

# Blending Survey and Passive Data

Stephanie Eckman



# Changes in Traditional Survey Research

## **Traditional model**

- Lengthy instrument
- High RR
- High coverage, random sample

## **New model**

- Short instruments
- Low RRs
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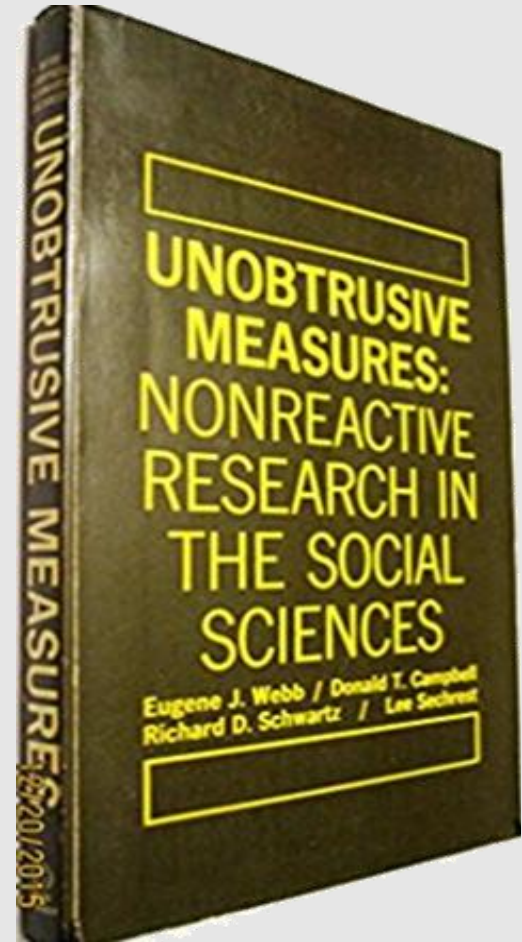
**Can Passive  
Data Offer a  
Way Forward?**



# Passive Data – Macro Level

## Unobtrusive Measures: Nonreactive Research in the Social Sciences

- Webb, Campbell, Schwartz & Sechrest (1971)



# Passive Data – Micro Level



# Passive Data – Micro Level





# Can we use passive data to make surveys better?



response rates



data collection costs



measurement error



# Measurement Error

## **in Surveys**

- Satisficing
- Motivated misreporting
  
- Comprehension problems
- Socially desirability



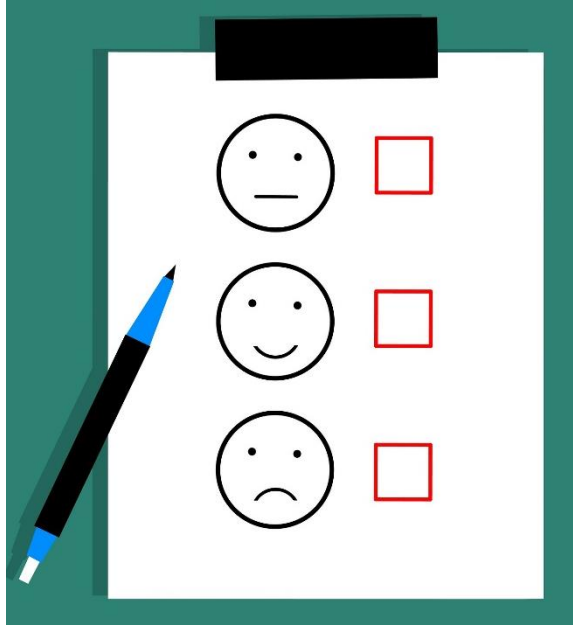
# Measurement Error

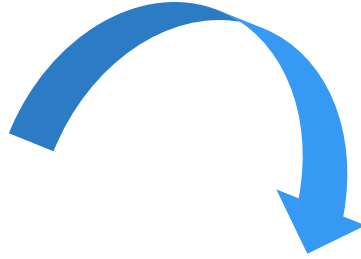
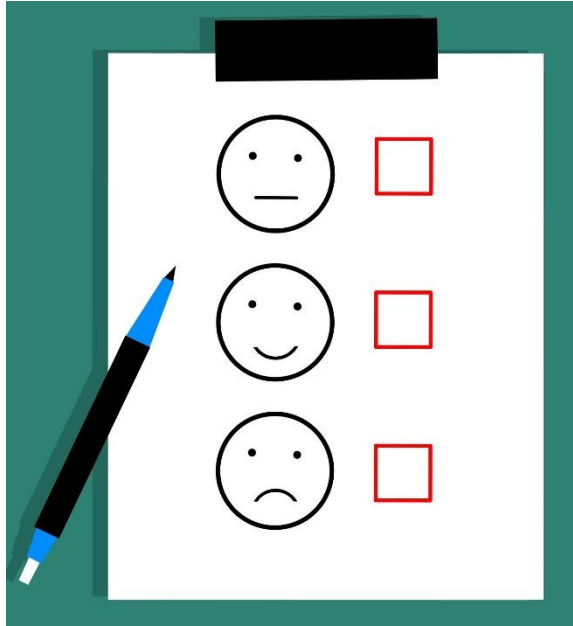
## **in Surveys**

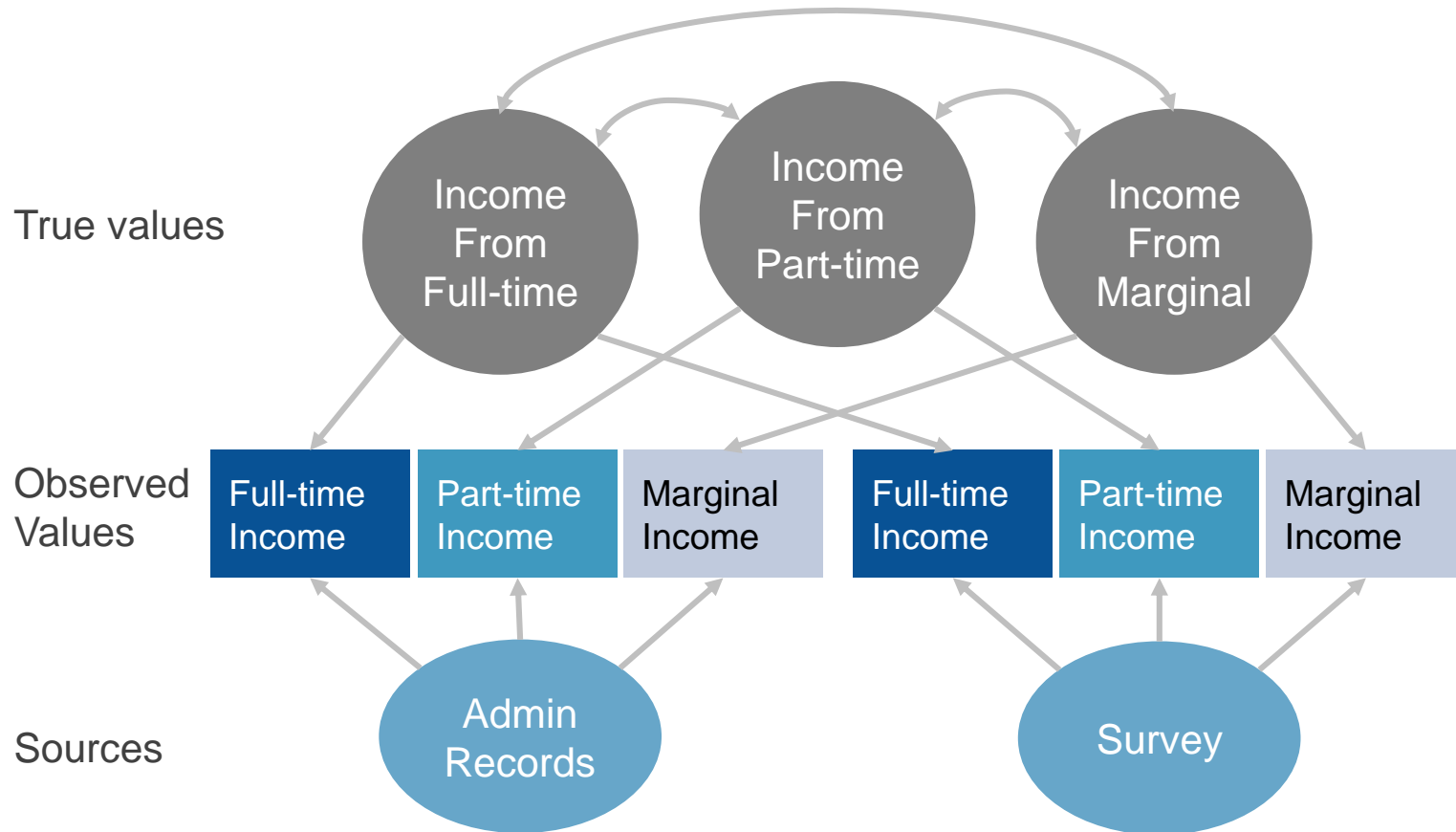
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## **in Passive Data**

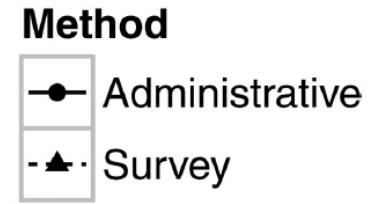
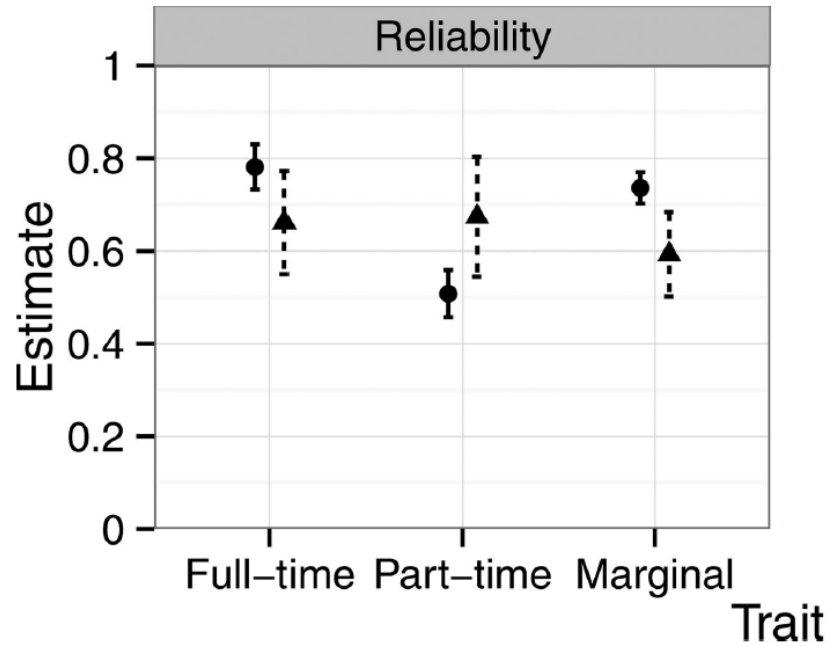
- Missing records
- Out of date
- Typos
- Battery died
- Forgot



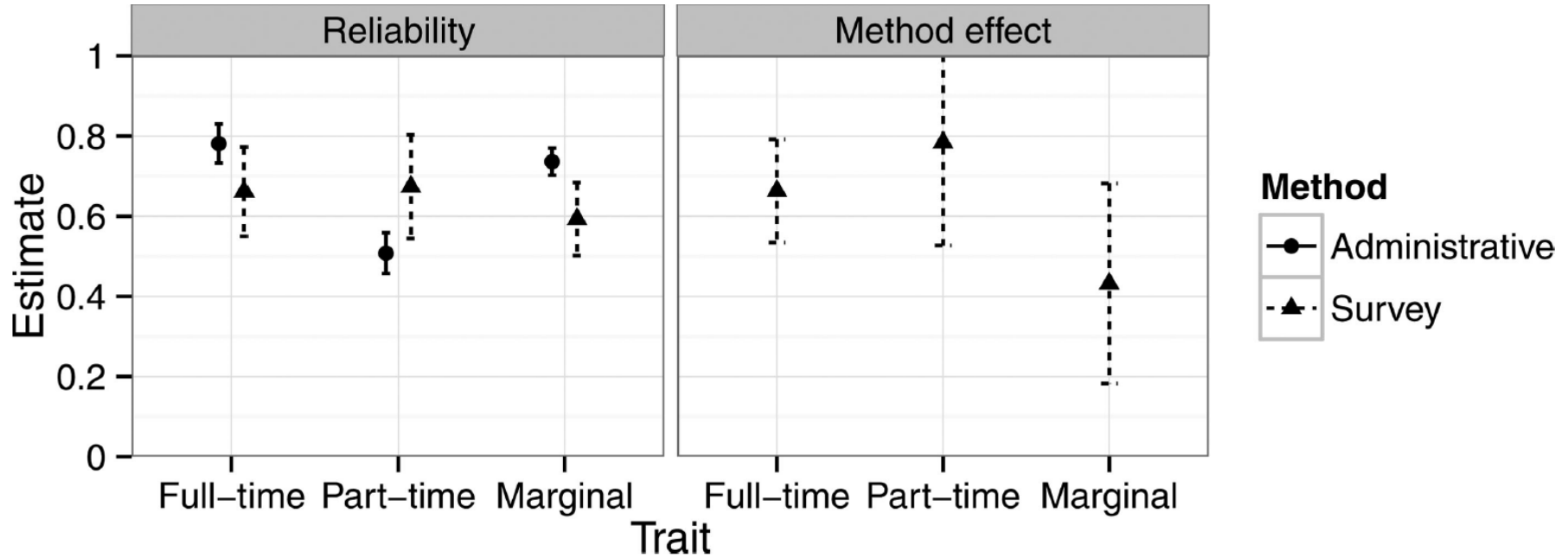




# Results



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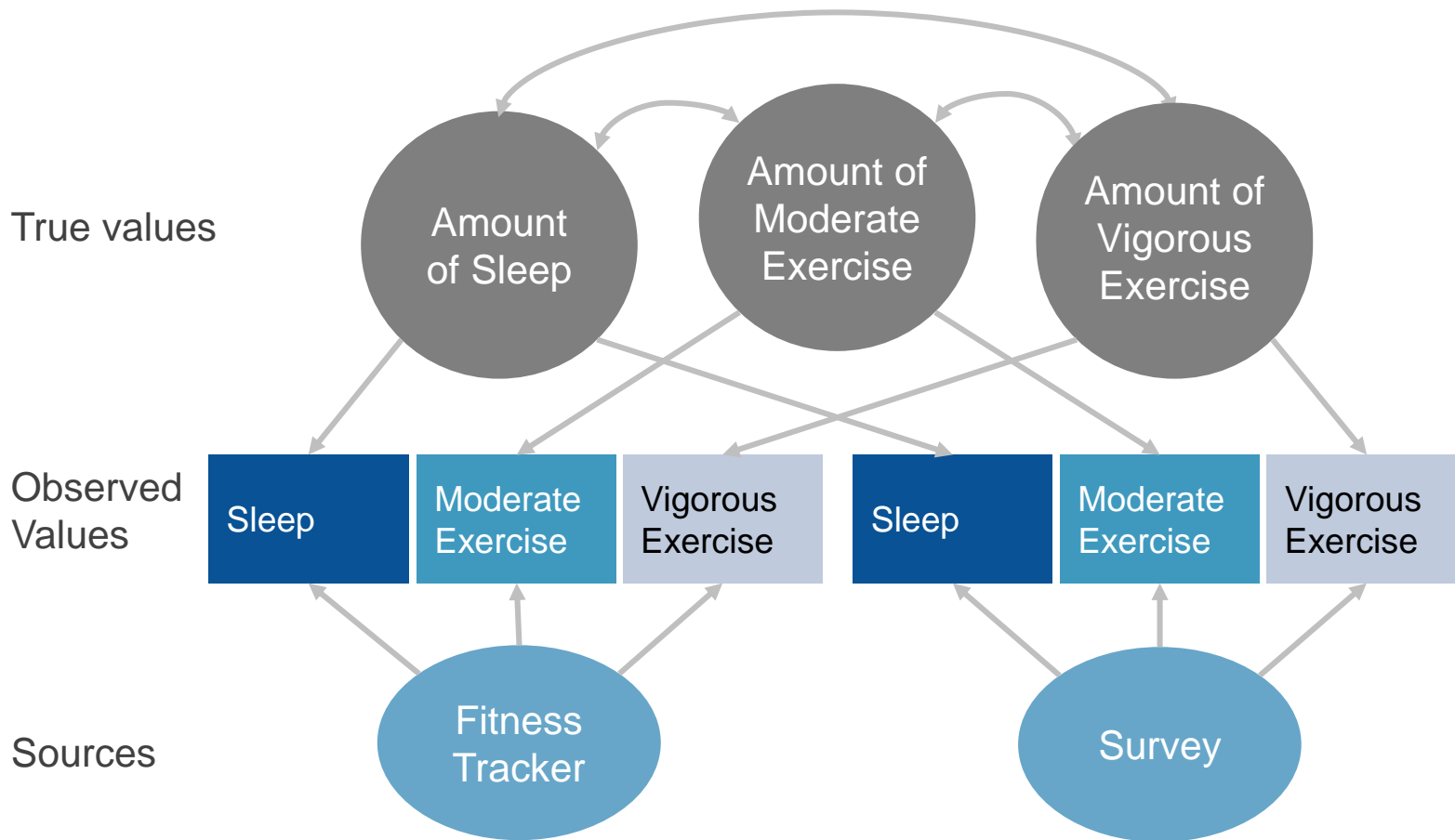


# Other Applications

- Physical activity
  - Survey questions
  - Wearables
- HH Consumption
  - Survey questions
  - Credit card records







# Discussion

- Passive data can reduce measurement error in surveys
  - Replace survey measures
  - Enhance survey measures
- Advanced statistical methods may be needed
- Passive data do not need to be perfect to be useful



## Evaluating the Quality of Survey and Administrative Data with Generalized Multitrait-Multimethod Models

D. L. Oberski, A. Kirchner, S. Eckman & F. Kreuter

JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION  
2017, VOL. 112, NO. 520, 1477–1489, Applications and Case Studies  
<https://doi.org/10.1080/01621459.2017.1302338>



# Thank You

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