



Methods and Considerations in Transitioning RDD to ABS: An Assessment of ABS Nonresponse Bias

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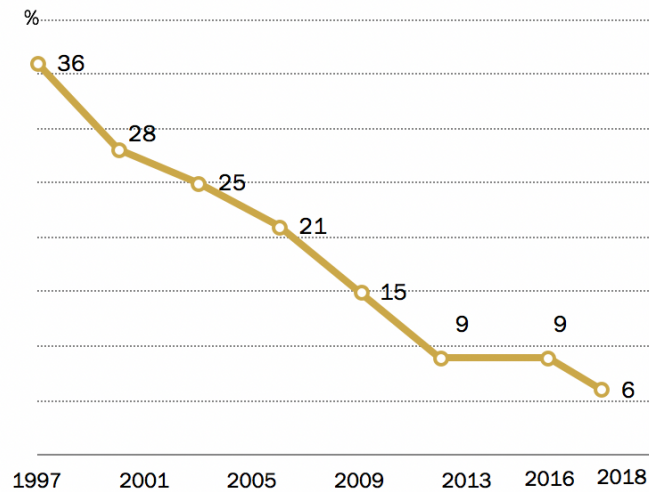
Research Problem

- Many studies are transitioning from telephone to address-based designs
 - Response rate concerns for RDD in the age of telephone spamming and blocking
 - Cost
- Will ABS have differential nonresponse properties?
- Modal changes will have some impact
- Will the trend persist?

Uh...We Can Definitely Say This is a Downward Trend!!

After brief plateau, telephone survey response rates have fallen again

Response rate by year (%)

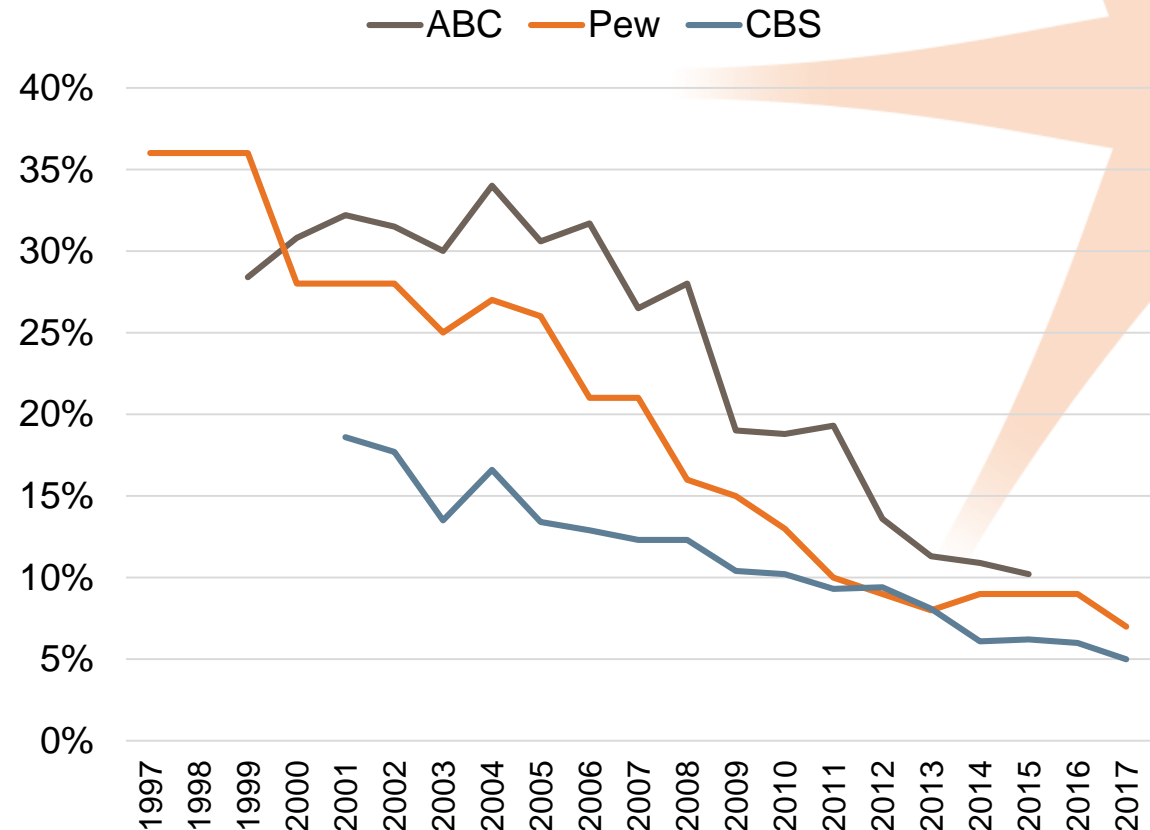


Note: Response rate is AAPOR RR3. Only landlines sampled 1997-2006. Rates are typical for surveys conducted in each year.

Source: Pew Research Center telephone surveys conducted 1997-2018.

PEW RESEARCH CENTER

Response Rates, 1997 - 2017



Spam Flagging and Blocking Impact

- 4.7 billion robocalls placed in the U.S. in January 2020
- 1,800/second
- 14.4 calls per person



They Don't Want Us to Reach Them

How to stop unwanted calls
ON A MOBILE PHONE



See what **built-in features** your phone has.



See what services your **carrier** offers.



Download a **call-blocking app**.

- Some apps are **free**, but others charge a monthly **fee**.
- Some apps will **access your contacts**.
- Calls might be **stopped**, **ring silently**, or go straight to **voicemail**.

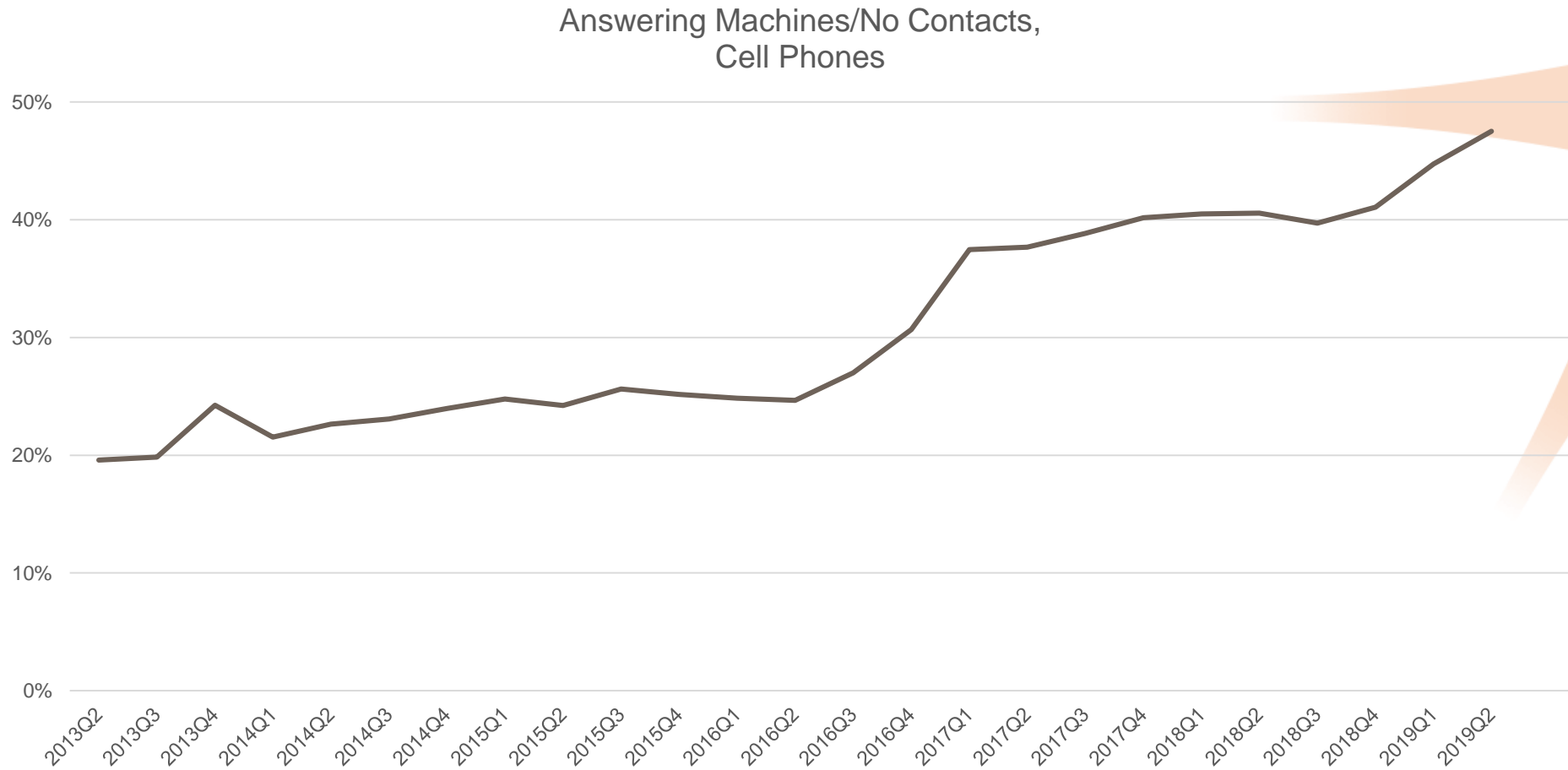


Report unwanted calls at **ftc.gov/complaint**

FEDERAL TRADE COMMISSION • ftc.gov/calls

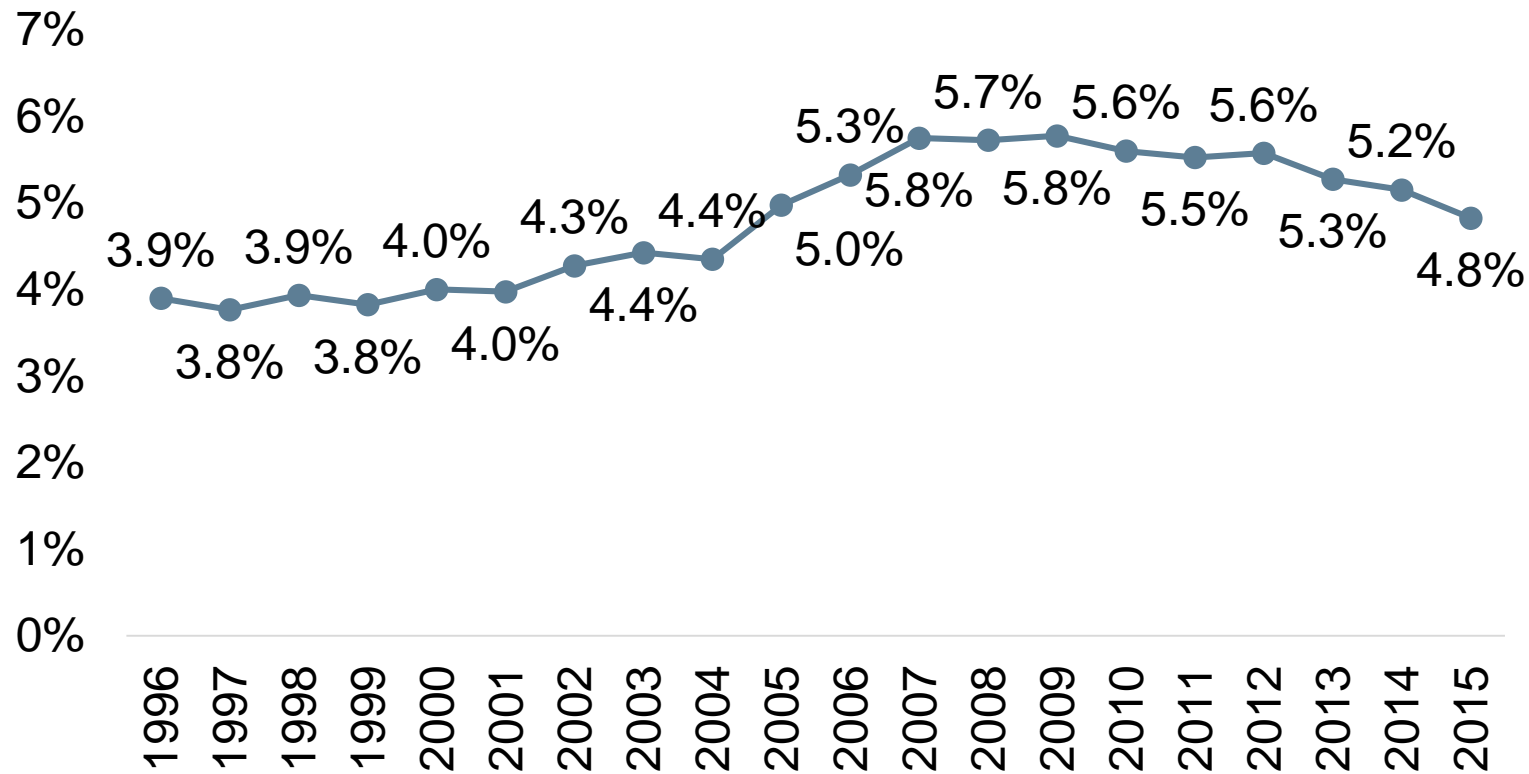
- Google Pixel call screen now blocks any call from known robocallers in Google's database.
- Apple iOS Silence Unknown Callers feature blocks phone numbers that you've never been in contact with.
- Future possibilities:
 1. Blocking technology continues to grow, and is "white list" agnostic.
 2. Blocking technology continues to grow, but is not white list agnostic.
 3. If #2, how does the research community develop white listings?

The Most Telling Statistic: The Rise of the No Answer/Voice Mail



Bias Is Generally Stable

Unweighted Overall Mean Absolute Biases,
ABC, CBS, and Pew Polls



Should We Care About Trend?

- **We care about trend if:**
 - RDD and ABS are both equally representative and have similar nonresponse properties
 - If mode changes have negligible impact
- **We do not care about trend if:**
 - ABS has better nonresponse properties than RDD
 - If we do not care about trend, what, nevertheless, is the optimal approach to ABS weighting?

Thinking About Differential

- **RDD**
 - Dual-frame sample requires frame correction (Buskirk and Best, 2012)
 - Nonresponse particular to phone ownership
- **ABS**
 - Push-to-web alone will hold Internet coverage bias
 - Push-to-web combined with mail and/or phone will likely oversample Internet users
- **Both RDD and ABS**
 - Thought to under-represent the young, non-Whites, low education...but are they the same?

Frame-Independent Nonresponse

- Traditionally, a difficult assessment in RDD:
 - Hard to reach telephone analysis
 - Comparing point estimates against gold standard benchmarks.
 - Although less common, compare to appended data universe counts.
- ABS possibilities:
 - Comparing point estimates against gold standard benchmarks.
 - Compare to appended data universe counts.
 - Compare to Census Planning Database universe counts.
 - Compare to ABS frame universe counts.

Frame-Comparative Nonresponse

- Model-based comparison of mode
 - Random forest or regression to uncover most important variables in terms of modal differences
 - Would be variables one can calibrate
 - RF Can uncover key interactions
 - Similar random forest model on key survey estimates can allow for a “key driver-like” analysis
 - Variables important to key estimates and on mode will have the greatest impact on differences by mode, if calibrated to.

Process

- Weight each frame independently and similarly.
- Assess whether key point estimates are significantly different by frame.
- If so, assess nonresponse of each frame.
- Make decision as to whether to reweight telephone, abs, or both.
- Identify new metrics that will minimize nonresponse as much as possible and also possibly doing the most to preserve trend.

Data

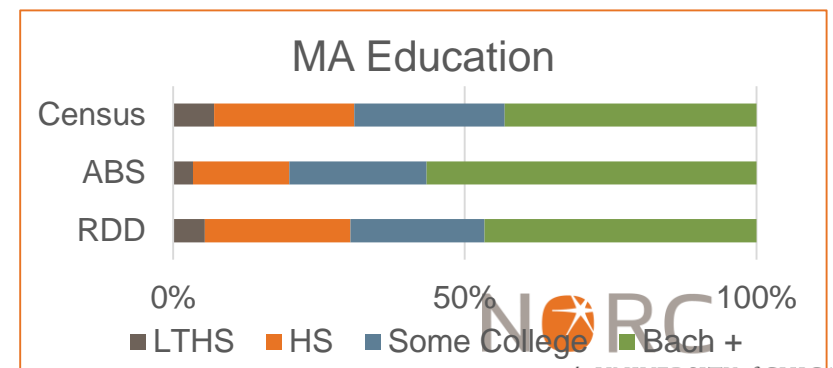
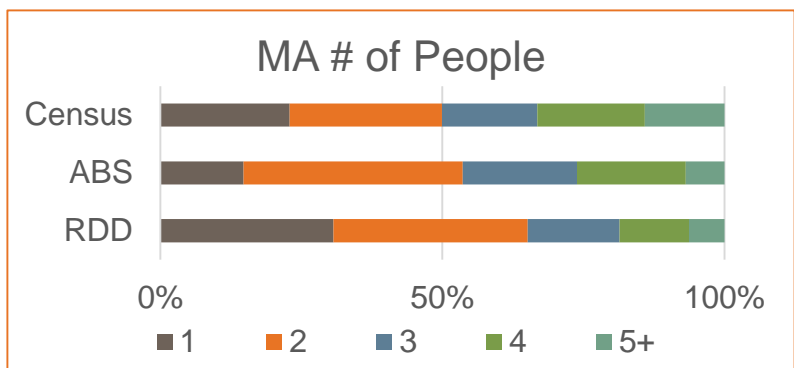
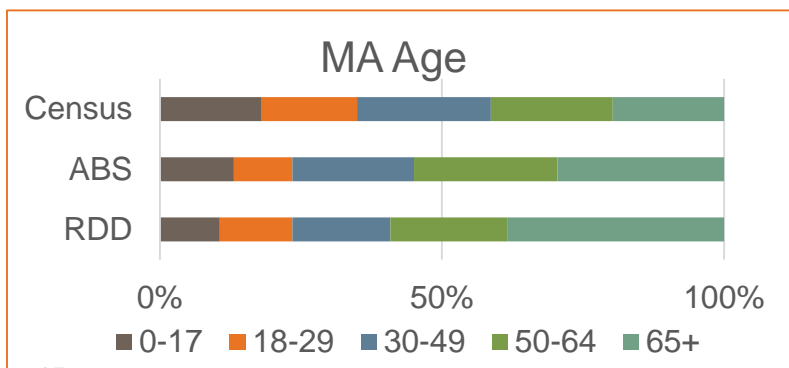
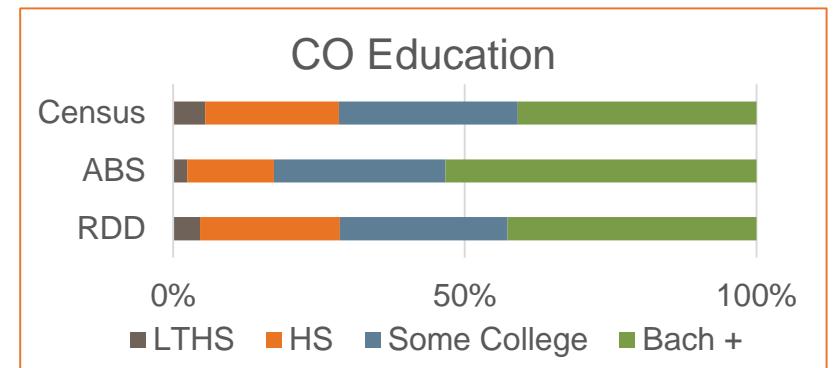
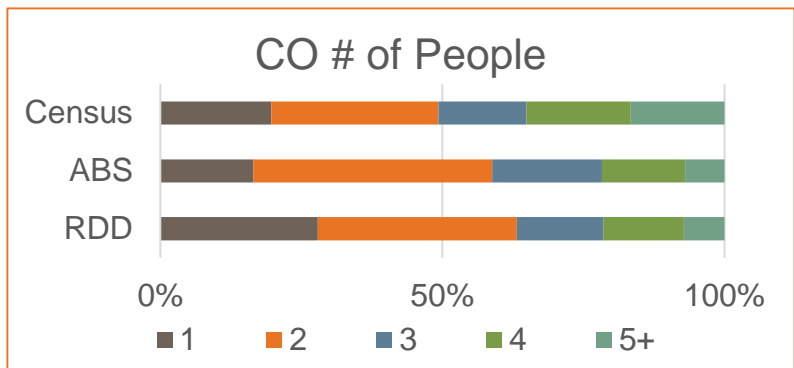
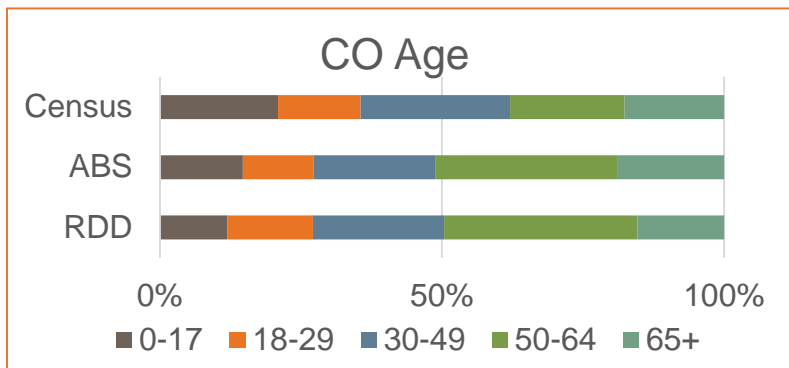
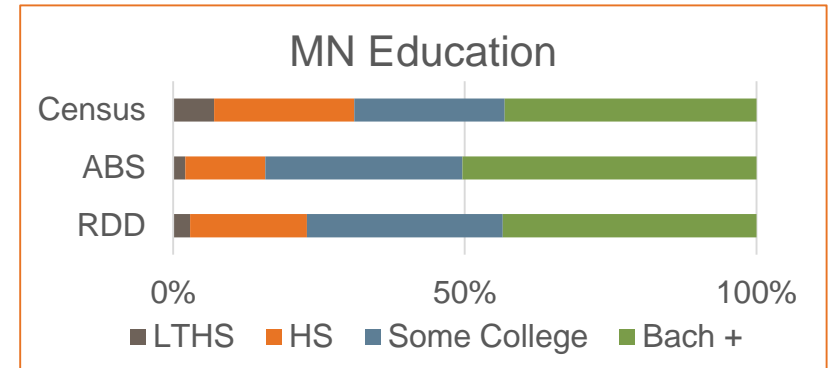
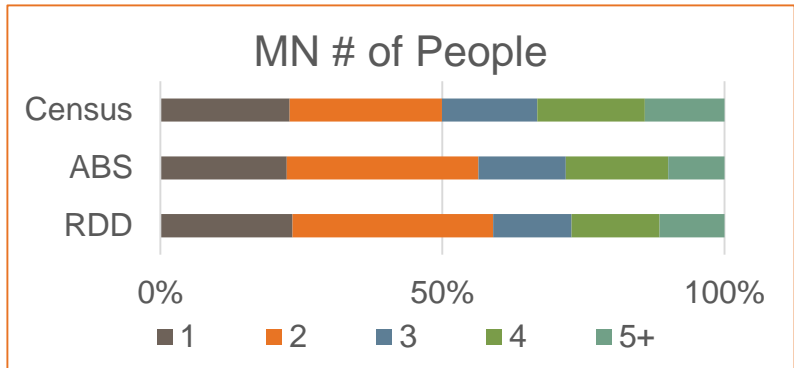
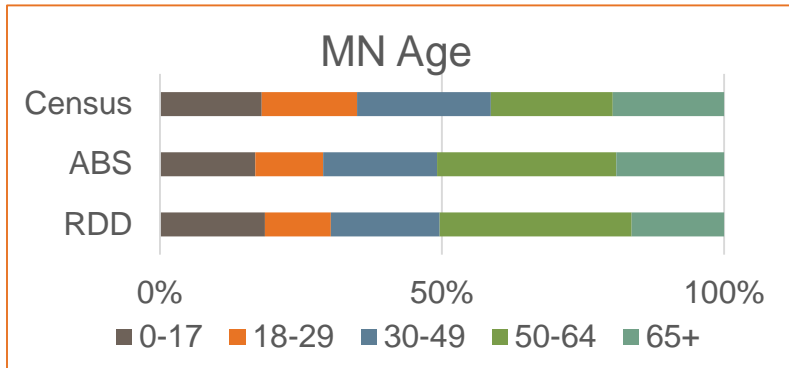
- Minnesota Health Access Survey
 - Since 2001
 - ~11,000 interviews every other year
- Massachusetts Health Interview Survey
 - Since 2000
 - ~5,000 interviews, often annually
- Colorado health Access Survey
 - Since 2008-9
 - ~10,000 interviews, every other year
- All measure health insurance, accessibility, and full household roster demographics

Regression Results

	MA		CO		MN	
	B	Sig.	B	Sig.	B	Sig.
Number of People	0.05	.001	0.02	.000	0.01	.025
Born in US	0.05	.031			-0.01	.549
Male	0.00	.833	0.00	.413	-0.04	.000
African American	-0.09	.002	0.00	.993	-0.07	.001
Hispanic	-0.03	.260	0.01	.168	-0.12	.000
Other Race	-0.04	.167	-0.01	.255	-0.01	.564
Age Under 30	-0.03	.217	-0.03	.000	-0.06	.000
Age 30-49	0.05	.010	-0.03	.001	-0.04	.009
Age 50-64	0.07	.001	-0.02	.061	-0.06	.000
HS or Less	-0.13	.001	-0.08	.000	0.03	.278
Some College	-0.02	.163	-0.02	.009	0.09	.004
Pop Density	0.00	.702				
Use Internet	0.37	.001	0.12	.000	-0.02	.202

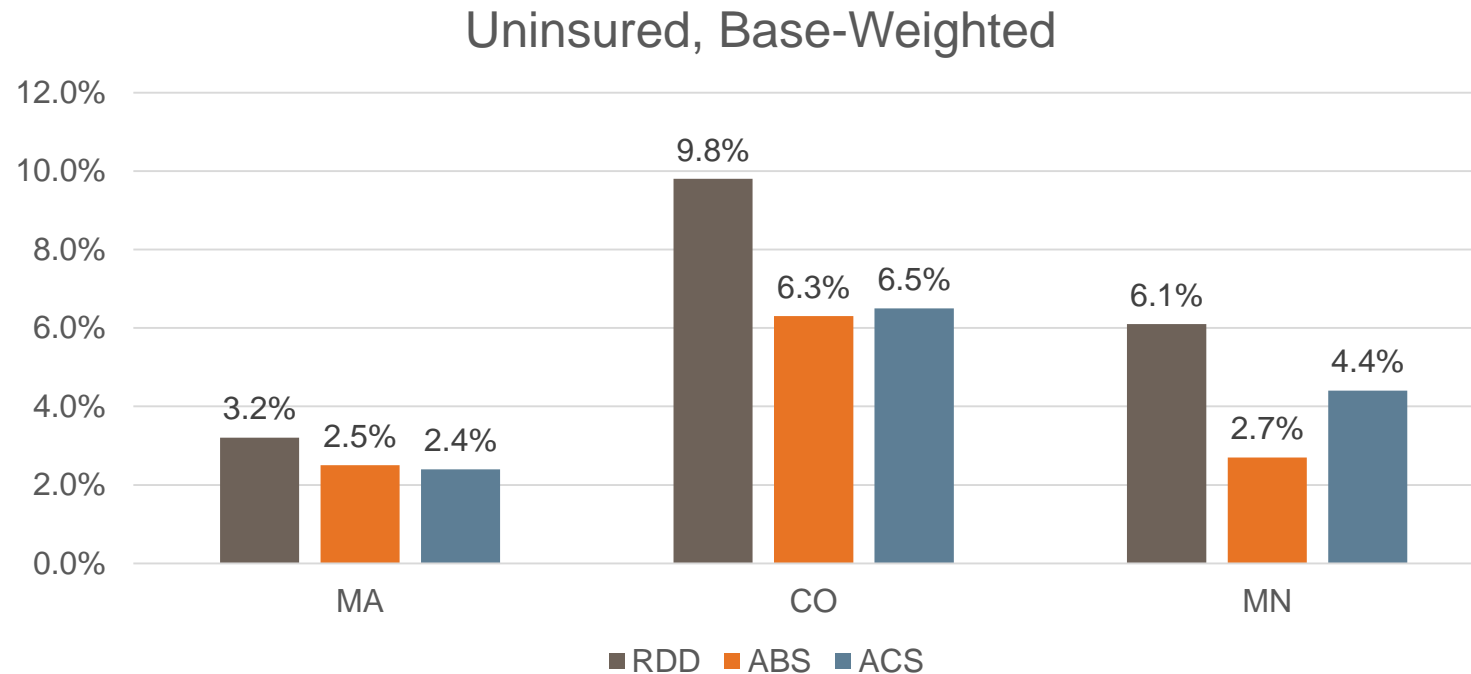
- Random forest interaction detection procedures can go deeper in detecting differential nonresponse

ABS Vs RDD Vs Census



ABS Vs RDD Vs Census (ACS)

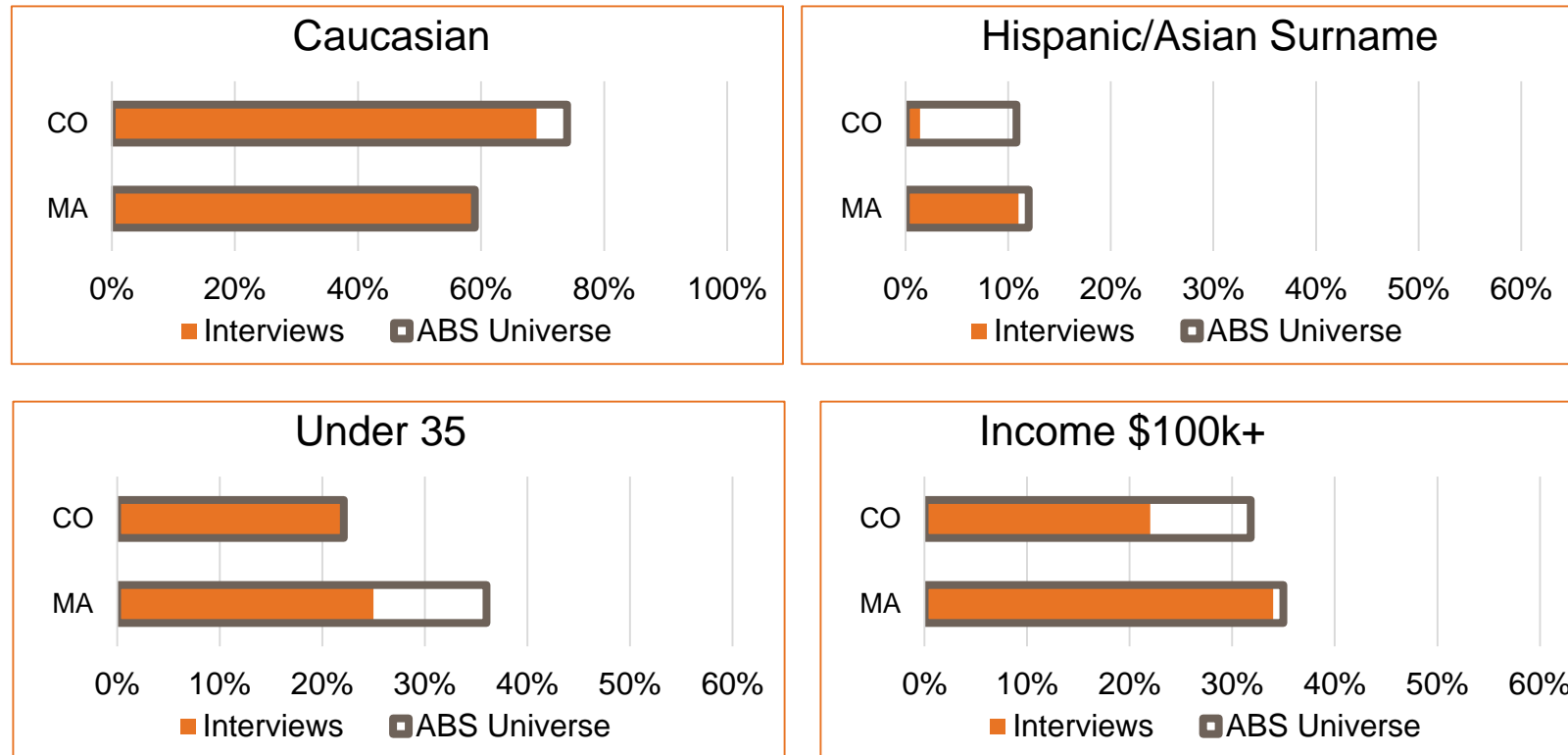
How do **baseweighted* interviews** compare to the ABS on insurance status? (note: ACS person weighted)



* Limited to correcting differential sampling strata

ABS Appended Counts Example

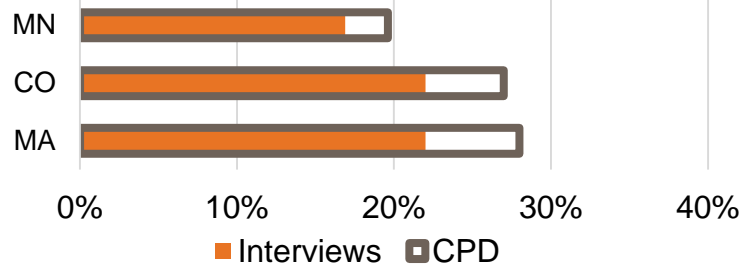
How do baseweighted interviews compare to the ABS sample universe appended data punches?



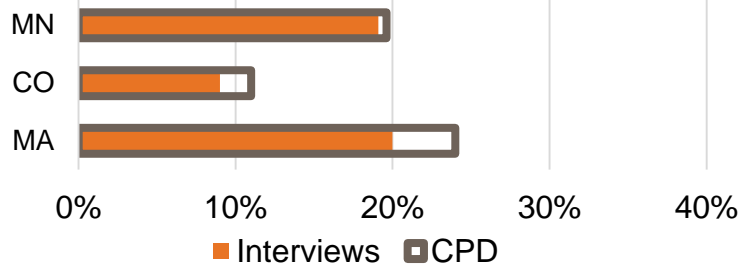
Note: MA Caucasian uses different indicator than CO or MN

ABS – CPD Comparison Example

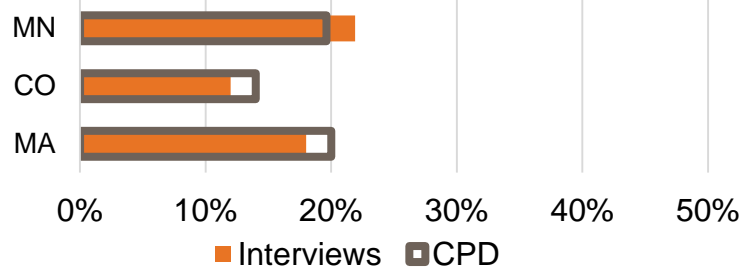
13%+ No H.S. Degree



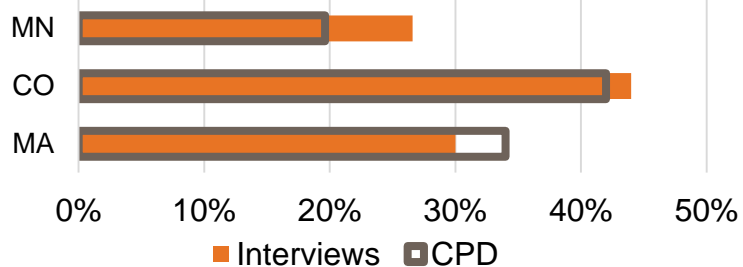
Partially Rural



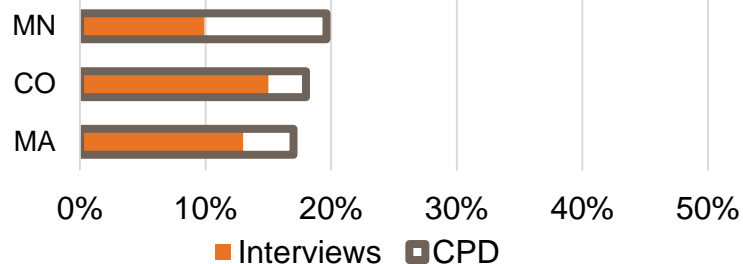
6%+ on Public Assistance



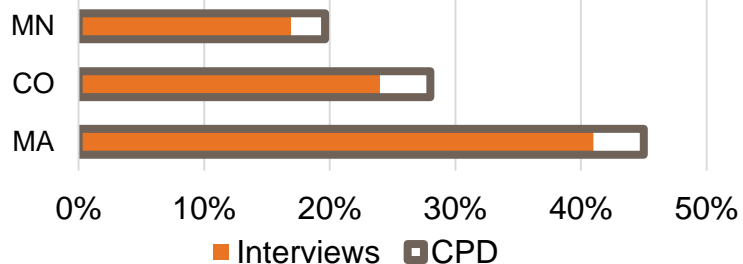
LT 71% Caucasian



LRS 25+



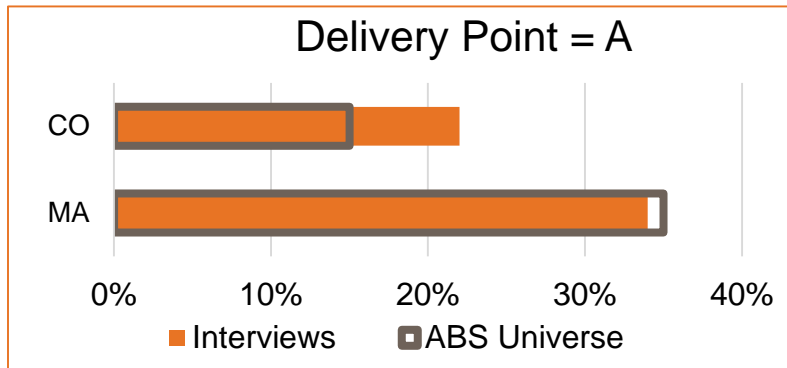
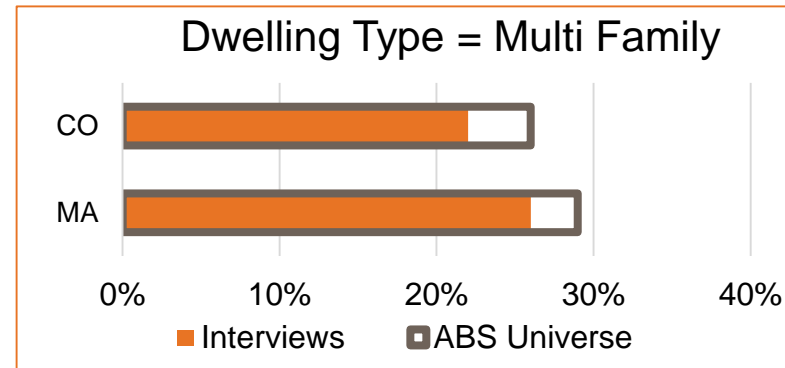
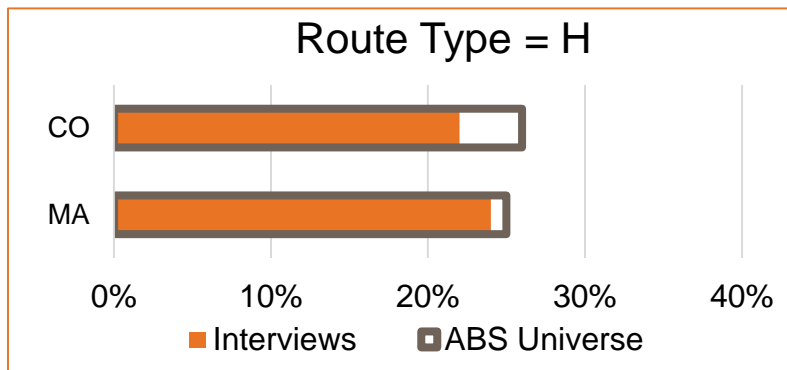
21%+ Speak Non-English Lang.



How do
baseweighted
interviews
compare to the
Census Planning
Database?

ABS Universe Counts Example

How do baseweighted interviews compare to the ABS sample universe appended data punches?



Conclusion

- Researchers must recognize there can be significant changes in trend when transitioning from RDD to ABS.
 - Nonresponse patterns can be different
 - Modal changes
- If they exist and are attributable to nonresponse, ABS can be potentially recalibrated to nonresponse found and there are many more opportunities to discover nonresponse in ABS.

Conclusion

- Studies conducted thus far suggest that there are differences in estimates, but that they are likely modal in nature.
- Studies conducted thus far find very low nonresponse error in ABS research by a range of comparative sources:
 - Census planning database
 - ABS universe
 - ABS appended variables
 - Typical Census metrics (notably with the typical modest exceptions of age, education, and race).

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Thank You!



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 insight for informed decisions™