



SURVEY FUTURES

SURVEY DATA COLLECTION
METHODS COLLABORATION

Methods for within-household selection in self-administered push-to-web surveys

Survey Futures Conference, 17 June 2026

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Background

Context:

- Address-based samples > Need to (randomly) select within households
- Face-to-face: Range of methods: Kish, Rizzo, Le, Next/ Last birthday, CAPI randomisation
- Self-completion survey: How to do this in absence of an interviewer?

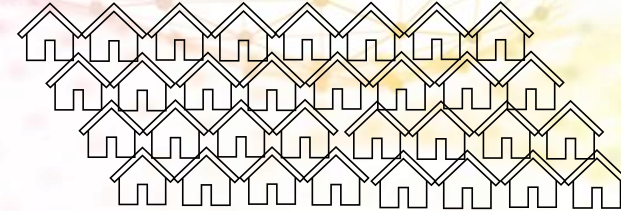
Research Question:

- Which method is best, and what does this depend on?

Considerations:

- Efficacy (in practice, not just in principle)
- Complexity, intrusiveness and burden for household
- Cost (efficiency)
- Web + Paper introduces additional constraints

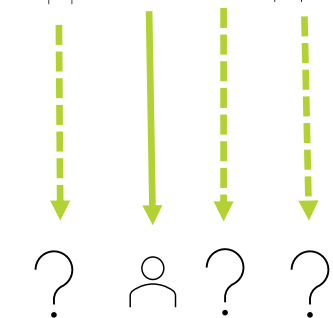
Sample frame of addresses



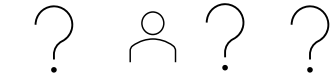
Randomly sampled addresses



Household members at each address



Who should complete the questionnaire?



Methods

- Evidence review:
 - Literature review:
118 papers/reports of self-completion surveys, using an address frame, and reporting the within-household selection method used
 - Survey practice review:
145 UK surveys identified, carried out 2019-2024, SC or with substantial SC component, using an address frame
- Large-scale field experiment:
Great Britain, unclustered sample, next-birthday vs Any two, $n = 5,000+$

Methods

Type of Method	Randomness of selection	Cost per complete	Complexity/ intrusiveness	Household burden	Deff _c	Deff _p	Risk/extent of incorrect selections	Response rate
Random 1	Green	Red	Red	Green	Green	Red	Yellow	Red
Birthday	Green, Yellow	Red	Yellow	Green	Green	Red	Red	Yellow
All	Green	Green	Green	Red	Red	Green	Red	Red
≤ 4	Green, Red	Green	Green	Red	Red	Green	Red	Green
≤ 2	Green, Red	Green	Green	Yellow	Yellow	Yellow	Red	Green

Evidence Review findings I

- Methods that select more than one person per household:
 - are the most common in UK
 - have a lower cost per interview, but higher deff_c
 - may or may not be more cost-effective, depending on homogeneity w.r.t. key survey measures
- With birthday methods:
 - the respondent is not the person who should have been selected in 30% - 50% of households containing two or more eligible people, and therefore 20% - 33% of households overall;
 - these proportions can be reduced by including a verification question early in the questionnaire, but scope for reduction is limited as most are due to preference rather than misunderstanding;
- Differences between methods in demographic sample composition:
 - weak and inconsistent evidence
 - UK surveys do not consistently report sample composition, so evidence is limited

Evidence Review findings II

- Response rates:
 - overall, only modest differences between methods
 - lowest with 'random one' and 'all'
 - lower as n increases with 'any n'
- Estimation of response rates:
 - for unbiased estimation, population data on the distribution of household size must be incorporated if 2+ persons per household are selected
 - UK practice varies in which data are used for this
 - UK surveys do not always use AAPOR standard response rate definitions nor do they always state the basis upon which response rates have been calculated
- Fraudulent completion (FC):
 - offering a conditional incentive could encourage fraudulent response
 - evidence on the existence and extent of FC in self-completion surveys using within-household selection is mixed
 - methods that select only one person per household limit the attractiveness and potential influence of FC;
 - to minimize FC, UK surveys that select multiple respondents typically limit the number of paper questionnaires or logins initially provided, though protocols vary

Our Experiment

- Self-completion web and paper survey in Great Britain
- Randomly allocated to either the Next-birthday (n=3008) or Any two (n=2148)
- Used a reduced version of the ESS questionnaire (20-25 minutes).
- Invitation + 3 reminders by post
- Sequential design – paper questionnaire sent to nonrespondents at the 2nd reminder
- £5 cash unconditional incentive, £10 conditional voucher
- Use of university branding on letters and envelopes (City St Georges, University of Essex)
- Letter-style experiment: “Tailored Design Method” v “Respondent-Centred Design”

Experiment: Results I

Response Rates

Selection method	Household response ¹ (%)	Individual response ¹ (%)	Base (addresses)
Next birthday	36.9	36.9**	3,008
Any two	36.8	32.6	2,148

¹ AAPOR RR4

Experiment: Results II

Response Rates, by letter type

Individual response ¹	Next birthday (%)	Base (addresses)	Any two (%)	Base (addresses)
TDM letter	39.5**	1504	35.6**	1074
RCS letter	34.3	1504	29.6	1074

¹ AAPOR RR4



CITY OF ST GEORGE'S University of Essex

The Residents
Address line 1
Address line 2
Address line 3 23 May 2025

Dear Residents,

I am writing to ask for your help.

Your household has been chosen randomly to take part in the Living in Britain survey. This survey asks for your views on such topics as the area where you live, how well the government is doing its job, and about the environment. These and other important questions are being asked in England, Wales, and Scotland to understand differences and similarities.

We are only contacting a small number of randomly selected addresses in Britain. This sample is enough to represent the entire country accurately, but to do that it is important that a specific person at each selected address fills it in. We ask that the adult in your household (aged 18 years or older) who has the next birthday completes the questionnaire.

To thank you for your help, we have enclosed a small token of appreciation (£5). Because of the importance of this survey, when the person with the next birthday completes the survey we will send them a voucher for £10 as a further token of our gratitude.

To participate in the survey, the person 18 years or older with the next birthday should visit this website (by typing the URL or scanning the QR code) and enter the unique access code below:

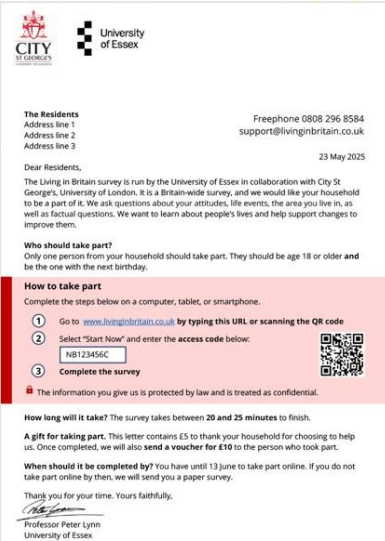
www.livinginbritain.co.uk
Access Code: NA123456D

We hope it will be possible to complete the questionnaire online. However, if not, we will send a paper questionnaire to your address in about three weeks.

The questionnaire should take most people between 20 and 25 minutes to complete and participation is voluntary. All responses will be treated in the strictest confidence and in accordance with the UK's General Data Protection Regulation (GDPR). Additional information about the survey and how we handle your data is included with this letter.

We hope the person who completes the questionnaire for your household finds it enjoyable. If you have any questions, please contact her. Know on freephone 0800 296 8584 or via support@livinginbritain.co.uk.

Yours sincerely,
Professor Peter Lynn
University of Essex



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23 May 2025

Dear Residents,

The Living in Britain survey is run by the University of Essex in collaboration with City of St George's, University of London. It is a Britain-wide survey, and we would like your household to be a part of it. We ask questions about your attitudes, life events, the area you live in, as well as factual questions. We want to learn about people's lives and help support changes to improve them.

Who should take part?
Only one person from your household should take part. They should be age 18 or older and be the one with the next birthday.

How to take part
Complete the steps below on a computer, tablet, or smartphone.

- Go to www.livinginbritain.co.uk by typing this URL or scanning the QR code
- Select "Start Now" and enter the access code below:
NB123456C
- Complete the survey

The information you give us is protected by law and is treated as confidential.

How long will it take? The survey takes between 20 and 25 minutes to finish.

A gift for taking part. This letter contains £5 to thank your household for choosing to help us. Once completed, we will also send a voucher for £10 to the person who took part.

When should it be completed by? You have until 13 June to take part online. If you do not take part online by then, we will send you a paper survey.

Thank you for your time. Yours faithfully,
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University of Essex

Experiment: Results III

Mode of Completion

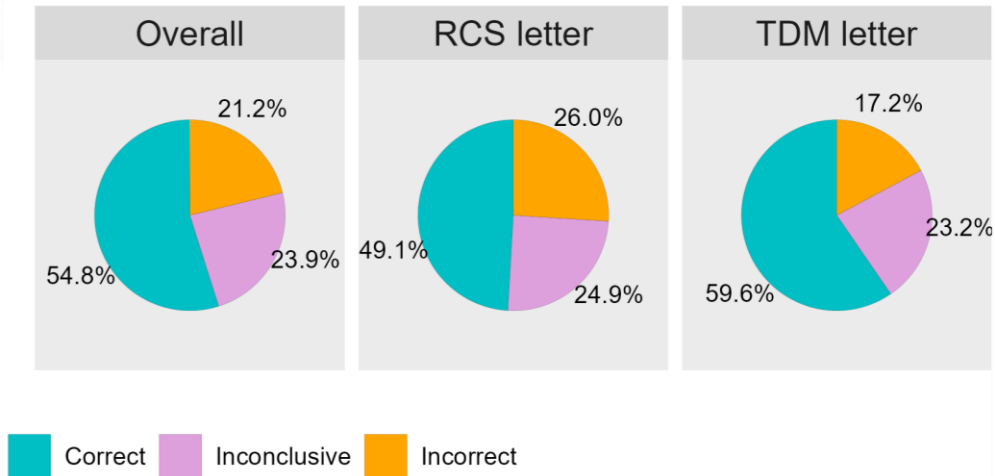
	Next birthday (%)	Any two (%)	TDM letter (%)	RCS letter (%)
Web	78.8	77.5	75.6	81.0
Paper	21.2	22.5	24.4**	19.0
Base (responses)	1,056	1,096	1,166	986

Experiment: Results IV

Selection accuracy (next birthday) and responses per household (any two)

Next birthday

Proportion of >1 adult 18+ households



Any two	Average number of responses per household	Percentage of multi-adult households with >1 response
Overall	1.46	64.3%
TDM letter	1.50	68.5%
RCS letter	1.42	59.2%

Experiment: Results V

Costs vis-à-vis design effects

Variable costs per effective usable questionnaire

Within-household selection method	Total number of addresses	DEFF	NEFF	Unconditional incentives	Conditional incentives	Print, Pack & Postage	Cost per effective interview
Next-birthday	3,008	1.176	898	£16.75	£9.81	£17.58	£44.14
Any two	2,148	1.295	846	£12.70	£11.57	£15.42	£39.68

Experiment: Results VI

Sample composition/estimates

- Sex, age, citizenship, education:
 - Selection methods: no significant differences
 - Letter types: better age distribution with TDM
- Attitudinal questions:
 - Selection methods: no significant differences
 - Letter types: no significant differences

→ Moderation by letter version

- Any two & RCS letter version had a 2pt higher absolute average deviation from census estimates than the other three groups
- Any two & RCS letter version had significantly different mean scores for some attitudinal questions compared to the other groups

Overall Conclusions

- “Any 2” appears currently the most effective method in the UK:
 - About 11% less costly than “next birthday” for fixed effective sample size
 - Similar proportion of non-random selections
 - Similar (modest) sample composition biases
- Other methods:
 - “Any 2/3/4”, “All”, and last birthday are also all feasible
 - Kish, Rizzo, Le, Random 1 are probably not feasible (especially if paper qres included)
- The future:
 - There remains scope to improve methods (e.g. focus on design of invitations and reminders seems promising)
 - Cost-effectiveness depends on household size distribution (liable to change; differs between countries)

Thank you!



Questions and comments.

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www.surveyfutures.net



Annex – Additional slides

2nd Experiment: Invitation letter design (2)



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Thank you for your time. Yours faithfully,

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We are only contacting a small number of randomly selected addresses in Britain. This sample is enough to represent the entire country accurately, but to do that it is important that a specific person at each selected address fills it in. We ask that the **adult in your household (aged 18 years or older) who has the next birthday** completes the questionnaire.

To thank you for your help, we have enclosed a small token of appreciation (£5). Because of the importance of this survey, when the person with the next birthday completes the survey we will send them a voucher for £10 as a further token of our gratitude.

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Access Code: NA123456D



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The questionnaire should take most people between 20 and 25 minutes to complete and participation is voluntary. All responses will be treated in the strictest confidence and in accordance with the UK's General Data Protection Regulation (GDPR). Additional information about the survey and how we handle your data is included with this letter.

We hope the person who completes the questionnaire for your household finds it enjoyable. If you have any questions, please contact Ivor Knox on freephone 0808 296 8584 or via support@livinginbritain.co.uk.

Yours sincerely,

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University of Essex



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Who should take part?

Up to two adults in your household should take part. They should be age 18 or older.

How to take part

Complete the steps below on a computer, tablet, or smartphone.

- 1 Go to www.livinginbritain.co.uk by typing this URL or scanning the QR code
- 2 Select "Start Now" and enter one of the two access codes below:
- 3 Complete the survey



The information you give us is protected by law and is treated as confidential.

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A gift for taking part. This letter contains £5 to thank your household for choosing to help us. Once completed, we will also send a voucher for £10 to each person who took part.

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www.livinginbritain.co.uk

Access Code for 1st adult: TA123456A

Access Code for 2nd adult: TA123456B



We hope it will be possible to complete the questionnaire online. However, if not, we will send a paper questionnaire to your address in about three weeks.

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2nd Experiment: Invitation letter design

The within-household selection experiment was full crossed with an experiment on the design of invitation and reminder letters

‘TDM’ letter

- Originally designed in collaboration with Don Dillman for an ESS experiment in 2020
- Based in the principles of social exchange theory as explained in *The Tailored Design Method* (Dillman, Smyth, & Christian, 2014)
- Places a focus on the scientific/random nature of selection, the topics in the beginning of the survey, why participating is important, among other aspects
- Designed to look like an official letter or memo from a university/official sponsor

‘RCS’ letter

- Originally designed in collaboration with Laura Wilson as part of her role as a special advisor for the ESS’s mode switch to self-completion
- Based in the principles of respondent centred design as explained in *Respondent Centred Surveys: Stop, Listen, and then Design* (Wilson & Dickinson, 2021)
- Places a focus on accessibility by highlighting important information via subheaders and colour coding
- Uses relatively simpler language to achieve a lower grade level of readability

Sample selection bias: any-two

- Selection is completely random ($P=1$) in all 1- and 2-person households (72% of UK households)
- 3-person household. Suppose A and B choose to respond. Random selections of 2 could have been [AB], [AC], [BC]
- So, A and B both correct with $P=1/3$; one respondent correct with $P=2/3$
- Overall proportion of correct selections in 3-person households: $(2/2)*(1/3) + (1/2)*(2/3) = 2/3$
- More generally, proportion correct in i -person household is $\left[\frac{(i-1)}{\sum_{i=1}^{i-1} i} \right]$ for $i > 1$
- If the proportion of households with i persons is p_i , then the overall proportion of correct selections in a sample is: $p = p_1 + \sum_{i=2}^{inf} p_i \left[\frac{(i-1)}{\sum_{i=1}^{i-1} i} \right]$
- For E&W, age 18+, $\{p_i\} = 0.345, 0.374, 0.141, 0.092, 0.030, 0.011, 0.005, 0.002, \dots$
- So, **$p = 0.88$**