Applying Prospect Theory to Participation in a CAPI/WEB Panel Survey

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INTRODUCTION

Prospect theory (Kahneman and Tversky, 1979) is a general theory concerning the psychology of responding to requests. It states that the influential power of avoiding negative outcomes is stronger than that of achieving positive outcomes. Experimental evidence is consistent with the theory in several contexts. For example, people are more willing to take actions to prevent a charity from losing $10 than they are to earn $10 for the charity.

In a survey context, Tourangeau and Ye (2009) carried out an experiment on a telephone follow-up to an RDD survey in the USA, in which interviewers emphasised either the positive benefits of participation or the negative consequences of not participating. They found a higher re-interview rate with the negative appeal. Emphasising positive and negative outcomes have also been compared in the context of asking for consent to data linkage. Two separate studies, also both on telephone surveys, found a higher consent rate with the negative wording. One of these studies took place in the USA (Kreuter, Sakshaug and Tourangeau, 2015) and the other in Germany (Sakshaug, Wolter and Kreuter, 2015).

To our knowledge this is the first study of prospect theory applied to a CAPI or web survey. Members of a probability-based general population panel in the UK were randomly allocated to one of two treatment groups. The control group received an advance letter that stressed the positive benefits of participation. (This is referred to as the control group as this is the approach that had been used in the advance letters for all previous waves of the Innovation Panel.) The treatment group instead received a letter that stressed the negative consequences of not participating. The negative consequences were framed in terms of a loss of value of the data that the respondent had already supplied at previous waves.

RESEARCH QUESTIONS

The aim is to establish whether, in the context of a CAPI/web mixed-mode panel, a survey participation request that emphasises negative consequences of non-participation (negative framing) can induce higher response rates than a participation request that emphasises positive consequences of participation (positive framing).

However, in the panel context the extent and nature of previous participation experience could moderate any effect of the framing of the participation request. There are at least two

mechanisms through which such a moderating effect could operate. The first mechanism is the psychological norm of consistency, which Groves, Cialdini and Couper (1992) suggested may be invoked when people respond to survey participation requests. In a panel survey where most sample members have repeatedly participated in response to a positively framed request, a negatively framed request could be perceived as a different kind of request to the one that they are used to. In this circumstance, the sample members may feel less obliged to act consistently (than they did at previous waves of the survey).

The second mechanism that could moderate any framing effect is the sunk-cost effect (Arkes and Blumer 1985). This refers to the tendency for decisions to be influenced by how much money, time or effort has already been invested in a process. The greater the prior investment, the more likely it is that either further investment or risk-seeking behaviour will be engaged in. Longer-term survey panel members have greater sunk costs and may therefore interpret differently the framing of the participation request.

The second research question is therefore whether any framing effect on response rates depends on the extent and nature of previous participation in the panel.

The third research question concerns the role of data collection mode as a potential moderator. The written survey participation request differs substantially in nature between a web survey and a face-to-face survey. In the web survey case, the request forms part of an invitation letter, which can be acted upon immediately as the recipient can choose to access the online questionnaire immediately. In the face-to-face case, the request forms part of an advance letter, which can only be actioned when the interviewer visits, which is typically days or weeks later. Furthermore, the interaction with the interviewer might be the major influence on the participation decision, reducing the role of the advance letter. The third research question is therefore whether any framing effect on response rates depends on mode (web or face-to-face).

STUDY DESIGN

A randomised experiment was carried out in wave 10 of the *Understanding Society* Innovation Panel (UKHLS-IP), for which field work was conducted between May and October 2017. The UKHLS-IP is based on a stratified random equal-probability sample of households resident in Great Britain. Address-based sampling was used, with an initial sample of 2,760 addresses included from wave 1 of the survey in 2008 and an additional 960 addresses added at each of waves 4 (2011) and 7 (2014). All persons resident at those addresses at the time of the respective first wave of data collection are defined as sample members. At each subsequent wave attempts are made to gain the co-operation of all sample members, whether or not they remain resident at the same address or with the same household members.

At each wave, all sample members aged 16 or over are asked to complete an individual interview (of around 40 minutes) and one adult sample member per household is asked to complete a

household interview (of around 12 minutes). All sample members aged 10 to 15 are asked to complete a self-completion questionnaire (around 20 minutes). People are withdrawn from the panel only if they adamantly refuse or are in a household in which no person has participated in either of the previous two waves. The panel is also depleted through death and emigration.

A total of 3,624 sample persons were issued to the field at wave 10. As a result of a separate randomised experiment with mode protocols, approximately two-thirds of the sample were allocated to a mixed-mode protocol in which the first phase was an invitation to a web survey ("web-first"). The other one-third were allocated to a mixed-mode protocol in which the first phase involved face-to-face CAPI field work ("CAPI-first"). Web-first sample members who did not respond in the first phase were attempted by CAPI in a second phase and, in a final "mop-up" phase, were offered the option of a telephone interview. CAPI-first sample members were offered the options of telephone or web at the mop-up stage. Random allocation to mode protocol was carried out independently for each of the three samples (the original sample, and the wave 4 and wave 7 refreshment samples).

At the start of fieldwork, each sample member aged 16 or over was mailed an initial letter. For the web-first sample, this was an invitation to complete the web survey and included the survey URL and a log-in code. For the CAPI-first sample the letter alerted the recipient that an interviewer would soon visit. Most of the content of the letter was otherwise identical for the two samples. Web-first sample members for whom a valid email was held on file were additionally sent their letter by email, timed to arrive on the same day as the mail letter. The email version of the letter included a direct link to the survey questionnaire.

The initial letter included a paragraph designed to motivate sample members to complete their questionnaire by emphasising the value of their data. This paragraph is the focus of the prospect theory experiment reported here. For a random half of sample members, this paragraph emphasised the additional value of participating again at the current wave. This is referred to as the 'control group' as this is the approach that was taken at previous waves and that is taken on most surveys. For the other half of the sample ('treatment group') the motivational paragraph emphasised the loss of value associated with *not* participating at the current wave. All persons within a household received the same treatment (i.e. the random allocation took place at the household level). The wording of the paragraph was as follows:

Control group (positive wording):

> "The information you have given us previously is very valuable and will become even more valuable if you participate again this year. We need to continue interviewing the same people in order to understand changes in our society."

Treatment group (negative wording):

> "The information you have given us previously is very valuable but will become much less valuable if you don't participate again this year. We need to continue interviewing the same people in order to understand changes in our society."

DATA AND METHODS

Of the 3,624 sample persons issued to the field for wave 10 of the IP, 634 were children aged under 15 (so, not yet eligible for the individual interview) and a further 29 had become ineligible (died or emigrated) by the time of field work, leaving an analysis sample of 2,961

Five variables are included in the analysis, all categorical. The dependent variable is OUTCOME, a dichotomous indicator of whether or not the individual interview was completed at wave 10. The key predictor variable is FRAMING, a dichotomous indicator of whether the sample member is in the treatment (negative request framing) or control group (positive request framing), as described above. The three moderator variables are TIME (time in sample: 9, 6 or 3 previous waves), PREVRESP (previous wave response status: respondent, nonrespondent, child) and MODE (survey mode: CAPI-first or web-first). Descriptive statistics are in table 1.

RESULTS

The treatment had no effect on overall propensity to participate (table 2, first row). However, this absence of an overall mean effect masks considerable heterogeneity in the effect dependent on the extent and nature of previous participation in the panel (table 2, rows 2 to 7). The treatment had a negative effect on participation amongst original sample members, that is, those who had been asked to participate in nine previous annual survey waves (response rates 64.6% vs. 70.7%; P=0.01). However, amongst the most recent sample, who had only been asked to participate in three previous annual survey waves, the effect was reversed (response rates 64.0% vs. 57.1%; P=0.04). Amongst the intermediate sample, with six previous waves, there was no significant effect. The treatment also had a positive effect amongst sample members who had turned sixteen since the previous wave and were therefore being asked to participate in the personal interview for the first time (response rates 59.3% vs. 26.7%; P=0.01).

As regards MODE, the treatment did not have a significant overall effect in the context of either the web-first or CAPI-first protocols (table 2, rows 8 and 9).

Logistic regression modelling (results not shown) confirms the results of the bivariate analysis. After testing main effects of treatment, time in sample, previous wave response status and mode, as well as all two- and three-way interactions involving treatment, the only significant predictors are the two-way interactions between FRAMING and TIME and between FRAMING and PREVRESP (including main effects of both TIME and PREVRESP). The effects are in the same direction, and similar in magnitude, to the bivariate effects shown in table 2.

CONCLUSIONS

The loss-framing approach to respondent motivation (treatment) generated an improved response rate for sample members who had been in the panel for a relatively short time. However, the

effect was reversed for long-standing sample members. This suggests that in this context prospect theory may be competing against other mechanisms. In the language of leverage-saliency theory (Groves et al 2000), loss-framing seems to have greater leverage for recent panel recruits than for longer-term panel members. Amongst the longer-term panel members, the leverage of some other factor or factors appears to outweigh that of loss-framing.

DISCUSSION QUESTIONS

Why might the effect of framing differ between long-term panel members and more recent panel entrants? What mechanisms should we consider/explore?

Should the absence of any apparent difference in effects between modes reassure us that the same approach can safely be used for both web and CAPI surveys?

Are you aware of any other experiments with positive vs negative motivational framing?

Any other thoughts or observations?

References

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Table 1: Descriptive Statistics

Variable	N	%
OUTCOME		
Respondent at wave 10	1,984	67.0
Nonrespondent at wave 10	977	33.0
FRAMING:		
Treatment (negative framing)	1,431	49.7
Control (positive framing)	1,450	50.3
PREVRESP		
Respondent at wave 9	2,111	72.6
Nonrespondent at wave 9	744	25.6
Child at wave 9	52	1.1
TIME		
9 previous waves	1,450	49.0
6 previous waves	660	22.3
3 previous waves	851	28.7
MODE		
CAPI-first	1,011	34.1
Web-first	1,950	65.9

Table 2: Response Rate by Treatment; Total Sample and Subgroups; Chi-square Statistics and P-values

Sample subgroup	n	Response rate		$\chi^2(1)$	P
		FRAMING: control	FRAMING: treatment		
Full sample	2,981	66.5	64.7	1.04	0.31
TIME:					
Time in sample: 9 waves	1,460	70.7	64.6	6.38	0.01*
Time in sample: 6 waves	665	69.3	65.9	0.85	0.36
Time in sample: 3 waves	856	57.1	64.0	4.29	0.04*
PREVRESP:					
Previous wave respondents (RESP)	2,118	82.9	81.5	0.70	0.40
Previous wave non-respondents (NRESP)	762	25.9	19.5	4.51	0.03*
Previous wave children (16YRS)	57	26.7	59.3	6.19	0.01*
MODE:					
CAPI-first mixed-mode	1,019	62.8	62.8	0.00	0.99
Web-first mixed mode	1,962	68.4	65.7	1.59	0.21

Notes: ** indicates P<0.01, * indicates 0.01<P<0.05