Understanding Society

Working Paper Series

No. 2014 – 08

November 2014

Targeted initial letters to longitudinal survey sample members: effects on response rates, response speed, and sample composition

Peter Lynn

Institute for Social and Economic Research, University of Essex

Understanding Society
THE UK HOUSEHOLD LONGITUDINAL STUDY

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Non-Technical Summary

In interviewer-administered surveys, sample members are typically sent a letter notifying them that an interviewer will be calling to interview them. In web surveys, sample members are sent a letter inviting them to complete the survey. These letters are usually identical for each sample member. This paper reports the results of an experiment in which different versions of the letter were sent to different subgroups of the sample. Each version was targeted at a subgroup with particular characteristics, such as people with young children or those of pensionable age. The wording of the letter included a mention of some issues that were expected to be relevant for that subgroup. For example, the letter for people with young children mentioned that survey topics include child care, schooling and education. Other aspects of the letter were identical in each version.

Researchers expect that these letters play a part in motivating sample members to take part in a survey. Thus, mentioning issues that are particularly relevant or important to the person receiving the letter should make them more likely to think favourably of the survey and to participate. In this paper we therefore examine whether a targeted letter is more successful than a standard letter at persuading people to take part and whether it encourages them to respond more quickly. We also look to see whether there is evidence that different types of people are more likely to respond if the letter is targeted.

We find that a targeted letter has potential to improve both response rate and response speed. In our data, these improvements are found only for certain types of sample members, however. The targeted letter improves response rates for people who had not responded at the previous wave of our panel survey and for those who had joined the panel more recently.

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Abstract

This study draws on two previously-separate strands of methodological research, one on the effect of the content of letters to sample members on response rates, and one on targeted respondent communications. We test targeted appeals in prenotification and invitation letters in a panel survey, based on an experimental design which allows the testing of effects in different contexts. The targeted letter improves response rates for previous wave non-respondents and recent panel entrants, though these effects depend on data collection mode. Response speed is improved for recent panel entrants, particularly in the context of a mixed mode design.

Key words: adaptive design, advance letter, invitation letter, longitudinal survey, response rates, response speed

JEL classifications: C81, C83

Author contact details: plynn@essex.ac.uk

Acknowledgements: This paper makes use of data from the *Understanding Society* Innovation Panel administered by the Institute for Social and Economic Research (ISER), University of Essex, and funded by the UK Economic and Social Research Council. The successful implementation of the targeted letter experiment at wave 6 was due to the dedication and diligence of numerous colleagues, both at ISER and at NatCen Social Research, who undertook the data collection.

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1. Introduction

In survey research with pre-identified samples, a mailed letter often forms the first contact between researcher and sample member. In mail surveys this letter could either be a prenotification letter (also known as an advance letter), if sent in advance of the questionnaire, or an invitation letter, if included in the same mailing as the questionnaire. In interviewer-administered surveys, the letter provides prenotification of the interviewer's call. The options for web surveys are similar to those for mail surveys. The prime purpose of these initial letters is typically to attempt to motivate co-operation. This is thought to be achieved by providing wanted basic information about the survey, providing reassurance about the data collectors' motives and how the data will be used, invoking authority and promoting both altruistic and egotistic reasons for taking part (Czaja and Blair 2005, pp. 204-06; Groves and Couper 1998, pp. 276-81).

Quantitative experiments with prenotification letters have involved comparing the use of a letter versus no letter (De Leeuw et al 2007; Goldstein and Jennings 2002; Link and Mokdad 2005; Lynn and Clarke 2000; Pennell 1990; Taylor and Lynn 1998; Traugott et al 1987) or comparing different versions of the letter, with different wordings and/or styles (Brunner and Carroll 1969; Dillman et al 1976; Lynn et al 1998), between random subsets of the total sample. The focus has been on effects on overall response rate, with little attention paid to effects on other aspects of participation such as sample composition (though see Mann (2005))or response speed (which can affect both survey costs and the timeliness of data production). Qualitative research has found that respondents to

interviewer-administered surveys express a preference for letters that are short and explain what type of information is to be collected (White and Freeth, 1996). This is broadly consistent with a large body of research into the contents of the covering letter accompanying mail survey questionnaires (Dillman et al 2009).

Though some surveys send different versions of a letter to different sample members, this is usually because of the need to communicate different information to different sample groups, for example if the response task differs between subgroups, or if different subgroups had been sampled from different sources. There are few if any examples of surveys employing different letters in a belief that different messages might better inspire co-operation amongst different sample subgroups.

In recent years there has been considerable interest in the idea of adapting survey procedures to the characteristics of sample members, particularly with view to improving the improving the trade-off between survey costs and survey errors, notably non-response error. Where these adaptations take place in reaction to information obtained during the data collection process they have been referred to as either responsive designs (Groves and Heeringa, 2006), if the adaptation is targeted to one or more large sample subgroup, or adaptive designs (Wagner, 2008) if adaptations are tailored to individual sample members. Schouten et al (2013) additionally include surveys in which adaptations are designed in advance of field work as adaptive designs. Here we are concerned with a targeted design feature in the manner of Lynn (2014), namely the idea of sending initial letters with wording that differs between sample subgroups, prior to fieldwork at a later wave of a longitudinal survey. Whether such a design should be considered a type of responsive design or an adaptive design is a moot point. If our perspective encompasses the entire longitudinal survey, then it is responsive, whereas if we consider only the current wave then it is adaptive according to the definition of Schouten et al (2013). The design involves identifying a limited number of sample subgroups that meet some basic criteria. There should be a manageable number of groups, to avoid over-complicating the mailings

and the interviewer task on the doorstep (interviewers are trained to refer to the advance letter). Each group should have defining characteristics that lend themselves to targeted messaging in the initial letter. Additionally, it would be desirable for at least some of the groups to be groups with relatively low response propensities, as successfully boosting response amongst such groups should result in a more balanced sample.

2. Research Questions

The focus of this paper is on the effect of a targeted initial letter on response rates and response speed, and whether and how this effect may vary between sample subgroups. The expectation is that a suitably-worded targeted initial letter should be more likely than a standard initial letter to invoke feelings of the survey being relevant and salient (Goyder 1987; Groves and Couper 1998), which should in turn increase the co-operation propensity of sample members. As the aim is to target letters at groups with a relatively low response propensity, it is to be expected that any overall effect of targeting on response propensity should be stronger amongst previous-wave non-respondents than amongst previous-wave respondents and stronger amongst recent panel entrants than amongst longer-term panel members. It is also of interest to know whether the effect differs between the targeted groups. Regardless of any effect on response rates, the targeted letter could also encourage sample members to response more promptly, so effects on speed of participation will also be assessed. Prompt participation is desirable as it generally lowers survey costs as less effort is required to follow-up non-respondents (reminder mailings or interviewer calls, depending on the mode of survey administration).

3. Study Design

A randomised experiment was carried out on wave 6 of the Innovation Panel of Understanding Society, the UK Household Longitudinal Study (UKHLS-IP), for which field

work was conducted between 21 February and 29 July 2013. The UKHLS-IP (Uhrig, 2011) is based on a stratified random 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 wave 4 in 2011. Addresses were selected with equal probabilities from the Postcode Address File (Lynn and Taylor, 1995). The sample design is described in detail in Lynn (2009). The analysis presented in this article is based on the 2,733 sample persons aged 16 or over who were issued to the field at wave 6. This analysis base represents an estimated 40.9% of all potentially-eligible sample members (AAPOR RR1)[1].

All sample persons aged 16 or over and eligible to be issued to field for wave 6 were randomly allocated, with equal probabilities, to one of two treatment groups. One group would receive a targeted initial letter while the other group would receive a standard letter, designed to have broad appeal. At previous waves, all sample members had received a standard letter. Sample members in the targeted treatment group received one of six versions of the letter, depending on their socio-demographic characteristics.

Five population subgroups were chosen for targeting. Sample members could belong to more than one of the groups but were allocated uniquely to one group for the purpose of the experiment, groups being assigned in a priority order. A sixth sample group consisted of sample members who did not belong to any of the five target groups or could not be classified due to missing data. The groups are listed in Table 1, in ranked priority order. For example, a sample member aged under 30 and living in London would be assigned to

[1] As outlined above, the sample issued at wave 6 consisted of two components: the original sample, participating for the sixth time, and the refreshment sample, participating for the third time. Estimated response rate to the wave 1 enumeration was 60.85% (AAPOR RR1). Of all persons aged 16 or over enumerated at wave 1 and not known to have become ineligible prior to wave 6, 57.68% were issued to the field for wave 6, the rest having been lost due to a failure to trace following a move, persistent non-contact, or refusal. Estimated response rate to the wave 4 enumeration of the refreshment sample was 61.44% (AAPOR RR1), of whom 93.68% of those aged 16 or over were issued at wave 6. The present study is therefore based on around 35.10% of original sample members and 57.56% of refreshment sample members. This corresponds to 40.90% of all sample members (the refreshment sample represents 25.81% of the total sample size).

the “young” target group rather than the “London” target group, as “young” is the 3rd-ranked characteristic and “London” is 4th-ranked. Much of the content of the initial letter was the same in each version (e.g. paragraphs about how to complete the survey, incentives, preparing information in advance, and the voluntary nature of participation), but the opening paragraph was designed to appeal particularly to people with the relevant characteristics. The six versions of the opening paragraph are presented in Table 2. Copies of each version of the full letter are reproduced in the annex.

Table 1. Target groups: definitions and sample distribution

Group	Definition	Frequency	Percentage
Employment-busy	Employed for at least 39 hours per week, or employed for 30 to 38 hours with a commute of least 60 minutes	425	15.6
With children	Responsible for at least one child under 15 living in the same household at the time of most recent interview	339	12.4
Young	Aged 16 to 29 at the time of wave 5	323	11.8
London	Resident in London or south east England at the time of most recent interview	358	13.1
Pensionable	Of pensionable age at the time of wave 5 (60 or over for women; 65 or over for men)	464	17.0
Remainder	None of the above	824	30.1

Table 2. Wording variations in the initial letter

First paragraph of the letter (for previous-wave respondents):	Thank you so much for helping with the Understanding Society survey last year. The survey helps researchers and policy makers understand the changes in the needs of the country across diverse subjects like *<text>* – and because your information was so valuable, we’d like to hear from you again.
Letter version	*<text>*
Employment-busy	your work-life balance, your position in your employment and your retirement
With children	the provision of child care, schooling and education
Young	the impact of the economic climate on employment prospects and the influence of mobile technology on life
London	the cost of living and the provision of schools, housing and public transport
Pensionable	the provision of social care and the cost of energy and fuel

The second sentence of the standard version of the letter read simply, “The survey helps researchers and policy makers understand the changes in the needs of the country – and because your information was so valuable, we’d like to hear from you again.”

In addition to the random allocation to initial letter treatment, the analysis presented in this article draws upon two other randomised treatments. The first enables testing of time-in-sample effects, while the second enables testing of differences between data collection modes. As described earlier, the sample for UKHLS-IP wave 6 consisted of two components, the "original" sample, for whom this was the sixth wave of participation, and a "refreshment" sample, which was added to the survey at wave 4, and for whom this was therefore the third wave. The two samples were selected independently within the same set of primary sampling units. Thus, comparison of effects between the two samples will constitute a test of whether effects differ between people who have been in the panel for six years and those who have only been in the panel for three years. Furthermore, prior to wave 5 fieldwork all sample members were randomly allocated to one of two mode treatments (Jäckle et al, 2013): one third were allocated to a single-mode CAPI design while the other two thirds were allocated to a sequential mixed-mode design in which sample members were first invited to complete the survey online, with non-respondents then followed up by CAPI. The same mode treatment was applied at both waves 5 and 6[2]. Consequently, for one third of sample persons the initial letter was a prenotification letter sent in advance of a visit by a CAPI interviewer, while for the other two thirds the letter was an invitation letter to a web survey (which may subsequently have been followed by a visit from a CAPI interviewer). The effects of targeting the letter may differ between the two contexts.

A further independent variable of interest is outcome at the previous wave (wave 5). The effect of targeting may depend on whether or not the sample member had responded previously. Descriptive statistics for all categorical dependent and independent variables are presented in **Table 3**.

[2] A minor change at wave 6 involved changing the protocols for the final stage of field work, amongst sample members who had not responded following the standard web and standard CAPI field work stages. In this final stage, telephone (CATI) interviews were offered as an option, and online (web survey) response was offered as an option for the first time to members of the single-mode CAPI treatment group.

In the first part of the analysis presented below, the dependent variable is an indicator of whether or not a full personal interview was completed at wave 6: 72.9% of cases issued to the field (n=2,733) resulted in a completed full personal interview. A proxy interview was completed for a further 4.3% of sample members, while no response was obtained for 22.7%. The second part of the analysis addresses effects on response speed. Response speed is defined as the number of elapsed days from the start of fieldwork to completion of the survey interview, and is analysed as a continuous variable. The analysis is restricted to the 2,113 sample members who completed the wave 6 interview. Response speed has a median of 32 days, a mean of 35.9, and a standard deviation of 30.0.

Table 3. Descriptive Statistics

Variable/category	Frequency	Percentage
Wave 6 outcome (dependent variable)		
Individual response	1,993	72.9
Proxy response	120	4.3
Non-response	620	22.7
Initial letter treatment		
Targeted letter	1,387	50.8
Standard letter	1,346	49.2
Wave 5 outcome		
Individual response	1,979	72.4
Proxy response	146	5.3
Non-response	608	22.2
Time in sample		
6th wave ("original sample")	1,853	67.8
3rd wave ("refreshment sample"	880	32.2
Mode design at wave 6		
CAPI only	946	34.6
Mixed-mode (web + CAPI)	1,787	65.4
Target group		
Employment busy	425	15.6
Has children	339	12.4
Aged 16-29	323	11.8
In London or south-east England	358	13.1
Of pensionable age	464	17.0
None	824	30.1

Note: n=2,733 persons aged 16 or over issued to the field for wave 6 of the UKHLS-IP

4. Results: Response Rates

Analysis of the effect of targeted initial letters on response rates is based on the full sample of persons aged 16 or over issued to the field for wave 6 (n=2,733). The dependent variable indicates successful completion of a full interview in person (n=1,993). Though data were obtained for a further 120 sample members via a proxy interview, the focus here is restricted to the in-person interview as the initial letter was mailed only to the named sample member and is therefore unlikely to have affected the propensity for another person to be willing to provide a proxy interview, and because the in-person interview is the preferred outcome (as the proxy interview contains only a subset of items). An initial logistic regression model was fitted in which the initial letter treatment was the sole independent variable. No significant ($P<0.05$) main effect was observed. Interaction terms were then tested between the initial letter treatment and each of the other four independent variables listed in **Table 3**. Significant interactions ($P<0.05$) were observed with time in sample and previous wave outcome, but not with mode design or target group. At the next step, three-way interactions were tested by adding them in turn to the model containing only the respective significant two-way interaction (and the two associated main effects). With respect to time in sample, further significant interactions were detected with all three of the other independent variables. With respect to previous wave outcome, an interaction with mode design was found. For ease of presentation and interpretation, **Table 4** presents the observed response rates for the treatment and control groups for each set of sample subgroups defined by the four independent variables in turn, plus those corresponding to significant three-way interactions in the logistic regression models, along with associated independent chi-square tests. Results are not presented for subgroups corresponding to three-way interactions that were not significant in the modelling.

It can be seen that the targeted letter had a positive effect on response rate amongst previous wave non-respondents ($P=0.01$) and amongst those who had only been in the

sample for three waves (P=0.007). Amongst the previous wave non-respondents, the effect was positive only for the mixed-mode treatment (P=0.008); not for the single-mode CAPI treatment. Amongst those who had only been in the sample for three waves, the effect was positive for the single-mode CAPI treatment (P=0.005) but not for the mixed-mode treatment. Finally, for two of the targeted subgroups a positive effect was observed for those in the sample for three waves but not for those in the sample for six waves: those aged 16-29 (P=0.009) and those of pensionable age (P=0.03).

5. Results: Response Speed

Ordinary least squares regression models were fitted to predict response speed in days amongst the 1,993 sample members who completed the wave 6 interview in person (**Table 5**). A model in which the initial letter treatment was the sole independent variable indicated no significant main effect (P=0.68). Interactions with each of the four independent variables were tested separately and only that with time in sample was found to be significant. The targeted initial letter significantly reduced response time (mean difference -6.2 days; P=0.02) only for those who had only been in the sample for three waves. Amongst those who had been in the sample for six waves, response time was actually longer with the targeted letter (mean +3.9 days; P=0.01).

Three way interactions involving time in sample were then tested. The positive effect of a targeted letter in reducing response time amongst those who had been in the sample for three waves was restricted to previous wave non-respondents (mean -21.5 days, P=0.02; amongst previous wave respondents mean = -4.5 days, P=0.10) and to the mixed mode treatment (mean -8.4 days, P=0.004; single-mode CAPI mean = -4.6 days, P=0.32). Amongst the 3-wave sample assigned to the mixed-mode treatment, the targeted letter significantly reduced response time amongst both previous wave non-respondents (mean -

Table 4. Chi-square tests of the effect of targeted letters on response rate for sample subgroups

Sample subgroup	*n*	Response rate		$\chi^2(1)$	*P*
		Standard letter	Targeted letter		
Full sample	2,733	72.0	73.8	1.17	0.28
Previous wave respondents (RESP)	1,979	87.4	85.9	0.92	0.34
Previous wave non-respondents (NRESP)	754	32.4	41.4	6.59	0.01**
Time in sample: 6 waves (TIME6)	1,853	72.5	71.6	0.21	0.64
Time in sample: 3 waves (TIME3)	880	70.9	78.8	7.36	0.01**
Single-mode CAPI (CAPI)	946	71.4	71.1	0.01	0.92
Mixed mode web-CAPI (MMODE)	1,787	72.3	75.3	1.99	0.16
Employment-busy (BUSY)	425	73.3	77.1	0.85	0.36
Has children (CHILD)	339	77.7	79.2	0.11	0.74
Aged 16-29 (YOUNG)	323	61.7	65.5	0.49	0.48
London and south east England (LONDON)	358	67.4	71.1	0.57	0.45
Pensionable age (PENSION)	464	87.0	84.9	0.44	0.51
RESP * TIME6	1,298	88.2	84.8	3.16	0.07
RESP * TIME3	681	86.0	88.2	0.72	0.40
NRESP * TIME6	555	34.7	41.6	2.79	0.09
NRESP * TIME3	199	27.0	40.5	4.03	0.05*
RESP * CAPI	698	88.3	84.6	2.00	0.16
RESP * MMODE	1,281	86.9	86.7	0.02	0.89
NRESP * CAPI	248	27.5	29.9	0.18	0.67
NRESP * MMODE	506	35.0	46.5	7.01	0.01**
TIME6 * CAPI	621	74.9	67.2	4.50	0.03*
TIME6 * MMODE	1,232	71.3	73.7	0.90	0.34
TIME3 * CAPI	325	64.9	78.8	7.74	0.01**
TIME3 * MMODE	555	74.4	78.9	1.57	0.21
TIME6 *BUSY	293	72.5	76.1	0.52	0.47
TIME6 * CHILD	222	77.6	76.5	0.03	0.85
TIME6 * YOUNG	226	63.0	58.7	0.43	0.51
TIME6 * LONDON	246	67.8	71.1	0.32	0.58
TIME6 * PENSION	325	87.6	80.1	3.35	0.07
TIME3 *BUSY	132	75.0	79.4	0.37	0.55
TIME3 * CHILD	117	78.0	84.5	0.81	0.37
TIME3 * YOUNG	97	59.2	83.3	6.89	0.01**
TIME3 * LONDON	112	66.7	71.2	0.26	0.61
TIME3 * PENSION	139	85.7	96.8	4.96	0.03*

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

Table 5. t-tests of the effect of targeted letters on response speed for sample subgroups

Sample subgroup	*n*	Response speed (mean days)		*t*	*P*
		Standard letter	Targeted letter		
Full sample	1,993	34.7	35.3	0.41	0.68
Previous wave respondents (RESP)	1,715	33.1	34.0	0.65	0.52
Previous wave non-respondents (NRESP)	278	45.9	42.3	-0.87	0.39
Time in sample: 6 waves (TIME6)	1,335	32.7	36.6	2.52	0.01*
Time in sample: 3 waves (TIME3)	658	38.7	32.6	-2.33	0.02*
Single-mode CAPI (CAPI)	674	49.0	47.6	-0.69	0.49
Mixed mode web-CAPI (MMODE)	1,319	27.1	29.2	1.34	0.18
Employment-busy	320	35.8	35.4	-0.13	0.90
Has children	266	38.9	35.8	-0.84	0.40
Aged 16-29	206	43.0	36.8	-1.07	0.28
London and south east England	248	31.8	37.3	1.52	0.13
Pensionable age	399	30.8	32.5	0.74	0.46
TIME6 * RESP	1,122	31.0	34.7	2.39	0.02*
TIME6 * NRESP	213	43.6	45.3	0.36	0.72
TIME3 * RESP	593	37.2	32.7	-1.63	0.10
TIME3 * NRESP	65	52.8	31.3	-2.38	0.02*
TIME6 * CAPI	441	46.7	46.5	-0.11	0.91
TIME6 * MMODE	894	25.1	32.2	3.74	0.00**
TIME3 * CAPI	233	53.9	49.4	-1.01	0.32
TIME3 * MMODE	425	31.0	22.6	-2.88	0.00**
TIME6 * RESP * CAPI	389	45.2	44.5	-0.34	0.74
TIME6 * RESP * MMODE	733	22.8	29.9	3.68	0.00**
TIME6 * NRESP * CAPI	52	58.8	60.9	0.27	0.79
TIME6 * NRESP * MMODE	161	37.5	41.1	0.64	0.52
TIME3 * RESP * CAPI	214	52.7	49.2	-0.73	0.46
TIME3 * RESP * MMODE	379	29.3	22.4	-2.30	0.02*
TIME3 * NRESP * CAPI	19	65.8	51.2	-0.93	0.37
TIME3 * NRESP * MMODE	46	46.6	24.1	-2.13	0.04*

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

22.5 days; P=0.04) and previous wave respondents (mean -6.9 days; P=0.02), though the effect size appears greater in the former case. For previous wave respondents in the 3-wave sample assigned to the mixed-mode treatment, the targeted letter significantly increased response time (mean +7.1 days; P=0.004).

6. Discussion

The findings show that a targeted initial letter can both increase response rates and reduce response times, but that the effects are far from even across contexts and sample subgroups. Amongst previous wave non-respondents in a mixed mode (web-CAPI) design, the targeted letter improved both response rate and response speed. Amongst previous wave respondents in the same mixed mode design, the targeted letter improved response speed but had no effect on response rate. In the context of a single-mode CAPI design the targeted letter had no effect on either response rate or speed for either previous non-respondents or previous respondents. Furthermore, the various positive effects of a targeted letter were largely restricted to relatively recent sample entrants – specifically, to those for who this was the third wave rather than sixth.

There is some evidence that the effect of a targeted letter may differ between the different targeted groups. Specifically, significant improvements in response rate were observed for young adults and for people of pensionable age, but not for the other targeted groups, amongst recent sample entrants. Of course, differences in effects between the groups could be caused either by differences in the characteristics of group members (some groups may simply contain more people whose response propensity is sensitive to the wording of the initial letter) or by differences in the effectiveness of the targeting (the choice of wording could have been better in some versions of the letter than others). The impact of any targeting will always depend on the specific nature of the targeting adopted. The corollary of this is that we should not assume that targeting cannot be effective

amongst groups for whom no effect is observed in this study. It may simply be that this study failed to identify the best way to word the letter for that group and that a better-worded letter would be more successful. On the other hand, effective targeting may be easier for some groups, if they are inherently more susceptible to the effects of targeted messaging.

These findings suggest first and foremost that targeted letters hold promise as a tool to improve response rates and response times. At least in some circumstances, positive effects are observed. Furthermore, the heterogeneity of effects over randomised design treatments (mode of data collection, time in panel) suggests that the survey design context matters. Targeting may not be effective in all contexts, and may be more effective in some contexts than others. In particular, an important difference between the mixed-mode and single-mode CAPI treatments in this study is that the initial letter acts only as a prenotification letter in the single-mode CAPI design, but as an invitation letter in the mixed-mode design. In the single-mode CAPI design there is no immediate action that the sample member can take upon reading the letter (other than phoning the survey organisation to refuse to participate), whereas in the mixed mode design the sample member can immediately choose to go online and fill out the survey. It is plausible that targeting is more effective in invitation letters than in prenotification letters, though this general conclusion should not be drawn from this single study.

The observation that effects are also heterogeneous across respondent characteristics suggests that targeting can affect sample composition. Specifically, the sample subgroups within which a targeted letter has been observed to improve response rate are generally subgroups with lower than average response propensity. Notably, with the standard letter treatment wave 6 response rate was 32.4% amongst previous wave non-respondents and 87.4% amongst previous wave respondents. The targeted letter significantly improved response rate amongst the former group (to 41.4%), but not amongst the latter group. Similar, young adults have a lower baseline response propensity than other groups. This

suggests that targeted messaging in the initial letter may be able to help to improve sample composition by increasing the representation of under-represented groups. Further research focussed on this issue may help researchers to identify the best ways to use targeted designs to improve sample representativeness.

In summary, the use of targeted initial letters to sample members appears promising and warrants further research to better identify the contexts and circumstances in which it can be most effective and to establish how best to develop the targeted materials. The application in this study was a panel survey, where a wealth of information from prior waves is available to define the targeting. However, similar targeting may also be possible in one-time surveys with particularly informative sampling frames, such as administrative databases of various kinds, or where data can be linked to sample records prior to field work. Investigation of the use of targeted messaging in such circumstances could also be useful.

References

Czaja, R. and J. Blair (2005), *Designing Surveys: A Guide to Decisions and Procedures*. Thousand Oaks, CA: Sage.

De Leeuw, E.D., M. Callegaro, J. Hox, E. Korendijk, and G. Lensvelt-Mulders (2007), "The Influence of Advance Letters on Response in Telephone Surveys: A Meta-Analysis," *Public Opinion Quarterly*, 71(3), 413-43.

Dillman, D.A., J.G. Gallagos and J.H. Frey (1976), "Reducing Refusal Rates for Telephone Interviews," *Public Opinion Quarterly*, 40(1), 66-78.

Dillman, D.A., J.D. Smyth, and L.M. Christian (2009), *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. New York: Wiley.

Goldstein, K.M., and M.K. Jennings (2002), "The Effect of Advance Letters on Cooperation in a List Sample Telephone Survey," *Public Opinion Quarterly*, 66(4), 608-17.

Goyder, J. (1987), *The Silent Minority: Nonrespondents on Sample Surveys*. Boulder, CO: Westview Press.

Groves, R.M., and M.P. Couper (1998) *Nonresponse in Household Interview Surveys*. New York: Wiley.

Groves, R.M. and S.G. Heeringa (2006), "Responsive Design for Household Surveys: Tools for Actively Controlling Survey Nonresponse and Costs," *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 169(3), 439-457.

Link, M.W., and Mokdad, A. (2005), "Advance Letters as a Means of Improving Respondent Cooperation in Random Digit Dial Studies: A Multistate Experiment," *Public Opinion Quarterly*, 69(4), 572-87.

Lynn, P. (2009), "Sample design for Understanding Society," *Understanding Society Working Paper* 2009-01, Colchester: University of Essex. https://www.iser.essex.ac.uk/publications/working-papers/understanding-society/2009-01

Lynn, P. (2014), "Targeted Response Inducement Strategies on Longitudinal Surveys," Chapter 27 in Engel, U., Jann, B., Lynn, P., Scherpenzeel, A. & Sturgis, P. eds., *Improving Survey Methods: Lessons from Recent Research*. Routledge, New York.

Lynn, P., and Taylor, B. (1995) “On the Bias and Variance of Samples of Individuals: A Comparison of the Electoral Registers and Postcode Address File as Sampling Frames,” *Journal of the Royal Statistical Society Series D (The Statistician)*, 44(2), 173-194.

Lynn, P., R. Turner, and P. Smith (1998) “Assessing the Effects of an Advance Letter for a Personal Interview Survey,” *Journal of the Market Research Society,* 40(3), 265-272.

Mann, C.B. (2005), “Do Advance Letters Improve Preelection Forecast Accuracy? ” *Public Opinion Quarterly*, 69(4), 561-71.

Pennell, S.G. (1990), “Evaluation of Advance Letter Experiment in 1988 New York Reproductive Health Survey,” Report to the Centers for Disease Control. Ann Arbor, MI: University of Michigan Survey Research Center.

Schouten, B., M. Calinescu, and A. Luiten (2013), “Optimizing Quality of Response Through Adaptive Survey Designs,” *Survey Methodology* 39(1), 29-58.

Taylor, S., and Lynn, P. (1998) “The Effect of a Preliminary Notification Letter on Response to a Postal Survey of Young People,” *Journal of the Market Research Society*, 40(2), 165-173.

Traugott, M.W., R.M. Groves, and J.M. Lepkowski (1987), “Using Dual Frame Designs to Reduce Nonresponse in Telephone Surveys,” *Public Opinion Quarterly,* 51(4), 522–39.

Uhrig, S. C. N. (2011), “Using experiments to guide decision making in Understanding Society: Introducing the Innovation Panel.” In *Understanding Society: Early Findings from the First Wave of the UK’s Household Longitudinal Study*, edited by Stephanie L. McFall & Christine Garrington, Chapter 13. Colchester: University of Essex. Accessed November 8, 2014, from www.understandingsociety.ac.uk/research/publications/ findings/ early

Wagner, J. (2008) *Adaptive Survey Design to Reduce Nonresponse Bias*, PhD thesis, University of Michigan, USA. Accessed November 10, 2014, from http://deepblue.lib.umich.edu/handle/2027.42/60831

Annex

A1: Additional Sample Descriptive Statistics

Sample distribution over randomised treatments

	Initial letter treatment		Total
	Standard	Targeted	
CAPI, 6th wave (original sample)	307	314	621
CAPI, 3rd wave (refreshment sample)	165	160	325
Mixed modes, 6th wave (original sample)	589	643	1,232
Mixed modes, 3rd wave (refreshment sample)	285	270	555
Total	1,346	1,387	2,733

Notes: The refreshment sample constitutes 25.8% of the total sample, but attrition rates prior to wave 6 differed between the two samples; one-third of sample cases were allocated to CAPI prior to wave 5, with the mode treatment being unchanged at wave 6, but attrition rates between waves 5 and 6 differed slightly between the treatment groups. For this reason, the sample sizes differ from one-third CAPI.

A2: Reproductions of the 6 versions of the initial letter

The versions of the letter are reproduced here in the following order:

- Standard letter
- Targeted to the employment-busy
- Targeted to people with dependent children aged under 16
- Targeted to people aged 16 to 29
- Targeted to people resident in London or south east England
- Targeted to people of pensionable aged (65 or over for men; 60 or over for women)

Note that these are the versions of the letter for previous wave respondents in the mixed mode design. Letters for previous wave non-respondents and for the single-mode CAPI design differed in the parts of the wording that refer to previous response and online completion, respectively. Those differences were however constant across the six targeting groups.

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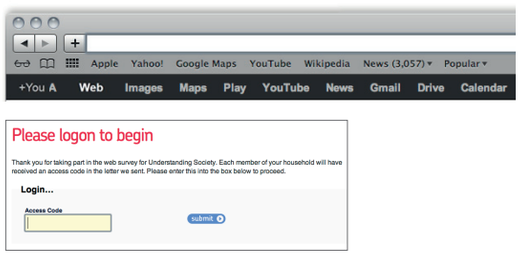

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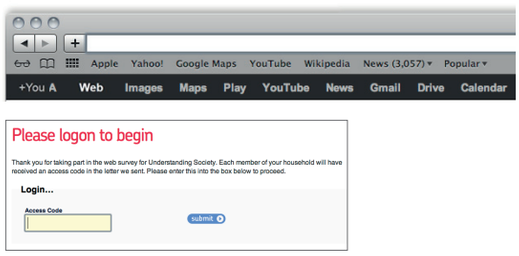

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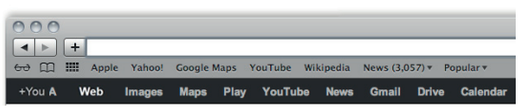

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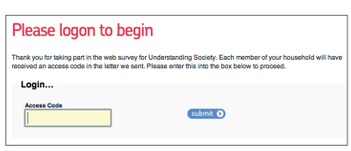

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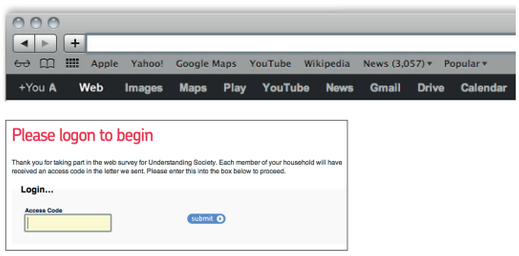

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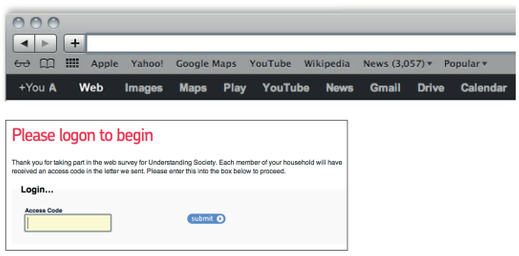

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