Understanding Society
THE UK HOUSEHOLD LONGITUDINAL STUDY

New forms of data collection: Using apps to measure household spending

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An initiative by the Economic and Social Research Council, with scientific leadership by the Institute for Social and Economic Research, University of Essex, and survey delivery by NatCen Social Research and Kantar Public

Background

- *Understanding Society*: The UK Household Longitudinal Study
  - Probability sample of households in UK
  - Annual interviews: all household members aged 16+
  - Socio-economic situation, health, family, education, work, …
  - Funded by ESRC
  - Interviews conducted by Kantar and NatCen Social Research

Household finance

$$\text{Income} = \text{Spending} + \Delta\,\text{Assets}$$

- Household finances
  - Income: measured in detail
  - Spending: only some categories
  - Wealth and assets: infrequently
- Constraints
  - Questionnaire space
  - Respondent burden, recall

➢ Can we collect good data about monthly spending using an app?

General aims of our studies

Total Survey Error assessment

Measurement:

Does it matter that respondents use many different mobile devices?

Representation:

What are the barriers to participation?

How can we increase participation, reduce bias?

Estimates:

How do they compare to benchmark data?

Spending Studies

- Implemented using the *Understanding Society* Innovation Panel (IP)
- Invite participants to download an app
- Spending Study 1 (2016) – Scan receipts (+ direct entry)
- Spending Study 2 (2018) – Spending diary (+ web option)

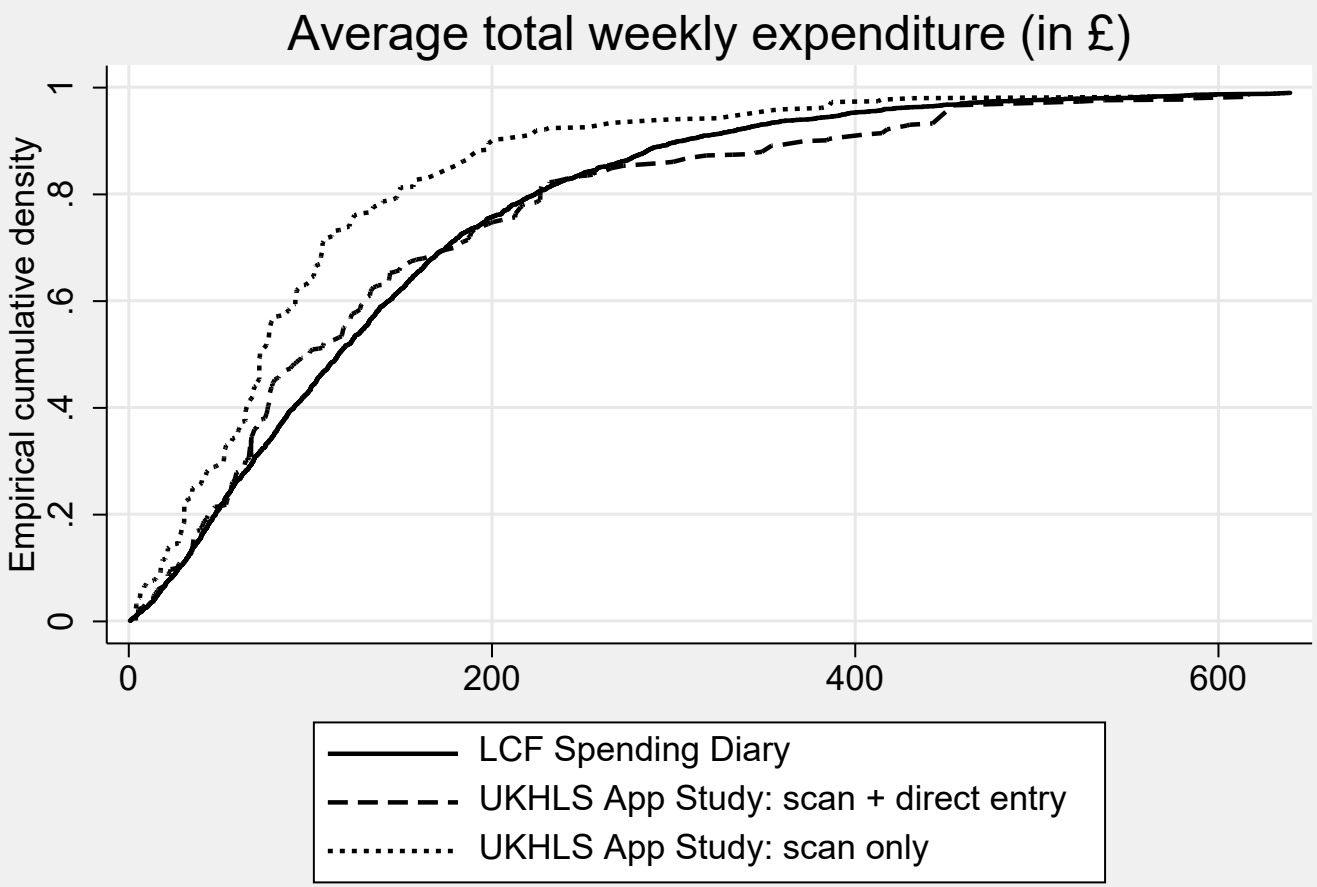
First barrier is getting people to download the app

	Study 1	Study 2
Completed baseline survey	2,112	2,898
Used app at least once	270	437
Participation rate	13%	15%

- Similar rates in other app studies (e.g. Kreuter et al 2019)
- Study 1 debrief of non-participants
  - 54% technical problems, e.g.:
    - No compatible device
    - Insufficient storage space
  - 42% not confident installing or using apps

Source: Study 1. Jäckle, Burton, Couper and Lessof (2019); Study 2. Jäckle, Wenz, Burton and Couper (2019)

…but estimates are similar to benchmark data



Note. Values have been trimmed at £639.46 = 99th percentile of LCF Spending Diary.

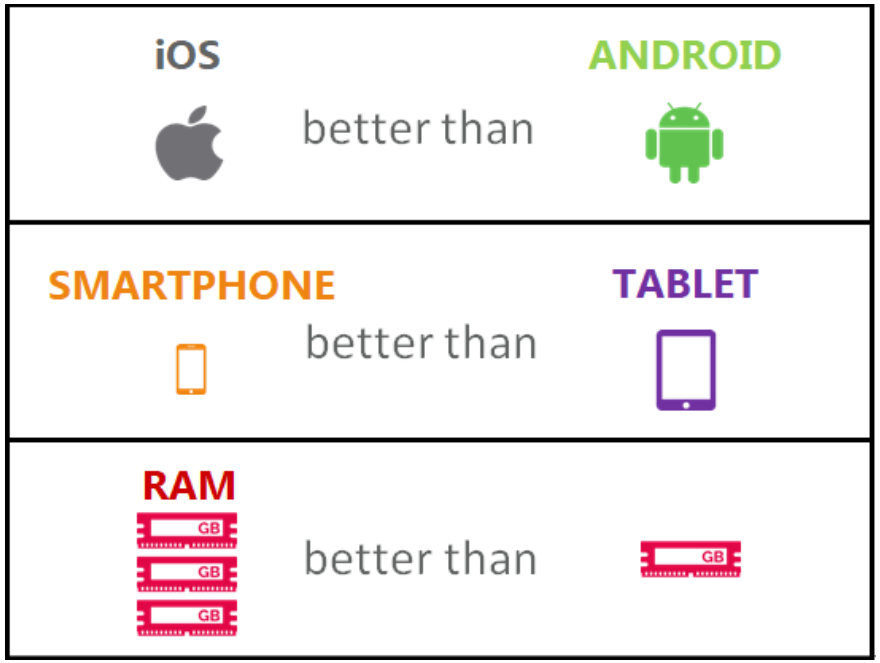
LCF = Living Cost and Food Survey: 2-week paper spending diary

Source: Study 1. Wenz, Burton, Couper and Jäckle (unpublished)

The device itself can affect measurement

- Study 1 – 270 participants used 90 different devices

Example: image quality



Differences remain after controlling for respondent characteristics

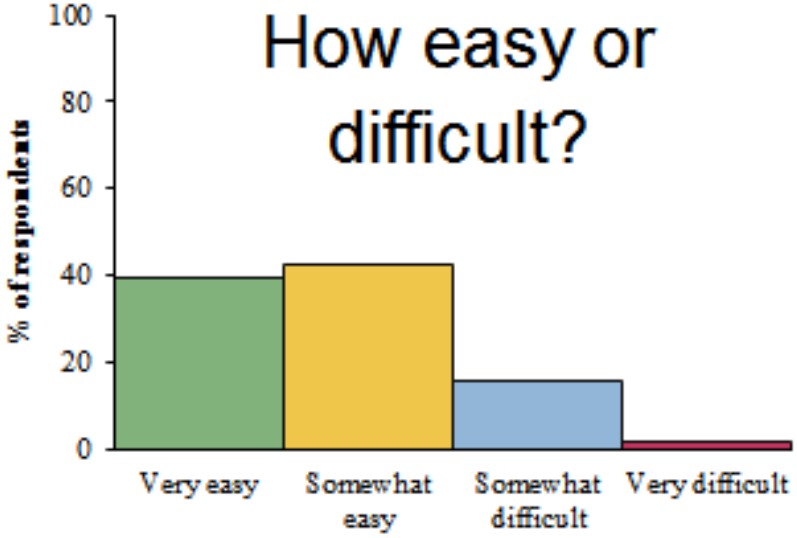
Source: Study 1. Read (2019b)

However, those who participate experienced low burden

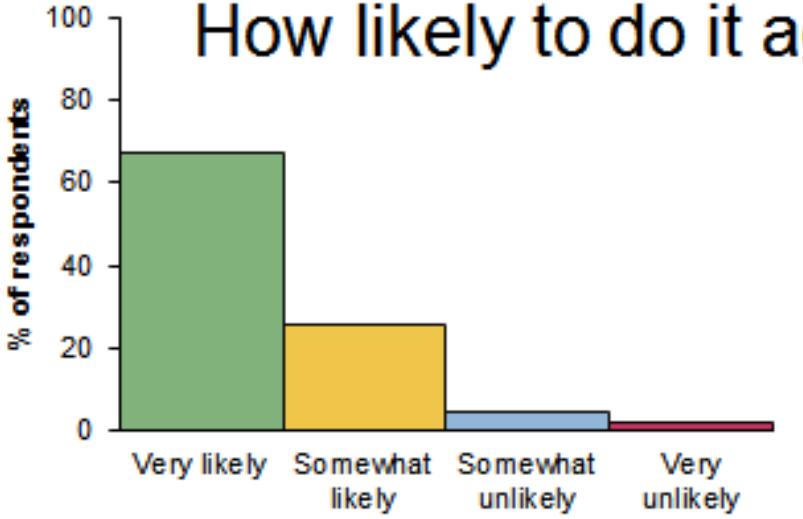
- Study 1
- Objective measures (time taken to report)
  - Average 45 seconds/day (app paradata)
  - Variations in time doesn't predict drop-out
- Subjective measures (debrief survey)

Source: Study 1. Read (2019a)

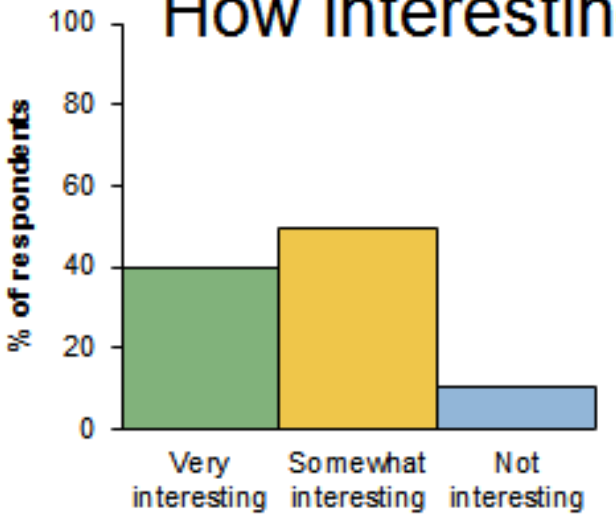
How easy or difficult?



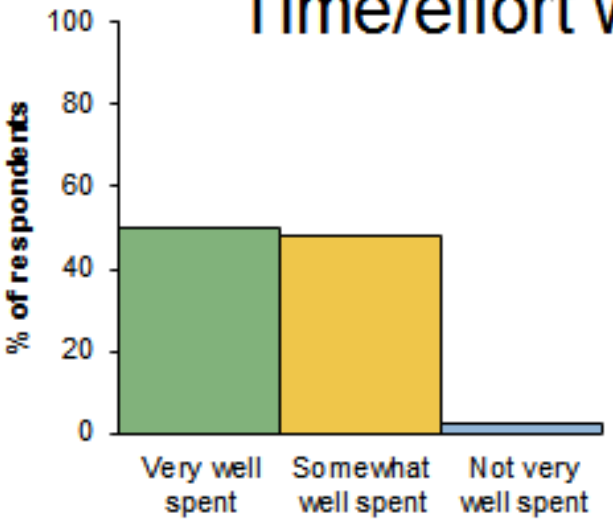
How likely to do it again?



How interesting?

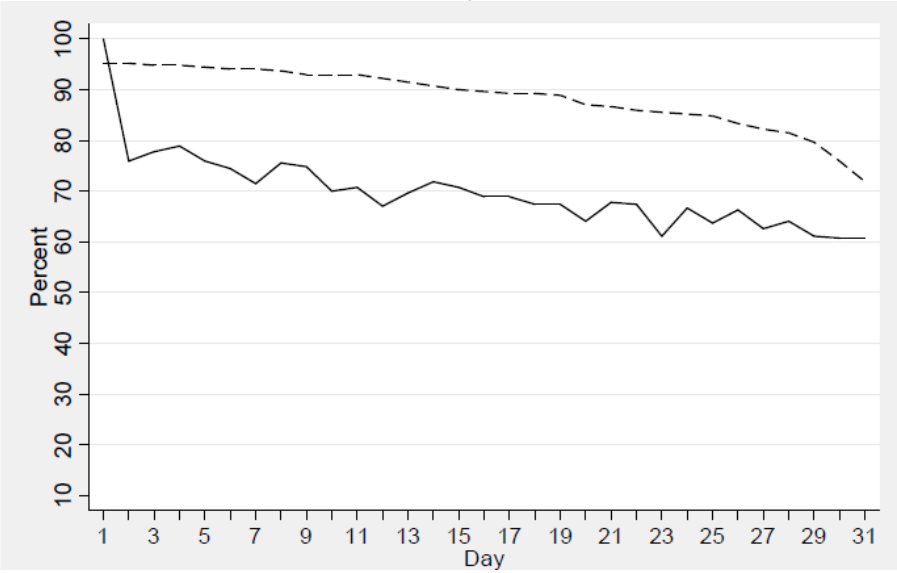


Time/effort well spent?

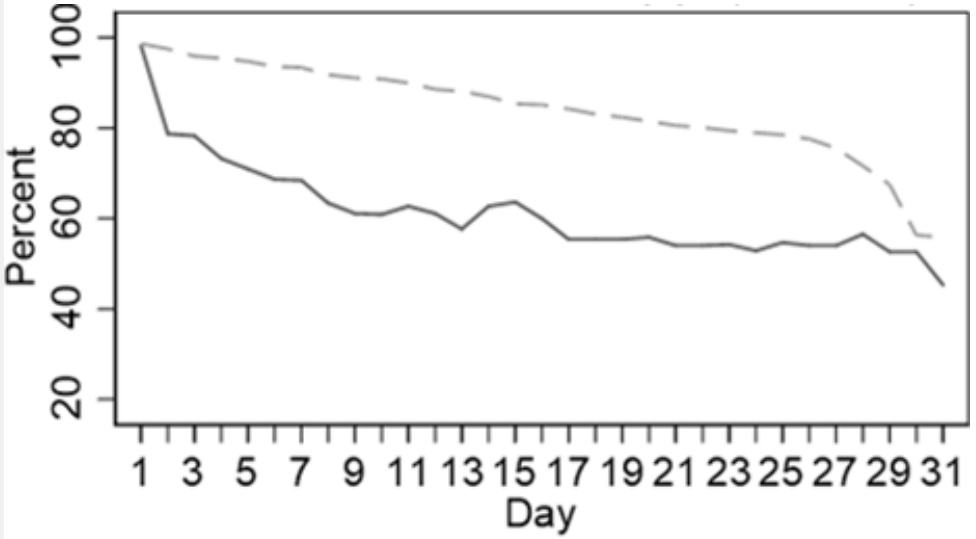


And there was relatively little drop-out over 28 days

Study 1



Study 2



Participants active

Participants continued in study

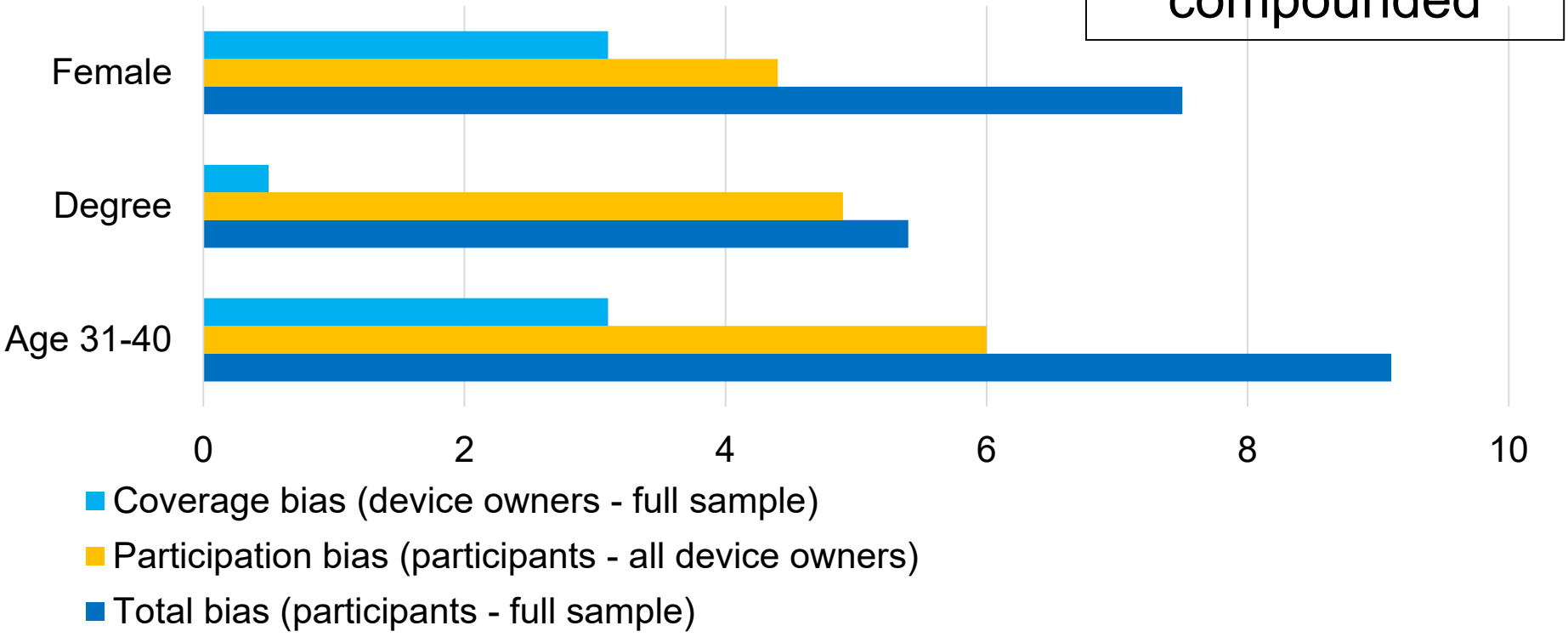
Source: Study 1 & 2. Jäckle, Burton, Couper and Lessof (2019); Jäckle, Wenz, Burton and Couper (2019)

But – we cannot ignore those who do not have mobile devices

Study 1

Percentage point differences

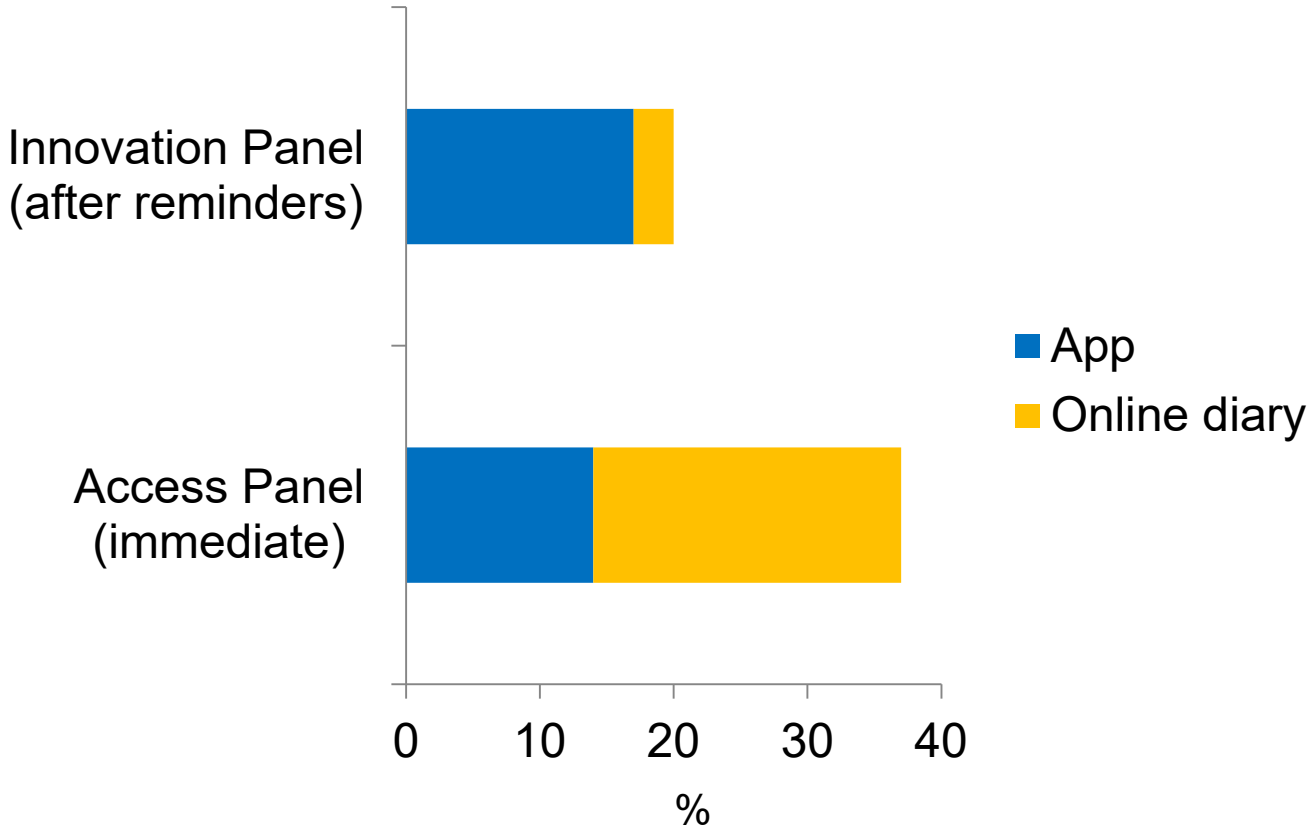
Coverage and participation bias compounded



Source: Study 1. Jäckle, Burton, Couper and Lessof (2019)

Offering browser-based alternative to app can increase participation…

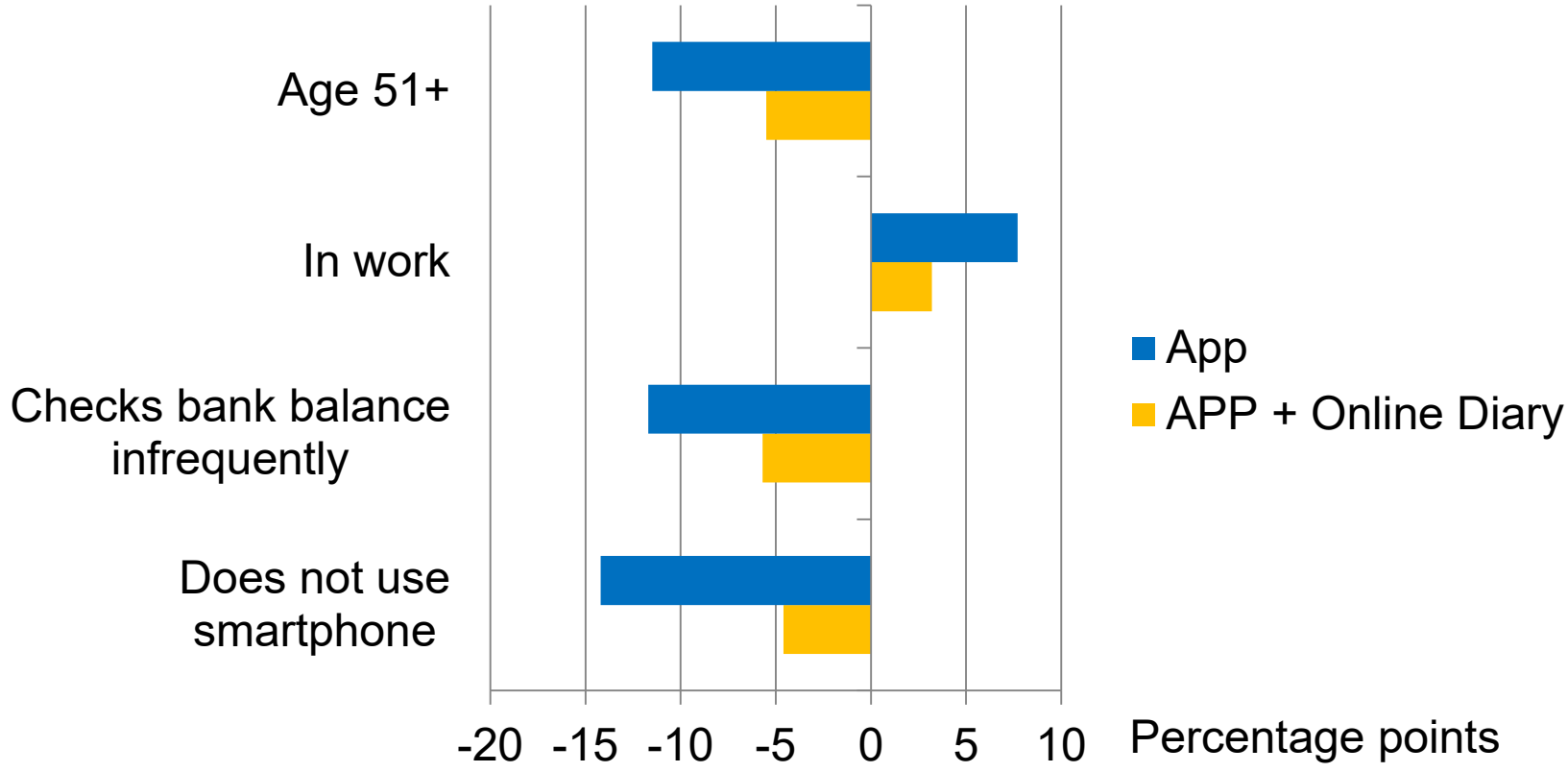
- % entered at least 1 purchase



Source: Study 2. Jäckle, Wenz, Burton and Couper (2019)

…and reduce bias

Study 2 – Access Panel
Percentage point differences: full sample vs. participants
Examples



Source: Study 2. Jäckle, Wenz, Burton and Couper (2019)

More details here

- Jäckle, Burton, Couper, and Lessof (2019) Participation in a mobile app survey to collect expenditure data as part of a large-scale probability household panel: coverage and participation rates and biases. *Survey Research Methods,* 13(1):23-44.
- Jäckle, Wenz, Burton and Couper (2019) Increasing participation in a mobile app study: the effects of a sequential mixed-mode design and in-interview invitation. *Understanding Society Working Paper 2019-04.*
- Lessof, Jäckle, Couper, and Crossley (2019) Adherence to protocol in a mobile app study collecting photographs of shopping receipts. Unpublished manuscript.
- Read (2019a) Respondent burden in a mobile app: evidence from a shopping receipt scanning study. *Survey Research Methods,* 13(1):45-71.
- Read (2019b) The influence of device characteristics on data collection using a mobile app. *Understanding Society Working Paper 2019-01*.
- Wenz, Jäckle, Burton and Couper (2019) The effects of personalized feedback on participation and reporting in mobile app data collection. *Under review.*
- Wenz, Burton, Couper and Jäckle (2019) Quality of expenditure data collected with a receipt scanning app in a probability household panel. Unpublished manuscript.

Project page

Links to

- Papers
- Presentations
- Data documentation

https://www.iser.essex.ac.uk/research/projects/understanding-household-finance-through-better-measurement