D1: Two-sided t-test testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from NEW TREATMENTS for participants defined as ethicists. This allows to dissect the treatment effect and test the hypotheses that ethicists with information about the reservation price of the person receiving the offer are more likely to approve of the €500-transaction than ethicists without this information but who know i) that the offer will only be made to a participant who is prosocial, ii) that rather than a €500-offer, the potential donor will face a lottery payment, that is, a prospect of the form (€500, 0.5; €10, 0.5), iii) that the potential donor will face a €255-offer. Analogous for D2 based on true ethicists using a two-sided test of proportions as well as a test of equality of distributions.

4. BELIEFS: D1: Two-sided t-tests testing whether ethicists, neutralists, and economists differ in their average beliefs about the reservation prices of people who are willing to accept the offer for the high payment.[4] This allows testing the hypothesis that ethicists, neutralists, and economists do not differ in their beliefs about the reservation prices of people who accept the offer for the high payment. Similarly, two-sided t-tests testing whether ethicists, neutralists, and economists differ in their beliefs about the fraction of participants accepting the offer for the

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[2] Of interest is also a comparison of the WTPs between participants with a WTP for making the offer and participants with a WTP for not making the offer.

[3] By definition, this fraction can only decrease. Hence, I will employ a one-sided test.

[4] Deriving this from the probabilities stated by the participants requires that the probabilities are weakly increasing in the incentives. I hence preregister to exclude participants who violate this monotonicity unless they mistakenly state the probability mass function (i.e., in case the probabilities sum op to 100), in which case I always recode the probabilities to build a cumulative distribution function. For robustness, I also plan to include all participants who violate monotonicity at one point only and to exclude participants who always state the same value.

high payment. In addition, two-sided Mann-Whitney U tests testing whether ethicists, neutralists, and economists differ in the degree to which they perceive an individual willing to register for €10 to be prosocial (relative to donating 50% to the Red Cross). Analogous for the types defined by D2.

Robustness Analysis

5. LOW and HIGH: Separate regressions of the WTP in LOW and of the WTP in HIGH on all controls (beliefs about reservation prices, risk-preferences, behindness aversion, a psychological measure of envy, moral concerns, and demographics) in order to analyze whether there are partial correlations between the WTP in LOW and HIGH and individual characteristics. Analogous for D2.

6. LOW and HIGH: Regression of the ethical type on controls (beliefs about reservation prices, risk-preferences, behindness aversion, a psychological measure of envy, moral concerns, and demographics) in order to analyze whether there are partial correlations between the type and individual characteristics. Analogous for the types defined by D2. I also plan to conduct multiple separate regressions for the controls to investigate the correlations with the types.

7. HIGH vs. RESERVATION PRICE REPLICATION and HIGH vs. NEW TREATMENTS: D1: Pearson correlation coefficient between the WTP in HIGH and WTP in RESERVATION PRICE, and between WTP in HIGH and WTP in NEW TREATMENTS. This allows me to analyze whether there is a correlation between decisions that are similar. Analogous for D2 using chi-squared tests.

8. HIGH vs. RESERVATION PRICE REPLICATION and HIGH vs. NEW TREATMENTS: D1: Regression of the WTP in RESERVATION PRICE REPLICATION/NEW TREATMENTS on a dummy for the treatment conditions and the WTP to make the offer in HIGH controlling for beliefs about reservation prices, risk-preferences, behindness aversion, a psychological measure of envy, a dummy for whether the high payment is considered coercive, and demographics based on ethicists. This allows me to test what happens to the treatment effects, if I control for available controls. Analogous for D2.

9. BELIEFS: Pearson correlation coefficients r between the two prosociality comparisons. Two-sided Mann-Whitney U test testing whether participants, on average, perceive signing up as a donor for €10 and donating €50 as being equally prosocial using both prosociality comparisons and a linear index derived from them/their principal component(s). Similarly, I plan to identify the fraction of participants who perceive the two actions significantly different and test whether this varies by ethical types. Repetition of hypotheses 3 for participants who perceive the donation at least as prosocial as signing up as a donor for €10. Derivation of the part of the effect of RESERVATION PRICE REPLICATION that

is driven by the participant signaling being prosocial using the prosociality comparisons.

10. BELIEFS: Two-sided *t*-test testing whether participants who state that offering a high payment causes the offer to be coercive, on average, hold the belief that more people are accepting the offer for the high payment than subjects who do not consider the high payment coercive and test whether the fraction varies by ethical types.

Additional Analysis

11. RESERVATION PRICE REPLICATION vs. HIGH: Quantile regression of the WTP in HIGH on the WTP in RESERVATION PRICE REPLICATION for ethicists, this allows me to analyze the treatment effect heterogeneity.[5]

12. RESERVATION PRICE REPLICATION vs. HIGH and RESERVATION PRICE REPLICATION vs. NEW TREATMENTS: Two-sided *t*-test[6] testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from HIGH for ethicists who have a WTP for not making the offer of zero or lower in LOW and a positive WTP in HIGH or who have a negative WTP in LOW and a WTP of zero or higher in HIGH (conditional on observing enough such participants, i.e., more than twenty). This allows me to analyze the treatment effect for participants who are induced to switch from willing to pay for the offer not being made to paying for the offer being made by massively increasing the incentives. Analogous for the WTP in RESERVATION PRICE REPLICATION and NEW TREATMENTS.

13. RESERVATION PRICE REPLICATION vs. HIGH: D1: Two-sided *t*-tests testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from the WTP in HIGH for neutralists and economists.[7] For D2, I employ tests of proportions to test the hypotheses that there are no significant effects for deontologists, libertarians and true economists by the treatment and tests of proportions testing whether the change in the fraction of participants objecting the offer induced by the RESERVATION PRICE REPLICATION is more pronounced for true ethicists than for true economics, deontologists and libertarians.

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[5] If the necessary assumptions for a quantile regression are violated, I plan to engage in other measures to analyze effect heterogeneity.

[6] If I do not observe a sufficient number of observations, I will conduct a Mann-Whitney *U* test.

[7] For economists the WTP for making the offer might be lower in RESERVATION PRICE REPLICATION than in HIGH, because the probability of the offer being made decreases which might make paying for the offer being made less efficient and this has been shown to decrease giving (Andreoni and Miller, 2002; Engel, 2013). However, the WTP might also be higher, when participants reward the person for willing to register for the low monetary amount, as dictators give more to deserving recipients (Eckel et al., 2005), and/or because RESERVATION PRICE REPLICATION might also increase the efficiency of giving by increasing the probability of the offer being accepted. Consequently, no hypothesis is made regarding the difference in the WTP in RESERVATION PRICE REPLICATION and HIGH between ethicists and economists.

14. RESERVATION PRICE REPLICATION vs. NEW TREATMENTS: Two-sided *t*-test testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from the WTP in NEW TREATMENTS for neutralists and economists. For D2 I test the hypotheses that there is no significant effect for deontologists, libertarians and true economists and whether the change in the fraction of participants objecting the offer induced by RESERVATION PRICE REPLICATION is more pronounced for true ethicists than for true economics, deontologists and libertarians.

15. RESERVATION PRICE REPLICATION vs. HIGH: Two-sided *t*-test testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from HIGH for all participants. Analogous for D2.

16. RESERVATION PRICE REPLICATION vs. NEW TREATMENTS: Two-sided *t*-test testing whether the WTP in RESERVATION PRICE REPLICATION differs significantly from NEW TREATMENTS for all participants. Analogous for D2.

17. BELIEFS: Identification of the fraction of participants who believe that for the high monetary amount almost all people (i.e., at least 90% of people) are willing to accept the offer. D1: Two-sided *t*-test testing whether the WTP in TREATMENT differs significantly from HIGH for these participants. Analogous for D2.

18. QUEST: Distribution of the six moral principles (see Elias et al., 2019, Figure 4). Pearson correlation coefficients *r* between the six moral principles. Identification of the fractions of participants who voice ethical concerns with monetary incentives using the moral concerns module.[8] Two-sided *t*-test testing whether the WTP in RESERVATION PRICE differs significantly from HIGH for these participants. Analogous for D2.

Analyses for treatments LOTTERY and MEDIUM

For the treatments LOTTERY and MEDIUM, I additionally test the following hypotheses (paralleling the hypotheses for RESERVATION PRICE REPLICATION):[9]

2. LOTTERY vs. MEDIUM and HIGH, and MEDIUM vs. HIGH: D1: Two-sided *t*-test testing whether the WTP in LOTTERY differs significantly from MEDIUM for participants defined as ethicists. Two-sided *t*-test testing whether the WTP in LOTTERY differs significantly from HIGH for participants defined as ethicists. Analogous for D2 based on participants defined as true ethicists using a one-sided test of proportions of the fraction of participants approving the offer as well as a test of equality of distributions.

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[8] Therefore, I will derive a linear index. As in Elias et al., 2019, I also plan to use the principal component(s) of the moral principles.

[9] I specify the analyses testing for treatment differences between LOTTERY and MEDIUM, and LOTTERY and HIGH, respectively, but plan to conduct analyses 2., 7., and 11. to 15. for MEDIUM vs. HIGH as well.

4. BELIEFS: D1: Two-sided tests of proportion comparing the beliefs about the share of individuals participating for the varying fixed monetary payments (€0, €10, €50, €200, €255, €500) to the belief about the share participating for the lottery incentive.

8. HIGH vs. LOTTERY vs. HIGH vs. MEDIUM: D1: Regression of the WTP in LOTTERY/MEDIUM on a dummy for the treatment conditions and the WTP to make the offer in HIGH controlling for beliefs about reservation prices,[10] risk-preferences, behindness aversion, a psychological measure of envy, a dummy for whether the high payment is considered coercive, and demographics based on ethicists. This allows me to test what happens to the treatment effects, if I control for available controls. I also plan to conduct multiple separate where I interact the treatment dummies with the control variables and investigate, for instance, whether a potential treatment difference between LOTTERY and MEDIUM varies by participants degree of risk aversion. Analogous for D2.

11. LOTTERY vs. MEDIUM and HIGH: Quantile regressions of the WTP in MEDIUM and HIGH, respectively, on the WTP in LOTTERY for ethicists, this allows me to analyze the treatment effect heterogeneity.

12. LOTTERY vs. MEDIUM and HIGH: Two-sided *t*-tests testing whether the WTP in LOTTERY differs significantly from MEDIUM and HIGH, respectively, for ethicists who have a WTP for not making the offer of zero or lower in LOW and a positive WTP in HIGH or who have a negative WTP in LOW and a WTP of zero or higher in HIGH (conditional on observing enough such participants, i.e., more than twenty).

13. LOTTERY vs. MEDIUM and HIGH: Two-sided *t*-tests testing whether the WTP in LOTTERY differs significantly from the WTP in MEDIUM and HIGH, respectively for neutralists and economists. Analogous for MEDIUM vs. HIGH. For D2, I employ tests of proportions.

15. LOTTERY vs. MEDIUM and HIGH: Two-sided *t*-tests testing whether the WTP in LOTTERY differs significantly from MEDIUM and HIGH, respectively for all participants. Analogous for D2.

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[10] In addition to looking at the belief about the reservation prices of people who are willing to accept the €500-offer, I also plan to control for the belief about the efficiency of the lottery.