

Achieving efficiency and representativeness through adaptive and responsive survey designs



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Background



- The Office for National Statistics in the UK is responsible for delivering many of the largest social surveys run across Great Britain.
 - One of these is the UK Labour Force Survey;
 - Wave 2+ data collection is collected over the phone.
 - We have a big interviewing community - 700 face-to-face interviewers, 200 telephone interviewers
 - Responsive and Adaptive Design
 - *a data and evidence driven strategic data collection strategy which can target a variety of data collection issues relating to response rates, efficiency, or other targeted outcome whilst monitoring errors of survey estimates (Chun, Heeringa and Schouten, 2018).*
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2018 Telephone Operations Adaptive Design

Focus of the adaptive design

Week 1: Cases that haven't been tried since last wave

Week 2: Cases that have already been tried for one week

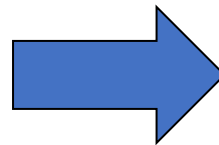
Week 3: Cases that have already been tried for two weeks

Methodology

Aim: ✓ To achieve the same response rate more efficiently

In developing a model which predicts how likely a household is to respond, we had to consider:

- Statistical modelling methods
- Operational concerns (e.g. which variables can be rotated into next wave)



1. Tenure
2. Age group of HRP
3. Parental status of HRP
4. Gender of HRP
5. Work status of HRP
6. Ethnicity of HRP
7. Number of days tried
8. Total calls this wave
9. Number of times slots tried

How process would look like

WEEK 1

Sample is loaded into TOCS* At end of Week 1...

Normal prioritisation rules are applied to sample for week 1

Left with cases not yet completed in Week 1

BETWEEN WEEK 1 AND 2

Select the in-scope cases (only cases which have not yet been contacted at end of Week 1) Calculate propensity to respond for each in-scope case based on pre-defined formula Allocate the in-scope cases to the predefined domains Prioritise cases within each domain Split cases into quartiles based on their prioritisation Split quartiles 1-3 and quartile 4 into two separate groups

In scope

Propensities to respond for each case

DOMAIN 1

DOMAIN 2

DOMAIN 3

DOMAIN 4

DOMAIN 5

DOMAIN 1

DOMAIN 2

DOMAIN 3

DOMAIN 4

DOMAIN 5

DOMAIN 1

DOMAIN 2

DOMAIN 3

DOMAIN 4

DOMAIN 5

Cases in quartiles 1, 2 and 3 for each domain

Cases in quartile 4 for each domain

Out of scope

Most likely within domain

Least likely within domain

Q1 Q2 Q3 Q4

RULES FOR WEEK 2

Cases in quartiles 1-3 will be treated with normal prioritisation rules in TOCS Quartile 4 will not be called and autocoded in week 3

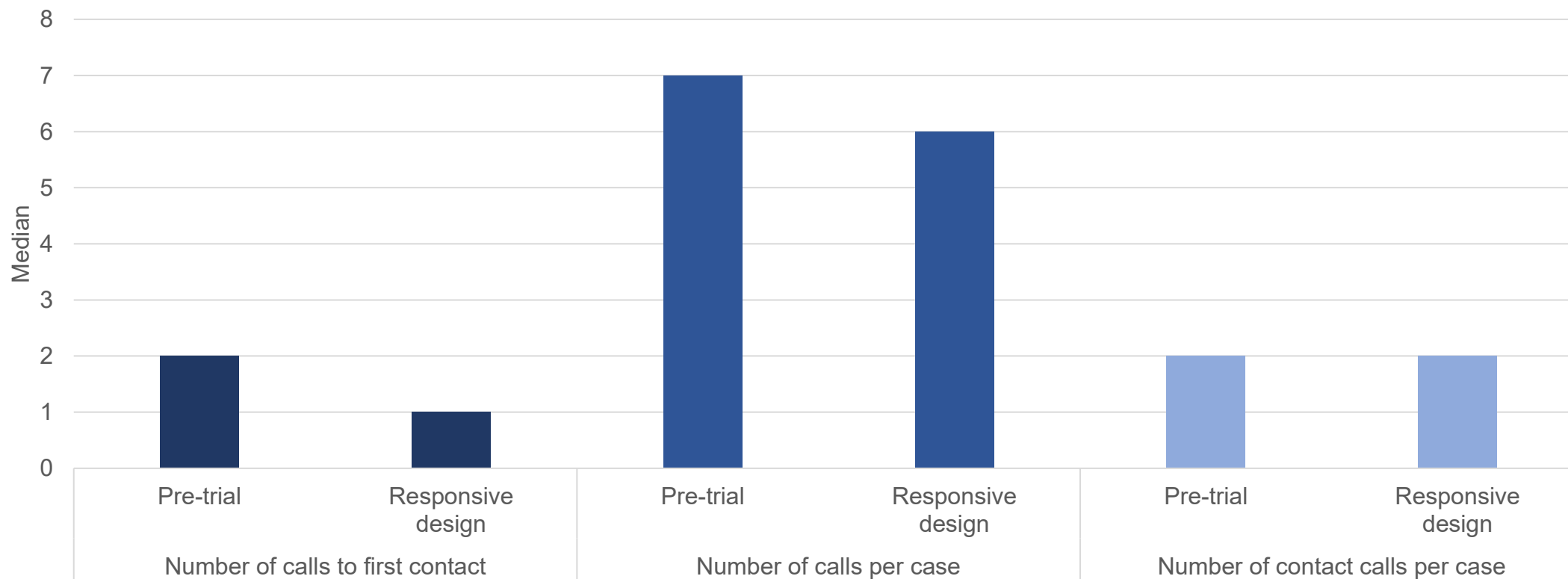
Cases in quartiles 1, 2 and 3 for each domain

Cases in quartile 4 for each domain

Out of scope cases

*Telephone Operations Calling Scheduler

Descriptive analysis



- KEY FINDING: Responsive design decreased the number of calls needed to reach first contact
 - KEY FINDING: Responsive design decreased the number of calls per case called
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2022 Transformed LFS Adaptive Design

What is the Transformed LFS?

- Transformed Labour Force Survey
 - Push to web design and multi-mode
 - Wave 1-5: Online & Telephone data collection
 - 4 week data collection at wave 1
 - Week 1 & 2: Online and Telephone data capture
 - Week 3 & 4: Knock-to-Nudge* non-respondents that are likely to reduce sample bias

Methodology

- ASD
 - Structured trial-and-error approach* with R-indicators**
- Limited availability and reliability of administrative sources
- Mid-year population estimates and LFS data
 - Variables considered: Deprivation, Urban/Rural, Country of birth, Age
 - R: 0.7, CV: 0.41
 - Final model included: Urban/Rural, more deprived/less deprived and Age (<45, 45+)
 - R: 0.72, CV:0.38

*Schouten and Shlomo, 2015

** [Representative indicators for survey quality \(RISQ\)](#)

Next steps

- Iterations of the ASD as we learn from the first phase
 - Exploration of auxiliary data
 - Exploring other ASD as technology allows
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Thank you!

Any questions, please don't hesitate to email: sabina.kastberg@ons.gov.uk