Title: "Empathy and cost-effective giving

This largely follows the As Predicted format, but exceeds their suggested length

Created: 6 May 2019

Author(s)
Robin Bergh (Harvard University) - rbergh@fas.harvard.edu
David Reinstein (University of Exeter) - daaronr@gmail.com

Background

Participants have taken an unrelated online survey (roughly 20 minutes) in exchange for being entered into a raffle for one of twenty £50 Amazon vouchers. The chances of winning are unknown to participants but could be inferred to be of magnitude of between 1/10 and 1/300. They are asked if they would like to commit to donate part of that amount, if they win, to charity. They first choose one of two charities (guide dog charity [cost ineffective] or river blindness charity [cost effective]), or neither, to support. This choice of charity is the first dependent measure. Subsequently they indicate on a slider scale with £1 increments how much, if anything that they would like to give (commit to give). That scale represents the second dependent measure.

Working notation

Some working notation, referring both to the population/true values and to the empirical equivalents of these in our experiment.

Our 2x2 design yields four combination treatments:

1. No treatments (control); I=0, C=0
2. I(mage); I=1, C=0
3. C(ost information); I=0, C=1
4. I+C; I=1, C=1

Y: An outcome in general; I: Image treatment (0,1), C: Cost information treatment (0,1)

Expected value/average function E(), and conditioning/subsamples "|" operator

Treatment effects

i. TE[Y](C|I=0)
= E(Y|C=1,I=0) - E(Y|C=0,I=0) ... impact of C in the absence of I,

ii. TE[Y](C|I=1)
= E(Y|C=1,I=1) - E(Y|C=0,I=1) ... impact of C in the presence of I,

iii. ATE[Y](C)
E(Y|C=1) - E(Y|C=0) ... impact of C overall, averaging across its impact in the absence/presence of E;

Outcome variables ("Y's"):

- d_r, d_g: Individual's donation amount (in £) to river-blindness (r) & guide-dogs (g) charities, respectively
- D_r, D_g: Indicator (0,1) for whether individual donated a positive amount to r & g charities, respectively
- d_t = d_r+d_g : Individual's total donation
- D_t = D_r+D_g: Indicator (0,1) for whether individual donated to either charity (note: individual can choose to donate to at most one charity.)

1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?

H1. Information about the cost effectiveness of two charities...

a. causes a greater probability of donating to the more effective one,
- For the 'participation' in donating to river-blindness outcome, we predict
  - C > control,
  - C + I > I,
  - which implies ATE[D_r](C) > 0; thus we will use this 'pooled' empirical comparison

b. causes a smaller probability of donating to the less effective one,
- For the 'participation' in donating to guide dogs outcome, we predict
- C < control,
- C + I < I,
- which implies ATE[D_g](C) < 0 → 'pooled' empirical comparison

(Recall that the participant must choose to donate to one or neither of the charities; they cannot donate to both)

H2. Empathy-evoking images increase the propensity to donate a positive amount (rather than not donate); i.e., a greater 'donation incidence',
For the 'donate something' outcome, we predict
- E > control
- E +C > E
- which implies ATE[D_t](E) > 0, → 'pooled' empirical comparison

H3. Cost effectiveness information interacts with the empathy-inducing image such that an image alone generates greater donation amounts compared to image combined with effectiveness information.
Equivalently, adding Cost to Empathy reduces donation (incidence and amounts) relative to Empathy alone.
- We predict, for both the 'total amount donated' and 'donate something' outcomes: I > I+C

Similarly,
a. TE[d_t](C|I=1) < 0
b. TE[D_t](C|I=1) < 0

H4. An empathy-evoking image, in the absence of cost-effectiveness information, will increase the average amount donated (including non-donation as zeroes in this average), relative to no image,
For the 'total amount donated' outcome, we predict
- E > control
- similarly, TE[d_t](E|C=0) > 0

Further questions (with no prior hypothesis, continuing the above numbering for cohesion)

Q5: Will the addition of cost information increase or decrease average donation in the absence of empathy-invoking images? i.e., TE[d_t](C|I=0) = ?

→ Comparing C and control

Q6: Will the addition of cost effectiveness information increase or decrease average donation to the more effective charity (a) in the absence and (b) the presence of empathy...images ?
Comparing (for total amount donated to river blindness)

a. TE[d_r](C|I=0) = ?
b. TE[d_r](C|I=1) = ?

→ We compare i. C versus control and ii. C + E versus E

Q7: Will the addition of cost effectiveness information increase or decrease average donation to the less effective charity... in cases...?

a. TE[d_g](C|I=0) = ?
b. TE[d_g](C|I=1) = ?

→ We compare i. C versus control and ii. C + E versus E

Q8: What is the overall effect of cost effectiveness information on a. average donations and b. donation incidence, irrespective of chosen charity? (i.e. the combined effect of those specified in Q6 and Q7)? In the absence of empathy... images?

a. TE[d_t](C|I=0) = ?
b. TE[d_t](C|I=0) = ?

→ We compare C versus control

3) Describe the key dependent variable(s) specifying how they will be measured.

Participants are asked if they would like to commit to donate part of that amount, if they win, to charity. They first choose one of two charities (guide dog charity [cost ineffective] or river blindness charity [cost effective]), or neither, to support. This choice of charity is the first dependent measure. Subsequently they indicate on a slider scale with £1 increments how much, if anything that they would like to give (commit to give). That scale represents the second dependent measure.

4) How many and which conditions will participants be assigned to?

Four conditions in a 2 (Empathy-inducing Image: Yes/No) by 2 (Cost-Effectiveness comparison: Yes/No) between-subject design.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

To examine H1 we will first run a logistic regression with the image and effectiveness manipulations, as well as their interactions, as predictors (each factor being effect-coded)

- We will conduct a similar logistic regression for all hypotheses dealing with binary outcomes.

To make our main judgement on the presence of any effects, we will *not* include any additional control variables in any regressions/ANOVAs (unless we find a substantial imbalance on these, following Don Green's and Winston Lin's basic guidelines.)

To examine H3 and H4 (for the donation amounts) we will run a 2 (Image: Yes/No) x 2 (Effectiveness comparison: Yes/No) between-subject ANOVA with donation amounts as the dependent variable.

- We will use similar analyses for the other hypotheses and questions involving donation amount outcomes.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We include a recall task/attention check (one multiple choice question) about the information presented alongside the effectiveness information manipulation (or the comparable screen in the control treatment for this arm) effectiveness information manipulation. We present results with and without participants who answer this question incorrectly.

We will remove any participants from the analysis if they later email us to say that they misunderstood what the question was asking, and didn't understand this was real and not hypothetical.

7) How many observations will be collected or what will determine sample size?

No need to justify decision, but be precise about exactly how the number will be determined.

The web-based experiment is sent out to approximately 5000 prospective participants. Based on similar studies in the same population we expect that 500-800 participants will complete the study.

8) Anything else you would like to pre-register?
(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

We plan to block our randomisation on several pre-treatment variables:

- Presentation of 'international' or 'domestic' poverty information (a prior arm, much earlier in the paired omnibus survey)
- Self reported 'decision mode' (response in Omnibus; intuitive versus analytical/careful)
- Upper/lower-than median (median computed from prior data) on self reported similarity index for "It's very important to him/her to help the people around him/her. S/he wants to care for their well-being."

Further analyses
For the analogue of the hypotheses and questions above, we are also interested in the impact of each treatment combination on "amounts donated by those people who would donate a positive amount under either treatment"; this is the estimand targeted by David Lee (2009, Review of Economic Studies). In pursuing this, we plan to adapt this approach ('Lee bounds') using control variables fitted based on a cross-validated ridge regression.

Due to expectations of obtaining a trimodal distribution of donation amounts (based on previous studies) we would also examine the experimental effects on "mid-range" donations (min and max donation amounts excluded). Depending on what the observed distribution of donation amounts we may also adopt other statistical methods (e.g. negative binomial regression or non-parametric tests such as rank-sum).

Secondary hypotheses

We predict/suspect:

- Empathy-inducing images will increase the propensity to donate the full potential bonus (£50). (this relates to H2)

- The Image treatment will have a *greater* (more positive) effect on donation incidence for those who generate higher scores on ‘mind in the eyes empathy’ (a prior part of the survey)

- The Cost treatment will have a *more positive* (negative) effect on “donated to river-blindness” (“Donated to guide dogs”) for those who self report more analytical/careful decisionmaking prior part of the survey

- Self reported similarity index for “It's very important to him/her to help the people around him/her. S/he wants to care for their well-being” will predict both donation incidence and amounts.