SURVEY FUTURES

SURVEY DATA COLLECTION METHODS COLLABORATION

Targeted Designs to Address Survey Nonresponse

Peter Lynn (University of Essex)

IASS Webinar 56, 24 September 2025

Webinar Roadmap

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1. Context:

- Survey nonresponse: a brief history of relevant developments

2. Targeted designs:

- What are they and how do they work?
- How do they relate to other designs (standardised, tailored, adaptive/responsive)
- Examples

3. Key take-home messages

1. Survey (Unit) Nonresponse

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Prime concern:

- Systematic non-response error – leading to biased estimates

$$E(y_R - Y_T) = \frac{Cov(y_i, \rho_i)}{\bar{\rho}}$$

ρ_i = participation propensity of element i.

Consequence:

- Need to consider methods to **reduce** and **adjust**
- Methods to reduce non-response error at data collection stage tend to have a **cost**

Focus of targeted designs:

- Methods to reduce non-response error at data collection stage …..
- ….. which optimise the relationship between error and cost

Nonresponse Research

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Approx. 80-year history of research into survey non-response

For approx. first 30-40 years, focus was almost entirely on:

- Estimating non-response bias
- Evaluating effect on response rate of various measures

Assumption was that higher response rates reduced the risk of non-response bias

Early Example: Hansen & Hurwitz 1946

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THE PROBLEM OF NON-RESPONSE IN SAMPLE SURVEYS*

MORRIS H. HANSEN AND WILLIAM N. HURWITZ

The mail questionnaire is used in a number of surveys because of the economies involved. The principal objection to this method of collecting factual information is that it generally involves a large non-response rate, and an unknown bias is involved in any assumption that those responding are representative of the combined total of respondents and non-respondents.

Personal interviews generally elicit a substantially complete response, but the cost per schedule is, of course, considerably higher than it would be for the mail questionnaire method. The purpose of this paper is to indicate a technique which combines the advantages of both procedures.

Hansen M H & Hurwitz W N (1946) The problem of non-response in sample surveys, *Journal of the American Statistical Association* 41(236), 517-529

Studies in the 1970s

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In the survey of trainees for nonviolent action, the response difference between those promised a dollar and those not promised one was 2 per cent, in the expected direction, and not significant (responses from 39 out of 195 promised a dollar and from 140 of 786 not promised one). However, the effect in the initial wave of actually enclosing a dollar was quite marked (30 per cent response from a sample of 196 sent a dollar, before any reminders were sent out; 20 per cent from 777 not sent a dollar; $\chi^2 = 25.0$, $p < .001$).

Blumberg H H, Fuller C, & Hare P (1974) Response rates in postal surveys, *Public Opinion Quarterly* 38(1): 113-123

Seminal Research: 1990s

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Two meta-analyses on effects of incentives;

Church on mail surveys:

- Evidence of effect only for prepaid, not for conditional;
- Effect greater for prepaid monetary than for prepaid nonmonetary.

Singer et al on interviewer-administered surveys:

- Evidence of effect for both prepaid and conditional;
- Effect greater for monetary than for nonmonetary.
- Smaller effects than for mail surveys

Note:

- Effects evaluated only on response rates
- No account taken of heterogeneity within or between samples

Church A H (1993) Estimating the effect of incentives on mail survey response rates: a meta-analysis, *Public Opinion Quarterly* 57, 62-79.

Singer E, Van Hoewyk J, Gebler N, Raghunathan T, & McGonagle K (1999) The effect of incentives on response rates in interviewer-mediated surveys, Journal of Official Statistics 15(2), 217-230.

Interviewer Tailoring

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> As our research on survey cooperation has developed, we have become increasingly convinced that we are unlikely to find main effects of these interviewer behaviours on survey cooperation. In other words, it is not whether an interviewer uses each of these techniques or not, but rather when and how they are used that is important. We believe that these approaches, along with other techniques, comprise tools in an interviewer's toolbox, and that the appropriate application of a particular tool at the appropriate time will increase the likelihood of cooperation . We have termed this selection and application of appropriate tools "tailoring," and we believe this is primarily an interaction-level phenomenon.
>
> Groves & Couper (1998), p.210

Morton-Williams J (1993) *Interviewer Approaches* Aldershot UK: Dartmouth.

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

Survey Practice in 1990s/early 2000s

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Tailoring was replacing standardisation as preferred practice for interviewer introductions / interactions;

Standardisation was still usual practice for all other components of survey design and implementation;

But nonresponse research was beginning to recognise and explore heterogeneity of effects….

…. and to acknowledge that (now that response rates were no longer anywhere near 100%!) response rate is a poor indicator of nonresponse bias

Groves & Peytcheva 2008

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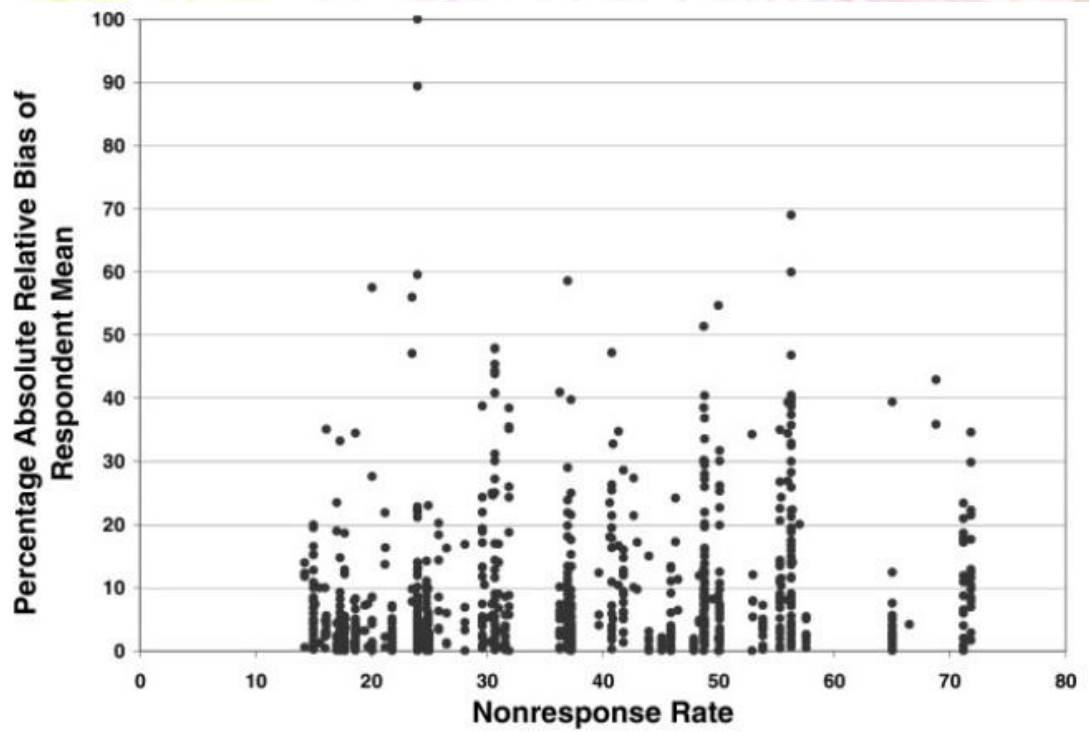

Figure 2. Percentage Absolute Relative Nonresponse Bias of 959 Respondent Means by Nonresponse Rate of the 59 Surveys in Which They Were Estimated.

Groves R M & Peytcheva E (2008) The impact of nonresponse rates on nonresponse bias: a meta-analysis, *Public Opinion Quarterly* 72(2), 167-189

Heterogeneity of Effects

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How Do Lotteries and Study Results Influence Response Behavior in Online Panels?

Social Science Computer Review
31(3) 371-385

DOI: 10.1177/0894439312458760
sscr.sagepub.com
SAGE

Anja S. Göritz[1] and Susanne C. Luthe[2]

Offering study results. The offer of results (see Table 4) does not impact response, retention, and nondifferentiation ($\beta = -.01$, *ns*). Only one of the 15 moderator tests (3 dependent variables × 5 moderators) reveals a significant interaction: More educated panelists are less likely to drop out of the study if results are offered (OR = 1.77, $p = .036$, per rising education level for results vs. no results).

2. Targeted Design Features

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- An alternative to standardised approaches where:
  a) one or more design features are varied between subgroups of sample members to improve the relationship between costs and errors
  b) the variation(s) are identified and planned prior to data collection (aka static adaptive designs)
- Information about sample units prior to data collection is required:
  a) To identify subgroups
  b) To identify the appropriate treatment
- The objective – improving the relationship between survey costs and errors

  Coverage and sampling errors cannot be tackled by targeted designs

  Non-response is typically the focus

- Can involve modifying an existing feature or adding a new one

Lynn, P. (2014). Targeted response inducement strategies on longitudinal surveys. In U. Engel, B. Jann, P. Lynn, A. Scherpenzeel, & P. Sturgis (Eds.), *Improving Survey Methods: Lessons from Recent Research*. 322– 338. Abingdon UK: Psychology Press.

Criteria for subgroups

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1. The number of subgroups should be manageable

2. Each group should have defining characteristics that lend themselves to targeted treatment

3. Varying treatment cost and/or contribution to survey error between groups

Categorising targeted design features

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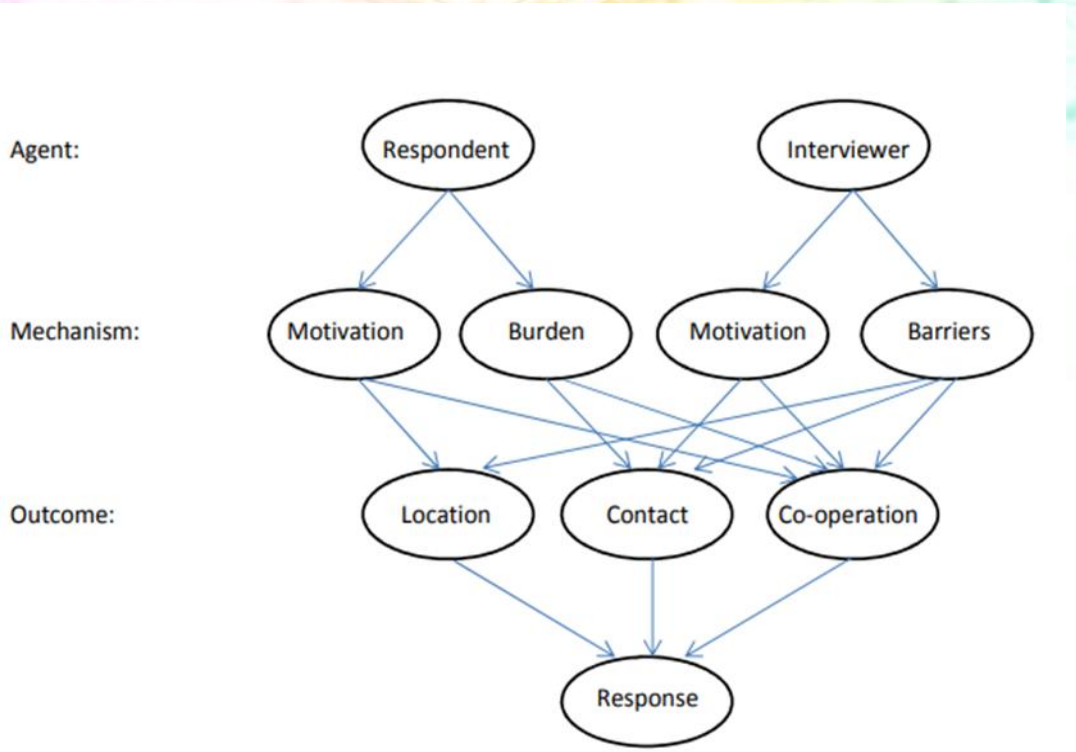
1) Agent of change
   Respondent or interviewer

2) Mechanism of change
   Reduction of burden, increase of motivation, reduction of barriers

3) Affected outcome
   Location, cooperation or contact propensity



Lynn, P. (2017). From standardised to targeted survey procedures for tackling non-response and attrition. *Survey Research Methods 11(1)*, 93-103.

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UKRI Economic and Social Research Council

Example 1: Reducing risk of failure to locate

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Location stage of response process is particularly important for longitudinal surveys, from wave 2 onwards, especially when population has high mobility and/or time between waves is large

Targeted Subgroup:

- Those "at risk" of a subsequent failure to locate

Targeted Feature:

- Additional between-wave contacts, Additional incentives/attempts to collect other contact details

Estimate risk propensity:

- We can use a sample with observed outcomes at wave *n*+1 and covariates measured at wave *n*
- For outcomes to reflect latent propensity, we need all relevant survey procedures (those that may affect location outcome) to be uniform across sample units up to and including wave *n*+1

Example 1: Estimating the risk

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Data from *Understanding Society; the UK Household Longitudinal Study* (face-to-face data collection):

- Outcomes from wave 2, covariates from wave 1
- Logistic regression: dependent variable is indicator of "not located" at wave 2
- Base is persons aged 16+ who responded at wave 1, excluding those known to have died or moved abroad (1.4%)
- *n* = 24,188. Of these, 4.2% were "not located" at wave 2

Findings:

- 17 of 21 covariates make significant contribution
- Pseudo-R^2 = 0.24
- Two covariates are particularly powerful predictors:
  - Housing tenure;
  - Expectation to move in next year.
- Pseudo-R^2 = 0.19 with just these two variables in the model

Lynn, P. (2012). Failing to locate panel sample members: minimising the risk. *International Workshop on Household Survey Nonresponse,* Ottawa, September. Available at https://nonresponse.cjm.si/

Example 1: Estimating the risk

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Selected findings:

Variable	Value	Odds ratio	s.e.	p
xpmove * age	Yes, 16-17	7.77	2.62	0.000
(ref: no, 60+)	Yes, 18-19	12.16	3.33	0.000
	Yes, 20-24	11.92	2.52	0.000
	Yes, 25-29	9.03	1.97	0.000
sex	female	0.85	0.06	0.023
tenure	Mortgage	1.17	0.18	0.316
(ref: own outright)	Rent LA/HA	1.79	0.29	0.001
	Rent employer	3.44	0.94	0.000
	Rent private unfurnished	3.92	0.64	0.000
	Rent private furnished	6.65	1.10	0.000

Lynn, P. (2012). Failing to locate panel sample members: minimising the risk. *International Workshop on Household Survey Nonresponse,* Ottawa, September. Available at https://nonresponse.cjm.si/

Example 1: Targeting the “at risk”

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Association between model predictions and observed outcomes

Predicted probability	< 0.025	[0.025, 0.05)	[0.05, 0.075)	[0.075, 0.10)	[0.10, 0.15)	[0.15, 0.20)	[0.20, 0.30)	[0.30, 0.40)	[0.40, 0.50)	[0.50, 1.00]
Observed proportion	0.0086	0.0390	0.0696	0.0942	0.1320	0.1582	0.2222	0.3614	0.4096	0.5612
n	15,890	3,363	1,494	828	917	531	558	321	188	98

7.0% of sample cases have a predicted probability of 0.15 or more of not being located;

These 7.0% account for 44.4% of all non-located cases;

Could target these 7% with phone calls, extra mailings, incentives, etc.

Example 2: Targeted respondent materials

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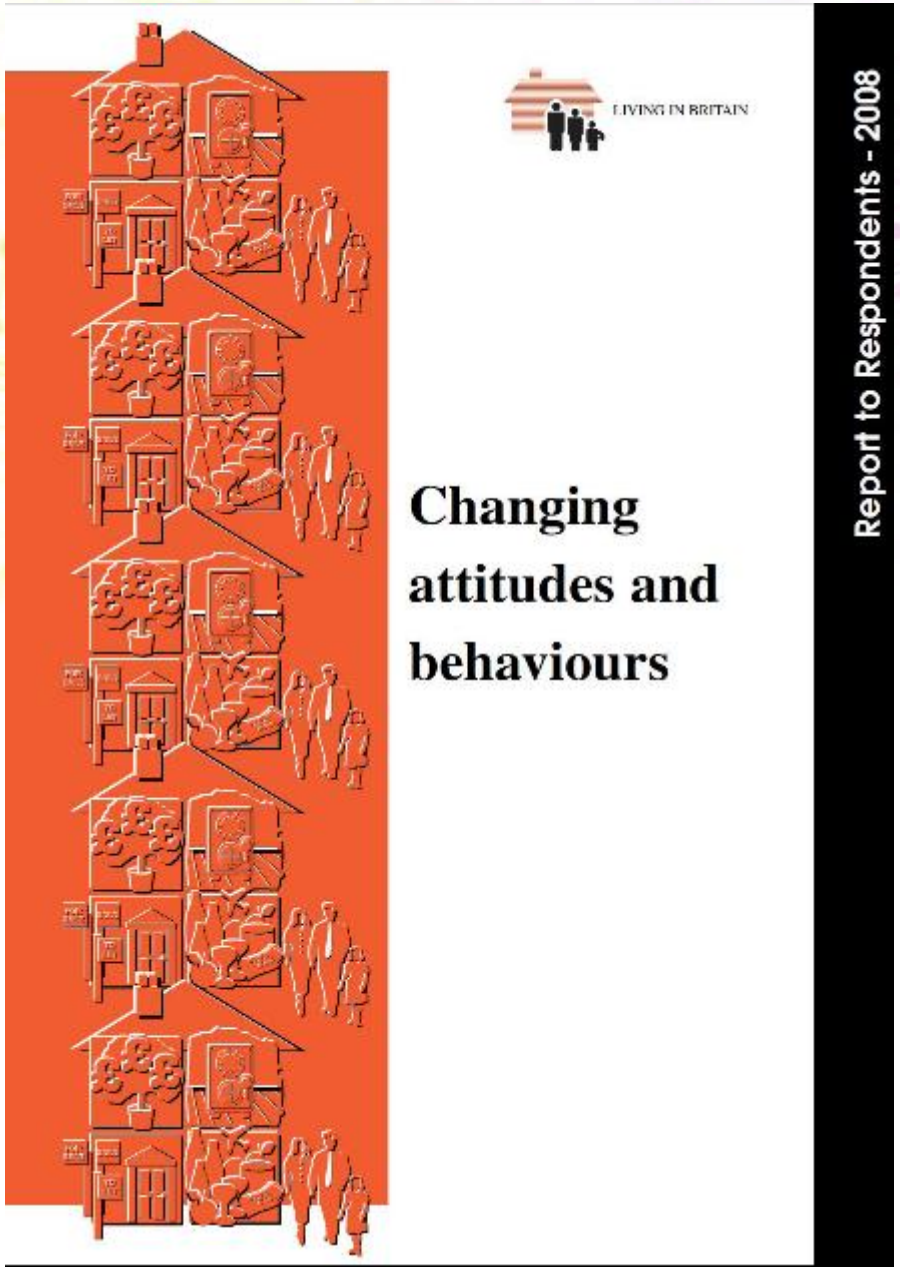
British Household Panel Survey: A report of findings is mailed to sample members between waves in the hope of emphasising the saliency and interest of the survey and hence providing motivation to co-operate at the next wave

Two randomised treatments:

- "Standard" report of findings to all sample members;
- Targeted report:
  - Version 1 ("Young") if aged < 25
  - Version 2 ("Busy") if self-employed, long work hours or long commute
  - Version 3 ("Standard") otherwise

Fumagalli L, Laurie H, Lynn P (2012) Experiments with methods to reduce attrition in longitudinal surveys, *Journal of the Royal Statistical Society A*, 176(2): 499-519



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Standard Report

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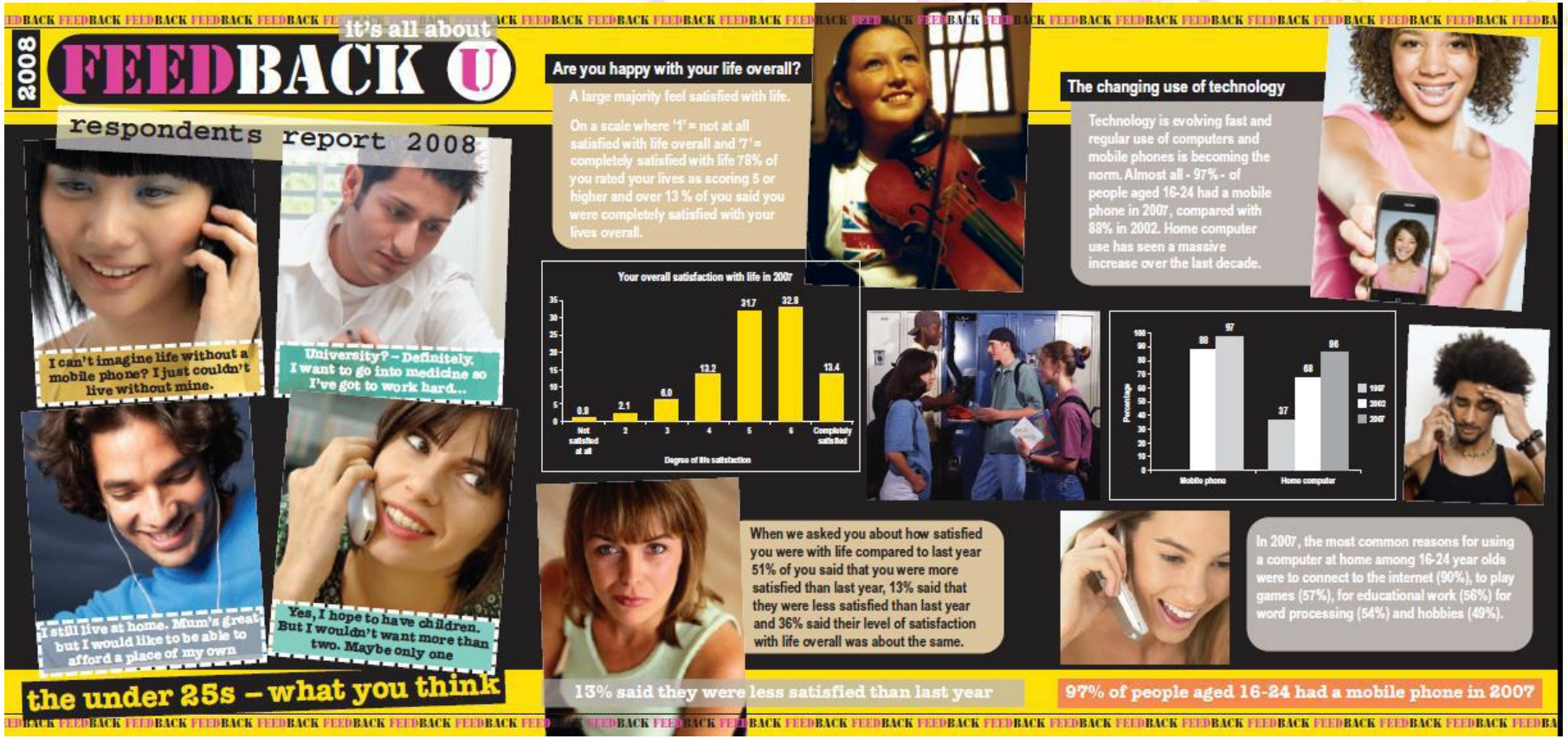
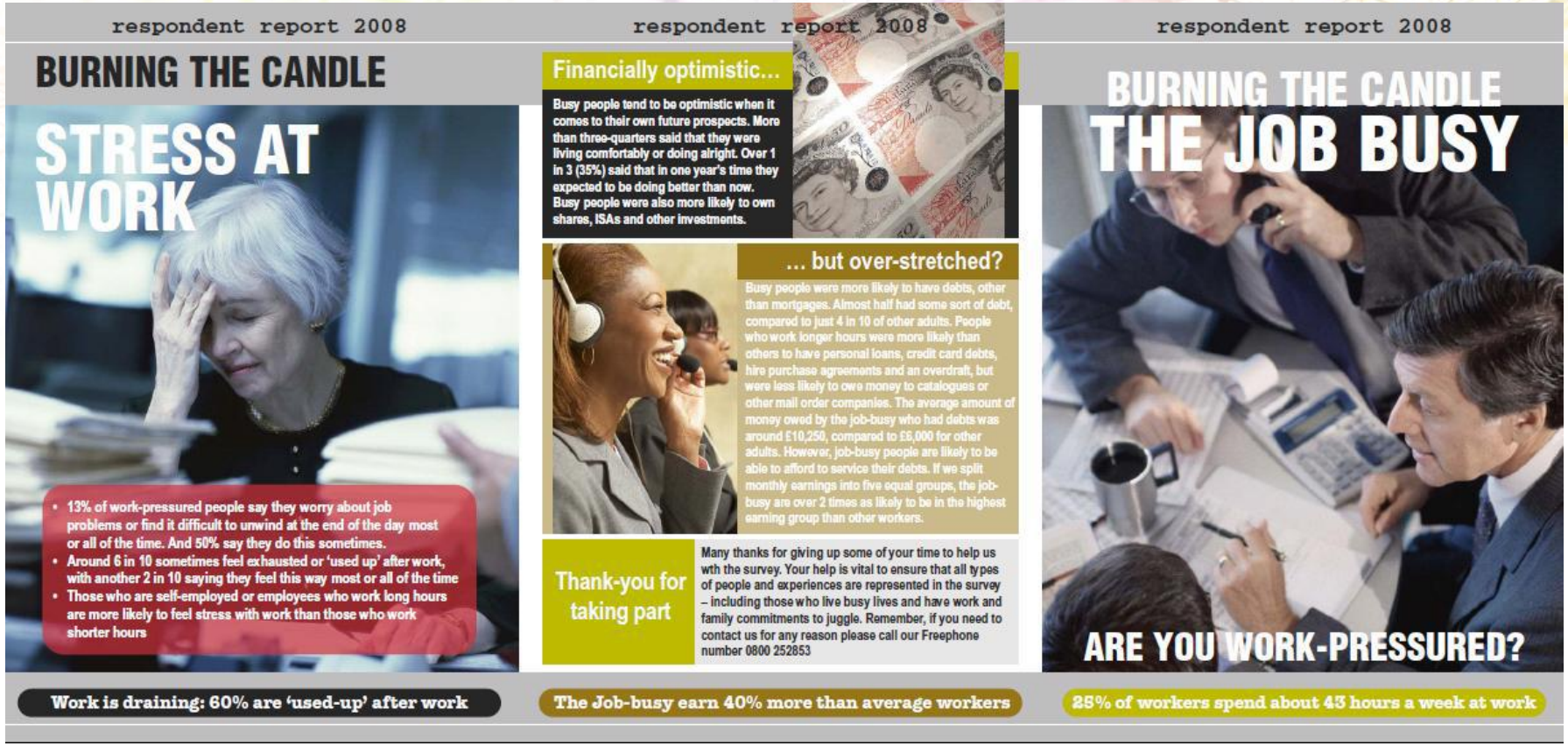
Targeted report (young)



Targeted report (employment busy)



Response Rates: Young People

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	Targeted (%)	Standard (%)
Full face-to-face interview	93.2	91.6*
Full face-to-face interview or shorter phone interview	94.1	94.2
No interview	5.9	5.8
n	843	856

Response Rates: Busy People

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	Targeted (%)	Standard (%)
Full face-to-face interview	90.3	90.1
Full face-to-face interview or shorter phone interview	97.5	96.5*
No interview	2.5	3.5*
n	1205	1157

Response Rates: Total Sample

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	Targeted (%)	Standard (%)
Full face-to-face interview	91.4	91.1
Full face-to-face interview or shorter phone interview	96.8	96.8
No interview	3.2	3.2
n	5942	5857

Note: only 25% of sample members (young or busy) received a targeted report

Example 3: Call scheduling

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Cross-sectional CATI survey in the Netherlands, n=3,000 (1,500 control, 1,500 treatment);

Subgroups based on analysis of paradata from previous rounds of the survey;

Treatments: Different call scheduling protocols

Group	Treatment
Low contact propensity	Calls in every shift, every day
Low-middle contact propensity	First 2 calls in evening; then alternately day/evening
High-middle contact propensity	Control: standard protocol
High contact propensity	Daytime shifts only; started later

Luiten A & Schouten B (2013) Tailored fieldwork design to increase representative household survey response: an experiment in the Survey of Consumer Satisfaction, *Journal of the Royal Statistical Society Series A*, 176(1), 169-189

Results: Contact propensity & representativeness

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Group	Contact rate (%)		R-indicator *	
	Control	Treatment	Control	Treatment
Low contact propensity	84.2	87.1		
Low-middle contact propensity	94.5	96.6		
High-middle contact propensity	95.7	93.7		
High contact propensity	96.9	95.3		
Total			0.77	0.85

* R-indicator based on ethnic group, sex, age, household type, urbanicity, income

Example 4: Mode and interviewer allocation

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Same study as example 1;

Sequential mixed-mode design: web/mail, then CATI

Subgroups: based on analysis of paradata from previous rounds of the survey;

Treatments: Mode of approach, allocation of interviewers with high success rates

Group	Treatment at phase 1	Treatment at phase 2
Low co-operation propensity	Mail only	High-performing interviewers
Medium co-operation propensity	Choice of mail or web	Medium-performing interviewers
High co-operation propensity	Web only	Low-performing interviewers

Luiten A & Schouten B (2013) Tailored fieldwork design to increase representative household survey response: an experiment in the Survey of Consumer Satisfaction, *Journal of the Royal Statistical Society Series A*, 176(1), 169-189

Results: Co-operation propensity

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Group	Co-operation rate (%)	
	Control	Treatment
Low co-operation propensity	62.7	65.1
Low-medium co-operation propensity	68.4	71.4
High-medium co-operation propensity	75.3	72.8
High co-operation propensity	79.2	74.7

Luiten A & Schouten B (2013) Tailored fieldwork design to increase representative household survey response: an experiment in the Survey of Consumer Satisfaction, *Journal of the Royal Statistical Society Series A*, 176(1), 169-189

Example 5: Targeted wording of letters

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Experiment with initial letters sent to sample members on a wave of a panel survey

Prime purpose of the letters is to motivate co-operation

Experiment incorporates randomisation not only of the targeting treatment but also (orthogonally) of two other design features that are potential moderators of the effect(s)

Lynn P (2016) Targeted appeals for participation in letters to panel survey members, *Public Opinion Quarterly*, 80(3): 771-782.

Study design

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- *Understanding Society* Innovation Panel, wave 6 (2013);
- N = 2,733 adults (16+) issued to field for wave 6
- Nationally-representative probability sample (Great Britain)
- Randomly allocated to two groups:
  - Standard letter (same for all sample members);
  - Targeted letter (wording varies between subgroups)
- Orthogonal experimental treatments:
  - Mode: CAPI single-mode *vs*. Web-CAPI seq. mixed mode;
  - Time in sample: 6th wave *vs*. 3rd wave

Targeted Subgroups

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Group	Definition	Frequency	Percentage
Employment-busy	Employed for at least 39 hours/week, or employed 30 to 38 hours with a commute of least 60 minutes	425	15.6
With children	Responsible for at least one child under 15 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

Variants of the Initial Letter

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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 childcare, 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."

Understanding Society

<resp_name>
<FF_Address1_fin>
<FF_Address2_fin>
<FF_Address3_fin>
<FF_Address4_fin>
<FF_Address5_fin>
<FF_PostCode_fin>

<Date>

<Serial_number><ChkL>/<FF_PID>

We can't do without you, <Salutation>.

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 your work-life balance, your position on your employment and your retirement – and because your information was so valuable, we'd like to hear from you again.

The survey is available online at the website shown below, so you can complete it at a time that's best for you. (Please use a computer, rather than a mobile device.)

https://www.understandingsociety.ac.uk/Survey

When you've reached the website, you'll be asked to enter your unique access code.

Your unique access code is: <UserID>

<If you can't complete the survey online by <Deadline>, an interviewer will visit you to conduct the survey.>

<One area of particular interest this year is fuel consumption and we would like to collect readings from your gas and electricity meters. And if you have a car, we would like to know the mileage. It may help to have these handy before the interviewer calls. Of course, you don't have to tell us this, if you don't want to.>

We rely very much on the contributions you make. So to thank you for your help, I've enclosed a <IncentiveGrp> voucher, which you can cash today at any Post Office. <And, if all members of your household complete the survey online by <Deadline> we will send each of you an additional £20 voucher.>

Your participation is entirely voluntary, but we do hope you'll be able to help. By taking part, your voice is heard. If you have any questions, please call us on **0808 168 1356** or contact us at **help.understandingsociety@natcen.ac.uk**

Many thanks,

Professor Nick Buck
Director, Understanding Society
Institute for Social and Economic Research
University of Essex

This study is being conducted in accordance with the Data Protection Act. This means your personal details will be kept strictly confidential and you and your household will not be identifiable from the data.

<LetterTr>

We need your help

Have your say online

Enter your code

Complete the survey

Here's <IncentiveGrp>

Find out more

University of Essex
University of Southampton
UKRI Economic and Social Research Council

Understanding Society

<resp_name>
<FF_Address1_fin>
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<FF_Address3_fin>
<FF_Address4_fin>
<FF_Address5_fin>
<FF_PostCode_fin>

<Date>

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Find out more

Results: Response Rates

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Sample subgroup	n	Response Rate		P
		Standard Letter %	Targeted Letter %	
Full sample	2,733	72.0	73.8	0.28
Previous wave respondents (RESP)	1,979	87.4	85.9	0.34
Previous wave non-respondents (NRESP)	754	32.4	41.4	0.01**
Time in sample: 6 waves (TIME6)	1,853	72.5	71.6	0.64
Time in sample: 3 waves (TIME3)	880	70.9	78.8	0.007**
Single-mode CAPI (CAPI)	946	71.4	71.1	0.92
Mixed mode web-CAPI (MMODE)	1,787	72.3	75.3	0.16
NRESP * CAPI	248	27.5	29.9	0.67
NRESP * MMODE	506	35.0	46.5	0.008**
TIME3 * CAPI	325	64.9	78.8	0.005**
TIME3 * MMODE	555	74.4	78.9	0.21

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

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Time in sample: 3 waves (TIME3)	880	70.9	78.8	0.007**
Single-mode CAPI (CAPI)	946	71.4	71.1	0.92
Mixed mode web-CAPI (MMODE)	1,787	72.3	75.3	0.16
NRESP * CAPI	248	27.5	29.9	0.67
NRESP * MMODE	506	35.0	46.5	0.008**
TIME3 * CAPI	325	64.9	78.8	0.005**
TIME3 * MMODE	555	74.4	78.9	0.21

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

Results: Response Rates

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

Sample subgroup	n	Response Rate		P
		Standard Letter %	Targeted Letter %	
Full sample	2,733	72.0	73.8	0.28
Previous wave respondents (RESP)	1,979	87.4	85.9	0.34
Previous wave non-respondents (NRESP)	754	32.4	41.4	0.01**
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Example 5: Findings / Discussion

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

- Response Rates increased for
  - Previous-wave non-respondents (in mixed mode)
  - Recent panel entrants (in CAPI mode)
- A targeted initial letter ***can*** increase response rates;
- Effects are uneven across survey design contexts and sample subgroups;
- Important difference: initial letter acts only as ***prenotification*** in CAPI mode, but as an ***invitation*** letter in mixed mode:
  - CAPI: no immediate action that sample member can take;
  - Mixed mode: can immediately go online and fill out the survey
- Positive effects on response rate are only observed for low-propensity subgroups, so sample composition may be improved

Example 6: Interview Length

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Can attrition be reduced by shortening the interview?

Experiment on Understanding Society IP. At wave 1, respondents were either administered:

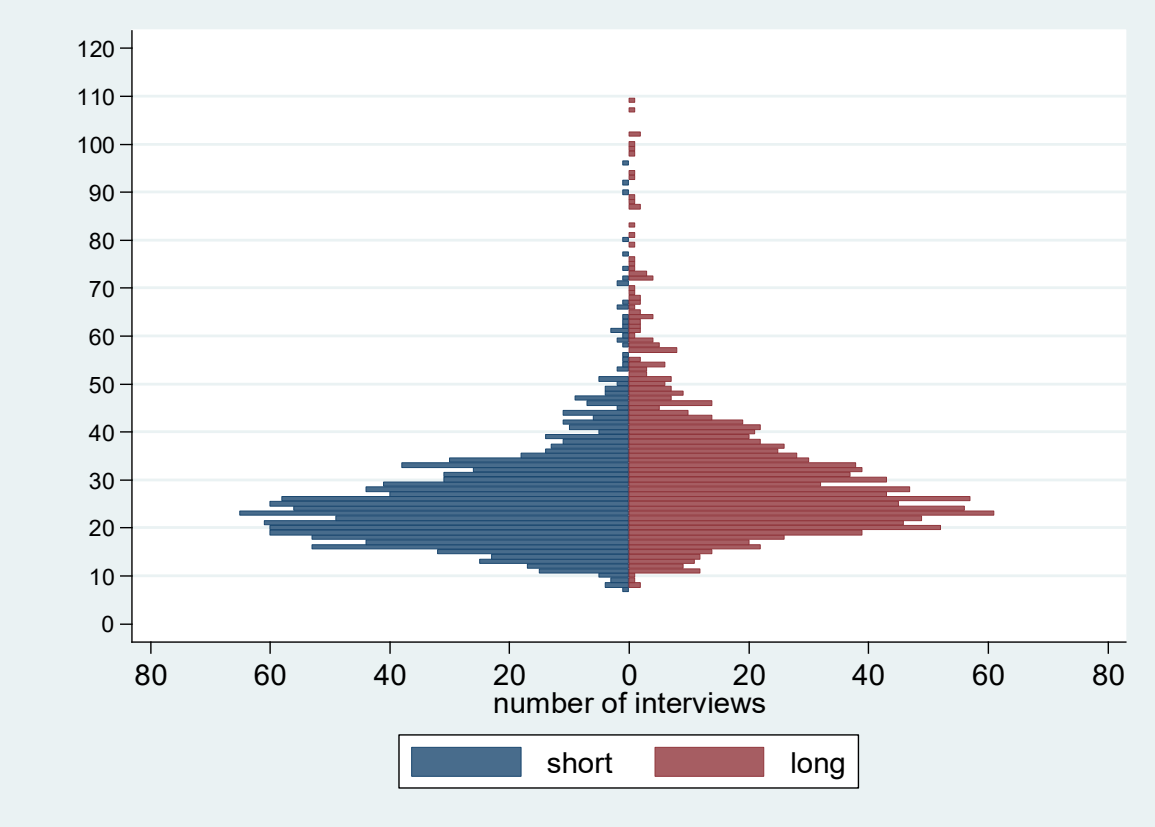
- Standard interview (mean 25 mins 50 seconds); or
- Longer interview (mean 31 mins 03) with extra modules on attitudes to the environment and lifetime fertility history

Response rates were then compared for:

- Subsequent 22-page self-completion questionnaire (requested immediately after the interview);
- Interview at wave 2, 3, and 4

Lynn P (2014) Longer interviews may not affect subsequent survey participation propensity, *Public Opinion Quarterly*, 78(2): 500-509.

Example 6: Interview Length



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Example 6: Results – Response Rates

SURVEY FUTURES
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Outcome	Treatment		*P*
	Short wave 1 interview	Long wave 1 interview	
Self-completion questionnaire	90.0% (*n*=1,205)	89.7% (*n*=1,194)	*0.78*
Wave 2 interview	70.1% (*n*=1,201)	70.5% (*n*=1,187)	*0.83*
Wave 3 interview	63.0% (*n*=1,190)	64.5% (*n*=1,157)	*0.46*
Wave 4 interview	57.8% (*n*=1,182)	57.0% (*n*=1,147)	*0.71*
Wave 5 interview	49.9% (*n*=1,171)	49.0% (*n*=1,141)	*0.67*

The completion rate for each of the five survey tasks is conditional on participation at wave 1. The wave 1 response rate was 53.7% (AAPOR RR1). Additionally, for the wave 2 to 5 interview rates, sample members known to have died prior to that wave, and therefore ineligible to be interviewed, have been excluded from the base. *P*-values are based on independent chi-square tests for each of the five survey requests

Example 7: Interviewer continuity

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SURVEY DATA COLLECTION METHODS COLLABORATION

Continuity may be helpful if respondent previously had good rapport with interviewer

Changing the interviewer may be helpful if rapport was previously bad (can attempt to measure this with interviewer assessment or respondent assessment questions)

Study on a 2-wave face-to-face survey (n=1,188) with random allocation at second wave to:

- Same interviewer
- Different interviewer of the same grade
- Different interviewer of each of two different grades

Findings:

- ➢ Benefits of continuity were modest, and not universal
- ➢ For respondents aged 60+, a change of interviewer was harmful to response, but only if the new interviewer was aged under 60

Lynn P, Kaminska O, Goldstein H (2014) Panel attrition: How important is interviewer continuity, *Journal of Official Statistics*, 30(3): 443-457.

Example 8: SMS Reminders

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

Experiment on six *Understanding Society* monthly samples, in April-September 2020.

Fieldwork had two phases: 5 weeks web-only, then CATI began (this was during COVID-19)

Random allocation:

Table 1. Contact Strategy for the Experimental Groups.

Experimental group	Survey invite (week 0)	Reminder (week 1)	Reminder (week 2)	Reminder (week 3)	Reminder (week 4)
Control	Letter + email	Letter + email	Email	Letter + email	Email
Invite	Letter + email + **SMS**	Letter + email	Email	Letter + email	Email
Reminders	Letter + email	Letter + email + **SMS**	Email	Letter + email + **SMS**	Email
Invite & reminders	Letter + email + **SMS**	Letter + email + **SMS**	Email	Letter + email + **SMS**	Email

Cabrera Alvarez, P. & Lynn, P. (2023) 'Text messages to incentivise response in a web-first sequential mixed-mode survey.' *Social Science Computer Review*, 42(3): 832-851.

Cabrera Alvarez, P. & Lynn, P. (2024) 'Text messages to facilitate the transition to web-first sequential mixed-mode designs in longitudinal surveys.' *Journal of Survey Statistics and Methodology*, 12(3): 651-673

Example 8: SMS Reminders - Findings

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

Modest increase in response during web phase; no increase overall;

Some heterogeneous effects: more effective for

- irregular respondents,
- youngest age groups,
- those who had not previously supplied an email or postal address
- those with university-level education

Modest effect on propensity to complete the questionnaire on a smartphone rather than tablet or PC

Example 9: Targeted use of modes

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

Understanding Society moved at wave 8 (2016) from CAPI-only to a web-CAPI mixed-mode design (with a very small amount of CATI too).

At that time, it seemed that some respondents would welcome a move to web, while for others this could be a barrier or an easy excuse to drop out. We decided to introduce mixed-mode in a targeted way:

- Web-first for those most likely to complete by web (and not more likely to drop out if offered web);
- CAPI-first for those least likely to complete by web (and/or more likely to drop out if offered web).

Targeting relied on modelling based on an experiment carried out two years previously on the Innovation Panel.

Lynn, P. (2017) 'Pushing household panel survey participants from CAPI to web.' *International Workshop on Household Survey Nonresponse,* Utrecht, September. Available at https://nonresponse.cjm.si/

Example 9: The Prior Experiment

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

At wave 5 of the Innovation Panel:

- A random 2/3 of sample households were administered sequential web-CAPI mixed-mode protocol;
- The other 1/3 were administered a CAPI-only protocol (at waves 6 and 7 this became a CAPI-first protocol).

Response rates:

	Original Sample								
	Total			Wave 4 responding			Wave 4 nonresponding		
	F2F	MM	P	F2F	MM	P	F2F	MM	*P*
Waves 5–7 response									
3 full interviews	46.5	47.0	0.86	61.0	61.9	0.81	8.4	13.4	0.11
2 or 1 full interviews	31.4	30.8	0.84	32.2	29.4	0.41	25.2	31.7	0.25
0 full interviews	22.1	22.2	0.97	6.8	8.7	0.39	66.5	54.9	**0.09**
Wave 5 full interview	68.6	64.4	0.16	85.2	80.3	0.12	20.6	26.3	0.21
Wave 6 full interview	67.3	68.6	0.65	84.1	83.5	0.79	20.0	32.9	**0.06**
Wave 7 full interview	55.2	57.9	0.37	68.7	71.3	0.46	18.7	28.0	**0.08**
N	630	1,268		454	858		155	350	

Bianchi, A., Biffignandi, S., Lynn, P. (2017) 'Web-face-to-face mixed-mode design in a longitudinal survey: Effects on participation rates, sample composition and costs, *Journal of Official Statistics*, 33(2), 385-408.

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Example 9: Targeted use of modes

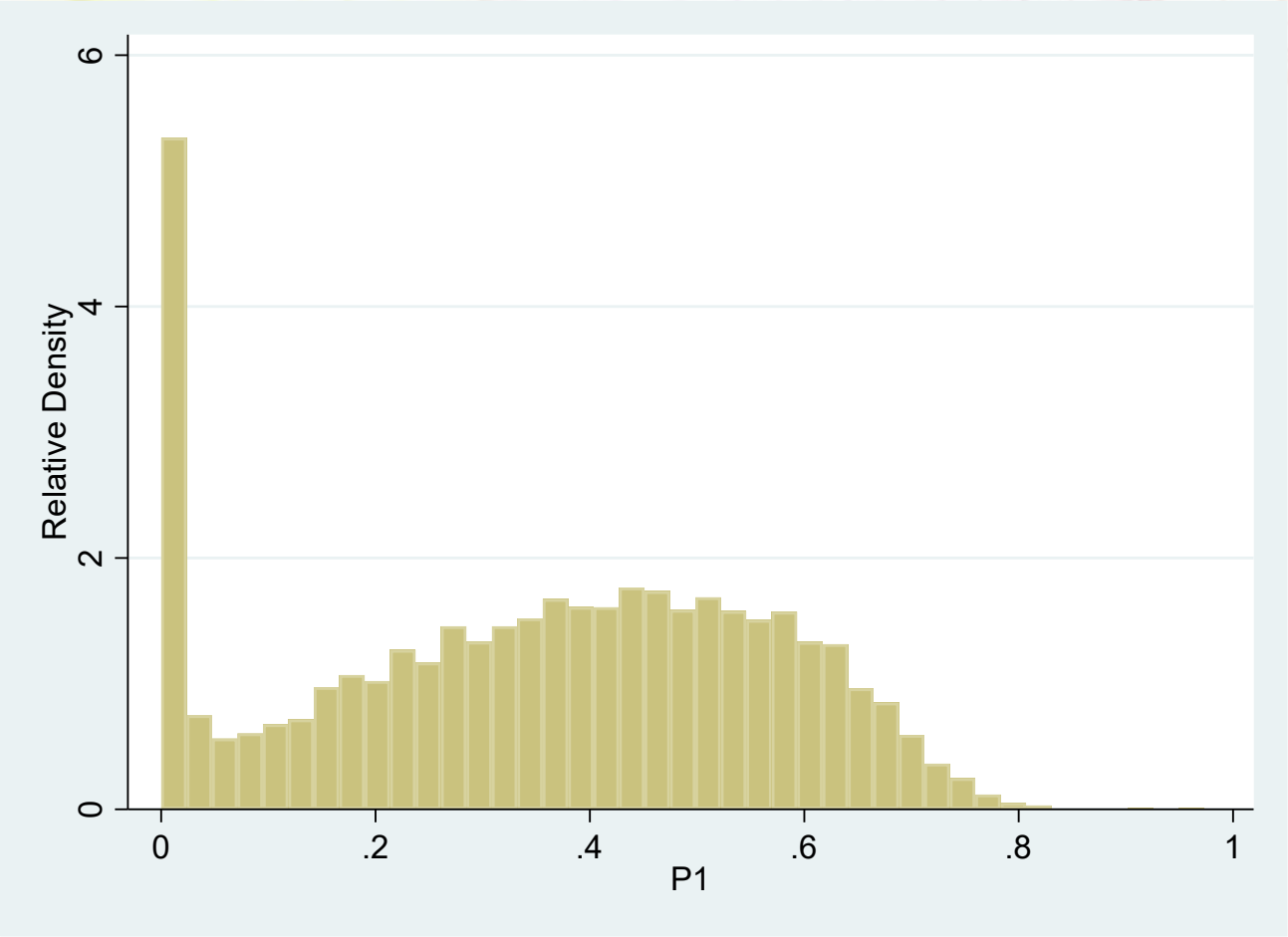
SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

The Innovation Panel experimental sample was used to build statistical models to predict:

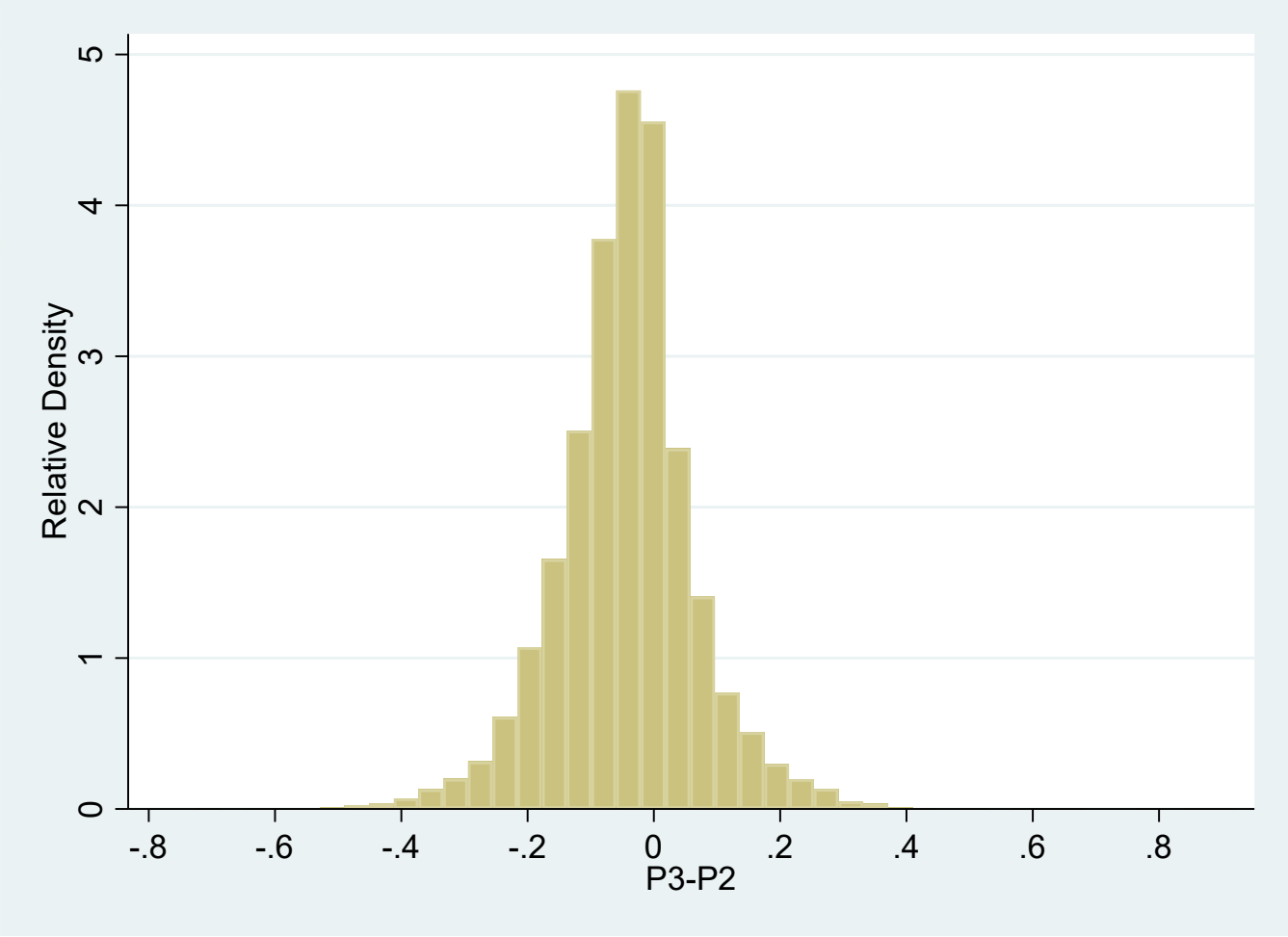
- The probability of a *household* completing all survey instruments online (*P1*);
- The probability of an *individual* completing the individual questionnaire with the CAPI-only design (*P2*);
- The probability of an *individual* completing the individual questionnaire with the sequential mixed-mode design (*P3*).

For each *household* in the wave 8 sample, we then compute the model-based estimate of a) *P1* and b) Min(*P3-P2*)

Distribution of P1



Distribution of P3-P2



Example 9: Targeted design

SURVEY FUTURES
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Wave 7 non-responding hholds (11.2%) → Web-first;

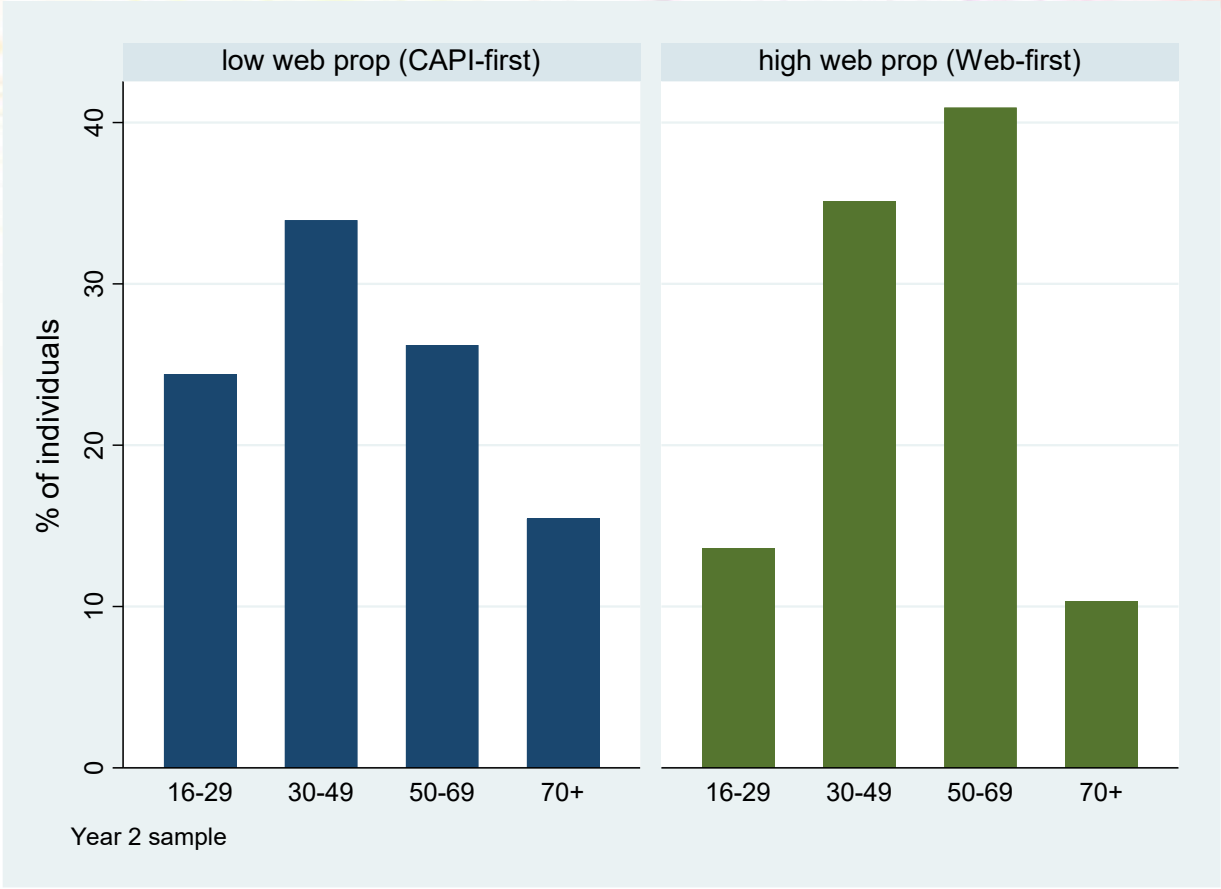
Remaining hholds split into targeting groups based on the modelled values:

➢ "High web propensity" stratum: P1 > 0.416 & P3-P2 > -0.10

"low-propensity" hholds (48.4%) → CAPI-first;

"high-propensity" hholds (40.4%) → web-first

Age



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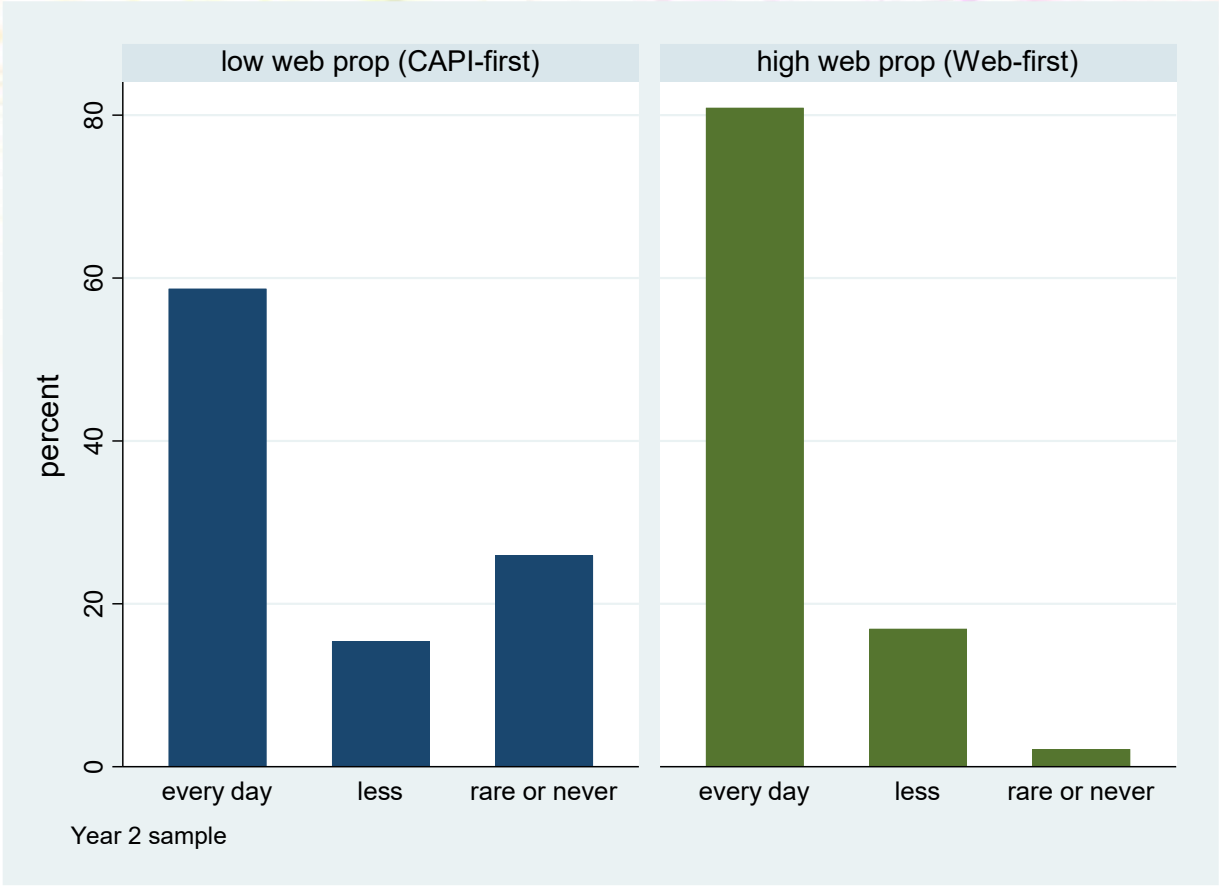
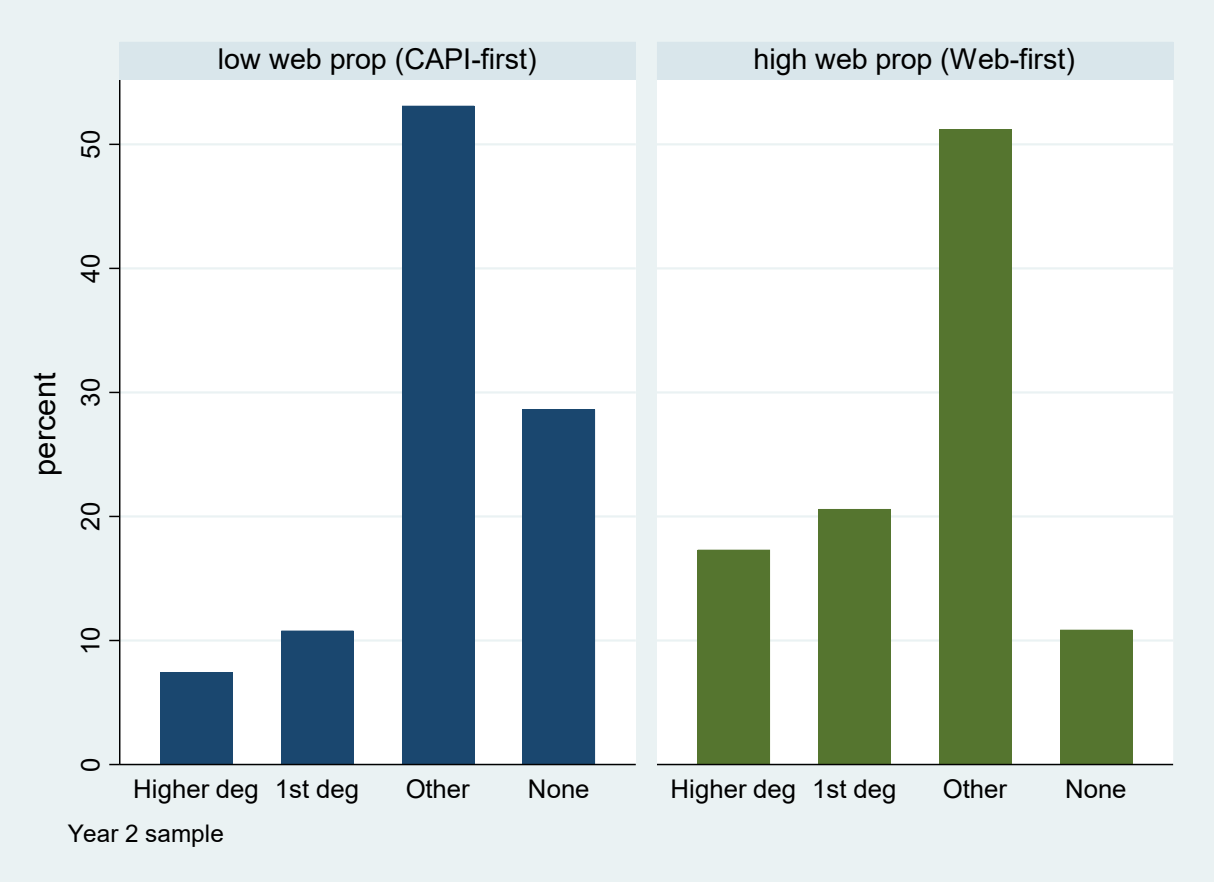
Frequency of web use



Qualifications



Example 10: Increasing incentive levels

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SURVEY DATA COLLECTION METHODS COLLABORATION

Experiment at wave 12 of *Understanding Society.*

Early bird incentive (for responding online in first five weeks):

- £10 (as at previous waves)
- £20

Two sample groups:

- Previously web-first (so had been offered the EBI at previous waves)
- Previously CAPI-first (no previous experience of an EBI)

Example 10: Findings

Web response rate increased with the higher incentive for the previously web-first group, but not for the previously CAPI-first group:

	Previous wave web-first						Previous wave CAPI-only							
	Control (£10)		HEBI[1] (£20)		Dif		Control (£10)		HEBI[1] (£20)		Dif		Second dif	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Web response rate	60.8	1.4	65.7	1.4	4.9**	2.0	60.2	3.1	60.9	3.4	0.7	4.4	4.2	4.9
Final response rate	77.1	1.3	79.1	1.2	2.1	1.8	76.3	2.8	79.3	2.7	3.0	3.9	–1.0	4.3
n	2571		2540				555		518					

Web response rate refers to the panel members responding online in the first 5 weeks of the fieldwork, excluding those who responded online after the beginning of the CATI phase of the fieldwork

[1]Higher Early Bird Incentive

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Effect particularly strong for:

Age 16-29	+ 10.4 pp
Ethnic minorities	+ 11.6 pp
Previous wave NRs in responding HH	+ 9.5 pp
Lowest income quartile	+ 10.2 pp
Males	+ 7.2 pp

Cabrera Alvarez, P., Lynn, P. (2025) 'An increase matters, not the actual value: early bird incentives in longitudinal surveys.' *Survey Research Methods* 19(1), 13-24.

3. Summary

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SURVEY DATA COLLECTION METHODS COLLABORATION

Targeted design features are ***feasible*** and can be ***effective***;

Options for targeting are more extensive with an ***informative sampling frame*** or a ***longitudinal survey***;

A typical choice is a ***cost-neutral*** targeted design that aims to ***reduce nonresponse error***, for example:

- Redistributing resources (best interviewers, extra mailings, incentives, etc) to low response propensity cases;
- Minimal-cost methods (alternative messaging or visual design)

Alternative choices could include:

- A ***lower-cost*** targeted design that ***maintains*** nonresponse error;
- A ***higher-cost*** targeted design that ***substantially reduces*** nonresponse error.

3. Summary, continued

SURVEY FUTURES
SURVEY DATA COLLECTION METHODS COLLABORATION

Choice of subgroups to target:

- Groups should discriminate between low and high ***response propensities***;
- ***And*** should also discriminate in terms of ***target survey variables***.

$$E(y_R - Y_T) = \frac{Cov(y_i, \rho_i)}{\bar{\rho}}$$

Choice of design features to target:

- Features that are particularly, or only, effective for certain subgroups;
- Resource-intensive features that can be restricted to key subgroups.

Recent review covers:

- Overview of evaluations of the effectiveness of targeted procedures to tackle non-response;
- Overview of current practice regarding the use of targeted procedure on UK social surveys

Sladka V & Lynn P (2025) 'Targeted procedures for tackling survey non-response: evidence review', *Survey Futures Report* no. 5, at www.surveyfutures.net/reports.

SURVEY FUTURES

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Thank you!

https://surveyfutures.net/

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NCRM National Centre for Research Methods

Office for National Statistics

UCL

Warwick The University of Warwick

Manchester 1824 The University of Manchester

City University of London Est 1894

National Centre for Social Research

LSE The London School of Economics and Political Science

Ulster University

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