

Come and Knock On Our Door: Evaluating the Impact of Varying Rules for Case Follow-Up Using Linked Survey Paradata and Administrative Records

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Background

- Response rate and nonresponse bias are not interchangeable and are not always related in predictable ways
- Many creative ways to evaluate/address nonresponse bias in surveys:
 - Continuum of resistance – hard-to-get respondents are “similar” to nonrespondents
 - Use administrative records to compare survey results to “truth”
 - Responsive/adaptive design field experiments

The Data

- **Unique Data Source**: Link all sampled addresses in 2015-2018 Current Population Survey Annual Social and Economic Supplement (CPS ASEC) and 2014 Survey of Income and Program Participation (SIPP) to
 - IRS 1040 tax returns and SSA Numident for demographic and economic microdata
 - Contact History Instrument (CHI) for information about contact attempts, number of contacts, refusals, and other operational info

Research Questions

1. How do economic and demographic characteristics of households differ by response disposition?
2. Does contact history information (e.g., initial refusal, difficulty contacting, etc.) predict household characteristics for both respondents and nonrespondents?
3. Could varying interviewer effort using contact history paradata potentially reduce nonresponse bias?

Research Objectives

- General knowledge – Data on nonrespondents is hard to come by
- Nonresponse bias and weighting
- Optimization of field operations – Follow-up decision rules, Refusal conversion, etc.
- Inform future responsive and adaptive design work

The Methods

- 1. Comparisons:** Compare categories of respondents and nonrespondents (broken down based on theoretically-motivated contact history characteristics) on demographic and economic variables.
- 2. Experiments:** Simulate adaptive design thought experiments (based on findings from comparisons) about ways to maximize representativeness while minimizing cost/effort.

Spoiler: Key Takeaways

- **Research Question 1**: Demographic and economic characteristics of households DO vary by response disposition, though differences are often small. Noncontacts stand out as distinct.
- **Research Question 2**: There is some evidence for a “continuum of resistance” with hard-to-get respondents and some nonrespondents sharing demographic and economic characteristics.
- **Research Question 3**: To our surprise, almost nothing we tried seemed to produce a final set of respondents that was as representative as the actual set of respondents. Could be strongly tied to the high response rates for these surveys.

Data and Methods

Survey Data

- 2015-2018 CPS ASEC and 2014 SIPP
 - Two large household surveys conducted by the U.S. Census Bureau
 - Both important for income statistics in U.S.
- Response rates in our sample (RR6)
 - CPS ASEC: 86.8% (2015) declining to 84.6% (2018)
 - 2014 SIPP: 68.8%

Response Disposition

1. **Nonrespondents** – Never responded to the survey.
 - **Refusals** – Contacted successfully but never completed the survey.
 - **Noncontacts** – Never successfully contacted.
2. **Respondents**– Provided a useable response to the survey (complete or partial).

Response Disposition

	All Sample	RR	% Noncontact	N Respondents	N Refusals	N Noncontacts
SIPP	42,000	68.68%	5.549%	28,846	10,823	2,331
CPS	29,000	83.66%	6.908%	24,261	2,736	2,003

Contact History Instrument

- Data collection after each contact or attempted contact for a case.
- Records
 - Number of contacts and number of attempts
 - Contact strategies
 - Any “doorstep” concerns given by the respondent.

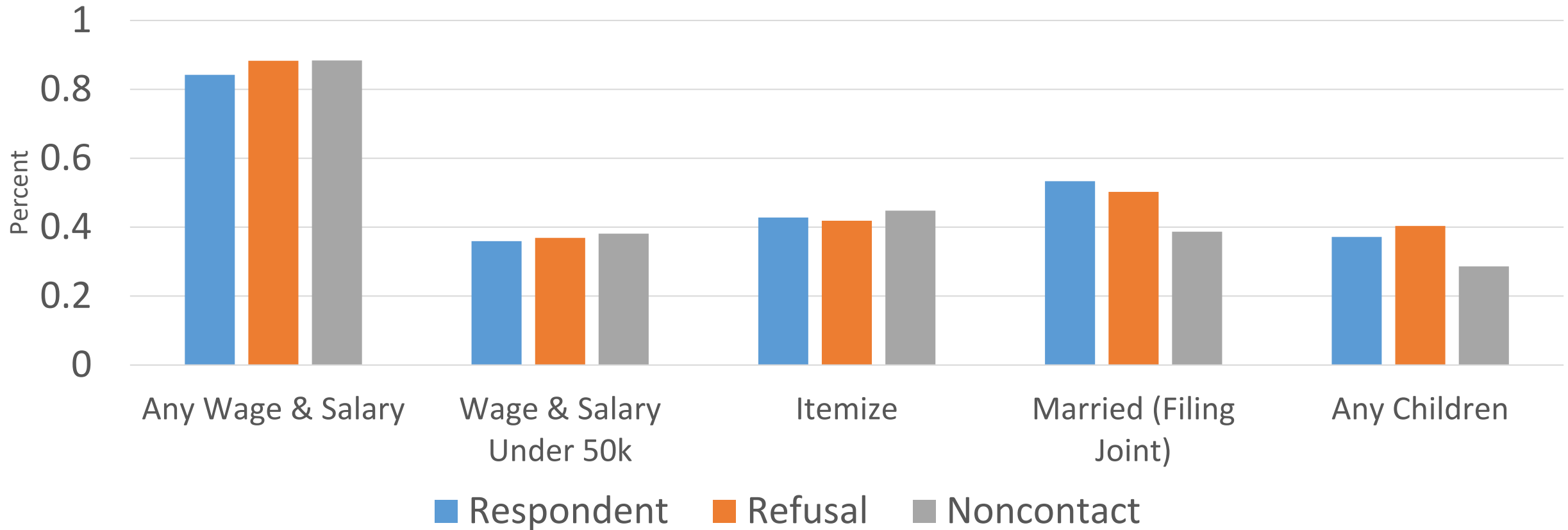
Economic and Demographic Data

- IRS 1040 tax returns (tax years 2013-2017)
 - Income measures: AGI, interest, dividend, rental
 - Demographic Information
 - Marital Status Proxy: Filing status
 - Presence of dependents
 - Link to SSA Numident to get ages of filers and dependents
- Link to surveys at address-level using MAFID

Results

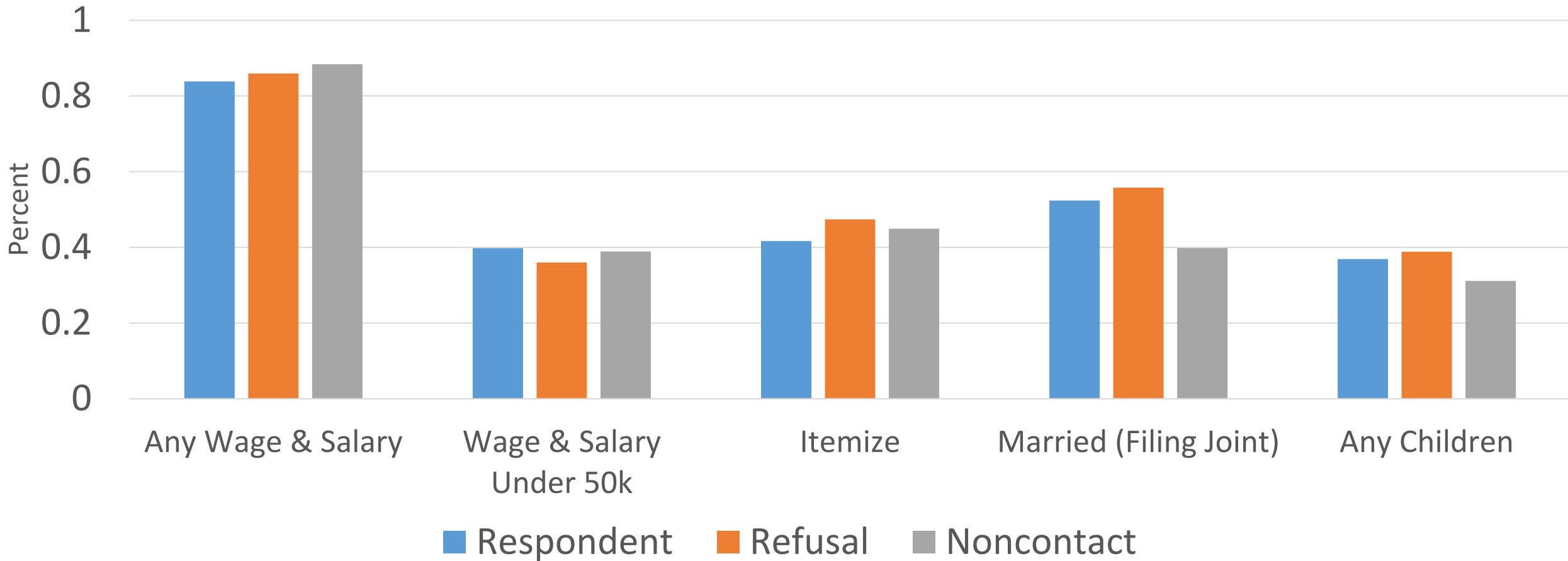
Comparison by Response Disposition

CPS Respondent and Nonrespondent Comparision



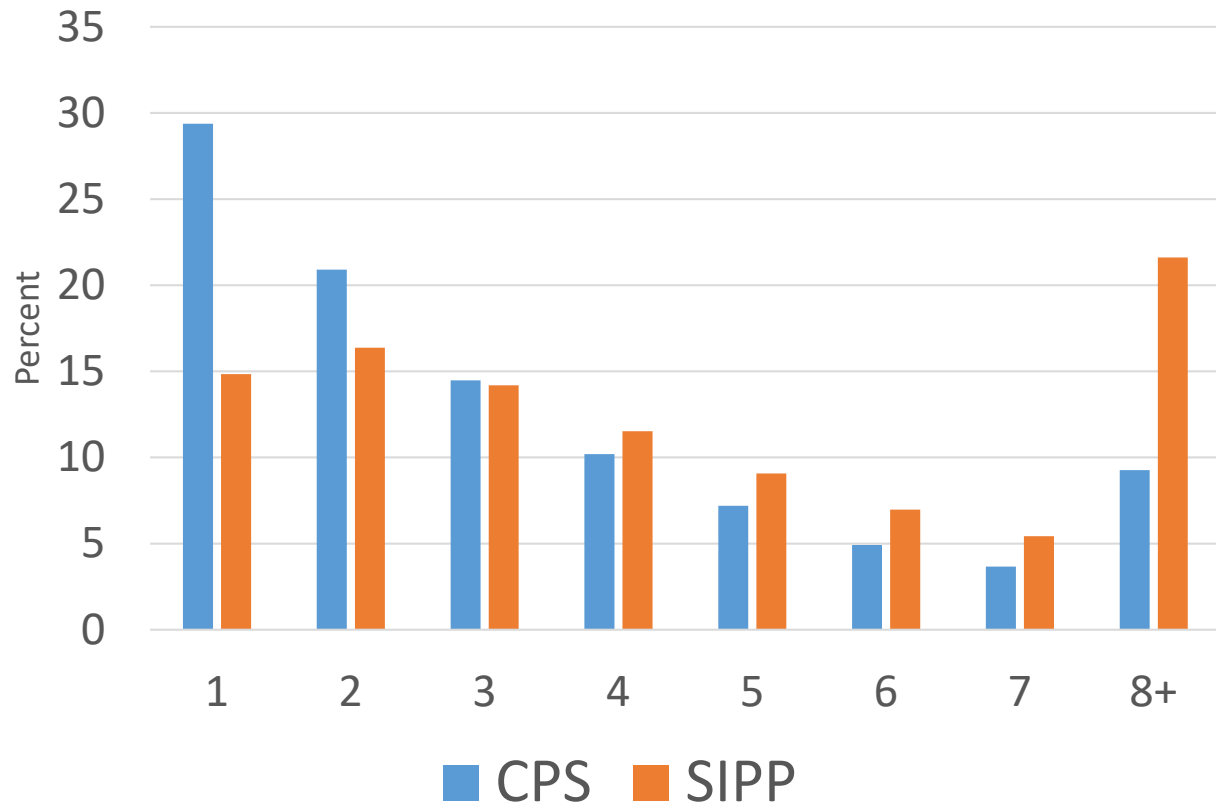
Comparison by Response Disposition

SIPP Respondent and Nonrespondent Comparison

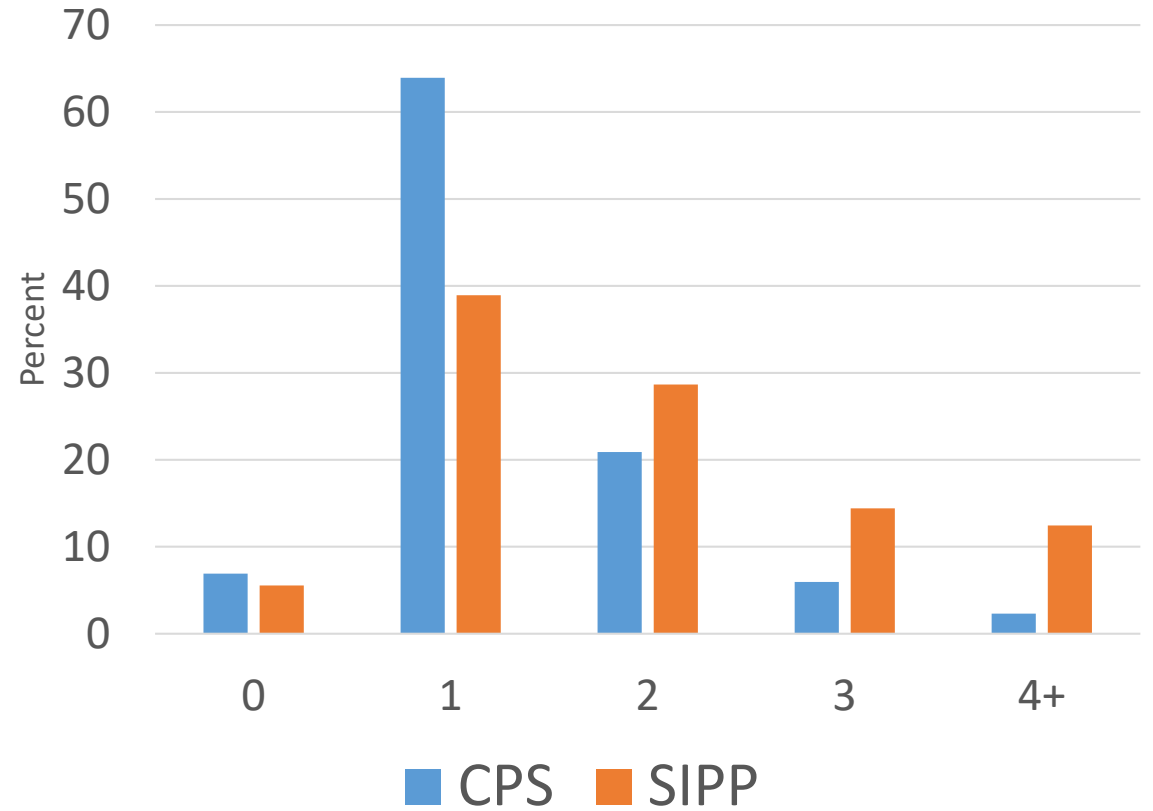


Contact History

Number of Attempts

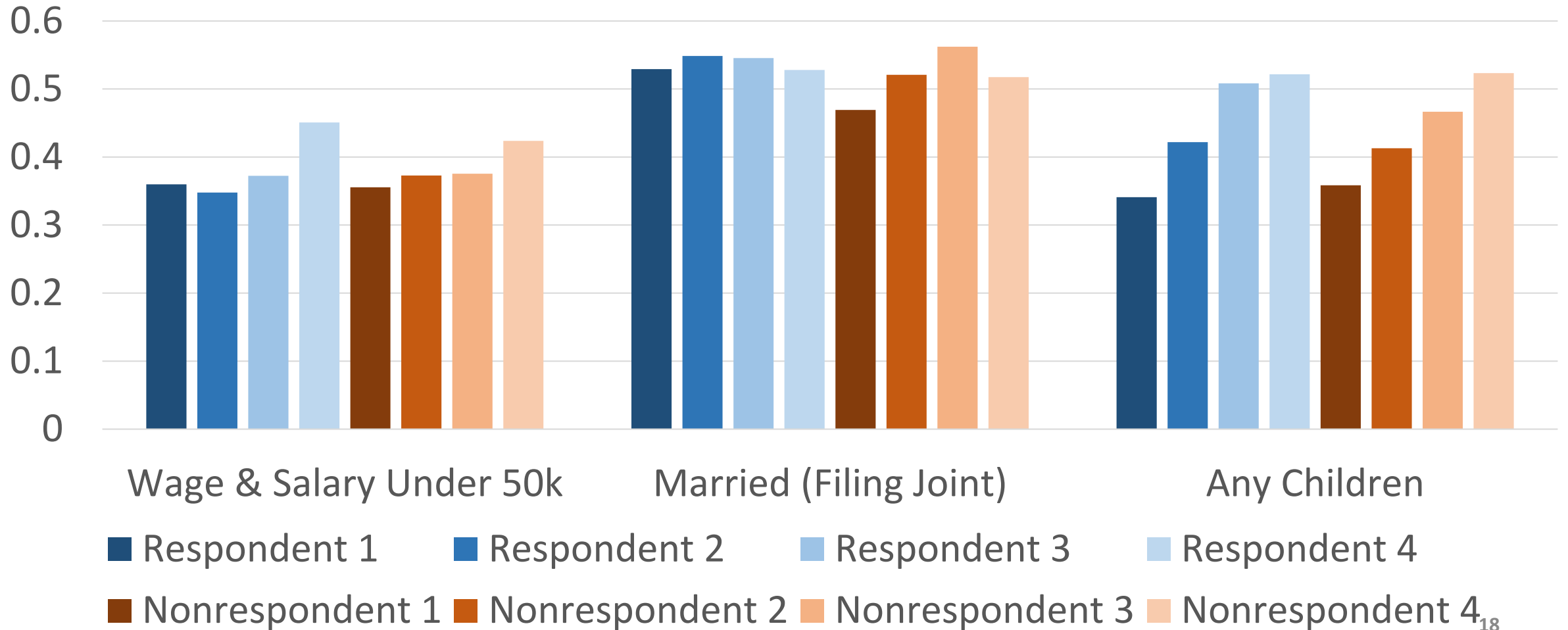


Number of Contacts



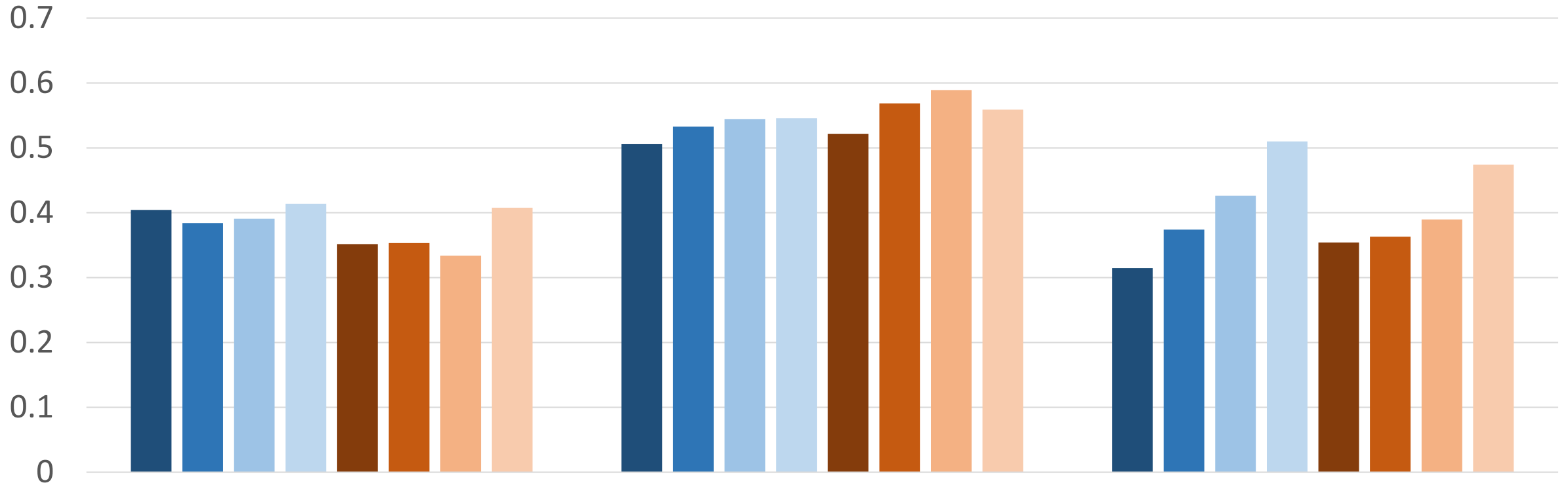
Comparison by Contacts

CPS Number of Contacts



Comparison by Contacts

SIPP Number of Contacts



Wage & Salary Under 50k

Married (Filing Joint)

Any Children

Respondent 1

Respondent 2

Respondent 3

Respondent 4

Nonrespondent 1

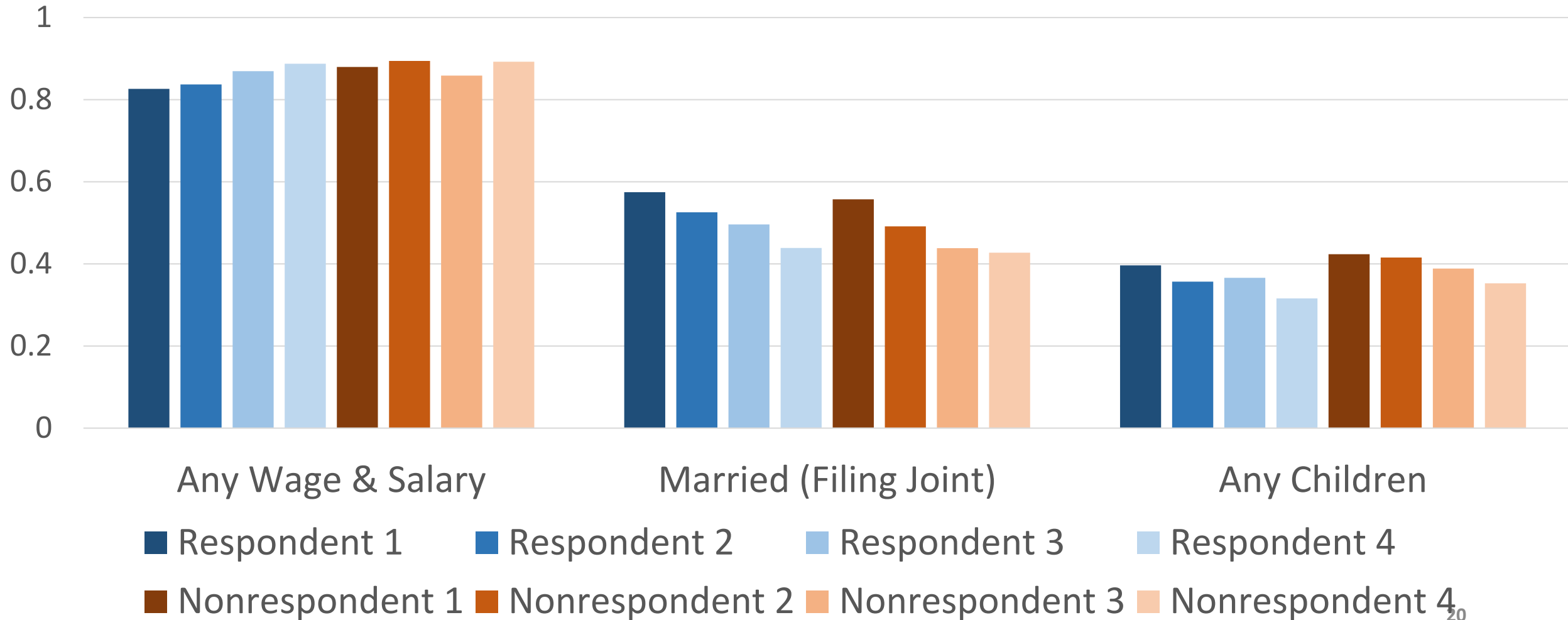
Nonrespondent 2

Nonrespondent 3

Nonrespondent 4₁₉

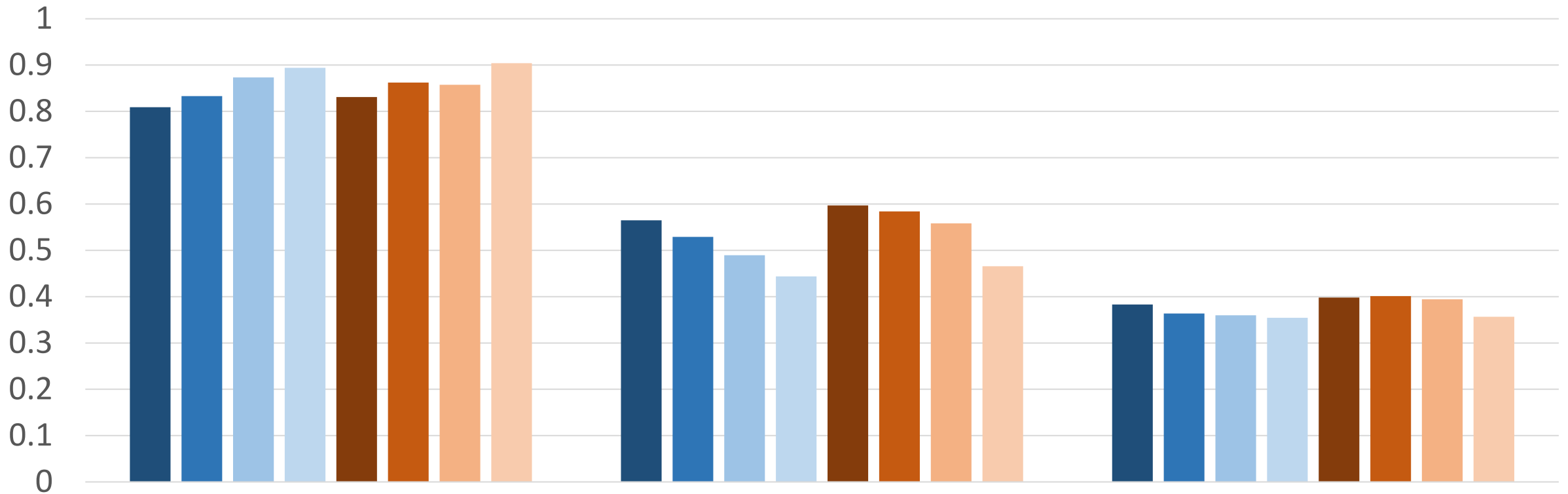
Comparison by Attempts Before Contact

CPS Number of Attempts Before Contact



Comparison by Attempts Before Contact

SIPP Number of Attempts Before Contact



Any Wage & Salary

Married (Filing Joint)

Any Children

Respondent 1

Respondent 2

Respondent 3

Respondent 4

Nonrespondent 1

Nonrespondent 2

Nonrespondent 3

Nonrespondent 4₂₁

Interim Summary

- There are small but significant differences in demographic and economic characteristics of households by response disposition.
 - The most distinct group is clearly noncontacts, though they make up a small percentage of households in our data.
- Household characteristics are related to difficulty contacting a household or obtaining response – and for some factors this is remarkably consistent across response disposition.
 - Having kids and being married reduce the number of attempts needed to contact a household, while having wages increases the number.
 - Having kids is associated with being contacted multiple times.

Thought Experiments

- If refusers and responders are not especially distinct groups, could we reduce survey effort/cost by limiting the number of contacts or contact attempts without adversely affecting the data?
- Could we improve the representativeness of the survey by putting less effort on some cases and more effort on others based on contact history information (such as more intense pursuit of noncontacts)?

Thought Experiments

- What would happen if interviewers:
 1. Limit the number of contacts with households?
 2. Limit the number of attempts or attempts before contact?
 3. Simultaneously increase attempts while limiting contacts?
- Assessing Experiments:
 - Compare bias between sample frame and original dataset to the bias between sample frame and the new experimental dataset.
 - Did the data become more representative of the sample frame, or less? By how much?

CPS Thought Experiments

	Actual Survey	Limit Contacts 3		Limit Attempts 6		Attempts B4 Contact 7		Attempt +3, Contacts 4	
	Bias from Frame (Abs Val)	Diff in Diff	p	Diff in Diff	p	Diff in Diff	p	Diff in Diff	p
Wage > 0	0.0084	-0.0007	0.10	-0.0057	0.00	-0.0014	0.00	-0.0004	0.12
Wage < 50k	0.0064	-0.0018	0.01	-0.0023	0.07	-0.0003	0.61	-0.0006	0.18
Itemization	0.0002	-0.0006	0.71	-0.0008	0.59	0	1.00	-0.0003	0.80
Married	0.011	-0.0001	0.88	-0.0086	0.00	-0.0037	0.00	0	1.00
Any Child	0.0014	-0.0001	0.97	0.0003	0.79	-0.0031	0.00	0.0013	0.48
Avg. Change*	--	-0.0006		-0.0026		-0.0009		-0.0001	
Response Rate	0.8366	0.7747		0.7728		0.8183		0.8358	

*Average of Abs(Frame Bias) minus Abs(Experiment bias) across all measured variables (not just those shown). Negative numbers represent a decrease in representativeness relative to the frame.

SIPP Thought Experiments

	Actual Survey	Limit Contacts 4		Limit Attempts 7		Attempts B4 Contact 7		Attempt +5, Contacts 5	
	Bias from Frame (Abs Val)	Diff in Diff	p	Diff in Diff	p	Diff in Diff	p	Diff in Diff	p
Wage > 0	0.0019	-0.0034	0.00	-0.0109	0.00	-0.002	0.00	-0.0016	0.00
Wage < 50k	0.0076	0.0007	0.34	0.0045	0.01	0.0012	0.08	0.0012	0.04
Itemization	0.017	0.0003	0.72	-0.0017	0.36	0.0003	0.68	0.0009	0.18
Married	0.004	-0.0007	0.29	-0.006	0.18	0.0029	0.42	-0.0003	0.58
Any Child	0.0028	-0.0084	0.00	-0.0125	0.00	0.0006	0.34	-0.0047	0.00
Avg. Change*		-0.0016		-0.006		0.00005		-0.0004	
Response Rate	0.6868	0.6561		0.5963		0.6631		0.6761	

*Average of Abs(Frame Bias) minus Abs(Experiment bias) across all measured variables (not just those shown). Negative numbers represent a decrease in representativeness relative to the frame.

Conclusions - Descriptives

- Our data show that contact history information can be used to make meaningful inferences about household characteristics, both for respondents and nonrespondents.
- There may not be a “continuum of resistance,” but the process of being “hard to get” seems to operate similarly across response disposition.
- Noncontacted households have some distinct characteristics as well (though there is no group of respondents they can be directly compared to). They are less likely to be married and have children but more likely to have wages.

Conclusions - Experiments

- Unfortunately our various tweaks generally had the effect of making the final set of respondents less representative, even when we experimented with pursuing some nonresponding cases with more effort.
- **Future Research:**
 - The combination of high response rates and very low bias for the actual survey may have made it unlikely to observe any benefit of adjusting operational factors.
 - We would like to reproduce this research with a survey that has a lower response rate and possibly a different data collection mode to assess generalizability and determine if interviewer effort decisions might make more of a difference in the context of a lower response rate.
 - Other thought experiment suggestions/ideas?

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Extra slides

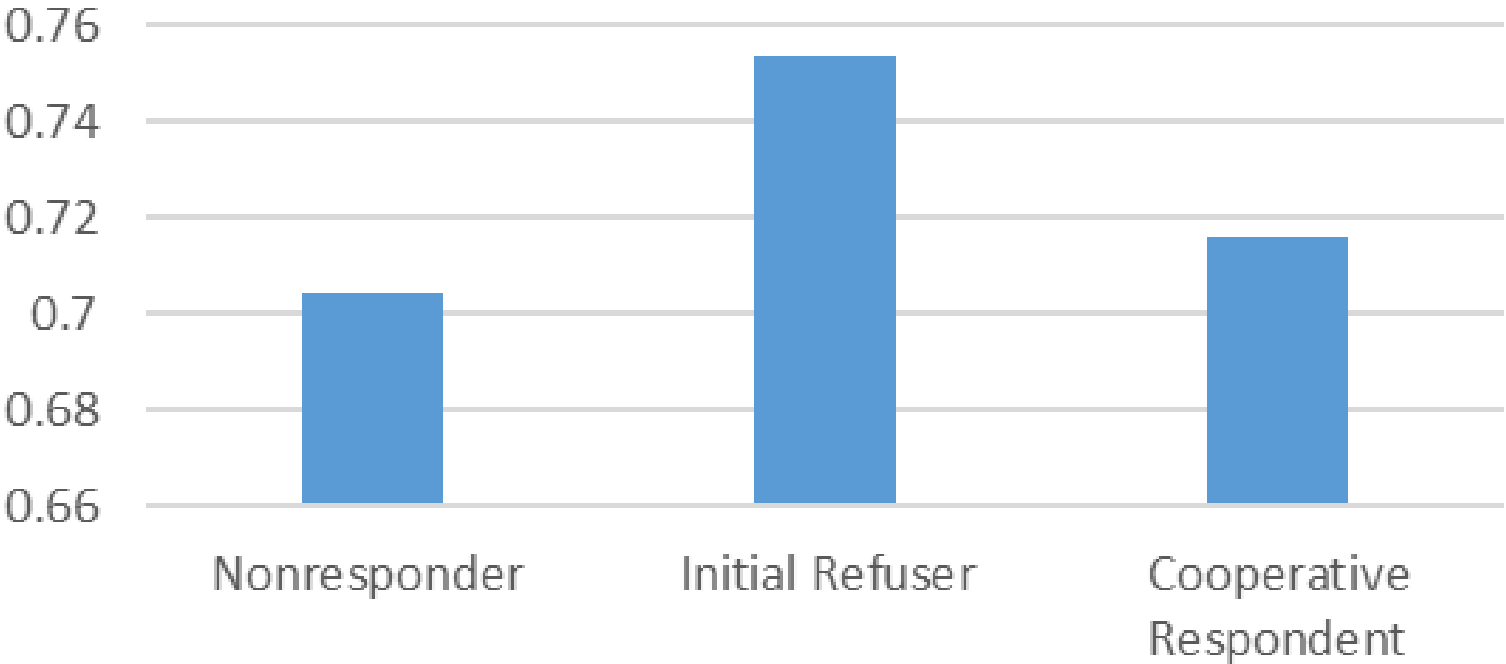
Nonresponse Bias: Overview

- Concern: Declining survey unit response rates → nonresponse bias
- Groves and Peytcheva's (2008) meta analysis: the relationship between nonresponse rates and nonresponse bias is complicated
 - Nonresponse rates are a weak predictor of nonresponse bias
 - Bias seems to be item-specific rather than survey-specific
 - **Bias higher for attitudinal measures, lower for behavioral and demographic measures**
- **Bias higher for behaviors similar to survey participation**
 - Volunteering (Abraham et al. 2009), Voting (Sciarini and Goldberg 2016), Recycling (Kojetin, Borgida, and Snyder 1993)

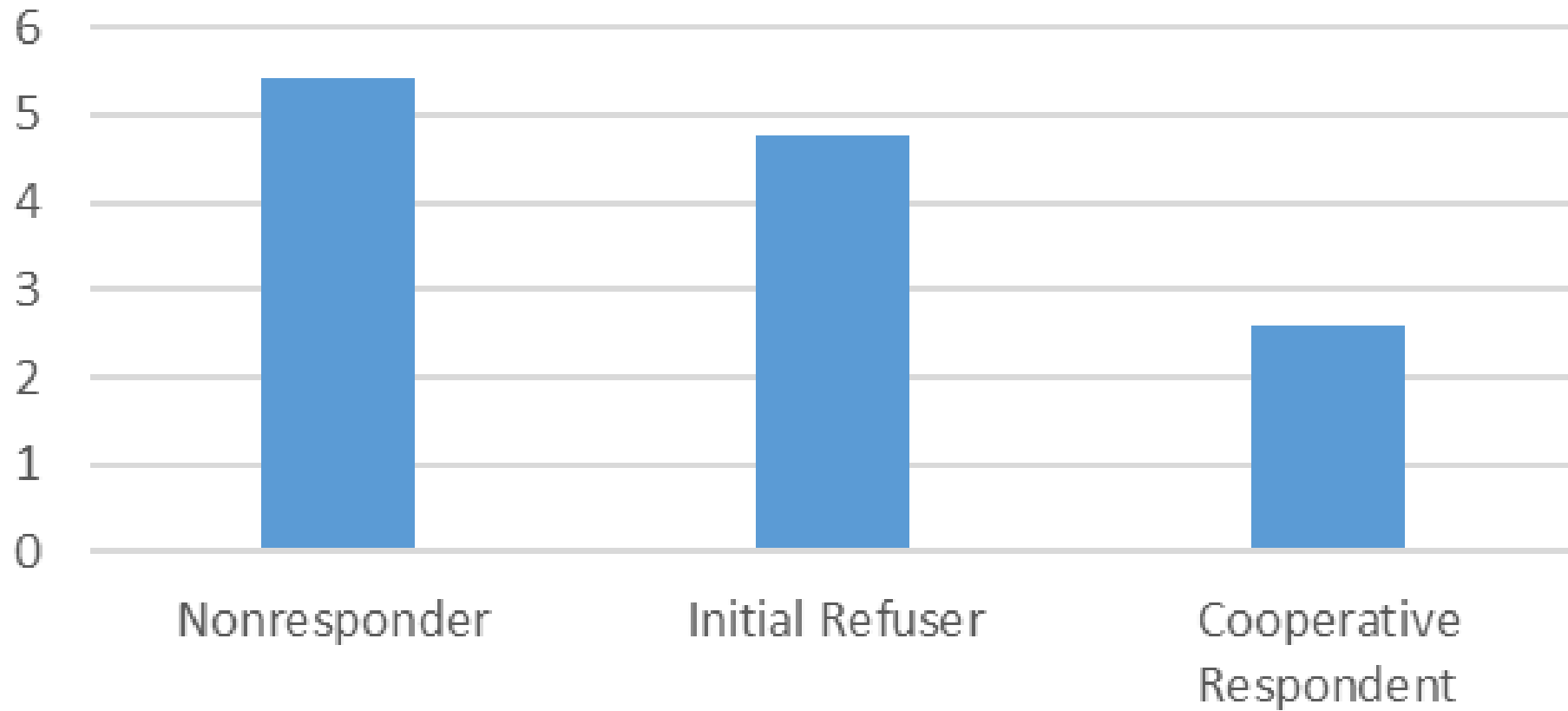
Nonresponse Bias: Overview

- Common Belief that factors affecting survey participation are unrelated to key outcomes in a survey
 - Keeter and DeSilver (2015): “Fortunately, [the volunteer activity] of survey participants is not strongly related to most other things [Pew] studies.”
- Evaluating this hypothesis difficult given the typical lack of data we have of survey nonrespondents

Match Rates to Tax Returns



Number of Attempts



Number of Contacts

