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Within-household selection for push-to-web surveys

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1 Introduction

Random selection of one respondent at each address is not straightforward for push-to-web surveys that use address-based sampling. As the sampling frame contains no information about who lives at the sampled address, the letter needs to include an instruction on who in the household is selected to take part in the survey. If only one adult is being selected, then a prescribed method for selecting the one adult is crucial as most households (about 65%) consist of more than one adult and self-selection is likely to bias the survey results.

2 Previous or next birthday method

A commonly-used approach for self-completion surveys is the previous or next birthday method which will produce a quasi-random sample of household members. However, experiments carried out on the Community Life Survey and the European Social Survey have shown that about 20% to 25% of respondents in online survey designs are not the target respondent (Humphrey & Park, 2014; Williams, 2015). This equates to about one in three households which contain more than one adult not carrying out the selection correctly. It is very likely that the importance of following the instructions is not understood or accepted by many people, particularly when household members other than the target respondent are ready and willing to take part.

3 Any adult

Given that non-compliance with written instructions is relatively high, an alternative approach is to not provide instructions in the letter and to allow any adult to complete the questionnaire. This may not be an issue when asking questions about the household which can be answered fully and accurately by any household member (e.g. number of rooms functioning as a bedroom). However, for most National Survey estimates, there is a risk of bias as the respondents who choose to participate will not fully represent the wider population.

4 All adults

Another approach is to ask all adults in the household to take part in the survey. This approach has been used on a small number of push-to-web surveys, albeit with a cap on four participating household members for practical reasons (e.g. maximum number of unique login details that can be provided in the letter). This removes the need for any selection of adults in nearly all households, with only 1% of households having more than four adults resident. However, surveys relying on mail contact tend to use conditional incentives to achieve an acceptable response rate and this approach has the potential for fraud whereby additional adults are fabricated in order to get the incentives. Some development work carried out in advance of the first year of the Active Lives Survey found that 4% of addresses filled in the survey for more adults than living at the address, and the average size of participating households was higher than would be expected; 2.19 compared to an average household size of around 1.8

(unpublished). This approach may also encourage more proxy responses when other household members are not immediately available or hesitant to take part.

5   Up-to-two adults

With the "up to two adults" approach, respondent selection is only required among those households that contain more than two adults; i.e. about 15% of households compared with 65% of households if only one adult is selected per household. The next or previous birthday approach could be used to select the two adults. Or alternatively, any two adults in the household could complete the questionnaire. Although the "any two" approach will introduce some risk of self-selection bias, this is unlikely to have any notable impact on representativeness because 93% of the sample would be the adults that would have been selected using the next/previous birthday method and we know that about one in three would not have followed the next/previous birthday instruction correctly anyway.

There is still some scope for fraud when the "up to two" adults approach is coupled with a conditional incentive, but it is reduced because it is only possible for single adult households to fabricate an extra adult for an additional incentive and the monetary reward is less tempting than when it is possible to fabricate up to three additional adults. There will be a small loss in precision due to clustering but any loss in precision is in theory likely to be more than outweighed by the gain in precision from having less-variable selection probabilities. Furthermore, the clustering effect within households will be almost negligible for those estimates reported by sex because the majority of households with more than one adult comprise of one male and one female adult.

6   Two-step approach

Typically, the invitation letter will state how many adults can complete a questionnaire, and unique login details are provided for each potential respondent. There is some concern that this instruction and multiple login details are not easy to comprehend, can be off-putting, and add clutter to the letter which distracts from the motivation or reason for taking part.

An alternative approach is to provide a single set of login details and a request for any adult in the household to go online and complete the questionnaire. The questionnaire will include one or more questions to ascertain whether there are more eligible adults in the household and, if so, additional adult(s) are invited to also complete a questionnaire – either all, any adult(s) or randomly selected adult(s). The results from an experiment with the two-step approach on the Fundamental Rights Survey Pilot suggest that this may increase household-level response but the results were inconclusive for within household response rates (Cleary et al, 2017). Lynn (2020) found no difference in response rates but did find that the two-step approach reduced the proportion of households with four or more adults which is consistent with the hypothesis that the one-step approach to getting multiple adults to take part coupled with incentives may encourage fraudulent recording of extra household members.

Table 1	A summary of within household selection methods						
Method	**Examples**	**Random selection**	**Ease of instruction**	**Compliance**	**Risk of selection bias**	**Clustering**	**Other issues**
Kish	BSA	random selection	difficult to explain	1 in 4 non-compliant	Yes, some	No	Will a complicated instruction reduce response?
Last/Next birthday	BSA, CLS, BES	quasi-random	easy instruction	1 in 4 non-compliant	Yes, some	No	Some recommend alternating last and next birthday.
Any eligible adult	Flood Insurance Study	self-selection	easy instruction	n/a	Yes	No	May be acceptable for some household surveys.
All eligible adults	CLS, SoL	n/a	easy instruction	n/a	No	Yes	"Extra" adults fabricated when coupled with a conditional incentive.
Up to 2 eligible adults	FLS, ALS	self-selection	not too difficult	n/a	Negligible	Yes	Small loss of precision due to clustering but likely to be more than outweighed by the gain in precision from having less variable weights.

BSA = British Social Attitudes Survey (NatCen)

CLS = Community Life Survey (Department for Digital, Culture, Media & Sport)

BES = British Election Study (Economic and Social Research Association)

SoL = Survey of Londoners (the Mayor of London)

FLS = Financial Lives Survey (Financial Conduct Authority)

ALS = Active Lives Survey (Sport England)

Table 2	A summary of two-step approach to selecting respondents						
2-step approaches	**Examples**	**Random selection**	**Ease of instruction**	**Compliance**	**Risk of selection bias**	**Clustering**	**Other issues**
1. Any adult to go online or phone up 2. Random selection of one adult online or by phone		random selection	Easy instruction in letter but selection of other adult online or by phone could be problematic	If second step is online, then there may be some non-compliance (no evidence to support this)	If second step is online, then there may be some self-selection bias (no evidence to support this)	No	
1. Any adult to go online or phone up 2. Random selection of one adult online or by phone	Fundamental Rights Survey Pilot	self-selection with random selection of second adult	Easy instruction	If second step is online, then there may be some non-compliance (no evidence to support this)	If second step is online, then there may be some self-selection bias (no evidence to support this)	Yes	Small loss of precision due to clustering but likely to be more than outweighed by the gain in precision from having less variable weights.

Reference List

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