

Non-response Bias in the 2013 CPS ASEC Content Test

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*Any views expressed on methodological, statistical, or operational issues
are my own and are not necessarily shared by the U.S. Census Bureau.*

Introduction

- Low response rate
 - 2006 OMB Standards and Guidelines
- Sample design similar to American Time Use Survey (ATUS)
 - Could use Abraham, Maitland and Bianchi (2006) as framework for non-response bias analysis.

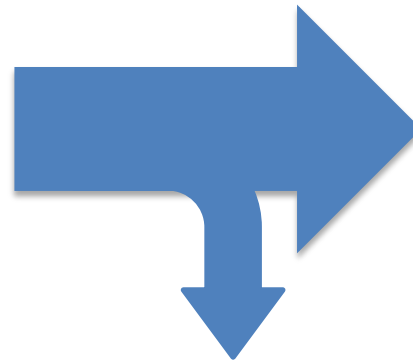
Sample Construction

Outgoing CPS Rotation Groups

Hispanic Households



Non-Hispanic Households



2013 CPS ASEC
Content Test Sample
n = 22,508

Selected for the
American Time-
Use Survey
(ATUS)

- Household characteristics from respondent's last CPS interview.
- Response outcome, income, and health insurance from 2013 Content Test

* selected from month-in-sample=7 in August 2012

Outcome Categories

Outcome Descriptions	Number	Percent (of eligible cases)
Completed/sufficient partial responses	9,195	43.1
Eligible non-interviews	12,145	56.9
Contacts	3,435	16.1
Refusals	3,366	15.8
Other contacts	69	0.3
Noncontacts	8,710	40.8
Eligible noncontacts	3,456	16.2
Unknown eligibility	5,254	24.6
Ineligible non-interviews	1,168	--

Response, Contact, and Cooperation Rates

$$RR2 = \frac{(I + P)}{(I + P) + R + O + NC + U}$$

$$CON1 = \frac{(I + P) + R + O}{(I + P) + R + O + NC + U}$$

$$COOP2 = \frac{(I + P)}{(I + P) + R + O}$$

I = Complete interview
 P = Partial interview
 R = Refusal and break-off
 O = Other
 NC = Non-contact
 U = Unknown

$$RR2 = CON1 \times COOP2$$

The American Association for Public Opinion Research. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*. 7th edition. AAPOR, 2011.

Unweighted and Weighted Rates

	Unweighted	Weighted
Response Rate (RR2)	43.1	41.3
Contact Rate (CON1)	59.2	57.9
Cooperation Rate (COOP2)	72.8	71.4

$$Weight = CPS\ Base\ Weight \times f_{Non-Hispanic\ HH} \times f_{non-ATUS}$$

Descriptive Statistics

Characteristic	Percent
AGE	
Under 30	10.7
30 to 44	25.6
45 to 54	21.0
55 to 64	19.4
65 and older	23.3
SEX	
Female	50.0
RACE/ORIGIN	
Non-Hispanic White	76.1
Non-Hispanic Black	8.2
Hispanic or Latino	9.7
Non-Hispanic other	6.0
CITIZENSHIP	
Native born citizen	10.7
Naturalized citizen	25.6
Non citizen	21.0

Characteristic	Percent
FAMILY INCOME	
Income not reported	22.1
Under \$20,000	15.1
\$20,000 to \$39,999	19.4
\$40,000 to \$74,999	21.5
\$75,000 or more	21.8
EMPLOYMENT STATUS	
Employed	60.2
Unemployed	4.6
Not in labor force	35.2
EDUCATION	
Less than HS Diploma	10.4
HS Diploma or equiv.	29.2
Some college/Associate's degree	28.7
Bachelor's degree	19.8
Master's degree or higher	11.8

Characteristic	Percent
MARITAL STATUS	
Now married	54.6
Widowed	10.0
Divorced	14.3
Separated	2.6
Never married	18.5
HOUSEHOLD SIZE	
1 person	25.0
2 people	35.9
3 people	15.7
4 people	13.4
5 people or more	10.0

Response Model

$$Pr(\text{Response}) = \text{logit}^{-1}(\mathbf{x}\boldsymbol{\beta})$$

X's = Age, Sex, Race, Origin, Citizenship, Income, Education, Employment, Marital Status, Household Size, Presence of Children, Region, Metro Status

Also:

$$Pr(\text{Contact}) = \text{logit}^{-1}(\mathbf{x}\boldsymbol{\beta})$$

$$Pr(\text{Cooperation}) = \text{logit}^{-1}(\mathbf{x}\boldsymbol{\beta})$$

Models were weighted and the variance of parameters calculated using the Successive Difference Replication (SDR) method.

Marginal Effects

Characteristic	Response	Contact	Cooperation
AGE (Ref grp: Under 30)			
30 to 44	0.039***	0.031**	0.042*
45 to 54	0.081***	0.100***	0.033
55 to 64	0.163***	0.194***	0.057**
65 and older	0.234***	0.275***	0.080***
RACE/ORIGIN (Ref grp: Non-Hispanic White)			
Non-Hispanic Black	-0.110***	-0.122***	-0.043*
Hispanic or Latino	-0.039**	-0.064***	0.015
Other non-Hispanic	-0.059***	-0.070***	-0.018
Female (Ref grp: Male)	-0.023***	-0.021***	-0.014
Native born (Ref grp: Foreign born)	-0.011	-0.039**	0.024
Citizen (Ref grp: Non-citizen)	-0.028	-0.016	-0.028

*** p<0.01, ** p<0.05, * p<0.1

Marginal Effects (Continued)

Characteristic	Response	Contact	Cooperation
FAMILY INCOME (Ref grp: Income not reported)			
Under \$20,000	0.032**	-0.038***	0.103***
\$20,000 to \$39,999	0.077***	0.013	0.117***
\$40,000 to \$74,999	0.102***	0.030***	0.139***
\$75,000 or more	0.110***	0.033**	0.146***
EDUCATION (Ref grp: Less than HS Diploma)			
HS Diploma or equivalent	0.026*	0.028*	0.014
Some college/Associate's degree	0.050***	0.037**	0.044**
Bachelor's degree	0.100***	0.079***	0.081***
Master's degree or higher	0.126***	0.095***	0.103***
EMPLOYMENT STATUS (Ref grp: Employed)			
Unemployed	-0.015	-0.004	-0.019
Not in labor force	0.021*	0.039***	-0.006

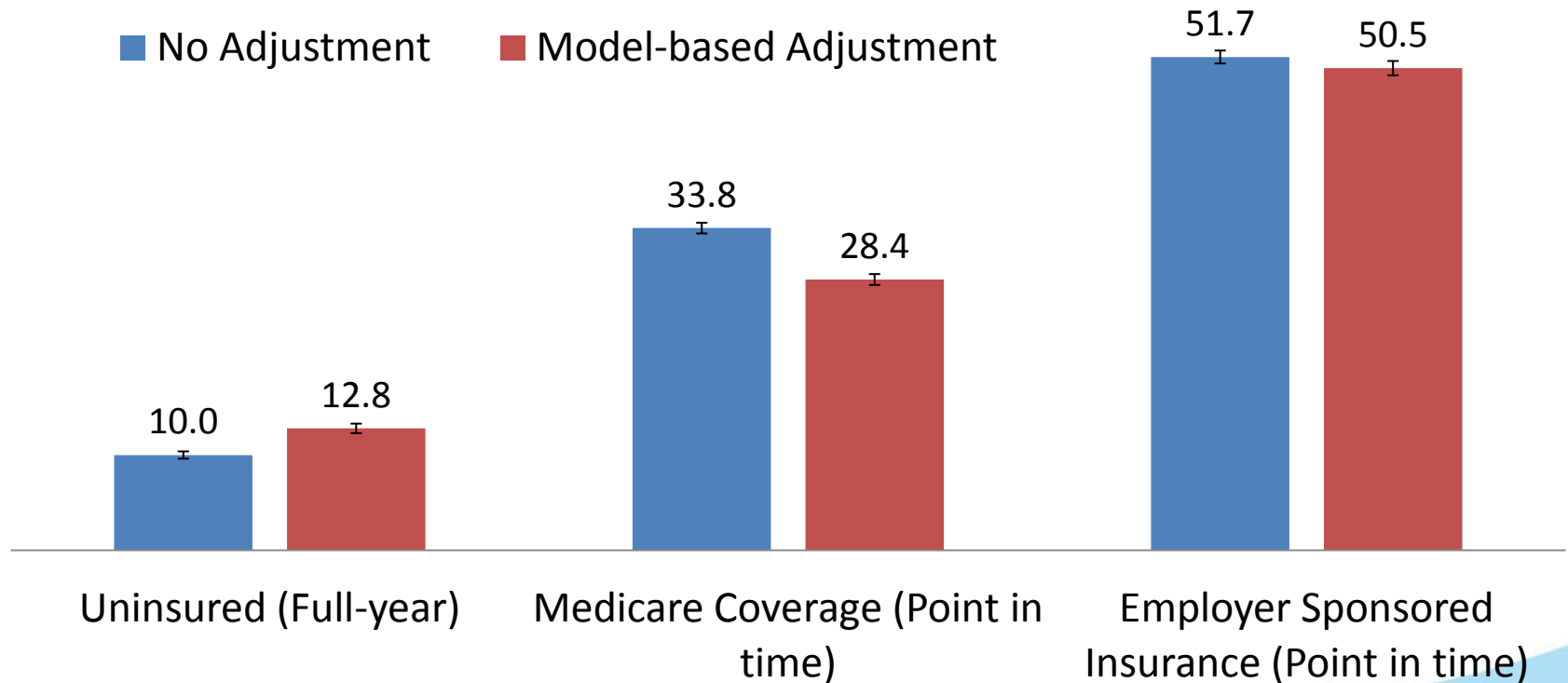
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Marginal Effects (Continued)

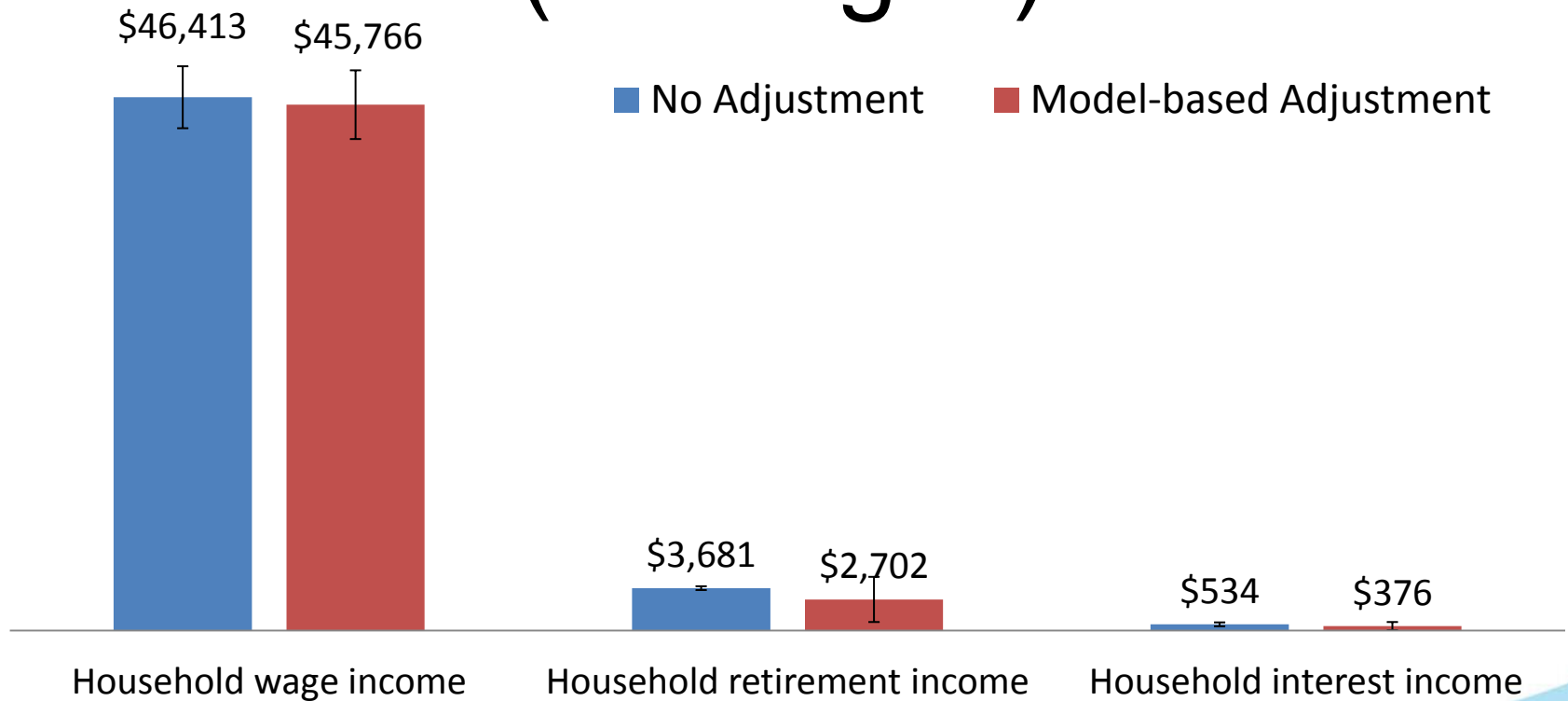
Characteristic	Response	Contact	Cooperation
MARITAL STATUS (Ref grp: Now married)			
Widowed	-0.026	-0.037**	-0.005
Divorced	-0.031**	-0.059***	0.018
Separated	-0.102***	-0.137***	-0.006
Never married	-0.024*	-0.044***	0.018
HOUSEHOLD SIZE (Ref grp: 1 person households)			
2	-0.022*	-0.004	-0.030**
3	-0.035**	-0.021	-0.031
4	-0.048**	-0.020	-0.058**
5 or more	-0.063***	-0.020	-0.086***

*** p<0.01, ** p<0.05, * p<0.1

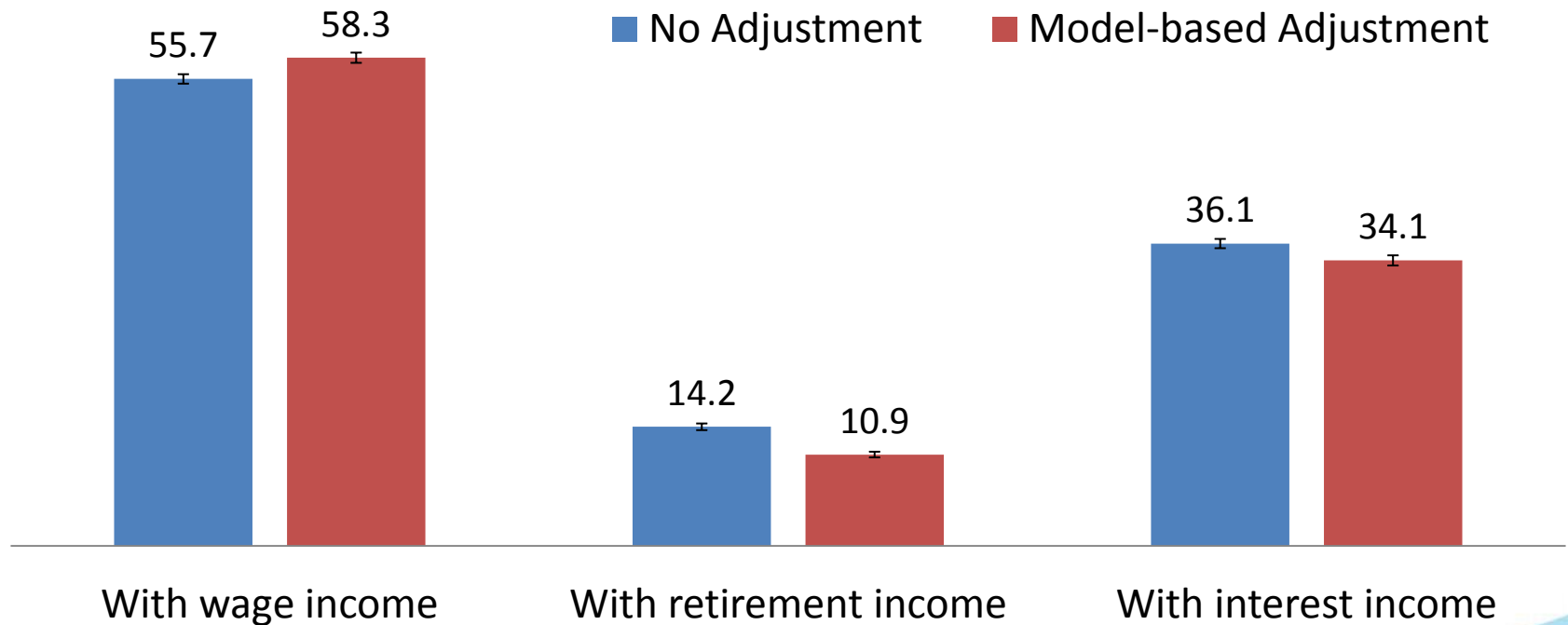
Non-response Bias on Household-level Health Insurance Estimates



Non-response Bias on Household Income Estimates (Averages)



Non-response Bias on Household Income Estimates (Percentages)



Discussion

- Sample design leads to:
 - Low response (-)
 - Past info for nonresponse analysis (+)
- Age, race, education, and household size important
- What next?
 - Weighting controls
 - Other health insurance/income measures

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