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NO EFFECTS OF ARTIFICIAL SURVEILLANCE CUES OR SOCIAL PROOFS ON SURVEY PARTICIPATION RATES

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Abstract

This paper tests whether the efficacy of survey invitations and survey reminders can be increased by using artificial surveillance cues and social proofs. Several experimental treatments on a group of 1,000 respondents yield no significant effects.

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Keywords: Survey participation, Response Rates, Social Proof, Artificial Surveillance Cues, Experiments

Introduction and Background

Surveys have for a long time been an absolutely essential tool for many researchers. However, falling response rates is a significant problem (Manfreda, Bosniak, Berzelak, Haas, & Vehovar, 2008), and there is therefore a need for ways of increasing response rates.

One approach is to appeal to potential respondents as *homo economicus*, by offering them financial incentives for participation in surveys. While such incentives can sometimes increase participation rates, their efficiency is generally limited. (Goritz, 2004a, 2004b, 2006, 2008; Goritz & Wolff, 2007). Furthermore, pre-paid incentives, i.e., incentives that are paid up-front before the potential respondent has contributed to the survey, seem to work better than incentives that are contingent on survey participation (Kasper Møller Hansen, 2007; Rao, Kaminska, & McCutcheon, 2010). As noted by Hansen and Pedersen (2012), this relative efficiency of prepaid incentives is at odds with the idea of the respondent as *homo economicus*, as pre-paid incentives do not offer the potential respondent a material incentive to participate, since pre-paid incentives can be kept even if the potential respondents does not participate.

Instead of appealing to *homo economicus*, researchers may have more success by appealing to the social norms of the potential respondent. The experiment described in this paper therefore employ two social cues in an attempt to increase survey participation rates.

First, humans being are social beings that tend to follow the herd (Kasper M. Hansen & Pedersen, 2012). In other words, people often determine what appropriate behavior in a given situation is by taking note of the behavior of others. This principle of *"social proof"* has been documented to have an effect in several different domains (Cialdini, 2009; Cialdini, Wosinska, Barrett, Butner, & Gornik-Durose, 1999). That this principle could be utilized in order to increase survey participation rates was suggested already by Groves et al. (1992). The first actual experiment to test this was, however not done until almost twenty years later: In an experiment on survey panel recruitment, Hansen and Pedersen (2012) found that participation

rates were significantly higher among the group of potential respondents, which were told that *"We have already received a great number of registrations."* Hence, in the present study, we hypothesize that *the presence of a social proof in survey invitations and reminders will increase the response rate compared to invitations and reminders which does not include such a social proof.*

Second, human beings also tend to engage in more pro-social behavior when they are being watched by other people (Panagopoulos, 2014). Furthermore, this effect of being watched may be so ingrained in human behavior, that even artificial surveillance cues may perhaps increase prosocial behavior: Thus, studies have found that subjects exposed to a (stylized) set of eyes tend to increase prosocial behavior, such as voting (Panagopoulos, 2014) and generosity (Haley & Fessler, 2005). These results are highly contested (Matland & Murray, 2015a, 2015b; Panagopoulos, 2015), but if such artificial surveillance can increase pro-social behavior, they could perhaps also increase survey response rate. Hence, I investigate the hypothesis that *the presence of an artificial surveillance cue in survey invitations and reminders will increase the response rate compared to invitations and reminders which does not include such an artificial surveillance cue.*

Description of Study

The two hypotheses were tested with a sample of exactly 1,000 individuals (ages 18-64 years), randomly drawn from the Danish Civil Registration System. The Danish Civil Registration System includes data on all citizens in Denmark, but thirteen percent of the population has chosen to register as not wanting to be contacted for research purposes. This opt-out option is particularly prevalent in certain age groups, and the sample was therefore stratified on age and gender in order to resemble the general Danish population. All subjects were sent a letter by regular mail which invited them to participate in an online survey by logging onto a website.[1] The survey was described as a *"study on the political attitudes of the population."* The letter furthermore stated that participation was voluntary, but that it was vital to the study that as many people as possible participated in the survey.

[1] Letters were sent on 8 October 2013, meaning that potential respondents should therefore have received the letters from 9 October to 12 October

Stimuli, Social Proof in invitation: In the letter sent to the subjects assigned to the social proof treatment, the plea to participate in the survey was followed by the sentence: *"We also know from previous studies that many people participate in these studies."*

Stimuli, Artificial Surveillance Cues in invitation: In the letter sent to the subjects assigned to the Artificial Surveillance Cue treatment, the top of the letter contained a cropped photograph, showing a pair of human eyes. In order to minimize the risk of effects that were idiosyncratic to a particular set of eyes, four different set of eyes—two male and two female—were used. An example of a letter with artificial surveillance cues is shown in Appendix A. The four sets of eyes are shown in Appendix B

The 794 potential respondents that had not answered the survey after approximately four weeks were sent reminders, also by regular mail.[2] These reminders also contained social proofs and artificial surveillance cues

Stimuli, Social Proof in reminder: All the reminders stated that "four weeks ago we sent you a letter, because you had been selected for a study on the political attitudes of the population." In the control condition, subjects were told: *"We would like to have your opinion on politics. Hence, this friendly reminder."* In contrast, the reminder with the social the social proof, read: *"Many people have already participated in the study, but we would also like to have your opinion on politics. Hence, this friendly reminder."*

Stimuli, Artificial Surveillance Cues in invitation: In the letter sent to the subjects assigned to the Artificial Surveillance Cue treatment, the top of the letter contained a cropped photograph, similar to the stimuli used in the initial invitation (see Appendix A).

All the treatments were orthogonal to each other

[2] These reminders were sent on 5-6. November, 2013, meaning that respondents should have received the letters from 6. November to 10 November.

Results

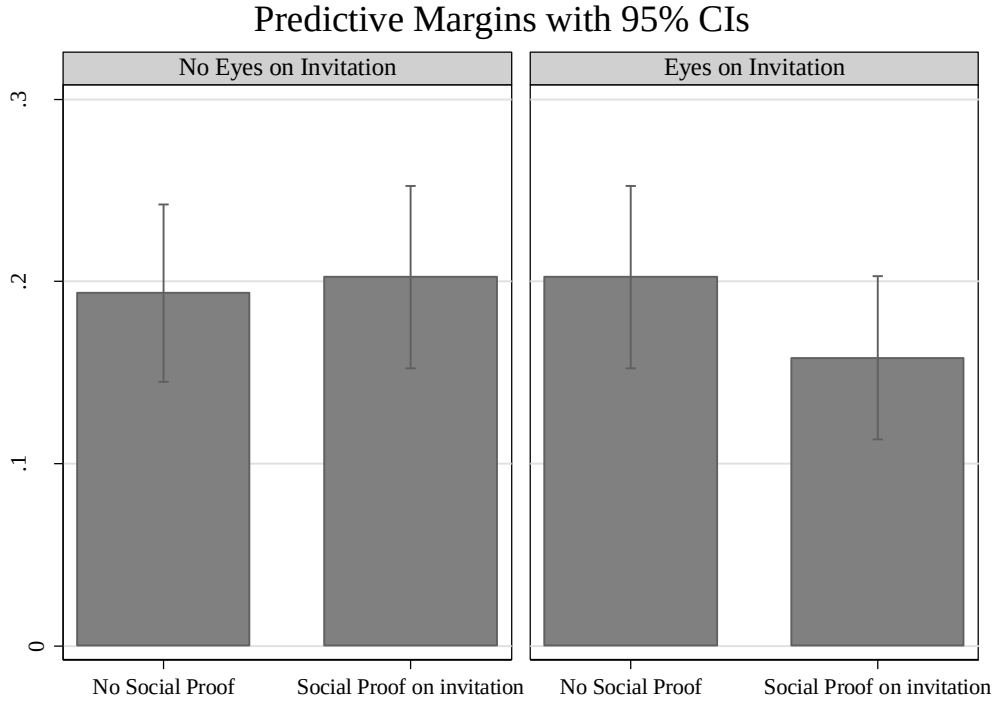
Among the 1,000 potential respondents, a total of 320 respondents provided some answers in the time period from 9 October 2013 to 17 December 2015. Among those, 302 respondents completed the entire survey, resulting in a response rate (AAPOR RR1) of 30.2%. Since respondent drop-off during the survey was relatively limited (3.75% of those starting the survey) we limit the subsequent analyses to survey completion as the dependent variable.

Results of initial invitation prior to reminders

A total of 189 people completed the survey before reminders were sent out. Were these respondents driven to answer the survey by the experimental treatments? The data suggests that the answer to this question is a resounding no. A simple test of proportion shows that the effects of the social proof was non-significant ($z= 0.73$, $p= 0.47$). Similarly, the effect of eyes was also difference clearly non-significant ($z= 0.73$, $p= 0.47$).[3] For those optimistically hoping for an interesting interaction effect, the data once again lets us down. A logistic regression with the two treatments interacted, also results in devastating non-significance, $\chi^2(3, N=1{,}000)=2.25$, $p=0.52$. The response rates for the four conditions are presented in all their uniformity in figure one below:

[3] For those readers worried about a calculation error or typo: the z-values were indeed exactly the same for the two treatments.

Figure 1: Response Rates, Initial Invitation

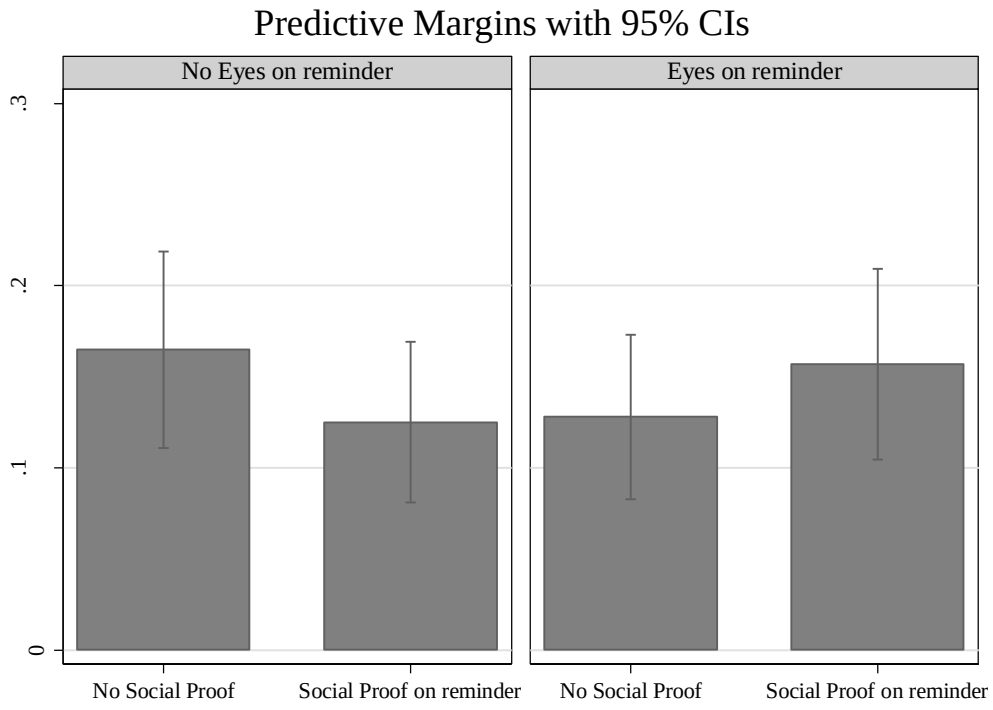


Results of reminder

What about the reminders? In the following analyses we look at the group of people that received a reminder. These people are of course not representative of the general population, as we must assume that they are generally more averse to survey participation. However, these are also the population of interest in a test of reminder efficacy, and since the reminder treatments are orthogonal to the initial invitation treatments, we can treat the analysis of the reminders as an independent experiment (Note that even if treatment in the initial invitation had an effect, this would only mean that there was a correlation between this initial treatment and the likelihood of participating in this reminder experiment. It would not be correlated with the exact treatment that an individual receives in this reminder experiment).

Reminders were sent to a total of 794 individuals.[4] Among these individuals, 113 people ended up completing the survey. Again, however, our experimental treatments seem to have been inefficacious. A simple test of proportion shows that the effects of the reminder with a social proof was non-significant (z=0.07, p=.94). The same was the case for the effect of a reminder with eyes (z=0.22, p=0.83). Finally, a logistic regression with the two reminder treatments interacted, also ends up being non-significant, $\chi^2(3, N=794)=1.95$, p=0.58. The response rates for the four reminder conditions are presented in figure two below:

Figure 1: Response Rates, Reminder



[4] The reminder excluded the 189 respondents that had already completed the survey, 9 people that had provided some answers to the survey, 6 people whose invitations were returned to sender, and 2 people that had opted out by email.

Conclusion and Discussion

The results of the experiments reported in this paper does not in any way support the hypotheses that survey cooperation can be increased with the help of artificial surveillance cues (eyes) or social proofs. There are several additional potential analyses that could have been tested with the data generated in this experiment: Perhaps there is an interaction between the initial invitation treatment and the subsequent reminder treatment, the treatments may depend on the exact set of eyes used as surveillance cues, or the treatments may make people reply faster or spend more time on the survey. However, while we could have continued our analyses, we would arguably move deeper and deeper into *"The garden of forking paths"* (Gelman & Loken, 2013) continuously increasing the risk of finding significance in the noise (type I error) .

In defense of the two hypotheses tested in this paper, it is important to acknowledge the risk of type II error. While the initial experiment included 1,000 individuals, it was still a relatively small experiment, in particular when compared to other experiments on artificial surveillance cues (Panagopoulos, 2014). However, based on the results from this experiment, the most prudent conclusion seems to be that there are no effects of artificial surveillance cues or social proofs on survey participation rates.

Appendix A: Letter with Artificial Surveillance Cue

INSTITUT FOR STATSKUNDSKAB
KØBENHAVNS UNIVERSITET

«Fornavn» «Efternavn»
«Adresse»
«By»

Kære «Fornavn» «Efternavn»

Du er blevet udtrukket til at deltage i en undersøgelse af befolkningens politiske meninger. Undersøgelsen udføres af Københavns Universitet.

Undersøgelsen er frivillig, men det er vigtigt for resultaterne, at så mange som muligt besvarer spørgeskemaet. Vi ved da også fra tidligere undersøgelser, at rigtig mange mennesker deltager i disse undersøgelser.

Ved at udfylde et kort spørgeskema bidrager du til, at vi alle får større viden om politiske meninger og nyhedsmediernes påvirkning af politiske meninger. Spørgeskemaet tager cirka 10 minutter at besvare. Dine svar vil blive behandlet fortroligt.

For at deltage skal du gå ind på følgende hjemmeside:
www.minmening.ku.dk
Indtast herefter følgende respondentnøgle:
«Respondentnøgle»

Du kan kontakte PostDoc Rasmus Tue Pedersen per e-mail (rtp@ifs.ku.dk), hvis du har spørgsmål eller kommentarer til undersøgelsen.

På forhånd tak for din deltagelse i undersøgelsen!

Venlig hilsen

Rasmus T. Pedersen

Rasmus Tue Pedersen,
PostDoc, projektansvarlig

Dette projekt er finansieret af Det Frie Forskningsråd og Københavns Universitet. Datatilsynet har givet sin tilladelse til projektets gennemførelse jf. j.nr. 2013-41-1611 og projektet har modtaget navne og adresser fra CPR-registeret via Statens Serum Institut.

Appendix B: The Four sets of Eyes Used as Artificial Surveillance Cues

Male 1:

Female 2:

Male 3:

Female 4:

Appendix C: Variable description

starttime: Time, start of survey (only values for respondents that started the survey)

closetime: Time, end of survey (only values for respondents that completed the survey)

difftime: Time spend on survey (only values for respondents that completed the survey)

eyes_on_invitation: The variable indicates whether there were eyes on the invitation (values 1-4 indicate different sets of eyes, the value 5 indicates that the letter did not contain eyes)

eyes_present_invitation: This variable is a recode of the variable "Eyes" (the value 1 indicates that eyes were present, the value 0 indicates that eyes were absent

eyes_on_reminder: The variable indicates whether there were eyes on the reminder (values 1-4 indicate different sets of eyes, the value 5 indicates that the letter did not contain eyes.)

eyes_present_reminder: This variable is a recode of the variable "eyesreminder" (the value 1 indicates that eyes were present, the value 0 indicates that eyes were absent byte)

social_proof_invitation: This variable indicates whether the invitation contained a social proof

social_proof_reminder: This variable indicates whether the reminder contained a social proof

completed: Indicates whether the subject completed the entire survey (1 indicates completed, 0 indicates not completed)

someanswers: Indicates whether the subject gave some answer in the survey (1 indicates yes, 0 indicates not)

Data from the experiments are available (in STATA format) at the author, upon request.

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