“We’re All Social Scientists Now”

Introduction to Quantitative Social Science

Do Police Body Cameras Affect the Use of Force?

Do Police Body Cameras **Affect** the Use of Force?

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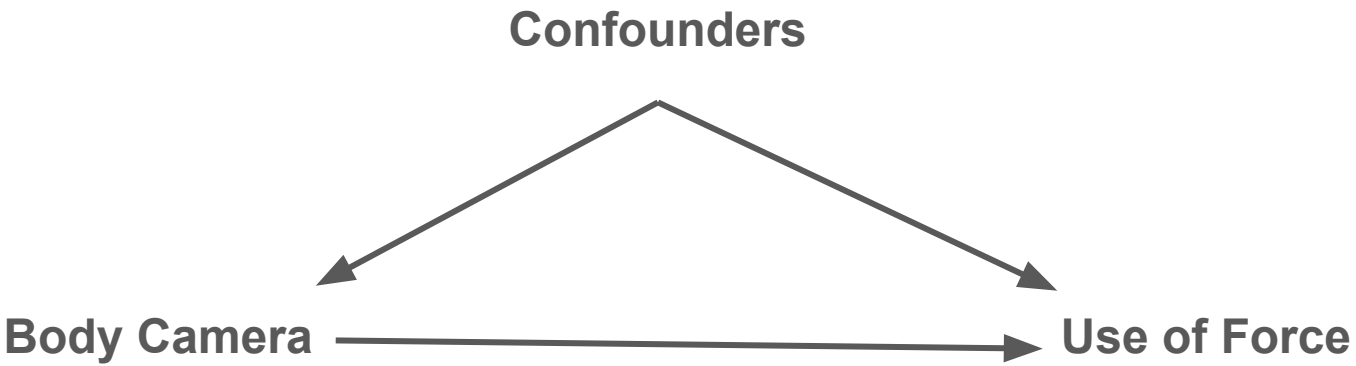
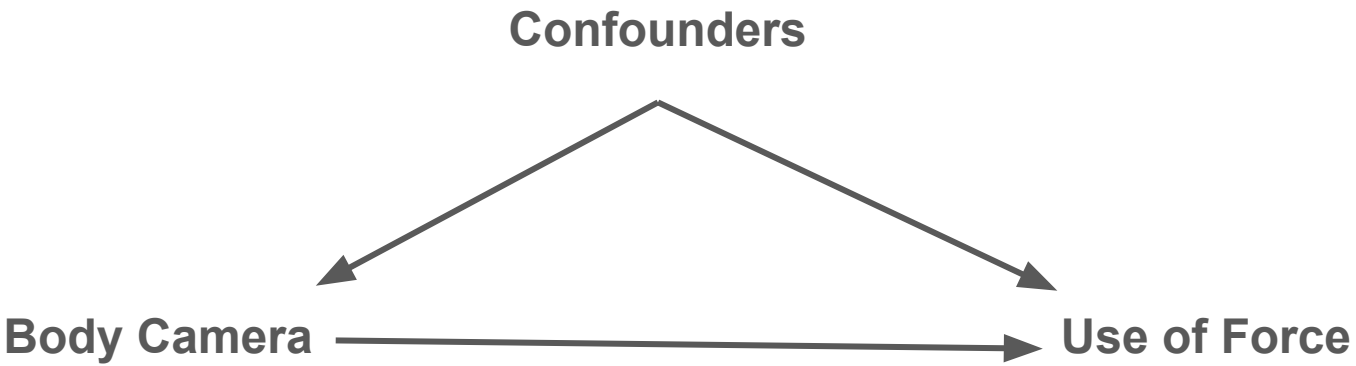
Naive estimator: E[# uof | body cam] - E[# uof | ~body cam]

Do Police Body Cameras Affect the Use of Force?



- Examples?

Do Police Body Cameras Affect the Use of Force?

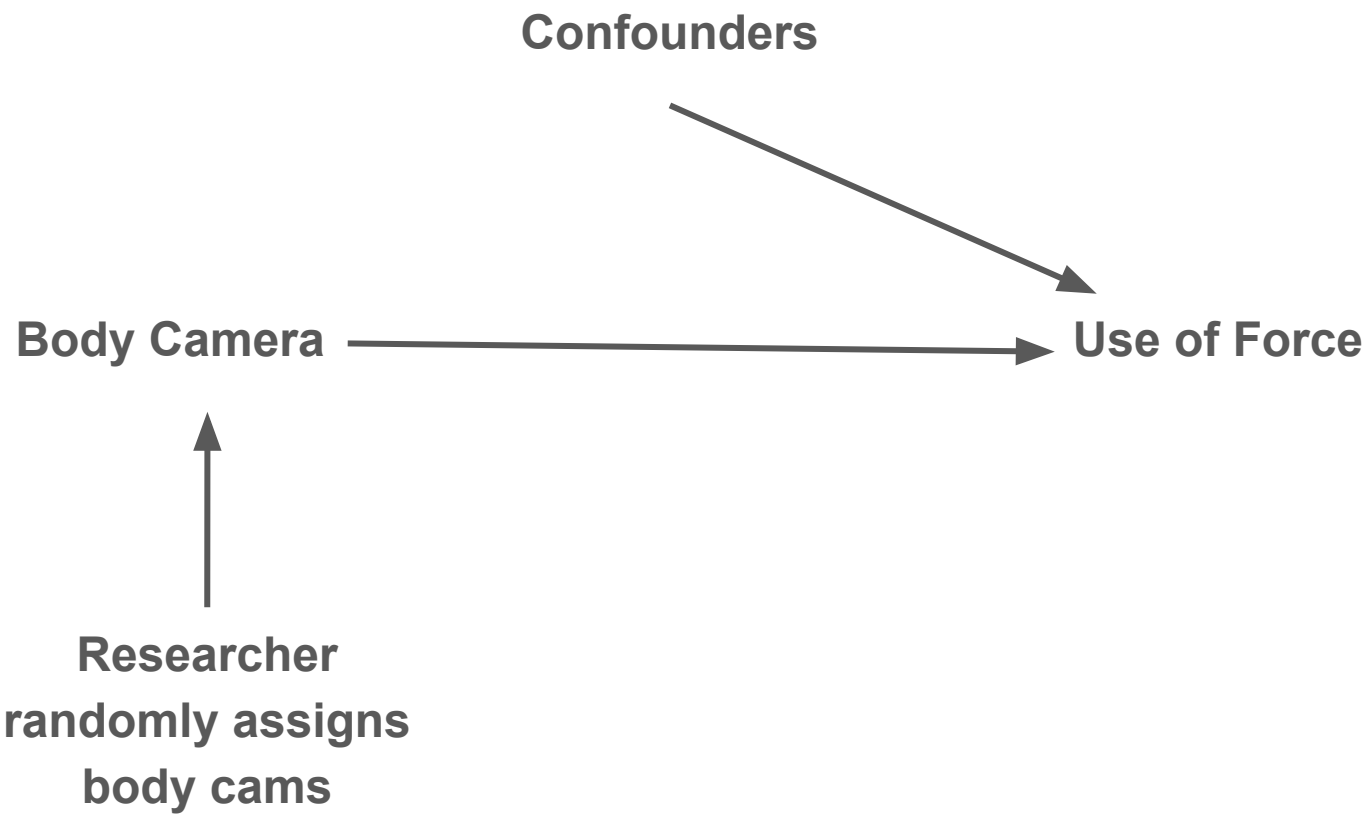


- Examples?
  - Consent decree, union, dept policy, officer assignment (e. g. undercover and patrol danger), officer quality, gvt level (fed, state, local), race, age, gender, economic status

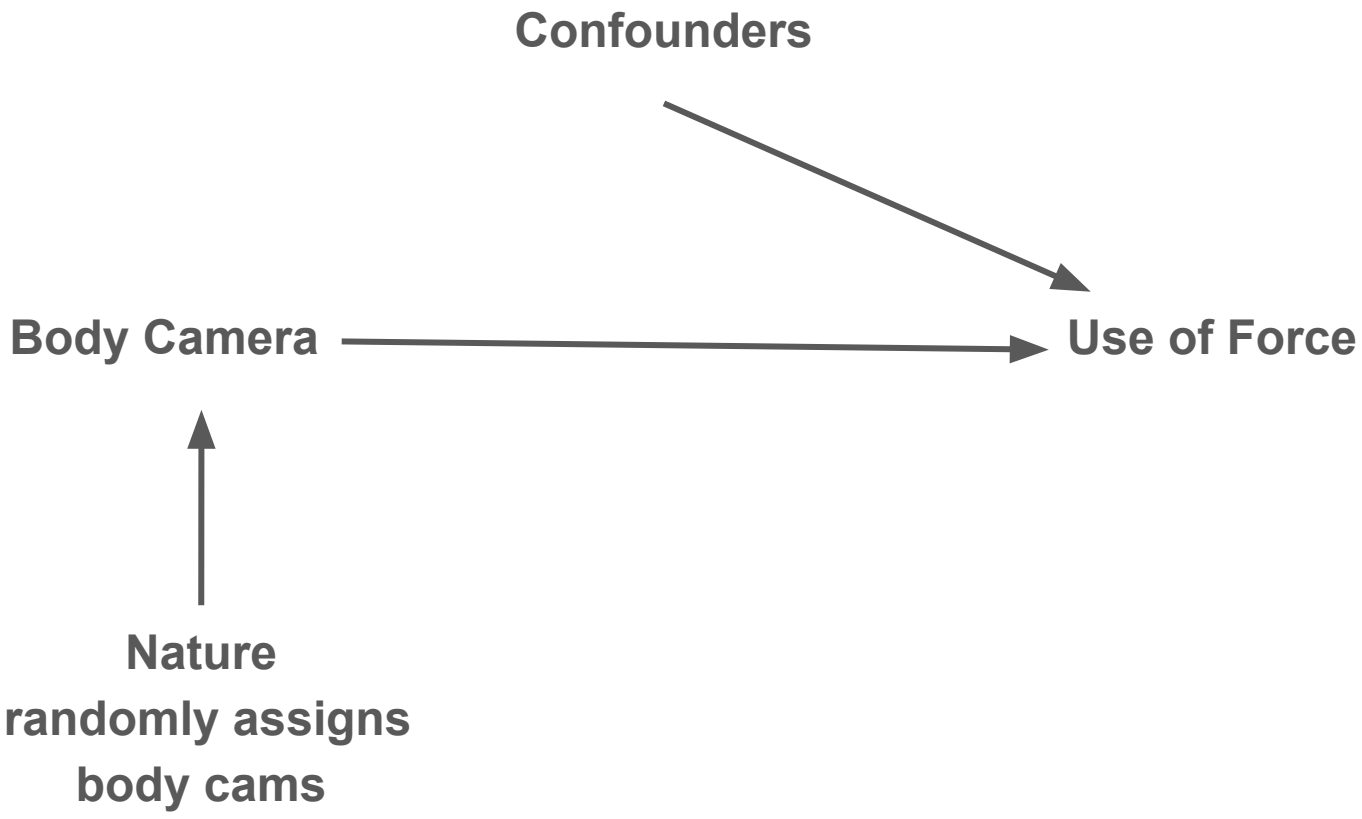
Causal Research Design

1. Experiments
2. Quasi-experiments
3. Observational studies

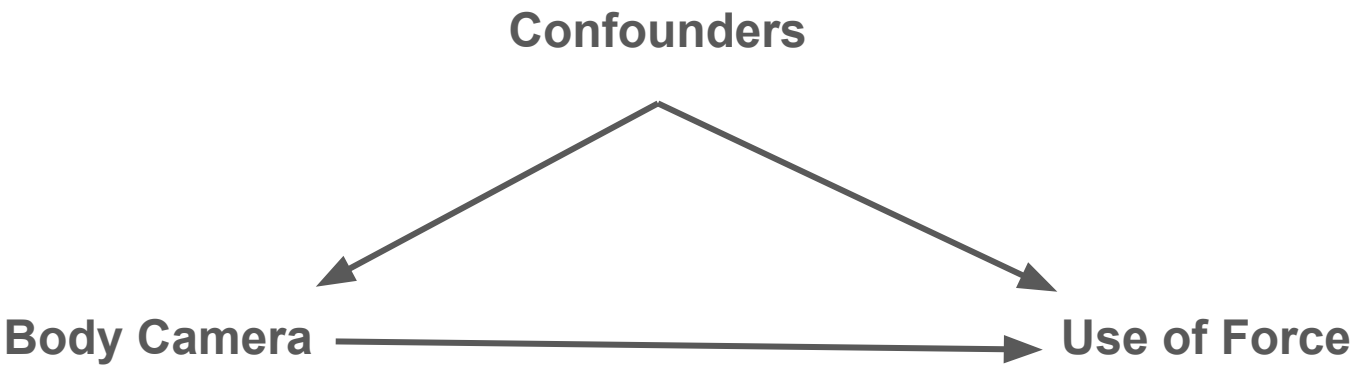
Experiment


Confounders
Body Camera
Use of Force
Researcher randomly assigns body cams

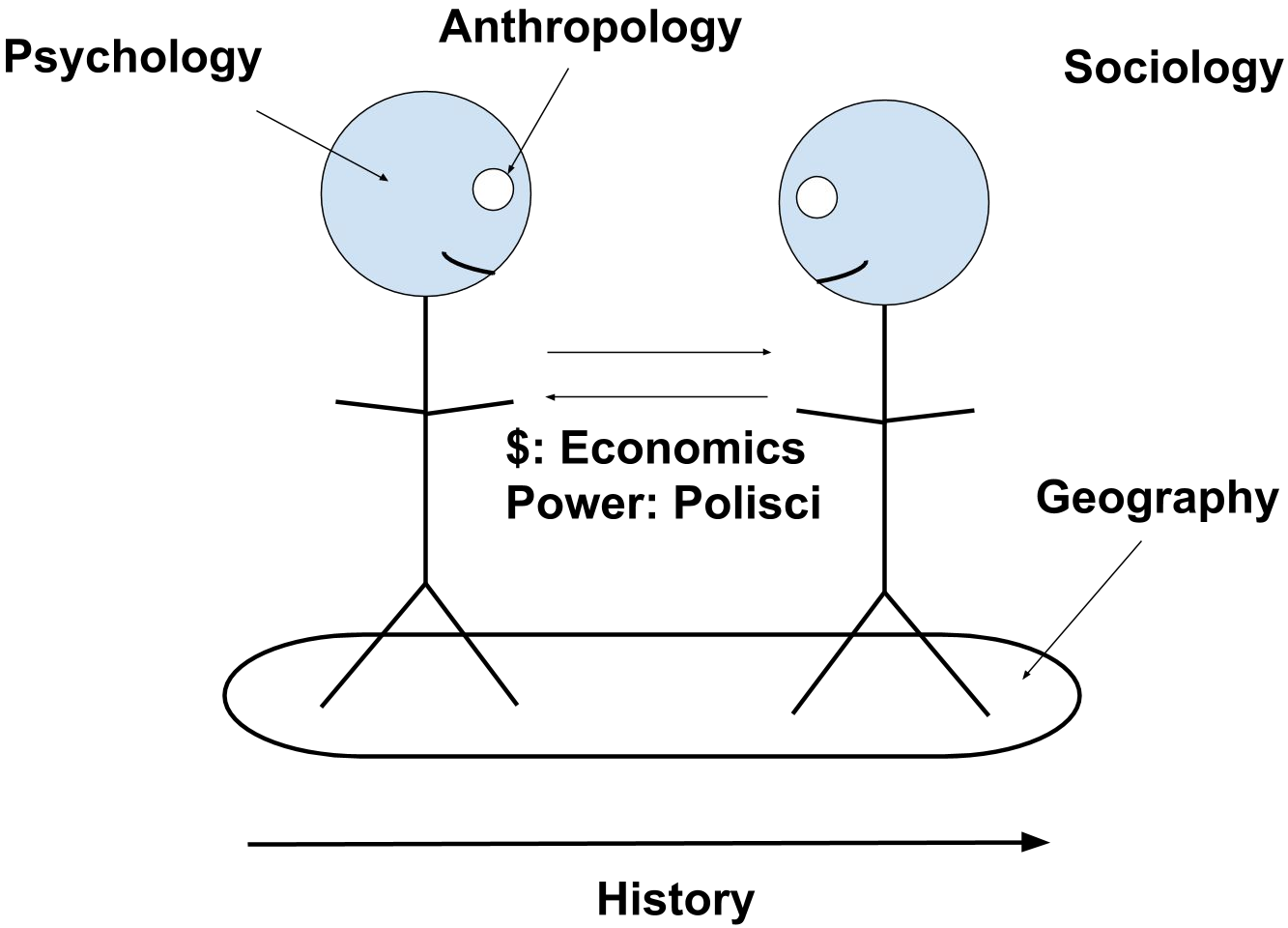
Quasi-Experiment



Observational Study



Include confounders in regression


Psychology
Anthropology
Sociology
$: Economics
Power: Polisci
Geography
History

Why Social Science?

- We’re interested in people
- We want to change behaviors
- Privacy, bias, inclusion

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Social scientists have been thinking about these things for a long time

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“Statistics”: from “state.” It was meant to improve government.

Machine Learning vs Social Science

	Machine Learning	**Social Science**
Primary Goal	Prediction	Explanation
Model Selection	Out-of-sample accuracy	Theory & Parameter Estimates

Body Camera Example

- Machine learning example:
  E[# uof | bodycam, confounders & everything else]

- Social science example:
  E[# uof | bodycam, confounders] - E[# uof | ~bodycam, confounders]

Important Social Science Issues

- Unobserved variables (missing columns)
  - E.g. 2013 NFP project: motivation of mothers in/out of the program
- Selection bias (missing rows)
  - E.g. vulnerable populations are less likely to report police misconduct
- Measurement error (values are incorrect)
  - E.g. how to measure gender/race/racism?
  - E.g. How to handle missing values?
- Model specification
  - E.g. linear versus non-linear
- Stable Unit Treatment Value Assumption (SUTVA)
  - E.g. effectiveness of police department diversity training depends on group size
- Ecological inference
  - Individual-level predictions from group-level predictions
- Ethics
  - E.g. send mailers placing non-partisan judicial candidates on ideological spectrum with Montana state seal

Some Lessons Learned for DSSG Projects

- Behaviors are better predictors than demographics
- Some important predictors
  - Race
  - Age
  - Gender
  - Econ status
  - Geography
- Some useful datasets
  - American Community Survey
  - American Time Use Survey
  - General Social Survey
  - Behavioral Risk Factor Surveillance System

Social Science Examples

- Stanford Prison Experiment
- Milgram’s Obedience Experiment
- Asch Conformity Study
- Implicit Association Test
- Social Pressure and Voter Turnout
- The Michigan Model (partisan ID)
- Republicans Should Pray for Rain
- The Political Legacy of American Slavery
- Effective Messages in Vaccine Promotion
- Crime and Punishment
- Geography and Trade
- Minimum Wages and Employment