

# 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

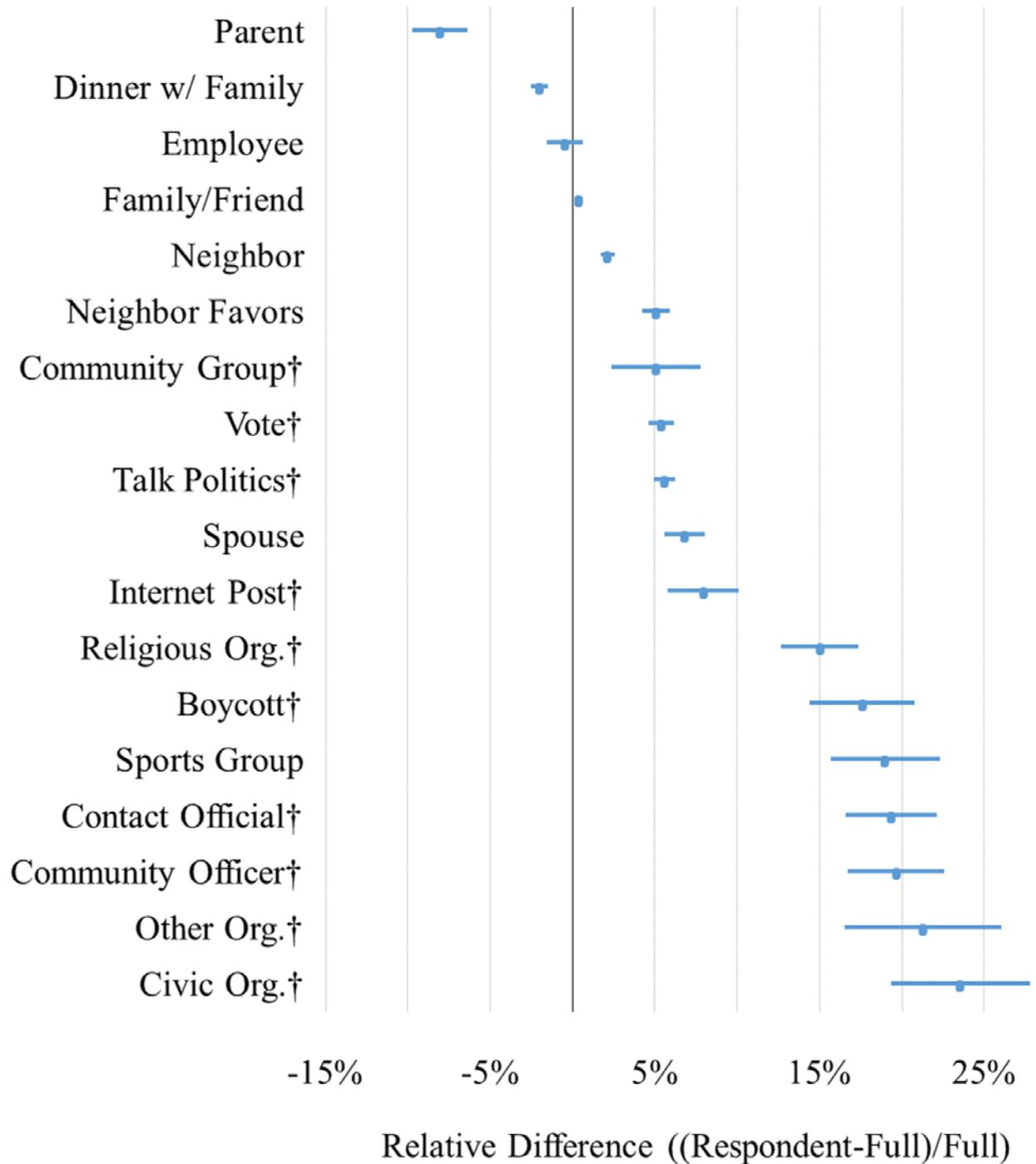
## SHARE

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

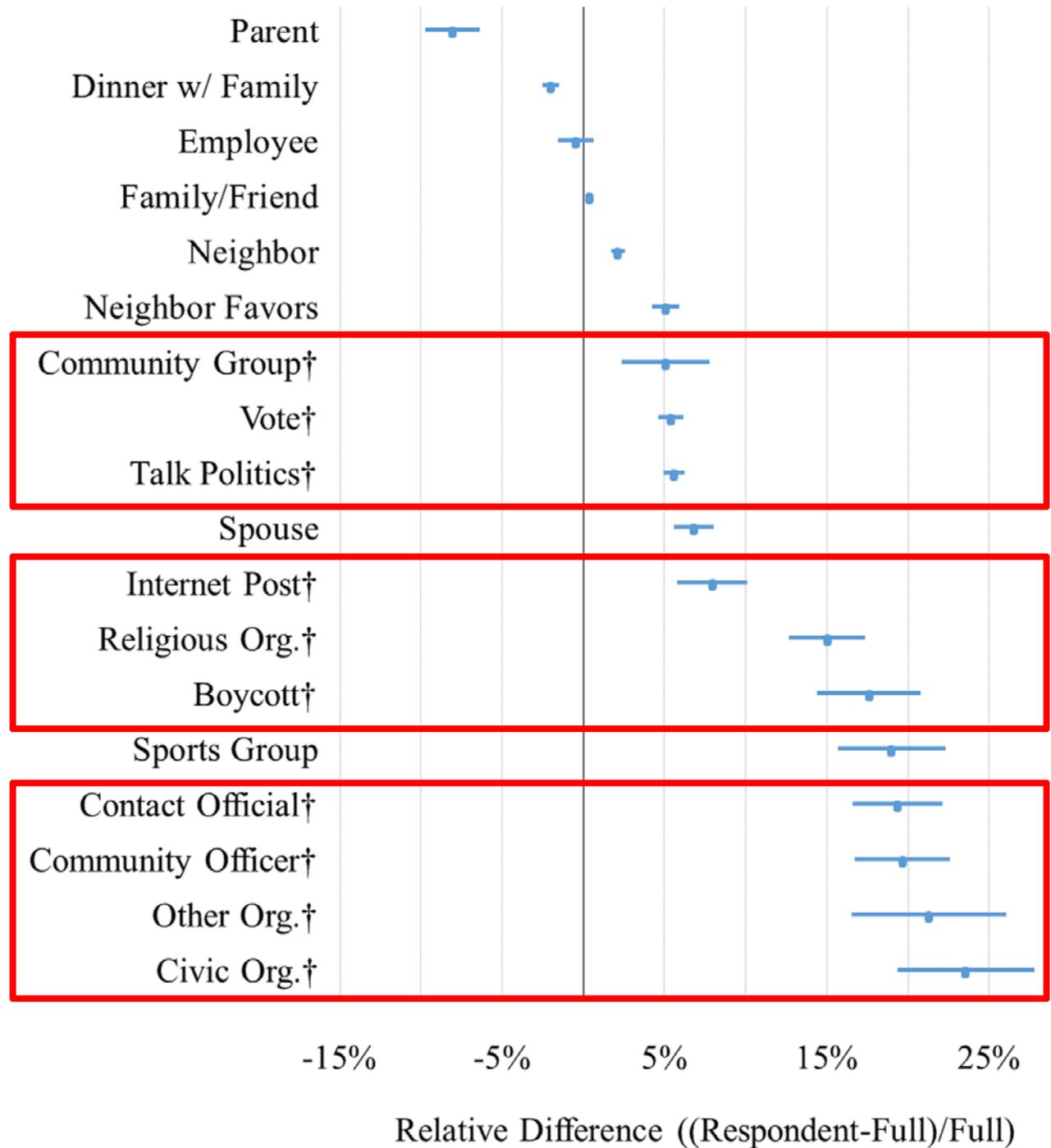
# Testing H1 & H2:

Univariate estimates should be biased.  
Civic/Political Variables will be more biased.

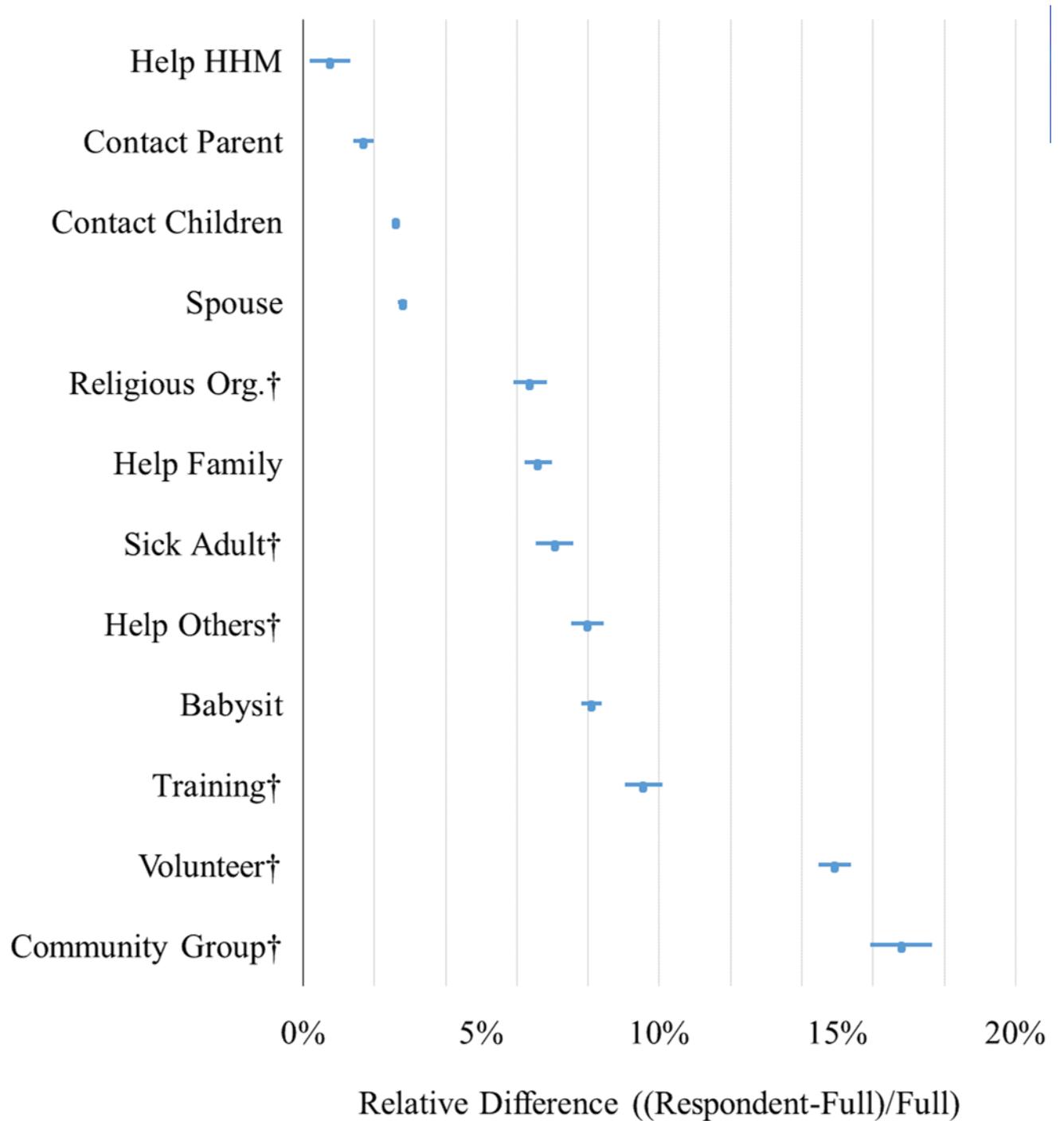
# Relative Bias of Univariate Estimates (ATUS)



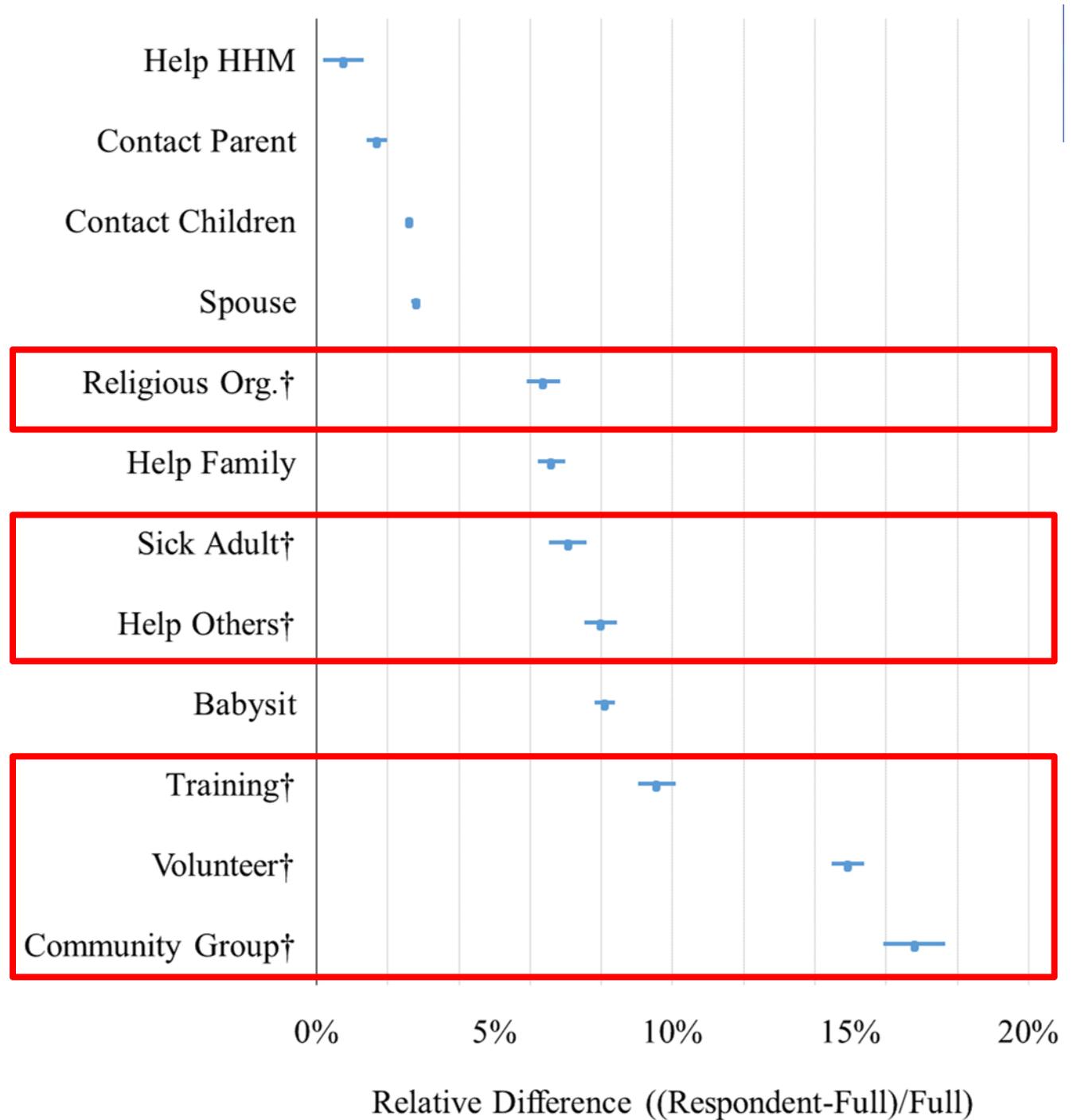
# Relative Bias of Univariate Estimates (ATUS)



# Relative Bias of Univariate Estimates (SHARE)



# Relative Bias of Univariate Estimates (SHARE)



# Testing H3:

Multivariate models will be unbiased.

# Logit Predicting Contacting an Official (ATUS)

		Full	Respond.	Diff.
	Intercept	-2.58 <sup>***</sup>	-2.409 <sup>***</sup>	0.17 <sup>‡</sup>
	Home Owner	0.278 <sup>***</sup>	0.307 <sup>***</sup>	0.029
Race/Eth. (ref=NH White)	NH Black	-0.063	-0.175	-0.113 <sup>‡</sup>
	Hispanic	-0.387	-0.512 <sup>**</sup>	-0.125
	NH Other	0.053	0.307	<b>0.254<sup>***</sup></b>
Educ. (ref=LT HS)	High School	-0.516 <sup>***</sup>	-0.628 <sup>***</sup>	<b>-0.112<sup>*</sup></b>
	Some College	0.166	0.223	0.057
	College Degree or More	0.525 <sup>***</sup>	0.62 <sup>***</sup>	<b>0.095<sup>**</sup></b>
	Married	0.003	-0.076	<b>-0.079<sup>***</sup></b>
	Female	0.034	-0.018	<b>-0.052<sup>**</sup></b>
	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 <sup>*</sup>	-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 <sup>*</sup>	0.27 <sup>*</sup>	0.007

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# Number of Significant Differences by Dependent Variable (ATUS)

	<0.001	<0.01	<0.05	n.s.
Civic Org. <sup>†</sup>	0	2	0	15
Dinner w/ Family	1	1	0	15
Committee Officer <sup>†</sup>	1	1	0	15
Vote <sup>†</sup>	1	2	0	14
Religious Org. <sup>†</sup>	2	1	0	14
Friend/Family	1	3	1	12
Talk Politics <sup>†</sup>	0	2	3	12
Contact Official <sup>†</sup>	2	2	1	12
Neighbor Favors	2	3	0	12
Other Org. <sup>†</sup>	3	2	0	12
Community Group <sup>†</sup>	2	4	1	10
Boycott <sup>†</sup>	0	6	1	10
Internet Post <sup>†</sup>	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 <sup>†</sup>	11	1	1	6
Religious Org. <sup>†</sup>	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 <sup>†</sup>	16	1	0	2
Sports Group	17	0	0	2
Help Others <sup>†</sup>	16	1	1	1
Training <sup>†</sup>	16	2	0	1
Volunteer <sup>†</sup>	17	1	0	1

# Logit Predicting Contacting an Official (ATUS)

		Full	Respond.	Diff.
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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
  - Tailored 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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