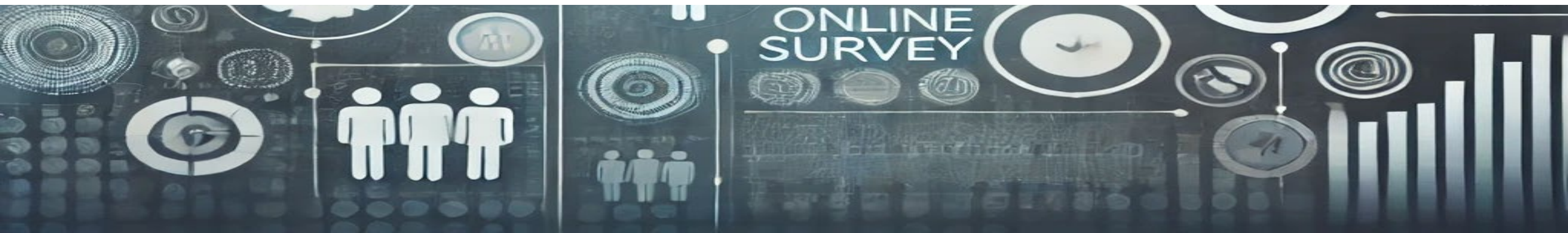




Analyzing the Causal Effect of Survey Frequency on Nonresponse in Probability-based Online Panels

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Frequent surveying effects in cross-sectional studies

- Households *sampled for* the American Community Survey (ACS) or the Current Population Survey (CPS) between *2015 and 2019 exhibited lower response rates to the 2020 U.S. Census* (Eggleston, 2024).
- The effect *varies* by *the time gap* between survey requests.
- Two documented mechanisms driving negative frequency effects in cross-sectional surveys:
 - **Confusion Effects:** Respondents mistakenly assuming that all survey requests are part of the same study (e.g., ACS and Census are both mandatory and use web and mail modes, contributing to confusion effect).
 - **Survey Fatigue Effects:** Respondents feeling overburdened by repeated requests.

Cross-sectional vs. Online Panel Surveys

Mechanism	Cross-sectional surveys	Online panel surveys
Confusion effect	Negative	N/A
Survey fatigue effect due to frequent survey requests	Negative	Unknown (Can go either way)

Research Questions

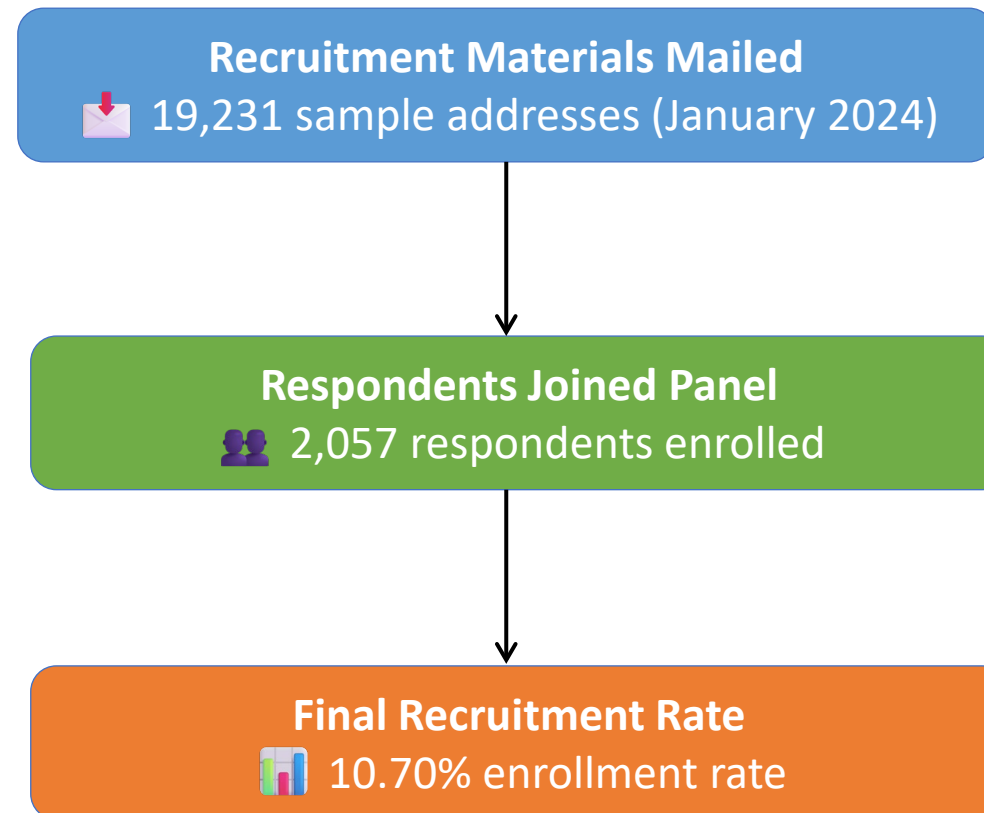
RQ1: Is there a causal relationship between survey frequency and nonresponse in online panel surveys?

RQ2: If so, what is the direction of this causal effect?

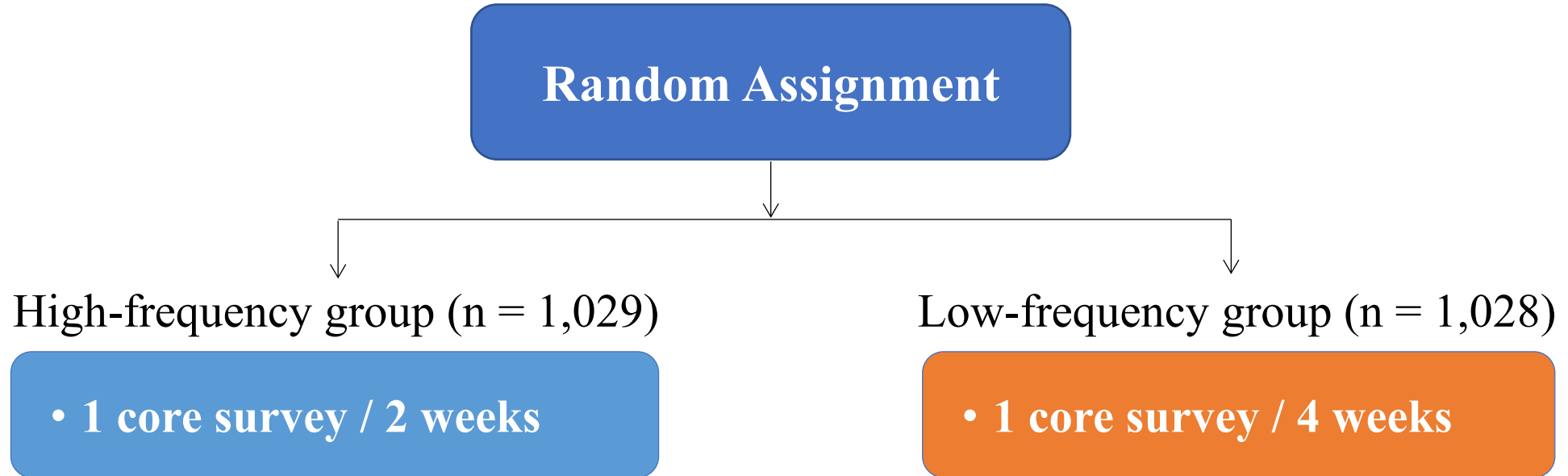
RQ3: Does the causal effect of survey frequency on nonresponse vary across socioeconomic and racial subgroups?

Recruitment of New Panel Members

- Our intervention targets new panel members as existing data show that dropout is highest among new panel members.



Experimental Design



Core Surveys:

- The UAS is designed as a longitudinal study
- It administers approximately 21 core surveys to all respondents
- Each core survey is administered every two years

Non-Core Surveys:

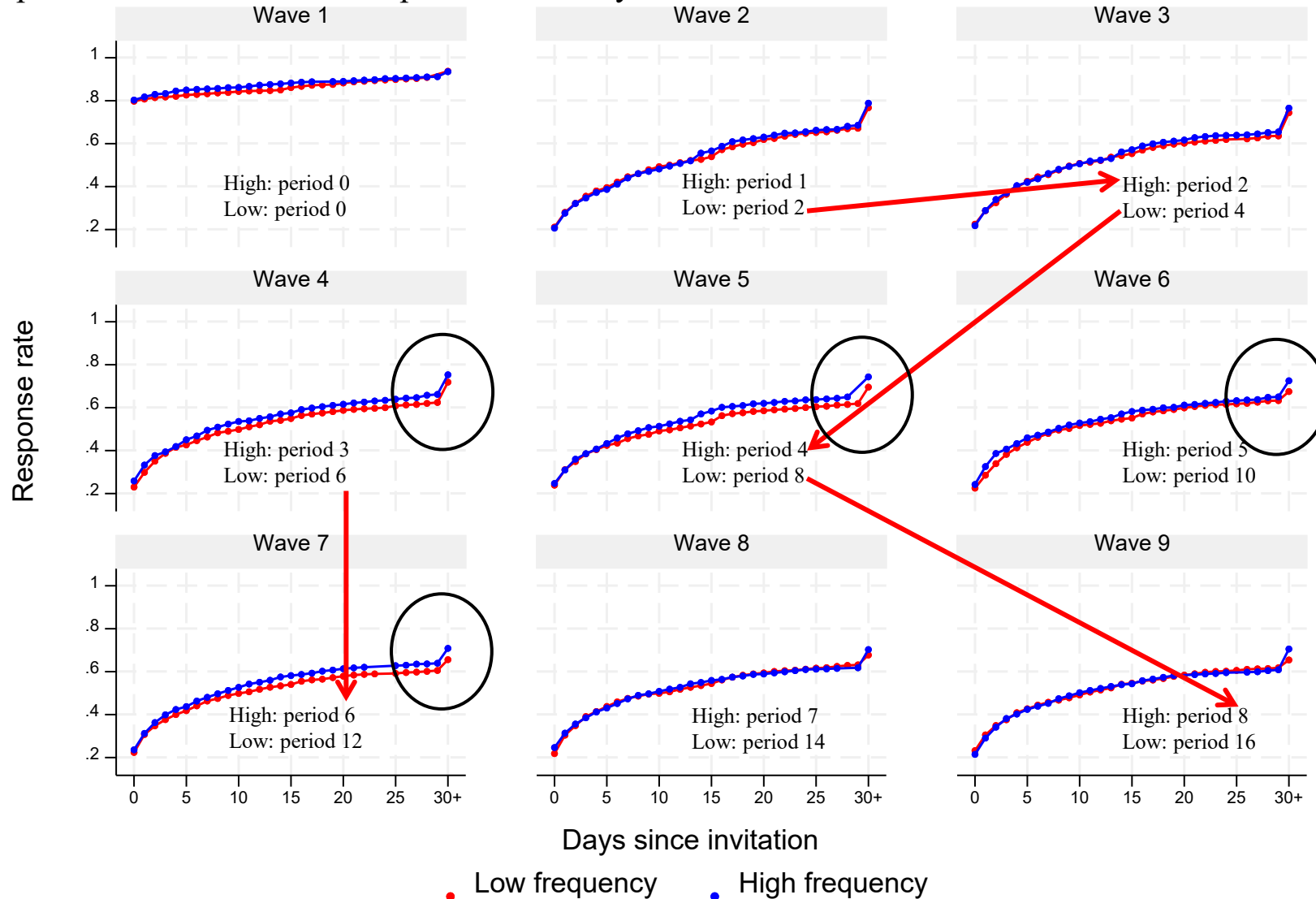
- All respondents receive cross-sectional non-core surveys as they become available
- **No frequency manipulation among non-core surveys.**
- A combination of core and non-core surveys is used to simulate real-world data collection in online panels.

Sample Demographic Composition

	High-Frequency Group (n=1,029)	Low-Frequency Group (n=1,028)	p-value
Gender			
Female	58.11	61.19	0.156
Education			
High school or GED	24.39	26.26	0.585
Some college	31.78	30.35	
College and above	43.83	43.39	
Age			
18-44	43.46	46.98	0.261
45-64	31.64	30.21	
65+	24.90	22.81	
HH Income			
Less than 50K	43.90	44.21	0.425
50K-75K	18.34	16.26	
75K and above	37.76	39.53	
Race			
White only	65.40	62.60	0.178
Black only	16.13	19.24	
Others	18.48	18.16	
Currently Working			
Yes	60.25	56.91	0.123
Hispanic			
Yes	15.84	15.47	0.816

Cumulative Response Rates by Survey Wave

Gap between two consecutive periods = 14 days



- Treatment groups receive invitations at different times
- Low frequency group receives core surveys later than the high frequency group,
- Wave-by-wave comparison ignores timing effect
- The difference in RR could have been due to difference in the timing

Effect of Survey Frequency on Response Rate

Gap between two consecutive periods = 14 days

	Low Frequency		High Frequency		
Time Period	Survey Wave	RR	Survey Wave	RR	
→ 0	1	93.66	1	93.45	-0.21
1			2	78.79	
→ 2	2	76.67	3	76.51	-0.16
3			4	75.28	
→ 4	3	74.36	5	74.31	-0.05
5			6	72.50	
→ 6	4	71.83	7	70.82	-1.01
7			8	70.29	
→ 8	5	69.53	9	70.54	+1.01

Average difference in RR is 0

- Overall, the intervention seems to have no effect among new panelists.

Heterogeneous Effects

Currently Working Respondents (Sample composition: 59%)

	Low Frequency		High Frequency		
Time Period	Survey Wave	RR	Survey Wave	RR	
0	1	93.64	1	93.06	
1			2	80.66	
→ 2	2	75.27	3	79.97	+5
3			4	78.22	
→ 4	3	72.63	5	77.84	+5
5			6	75.04	
→ 6	4	69.74	7	73.82	+4
7			8	73.99	
→ 8	5	68.16	9	73.42	+5

Average increase is 5 percentage points

Heterogeneous Effects

Currently Non-Working Respondents (Sample composition: 41%)

	Low Frequency		High Frequency		
Time Period	Survey Wave	RR	Survey Wave	RR	
0	1	94.01	1	94.81	
1			2	76.79	
→ 2	2	79.04	3	72.45	-7
3			4	72.19	
→ 4	3	77.11	5	70.33	-7
5			6	70.18	
→ 6	4	75.24	7	67.78	-7
7			8	66.24	
→ 8	5	71.95	9	67.96	-4

Average decrease is 6 percentage points

Random-effects Panel Regression Analyses

Outcome: Responses to core surveys

	All time periods	Time periods 0, 2, 4, 6, 8
High frequency	-0.001 (0.026)	-0.013 (0.024)
High frequency*currently working	0.087** (0.034)	0.073** (0.031)

Controls:

- (1) **Demographics:** Gender, education, age, income, race, Hispanic, household size, children at home
- (2) **Personality traits:** Conscientiousness, openness, extroversion, neuroticism, agreeableness
- (3) **Survey topics:** Survey wave dummies

Note: The treatment x currently working interaction effect becomes insignificant after applying adjustments for multiple hypothesis test.

Positive Spillover Effects Beyond Core Surveys

Responses to non-core surveys	
High frequency	-0.043 (0.029)
High frequency*currently working	0.087** (0.038)

Controls:

(1) **Demographics:** Gender, education, age, income, race, Hispanic, household size, children at home

(2) **Personality traits:** Conscientiousness, openness, extroversion, neuroticism, agreeableness

Note: The treatment x currently working **interaction effect** becomes **insignificant** after applying adjustments for multiple hypothesis tests.

Next Steps – Disentangling the Mechanisms

- Collect additional data on respondent engagement, motivation, and attitudes toward receiving more frequent surveys.
- Examine the dose response relationship between incentives and response rates.

Thank You!