Written Exam at the Department of Economics winter 2016-17

Science of Behavior Change

Final Exam

February 16, 2016

(2-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language for which you registered during exam registration.

Suggested answers, 3 pages

NB: If you fall ill during the actual examination at Peter Bangsvej, you must contact an invigilator in order to be registered as having fallen ill. Then you submit a blank exam paper and leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) days from the date of the exam.

Answer to Question 1:

a) The goal of RCT is to create an ideal comparison group by design from the beginning of the intervention. The participants to the study (individuals, firms, public entities), are randomly assigned to either receive the treatment or be in the comparison group. Because of random assignment, there is no problem of self-selection, so random assignment ensures that (on average) there is no difference between treatment and control group.

b) Here the list of the methodologies discussed in class.:
   1. Pre-Post: Measure how program participant improved (or changed) over time.
   2. Simple Difference: Measure difference between program participants and non-participants after the program is completed.
   3. Differences in Differences: Measure improvement (change) over time of program participants relative to the improvement (change) of non-participants.
   4. Multivariate Regression: Individuals who received treatment are compared with those who did not, and other factors that might explain differences in the outcomes are "controlled" for.
   5. Statistical Matching: Individuals in control group are compared to similar individuals in experimental group.
   6. Regression Discontinuity Design: Individuals are ranked based on specific, measurable criteria. There is some cutoff that determines whether an individual is eligible to participate. Participants are then compared to non-participants and the eligibility criterion is controlled for.
   7. Instrumental Variables: Participation can be predicted by an incidental (almost random) factor, or "instrumental" variable, that is uncorrelated with the outcome, other than the fact that it predicts participation (and participation affects the outcome).

c) Not all methods give the same result. Hence, the choice of the appropriate method is crucial. The purpose of this case study was not to evaluate one particular voter mobilization campaign, but to evaluate evaluation methods in this particular context. In the analysis of the Vote 2002 Campaign, we found that people who happened to pick up the phone were more likely to vote in the upcoming (and previous) elections. Even though we statistically accounted for some observable characteristics, including demographics and past voting behavior, there were still some inherent, unobservable differences between the two groups, independent of the get-out-the-vote campaign. Therefore, when our non-randomized methods demonstrated a positive, significant impact, this result was due to "selection bias" (in this case, selection of those who pick up the phone) rather than a successful get-out-the-vote campaign.

Answer to Question 2:

a) In this paper the authors investigate the relevance of gift-exchange in a natural setting. The field experiment was conducted in collaboration with a charitable organization which used their warm-list (a database of current donors) to send out 9,846 solicitation letters in the 2001 Christmas mailing. Participants were randomly divided into three subgroups:

1. one-third of the donors received only a fundraising letter without a gift,
2. one-third received a letter in combination with a small gift (1 postcard and 1 envelope)
3. one-third received a letter with a large gift (4 postcards and 4 envelopes)

The postcards were colored paintings drawn by children from Dhaka.

b) The number of donations was 17% larger in the small gift treatment compared to the no gift control. In the large gift case the number of donations is 75% higher than in control. A probit regression confirms that these results are statistically significant ($p<0.01$).
The Figure above shows a histogram of donations for all treatment conditions. The figure reveals that overall the distributions are similar. A closer inspection of the donation patterns shows, however, that there are some small differences. For low donations up to CHF 60, the cumulative frequency of donations is highest in the large gift condition (79 percent), followed by the small gift condition (74 percent) and the no gift condition (72 percent). In other words, relatively low donations are more frequent under the large gift condition than the no gift condition. Likewise, relatively large gifts (> CHF 200) are more frequent under the no gift condition compared to the gift conditions. This suggests that feelings of obligation may in fact crowd in relatively low gifts. Thus, the data suggest that at least some of the additionally made donations in the gift conditions are lower than those in the no gift condition. These differences are small, however.

c) The author argues that if they had included gifts which were completely unrelated to the purpose of the solicitation or which were considered inappropriate, the response might have been weaker or even negative. Thus, the choice of the gift and the message are crucial to initiate "reciprocity". In particular, it may be challenging to keep reciprocity high on the long run: the first week may be a surprise but once donors get used to getting gifts, they might not feel obliged to their repayment anymore.

Answer to Question 3:

This question has not a correct answer a priori. This question gives the student the possibility to show that s/he can use the knowledge for solving practical problem.

Students should:

1) define the context in which the nudging is going to happen (when and where).
2) briefly think through the behavior change and articulate the specific behavior that you want to change as a result of the nudge (specific and measurable behavior).
3) map the decision making process: different stages that people go through; various frictions and bottlenecks; identify nudges that would actually help you address those bottlenecks.
4) make a linkage between that map that you've just drawn, the process that you've just identified, and some of the concepts that you've talked about in this class.
5) describe the intervention and/or the nudge (precision)
6) describe the design of an experiment that can test the nudge and briefly how to do the data analysis (internal and external validity).