

# Experiments in Producing Nonresponse Error

Robert M. Groves, Mick Couper, Stanley Presser,  
Eleanor Singer, Roger Tourangeau, Giorgina  
Piani Acosta, Lindsay Nelson

University of Michigan and Joint Program in  
Survey Methodology, USA

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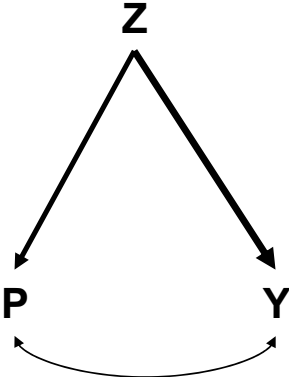
# Motivation

- Under what circumstances does nonresponse produce error in estimates?
- If we understand the mechanisms of a process, we should be able to observe/induce variation in the process to alter its outcomes

# Alternative Causal Models for Studies of Nonresponse Rates and Nonresponse Bias



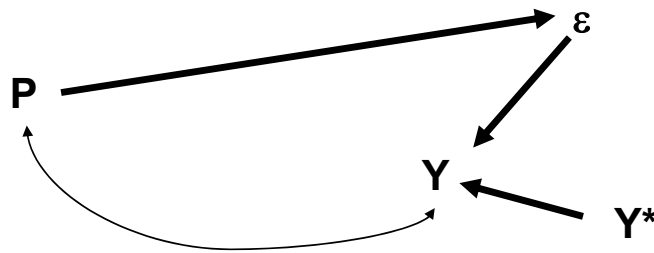
1. Separate Causes Model



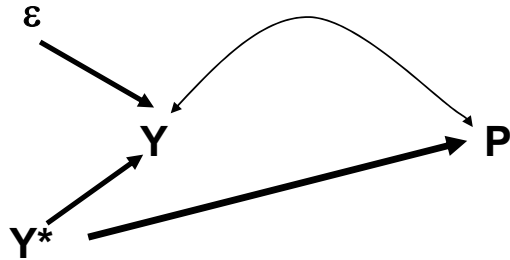
2. Common Cause Model



3. Survey Variable Cause Model



4. Nonresponse-Measurement Error Model



5. Nonresponse Error Attenuation Model

# Three Key Candidate Design Features to Produce Nonignorable Nonresponse

- Topic interest
- Sponsorship
- Incentives

# Prior Research (2004)

- On series of different populations and topics
  - main effects on response rates of topic interest common (1.4 odds ratio on average)
  - main effects of incentives
  - interaction effects of topic interest and incentives (sometimes found, sometimes not)
  - analytic work shows role of correlation of response propensities and survey variable on bias
- Speculations
  - telephone mode contaminated topic salience manipulation
    - interviewer actions, sponsorship effects
    - no visible stimulus for topic

# Current Mail Questionnaire Research Design

	No Incentive			\$2 Incentive		
	Topic A Interest			Topic A Interest		
	High	Medium	Low	High	Medium	Low
Topic A Survey						
Topic B Survey						

# Failed Experiments

- Failure to produce effects on topic of (diabetes vs. quality of life) for (diabetes patients, at risk patients, others)
- Failure to replicate in mail mode the effects found on phone in earlier work on (education and the schools vs. issues facing the nation) on (teachers, high education adults, others)

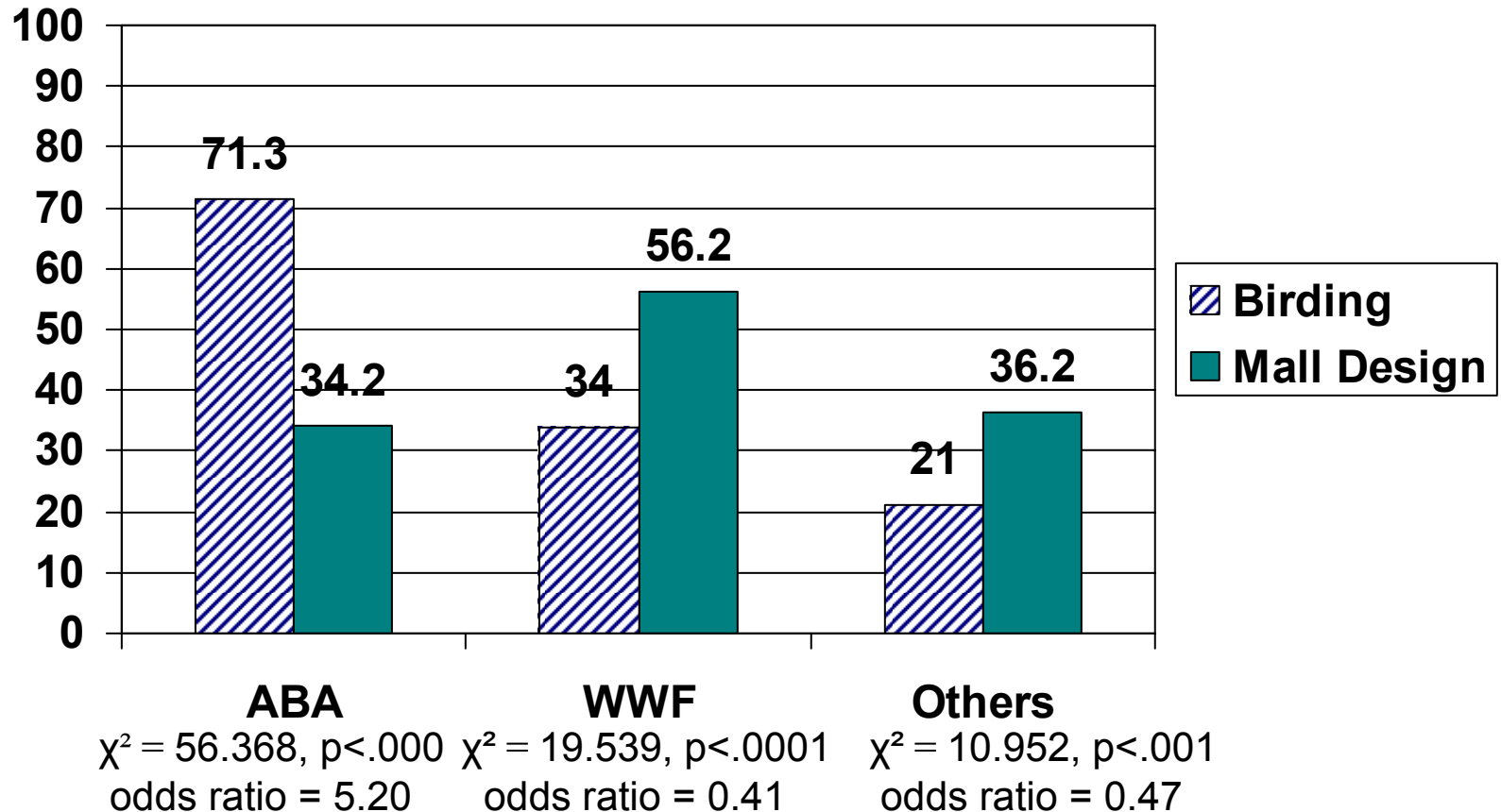
# Successful Experiments

- Alter teacher experiment to be a postcard return, rather than full questionnaire, and remove University of Michigan sponsorship
- Study of birding

# Experiment on Birding

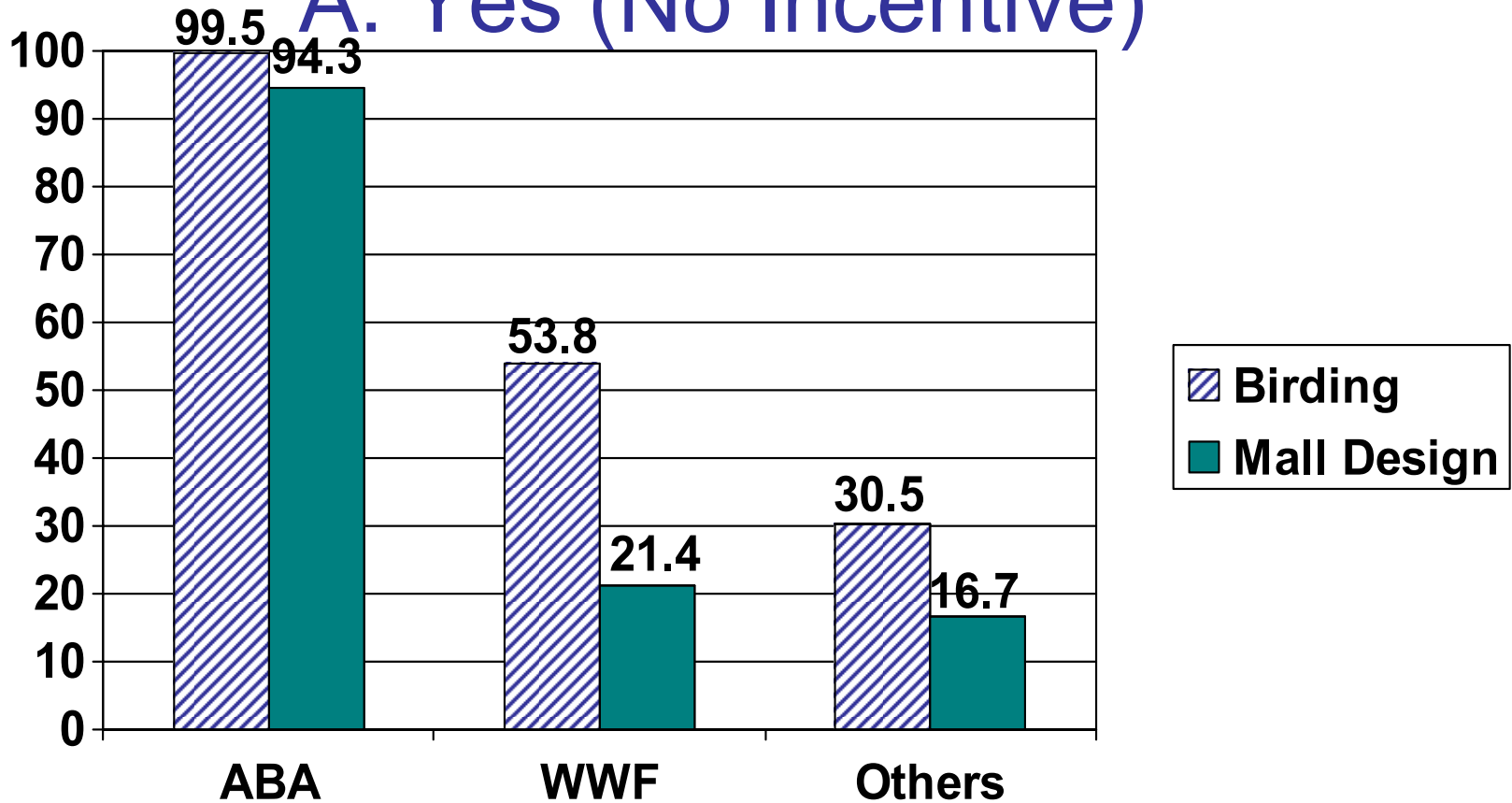
- Survey topics
  - Birds, Bird-watching, and Birding
  - Design of Indoor Shopping Malls
- Target populations
  - members of American Birding Association (ABA)
  - donors to World Wildlife Fund (WWF)
  - other adults (OTHERS)

# Response Rate by Topic and Population (No Incentive)



Q1: Did you participate in bird watching/  
birding during the past 12 months?

A: Yes (No Incentive)



$\chi^2 = 5.265, p < .022$   
odds ratio = 12.03

$\chi^2 = 20.103, p < .0001$   
odds ratio = 4.28

$\chi^2 = 3.023, p < .082$   
odds ratio = 2.19

# Current Hypotheses

- “Self-interest” in completing questionnaire may trigger the nonignorable nonresponse tendency for estimates concerning attitudes and behavior concerning the stated topic of the survey
  - evoking memories of socially undesirable attribute (e.g., diabetes) counters the self-interest
- Sponsorship effects cannot be ignored in producing nonignorable nonresponse through topic manipulation