

Assessing Interviewer Effects in the BRFSS

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Agenda

1. Define Interviewer Effects
2. Discuss Trends in the Literature
3. Outline Research Questions
4. Describe Data Source
5. Describe Analytic Methods
6. Present Results
7. Present Conclusion and Potential Next Steps

What are interviewer effects?

- › Interviewer effects refers to the variability in survey estimates that is attributed to differences between the interviewers.
- › There are a variety of ways the interviewers can introduce error during the survey process such as;
 - ***Measurement Error**
 - Coverage Error
 - Non-response Error
 - Processing Errors
- › $Deff_{int} = 1 + (m-1)P_{int}$

Past Research on Interviewer Effects on Measurement Error

- › Overall, researchers find that survey questions with certain characteristics are associated with higher interviewer effects such as (West and Blom 2017);
 - Attitudinal
 - Sensitive
 - Ambiguous
 - Complex
 - Open-Ended

Research Questions

Are there interviewer effects on survey questions with various characteristics (e.g. different levels of sensitivity and different response format) and does this vary by;

1. The Productivity of Interviewers (e.g. completion rates)?

Data Source

Behavioral Risk Factor Surveillance System (BRFSS)

- › Cross-sectional telephone survey in the U.S. that state health departments conduct
- › Initiated by the CDC to collect health data
- › Analysis is restricted to data from 2017 for three states (Connecticut, Texas, and Washington)
- › Response Rate Per State (RR4):
 - Connecticut 37.1%
 - Texas 40%
 - Washington 39.6%

Analytic Methods

Measuring Interviewer Effects

- › Multi-level Models are conducted to estimate the between (σ_{int}^2) and within (σ^2) interviewer variance so that P_{int} can be calculated.

$$\rho_{int} = \frac{\sigma_{int}^2}{\sigma_{int}^2 + \sigma^2}$$

17 Selected BRFSS Questions

› Response Format Grouping:

- 9 Binary Variables: *Health Plan Coverage, Arthritis, Depression, Difficulty Concentrating, Difficulty Walking, Smoked 100 Cigarettes, Currently Married, Income, and Sexual Orientation
- 8 Continuous/Scale Variables: Smoking Frequency, General Health, Physical Health, Mental Health, Poor Health, Height, Weight, and Drinking

› Perceived Sensitivity Grouping:

- 4 Highly Sensitive: Smoking Frequency, Smoked 100 Cigarettes, Sexual Orientation, and Drinking
- 7 Moderately Sensitive: Depression, Difficulty Concentrating, Income, Physical Health, Mental Health, Poor Health, and Weight
- 6 Not Sensitive/Low: *Health Plan Coverage, Arthritis, Difficulty Walking, General Health, Currently Married, and Height

*Analyzed alone in final results

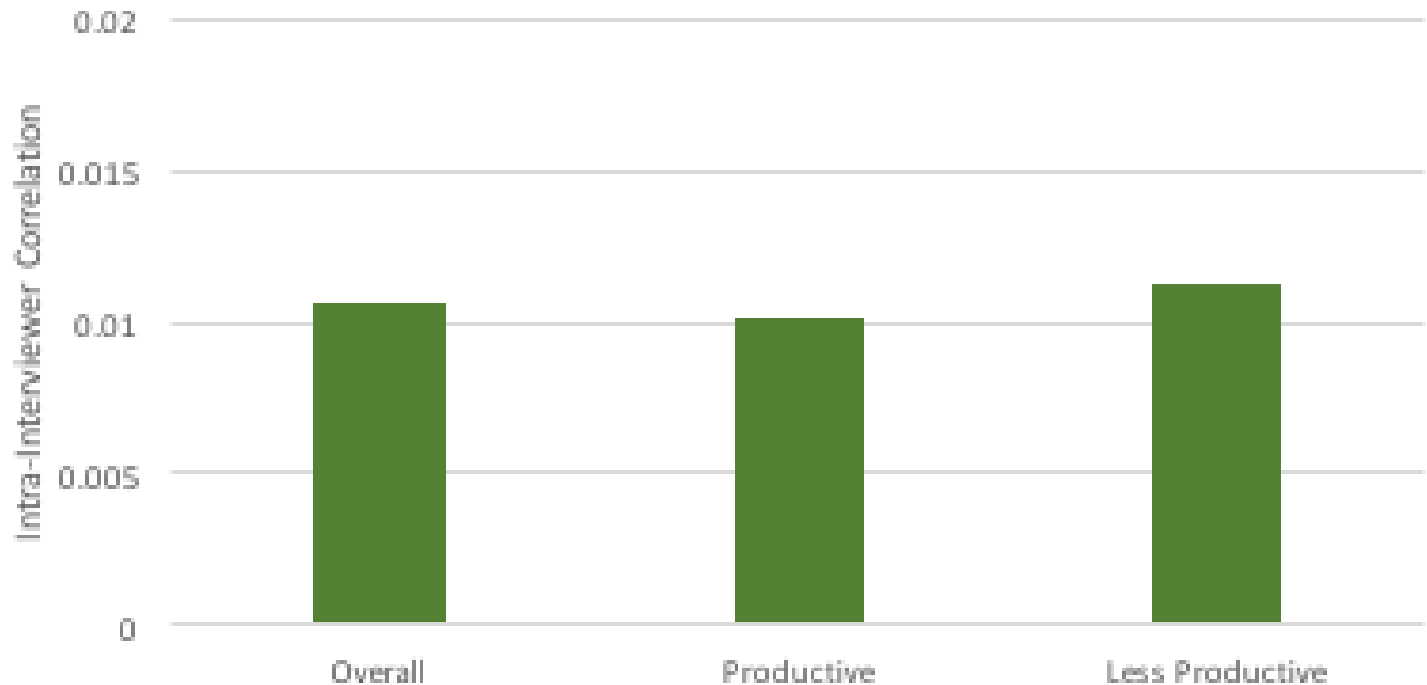
Productivity of Interviewers and Response Time

› Interviewer Productivity

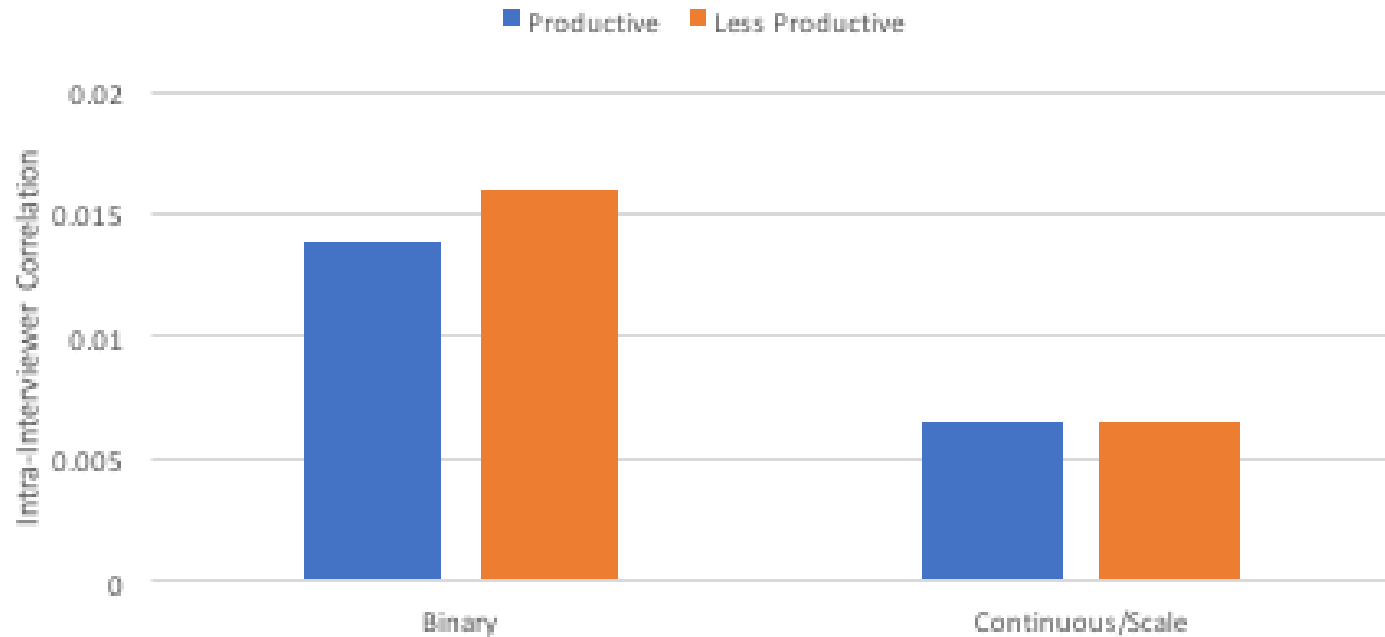
- Interviewer is considered highly productive if they completed 59 cases or more.
- If they completed less than this then they are considered less productive.

Results

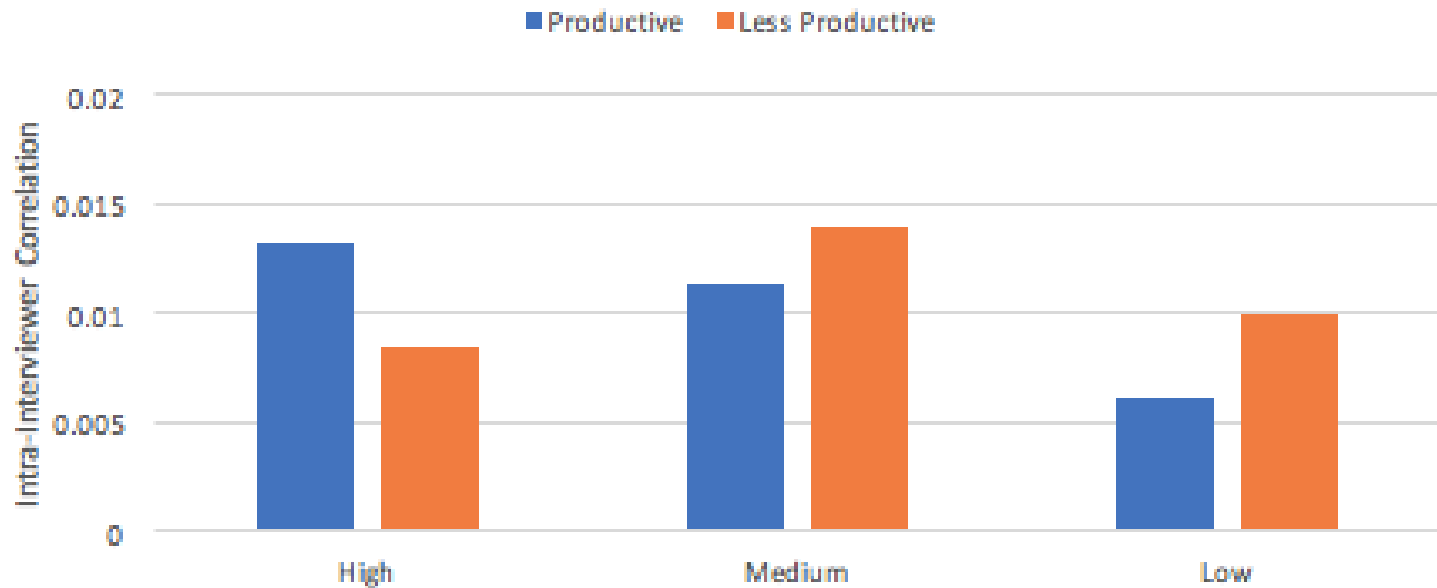
Average Intra-Interviewer Correlation Across All Questions By Interviewer Productivity Level



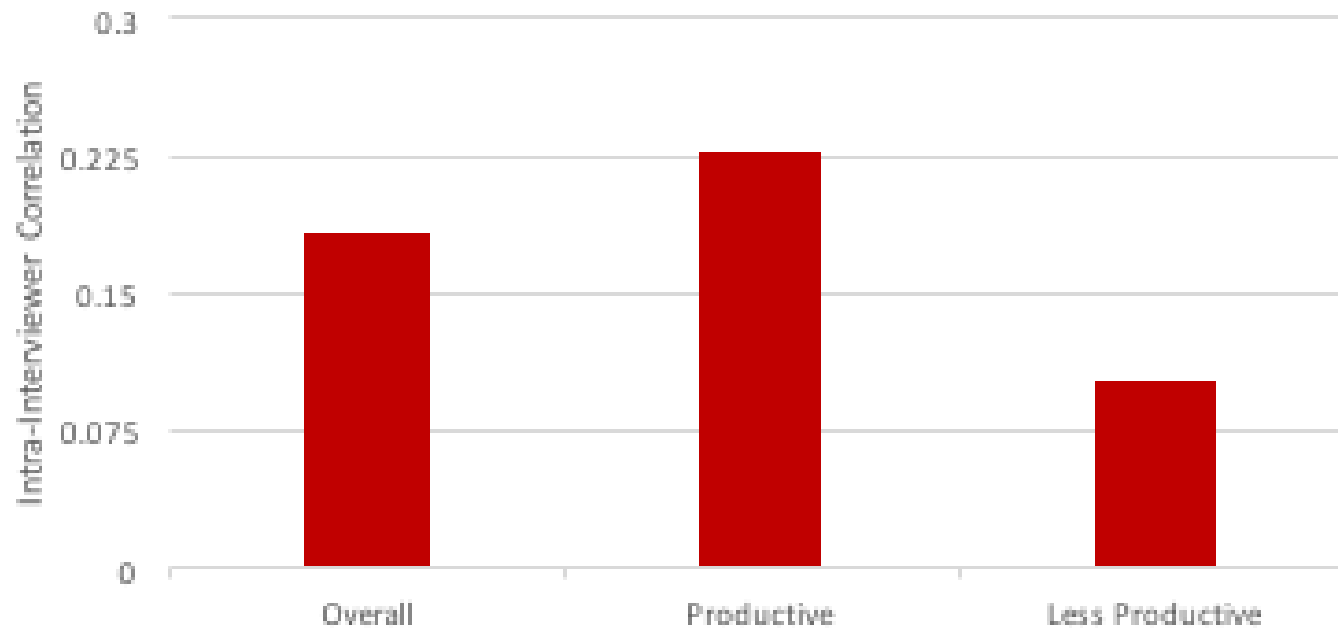
Average Intra-Interviewer Correlation by Response Format and Interviewer Productivity Level



Average Intra-Interviewer Correlation by Item Sensitivity and Interviewer Productivity Level



Intra-Interviewer Correlation for the Health Plan Item by Productivity Level



Discussion

Conclusion and Next Steps

- › Overall, interviewer effects across estimates appear to be small in magnitude but there are relevant differences in the size of interviewer effects by interviewer productivity level.
- › Next Steps Include...
 - Looking at interviewer effects on the recruitment process (contact and cooperation rates)
 - Assess if there is a relationship between interviewer effects on recruitment and interviewer effects on survey estimates by examining the correlation between interviewer level average of predicted contact/cooperation rates and interviewer level average of predicted survey responses.

Thank You

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