

# SURVEY FUTURES

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## Are we stepping into the future? Exploring the representativeness of web-only surveys of the general population

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# Background

- In the 2010s, increasing use of **web-first designs** with an **additional mode** (interviewer-administered or paper self-completion) to **reduce survey costs** whilst **minimising coverage and non-response bias** and increasing response rates (e.g., Jäckle et al. 2015; Biemer et al., 2022).
- Web-first designs uncovered new **challenges**: Differential mode effects (e.g., Vannieuwenhuyze et al., 2014) and increasing **fixed survey costs** since data collection requires setting up different modes (e.g., Vannieuwenhuyze, 2013).
- An increase in **internet access** and **digital literacy** in the UK opens the possibility of using web-only surveys to study the general population:
  - Some studies have shown that a **follow-up mode is required** to reach some population subgroups (e.g., Moore et al., 2024 (CATI); Brown and Calderwood, 2020 (F2F); Moore et al., 2025 (CATI); Lipps and Pekari, 2021 (CATI)).
  - Other studies suggest that **web-only surveys could be used to study the general population** (e.g., Cornesse et al., 2022 (paper); Christmann et al., 2024 (paper); Moore et al., 2025 (CAPI)).

# Research questions



**RQ1** | How have **internet exclusion and intensity of internet use** changed over time?



**RQ2** | What are the **characteristics of different types of internet users and non-users**? How representative are these groups? How has this changed over time?



**RQ3** | How does the **representativeness of web respondents** compare to the representativeness of different groups of **internet users**? How has this changed over time?

# Data

## RQ2 | Representativeness of **internet users**

*Understanding Society* (UKHLS) **main survey waves 1-14**. Responding adults (n = 51,740~15,646).

- Probability sample of the UK household population selected in 2009.
- Households invited to participate **annually**.
- Waves 1-6 mainly CAPI. Starting at wave 7, an increasing proportion of the sample moved to web-first and CAPI.

## RQ3 | Representativeness of **web respondents** and **internet users**

**UKHLS Innovation Panel (IP)**. Household probability survey of the Great Britain population starting in 2008.

- Households invited to participate **annually**.
- Mixed-mode experiment from wave 5 (66% household web-first).
  - (1) **Web respondents** (waves 5-11, 13-16). All sample members issued to the field from the web-first random subsample (n = 1,496~3,064).
  - (2) **Internet users** (waves 5-16). All responding adults (n = 2,142~3,061).

# Methods

- Coefficients of variation (CVs) of internet use/web response propensities to assess the **representativeness** with respect to a set of auxiliary variables (Schouten et al., 2012; 2016):
  - Daily internet users
  - All internet users
  - Web respondents
- **Predictors** to estimate internet use/response propensities:

## RQ2 | Representativeness of **internet users**

Gender, age, ethnicity, education, having a long-standing illness or disability, employment status, region, urban/rural, tenure status, being behind with bills, household income and household type.

## RQ3 | Representativeness of **web respondents and internet users**

Gender, age, employment status, region of residence, tenure status, being behind with bills, household income and household type.

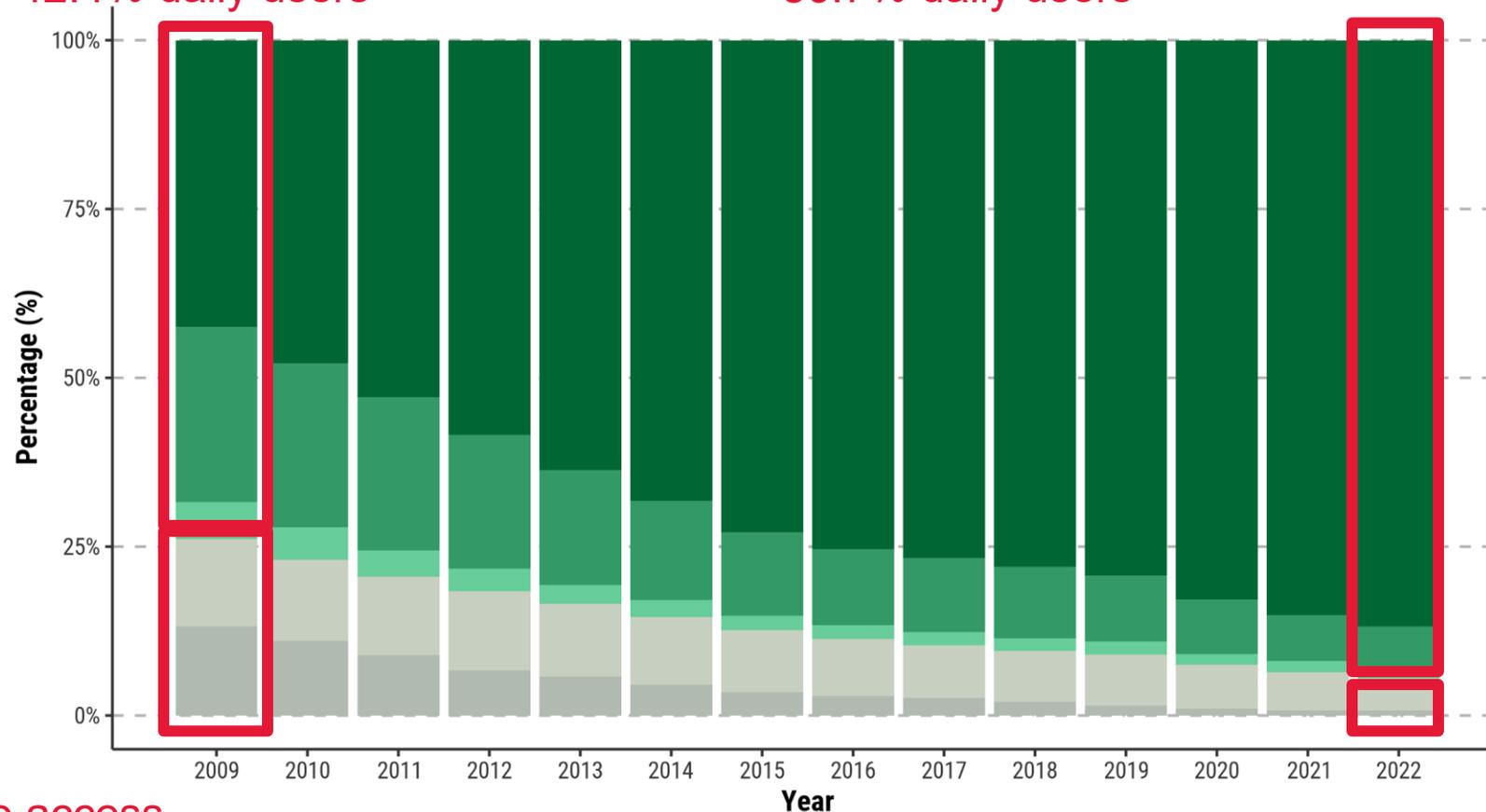
# RQ1 | The digital divide in the UK is narrowing

2009: 73.9% internet users  
42.4% daily users

2022: 94.5% internet users  
86.7% daily users

Prevalence of internet users and non-users over time

UK adult population (16+) | UKHLS Main Study (waves 1 to 14)



2009: 13.2% no access  
12.9% never use

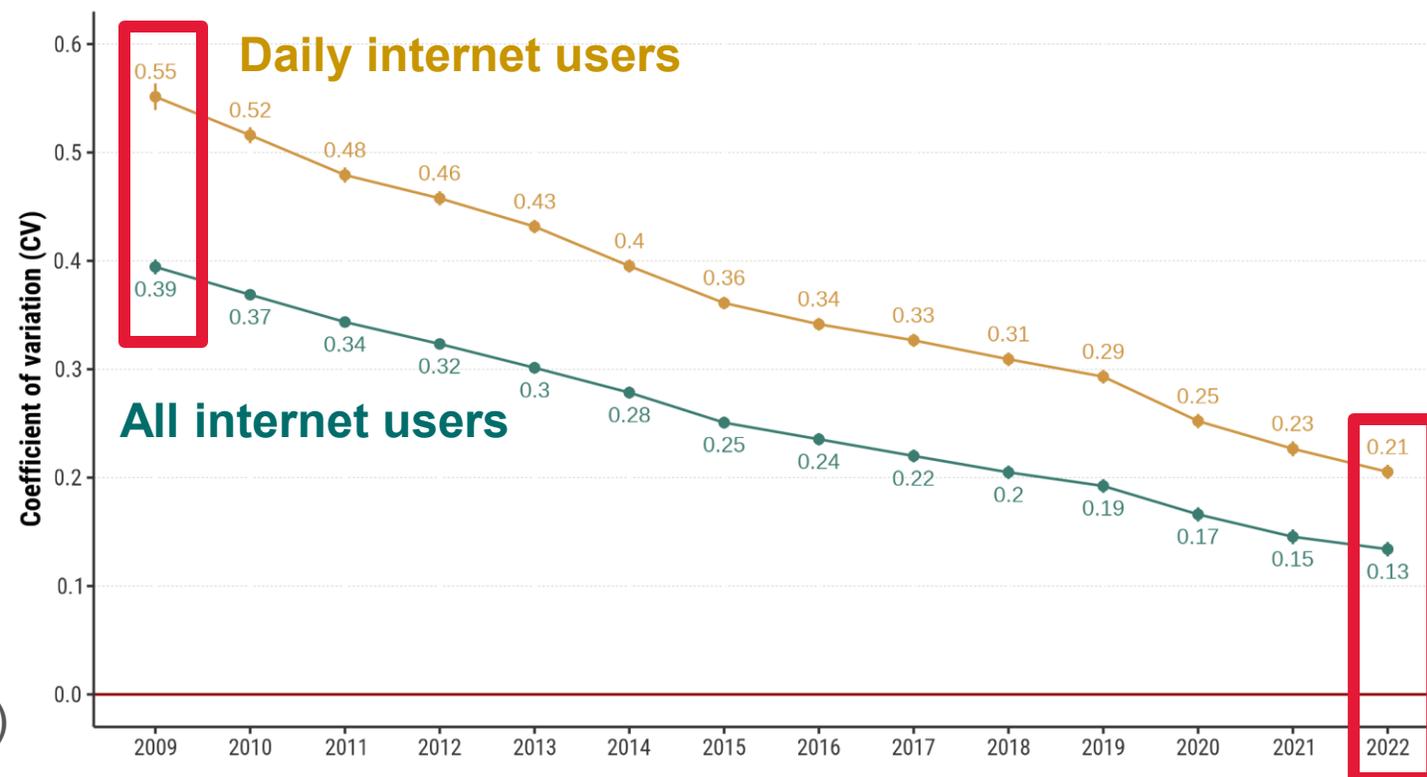
Daily Several times week/month Once a month or less Never use No access

2022: 0.7% no access  
4.8% never use

# RQ2 | Internet users have become more representative in the last decade

Overall CVs for **all internet users** and **daily internet users** over time

UK adult population (16+) |  
UKHLS Main Survey (waves 1 to 14)



# RQ2 | Older respondents and those with no qualifications remain underrepresented

All internet users (2022) | Group-level (CVu)

	Overrepresented				Underrepresented	
Age group	16-24	25-34	35-44	45-54	65-74	75+
	0.018	0.018	0.021	0.019	-0.013	-0.083
Education	Degree				No qual	Other qual.
	0.029				-0.078	-0.02
Household income	Q4		Q5 (Top)		Q1 (Bottom)	
	0.022		0.021		-0.048	
Employment	Employed				Non-employed	
	0.037				-0.042	
Household type	Other househ.				1 adult, no child	
	0.015				-0.045	
Household tenure	Owned mort.				Owned	Rented
	0.029				-0.016	-0.013
Health	Healthy				Illness or disab.	
	0.02				-0.026	
Region					Northern Ireland	
					-0.012	

Partial unconditional CVs for all internet users in 2022 (sig. 5% level)

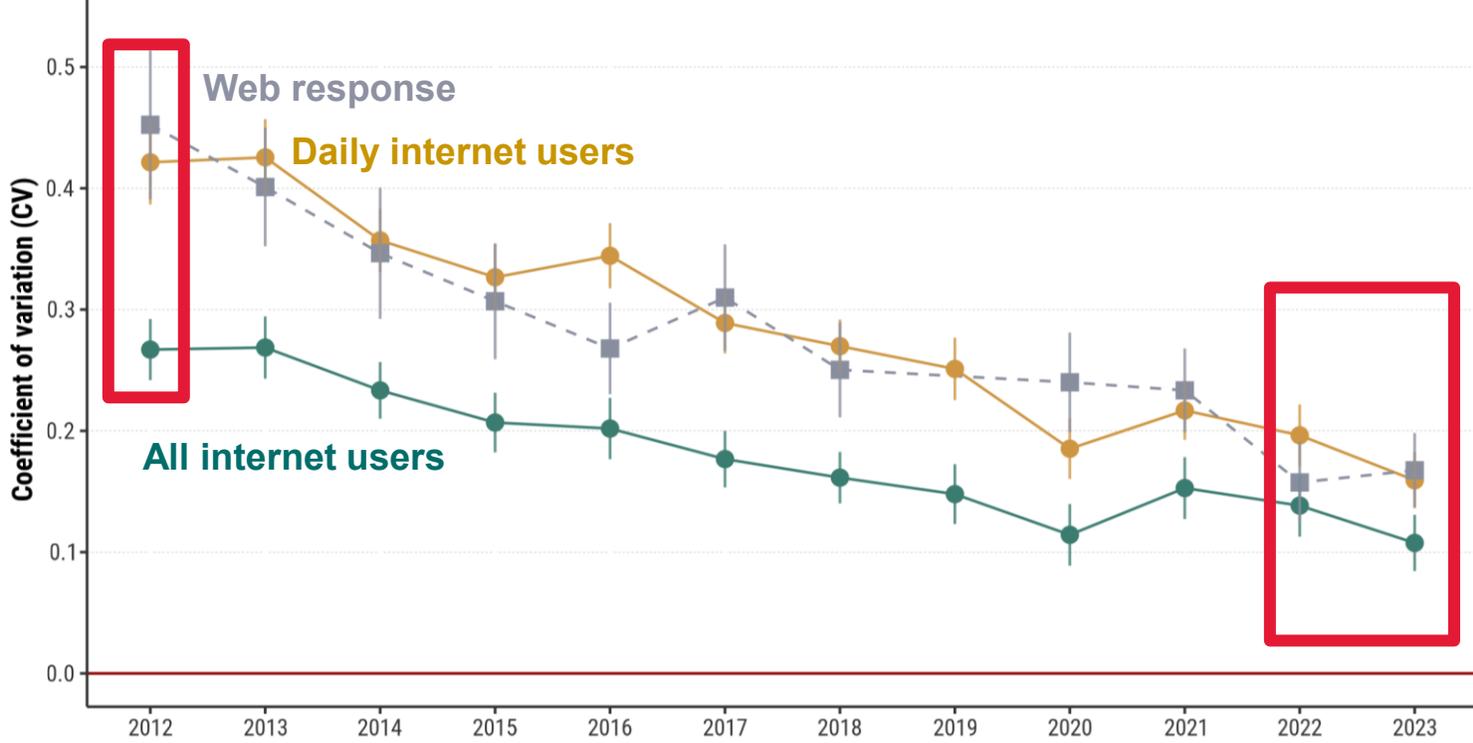
UK adult population (16+) | UKHLS Main Survey (wave 14)

# RQ3 | Web survey respondents becoming more representative in the last decade



Overall CVs for **all internet users**, **daily internet users** and web respondents over time

GB adult population (16+) | UKHLS IP (waves 5 to 16)



# RQ3 | Representativeness at group level

		Daily internet users	All internet users	Web respondents
<b>Age</b>	16-34	0.049		-0.097
	35-54	0.055		
	55-74			0.048
	75+	-0.113	-0.063	
<b>Employment status</b>	Employed	0.062	0.033	
	Non-employed	-0.067	-0.036	
<b>Household tenure</b>	Owned	-0.033		0.052
	Owned mort.	0.049		
	Rented			-0.059
<b>Household income</b>	Q1 (Bottom)	-0.051	-0.045	
	Q3			-0.052
	Q5 (Top)			0.053
<b>Behind with bills</b>	All paid			0.011
	Unpaid			-0.037
<b>Household type</b>	1 adult, no children	-0.049	-0.043	
	Couple, no children			0.060
	Other household			-0.082

Partial unconditional CVs for **all internet users**, **daily internet users** and **web respondents** in 2023 (sig. 5% level)

GB adult population (16+) | UKHLS IP (wave 16)

# Conclusions

- **Internet** is an **almost universal technology** in the UK; only 0.7% of the UK adult population does not have access, although a small group never use it (4.8%) and remains excluded.
- **Internet users** are becoming **increasingly representative** of the general population: (1) decrease in the number of non-users; (2) some groups adopted the technology later and caught up.
- As the representativeness of internet users has increased, it has also increased the **representativeness of web respondents**. However, **the lack of internet coverage** (web non-users) and **web non-response** remain relevant in 2023.
- Remaining internet exclusion might hinder the ability of web-only surveys to be not only representative but also **inclusive of the general population**.

# Thank you!



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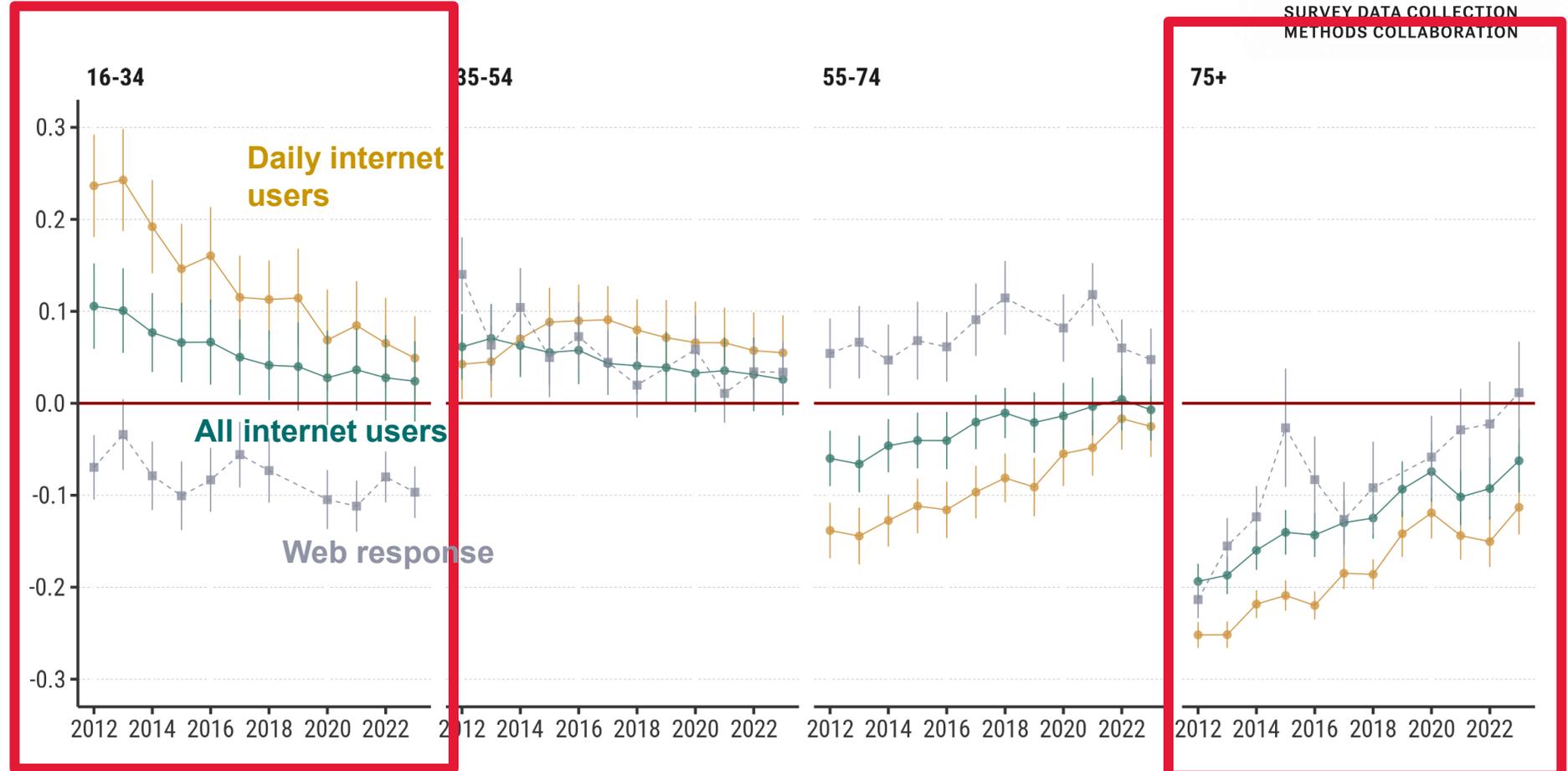
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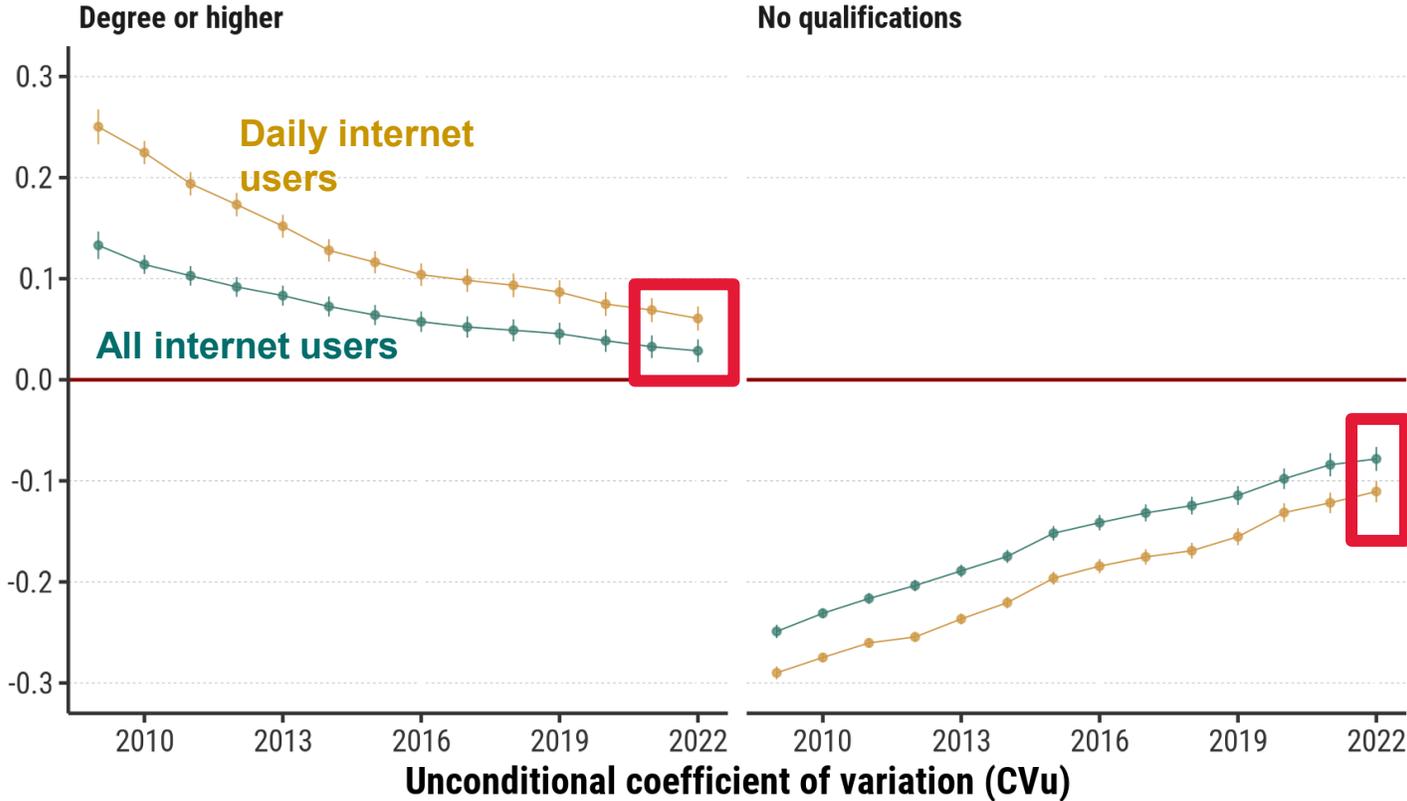
# RQ3 | Representativeness by age group



Partial unconditional CVs by age group

GB adult population (16+) | UKHLS IP (waves 5 to 16)

# RQ2 | Low education levels underrepresented among internet users



Partial unconditional CVs for all internet users and daily users over time by education

UK adult population (16+) | UKHLS Main Study (waves 1 to 14)