

Survey Analysis with Framing Effects

Consistency-Adjusted Estimators

Jacob Goldin Daniel Reck

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Motivation

- If the presidential election were held today, would you support Hilary Clinton over Jeb Bush?
 - Yes: 80%, No 20%
- If the presidential election were held today, would you support Jeb Bush over Hilary Clinton?
 - Yes: 40%, No 60%

Framing Effects are Common

- Answer Order
- Question Order
- Defaults
- Value Priming
- Acquiescence Bias

- One question, two answer choices
- Two "frames" (high and low)
- Three types of respondents
 - Stable "Yes"
 - Stable "No"
 - Inconsistent
- Each respondent observed in one frame only

Assumptions

- 1 Consistency Principle
- 2 Frame Monotonicity
- 3 Unconfoundedness

Conventional Approach

- Randomize frames and combine
- For Hilary/Jeb
 - High: 0.80, Low: 0.60
 - Conventional Approach: 0.70

	Stable Yes	Stable No	Inconsistent
High Frame	Yes	No	Yes
Low Frame	Yes	No	No

- Biased towards 0.5

Consistent Subgroup Mean

- Goal: estimate average response for consistent respondents
- Intuition: look to those who answer "against the frame"

	Stable Yes	Stable No	Inconsistent
High Frame	Yes	No	Yes
Low Frame	Yes	No	No

- $$Y_c = \frac{\{\text{"Yes" in Low Frame}\}}{\{\text{"Yes" in Low Frame}\} + \{\text{"No" in High Frame}\}}$$

Illustration: Hilary and Jeb

- High frame: 0.80
- Low frame: 0.60
- Fraction Consistent = "Yes" in Low + "No" in High
 - $= 0.6 + (1 - 0.8) = 0.8$
- $Y_c = \frac{\{\text{"Yes" in Low Frame}\}}{\{\text{"Yes" in Low Frame}\} + \{\text{"No" in High Frame}\}}$
 - $= \frac{0.6}{0.6+0.2} = 0.75$

Further Results

- Demographics of Consistent Respondents
- Relaxing Frame Monotonicity
- Full Population
 - Worst-Case Bounds
 - Consistency Weights