Nonresponse Bias for Survey Estimates of Social Activities & Roles

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The Problem

- Nonresponse introduces the potential for nonresponse bias.
- If we cannot prevent nonresponse, then we need to understand it in order to measure and/or correct for the resulting bias.
- One proposed explanation for nonresponse is the social integration hypothesis.
  - Participation in a broad range of social relationships
  - Individuals that are more integrated will be more likely to respond to a survey request.

The Theory

- Integrated individuals act in accordance with norms perpetuated by their social relationships because:
  - They want to fit in.
  - They want to avoid negative consequences.
  - They perceive their participation will benefit individuals/groups that they know.

Hypotheses

H1: Univariate estimates of social activities and social roles should be upwardly biased.

H2: Variables measuring political and civic activities/roles should suffer from higher levels of nonresponse bias than other social activity and role variables.

H3: Coefficients of the independent variables in multivariate models used to predict social activities and roles should be unbiased.

Data

- American Time Use Survey (ATUS)
  - General population telephone survey
  - Frame is Current Population Survey (CPS) households
  - Social indicators available for 5,150 sampled members
    - 2,779 respondents / 2,371 nonrespondents

- Survey of Health, Ageing and Retirement in Europe (SHARE), Wave II
  - 50+ population in nine European countries
  - Frame is Wave I respondents
  - Social indicators available for 19,299 sampled members
    - 12,904 respondents / 6,395 nonrespondents

Social Activities & Roles

ATUS

- Dinner w/ family
- Friend / family
- Parent
- Spouse
- Sports Group
- Neighbor
- Employee
- Neighbor favors
- Talk politics
- Vote
- Internet post
- Contact official
- Boycott
- Other org.
- Religious org.
- Civic org.
- Community officer
- Community group

SHARE

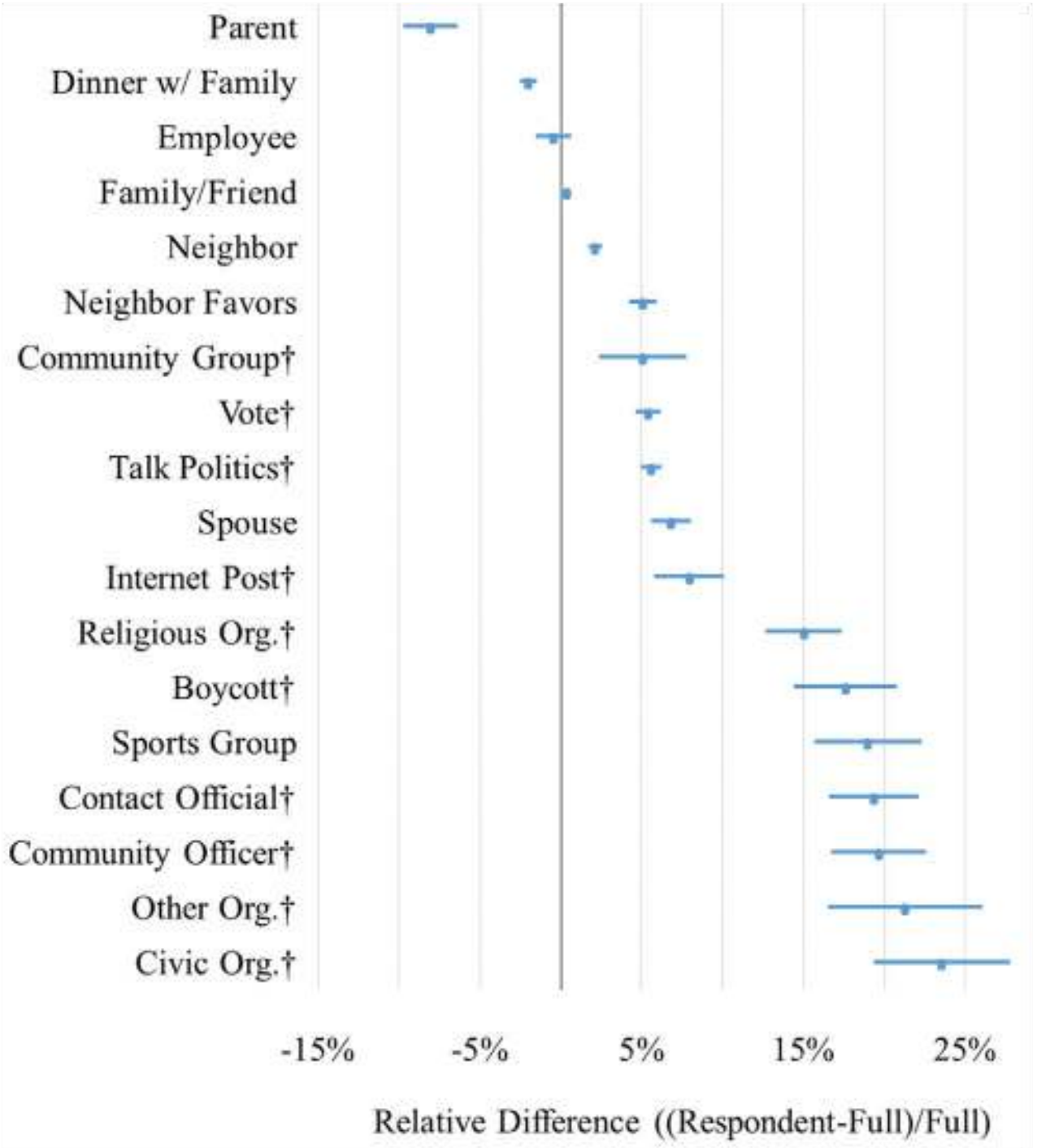
- Spouse / partner
- Contact parent
- Contact child
- Babysit
- Help HHM
- Help family
- Volunteer
- Sick adult
- Community group
- Help others
- Training
- Religious org.

Testing H1 & H2:

Univariate estimates should be biased.

Civic/Political Variables will be more biased.

Relative Bias of Univariate Estimates (ATUS)



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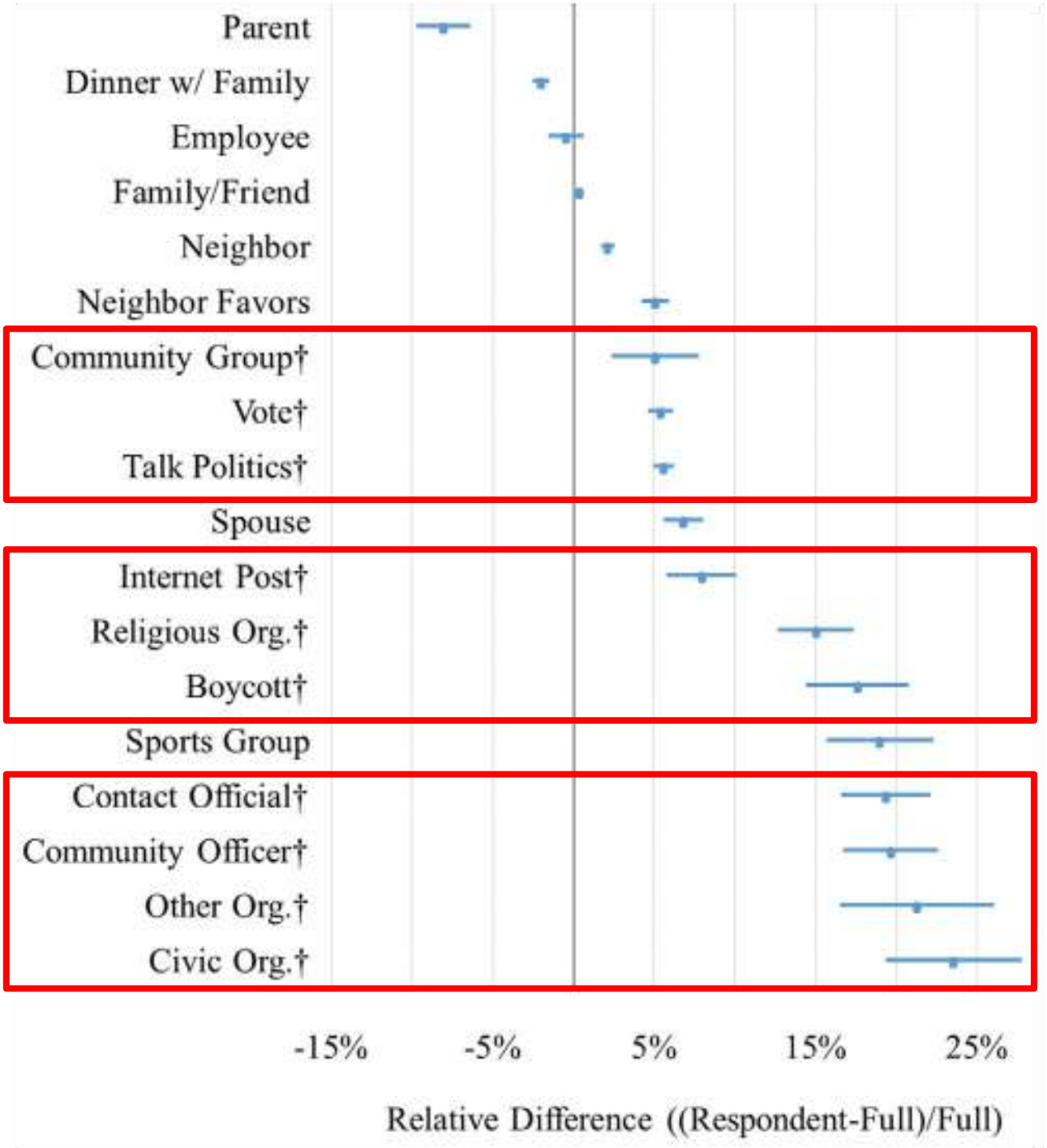
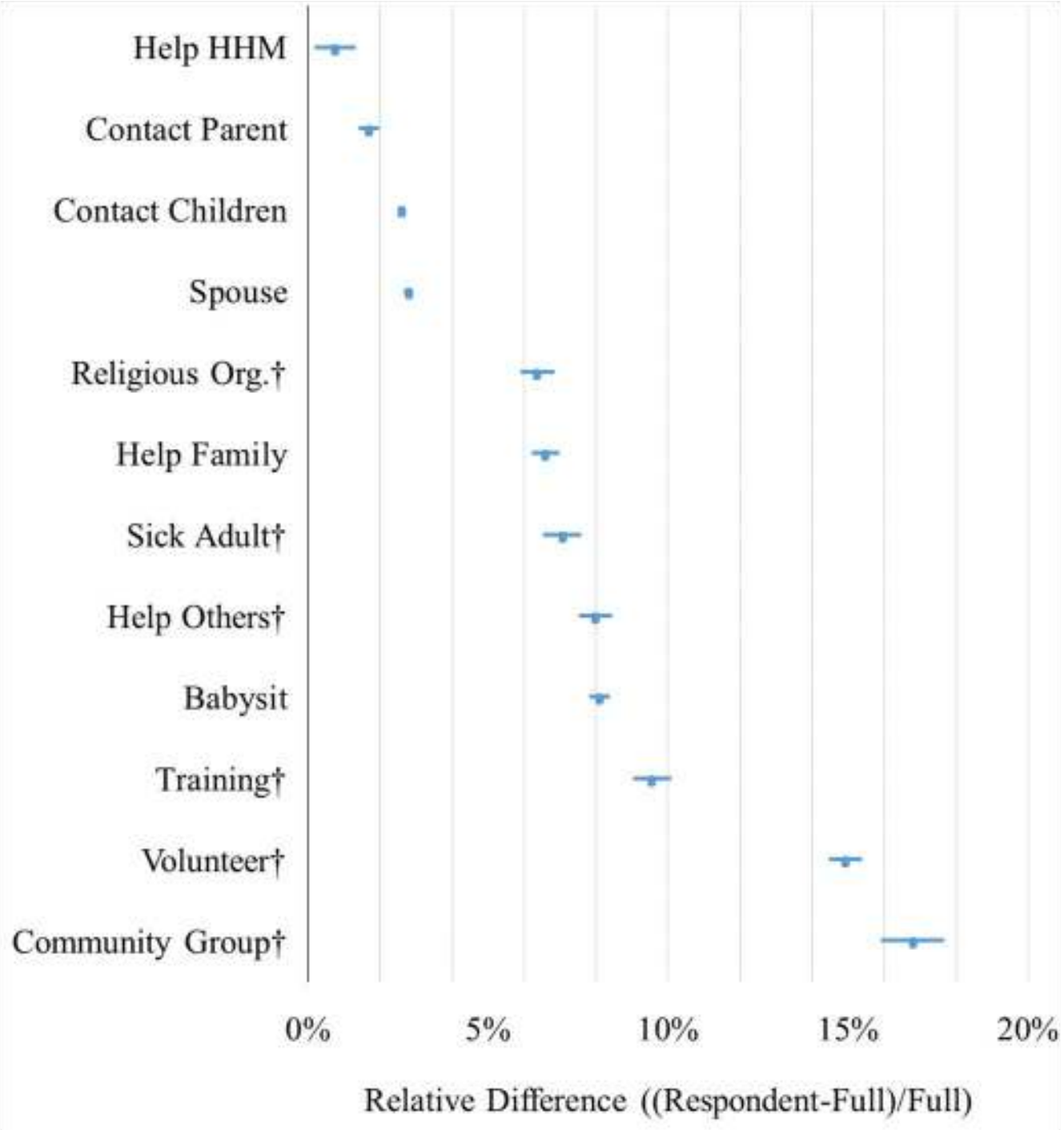


Relative Bias of Univariate Estimates (SHARE)



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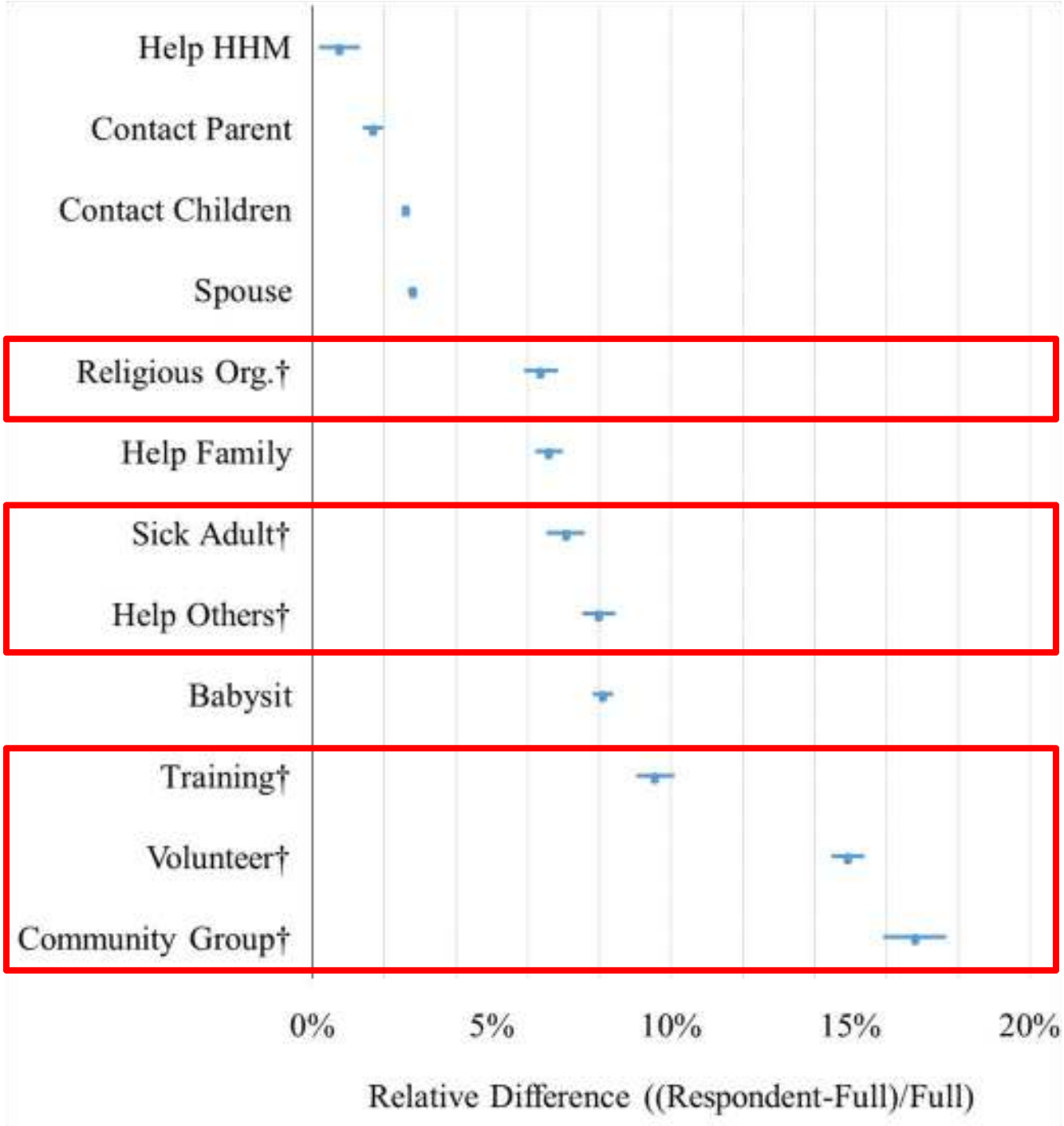

Testing H3:

Multivariate models will be unbiased.

Logit Predicting Contacting an Official (ATUS)

		Full	Respond.	Diff.
	Intercept	-2.58***	-2.409***	0.17‡
	Home Owner	0.278***	0.307***	0.029
Race/Eth. (ref=NH White)	NH Black	-0.063	-0.175	-0.113‡
	Hispanic	-0.387	-0.512**	-0.125
	NH Other	0.053	0.307	**0.254***
Educ. (ref=LT HS)	High School	-0.516***	-0.628***	**-0.112***
	Some College	0.166	0.223	0.057
	College Degree or More	0.525***	0.62***	**0.095****
	Married	0.003	-0.076	**-0.079*****
	Female	0.034	-0.018	**-0.052****
	Age	0.005	0.004	-0.002
	Employed	-0.014	-0.029	-0.015
	Children in Household	-0.062	-0.086	-0.024
Income (ref=LT $20k)	$20,000-$39,999	-0.213*	-0.238	-0.025
	$40,000-$59,999	0.079	0.094	0.015
	$60,000-$99,999	0.128	0.117	-0.01
	$100,000 or More	0.263*	0.27*	0.007

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Number of Significant Differences by Dependent Variable (ATUS)

	<0.001	<0.01	<0.05	n.s.
Civic Org.†	0	2	0	15
Dinner w/ Family	1	1	0	15
Committee Officer†	1	1	0	15
Vote†	1	2	0	14
Religious Org.†	2	1	0	14
Friend/Family	1	3	1	12
Talk Politics†	0	2	3	12
Contact Official†	2	2	1	12
Neighbor Favors	2	3	0	12
Other Org.†	3	2	0	12
Community Group†	2	4	1	10
Boycott†	0	6	1	10
Internet Post†	2	7	0	8
Neighbor	5	3	1	8

Number of Significant Differences by Dependent Variable (SHARE)

	<0.001	<0.01	<0.05	n.s.
Sick Adult†	11	1	1	6
Religious Org.†	11	0	3	5
Babysit	11	2	1	5
Help HHM	12	2	0	5
Help Family	11	0	3	5
Contact Children	14	1	0	4
Contact Parent	16	0	1	2
Community Group†	16	1	0	2
Sports Group	17	0	0	2
Help Others†	16	1	1	1
Training†	16	2	0	1

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Number of Differences in the Significance Level (ATUS)

		Full Sample			
		n.s.	$p<0.05$	$p<0.01$	$p<0.001$
Respondents	n.s.	131	12	8	6
	$p<0.05$	5	12	11	5
	$p<0.01$	2	2	4	10
	$p<0.001$	0	0	0	47

Number of Differences in the Significance Level (SHARE)

		Full Sample			
		n.s.	$p<0.05$	$p<0.01$	$p<0.001$
Respondents	n.s.	81	9	2	5
	$p<0.05$	9	3	6	8
	$p<0.01$	0	2	5	12
	$p<0.001$	0	0	5	81

Summary

- Of the 507 significance tests performed in this section, 61% yielded significant differences!
- 27 of 30 univariate estimates were upwardly biased
  - Civic variables trended toward higher levels of bias, but not significantly so.
- Multivariate models were biased, but…
  - The magnitude of the bias was frequently small.
  - The model interpretation was typically unaffected.

Next Steps

- Create application procedures
  - Taylored contact strategies
  - Inclusion of an integration measure into weight construction
- Assess the relationship between integration and other types of variables
  - E.g., health

Thank you!

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