# “We’re All Social Scientists Now”

Introduction to Quantitative Social Science

# Do Police Body Cameras Affect the Use of Force?

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

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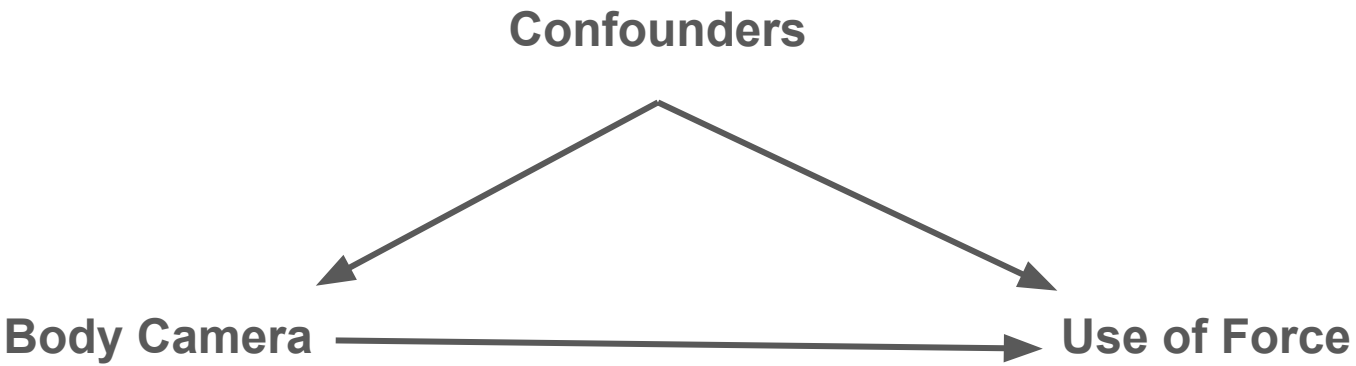


- Examples?

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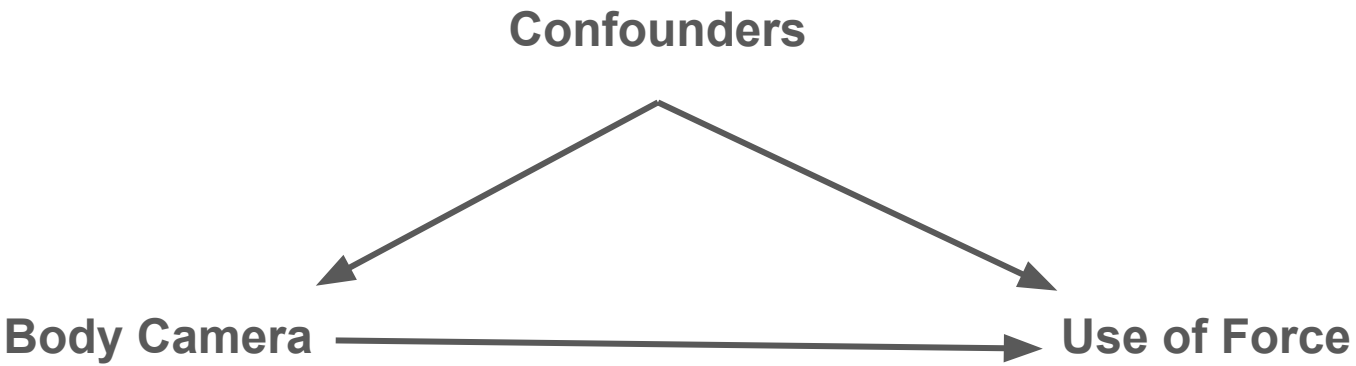
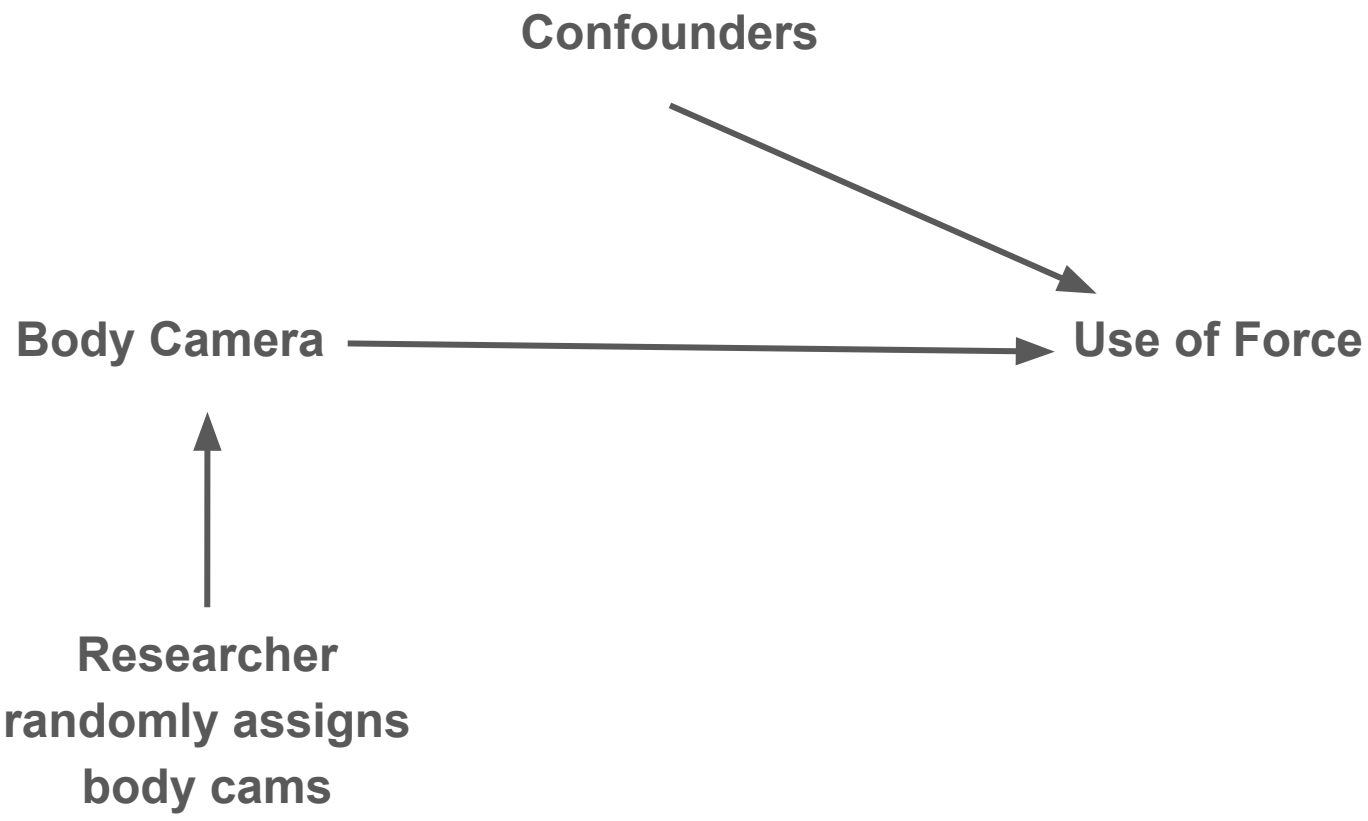



- Examples?
  - Consent decree, union, dept policy, officer assignment (e.g. undercover and patrol danger), officer quality, gvt level (fed, state, local), race, age, gender, economic status

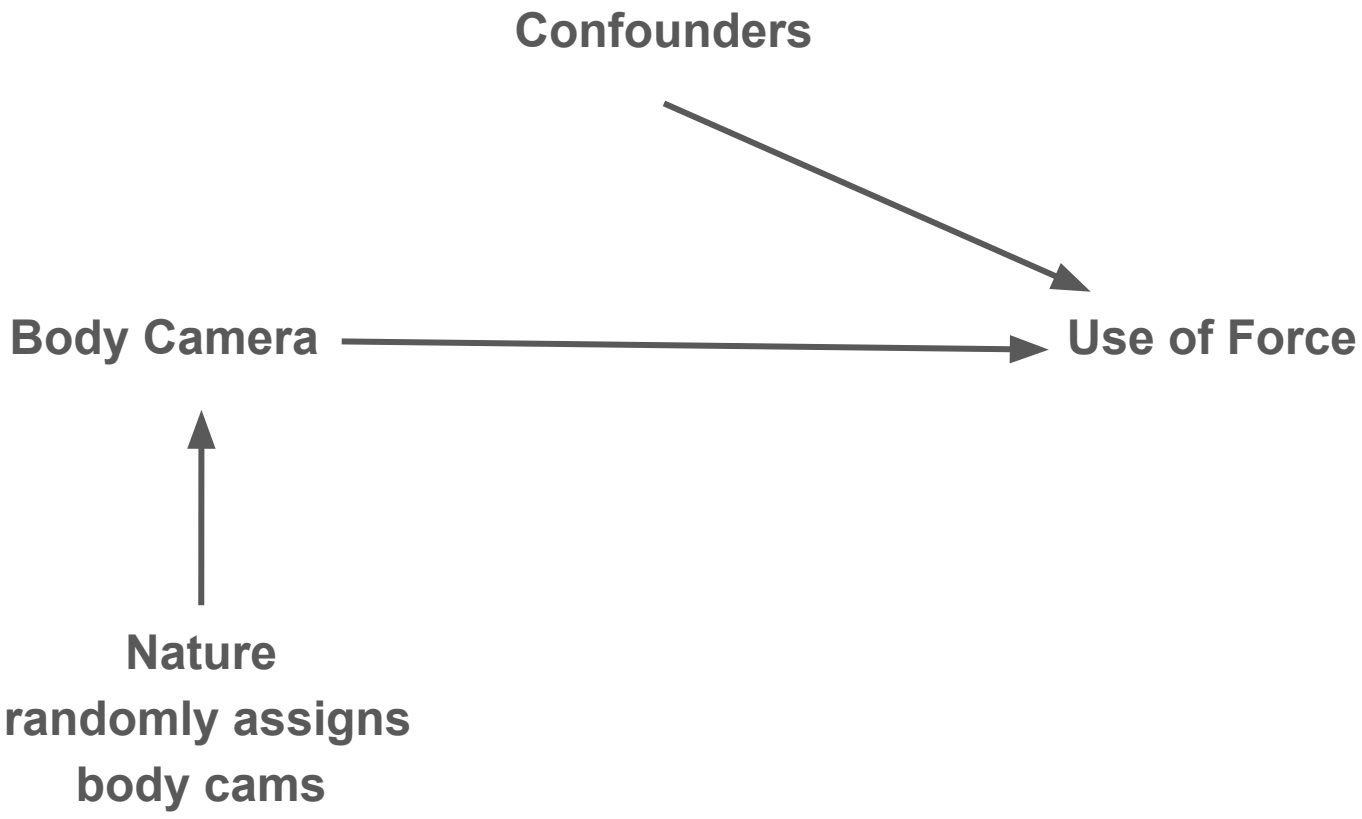
# Causal Research Design

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

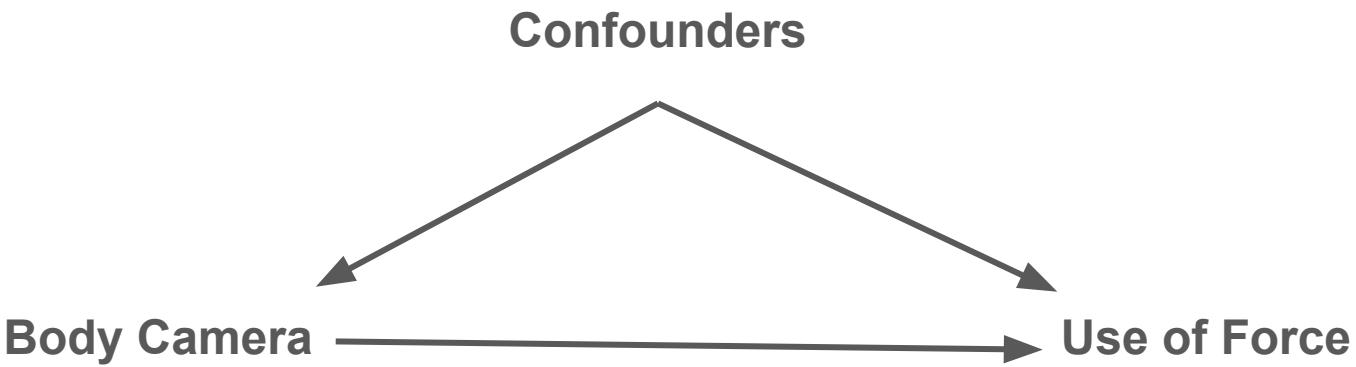
# Experiment


Confounders
Body Camera
Use of Force
Researcher randomly assigns body cams

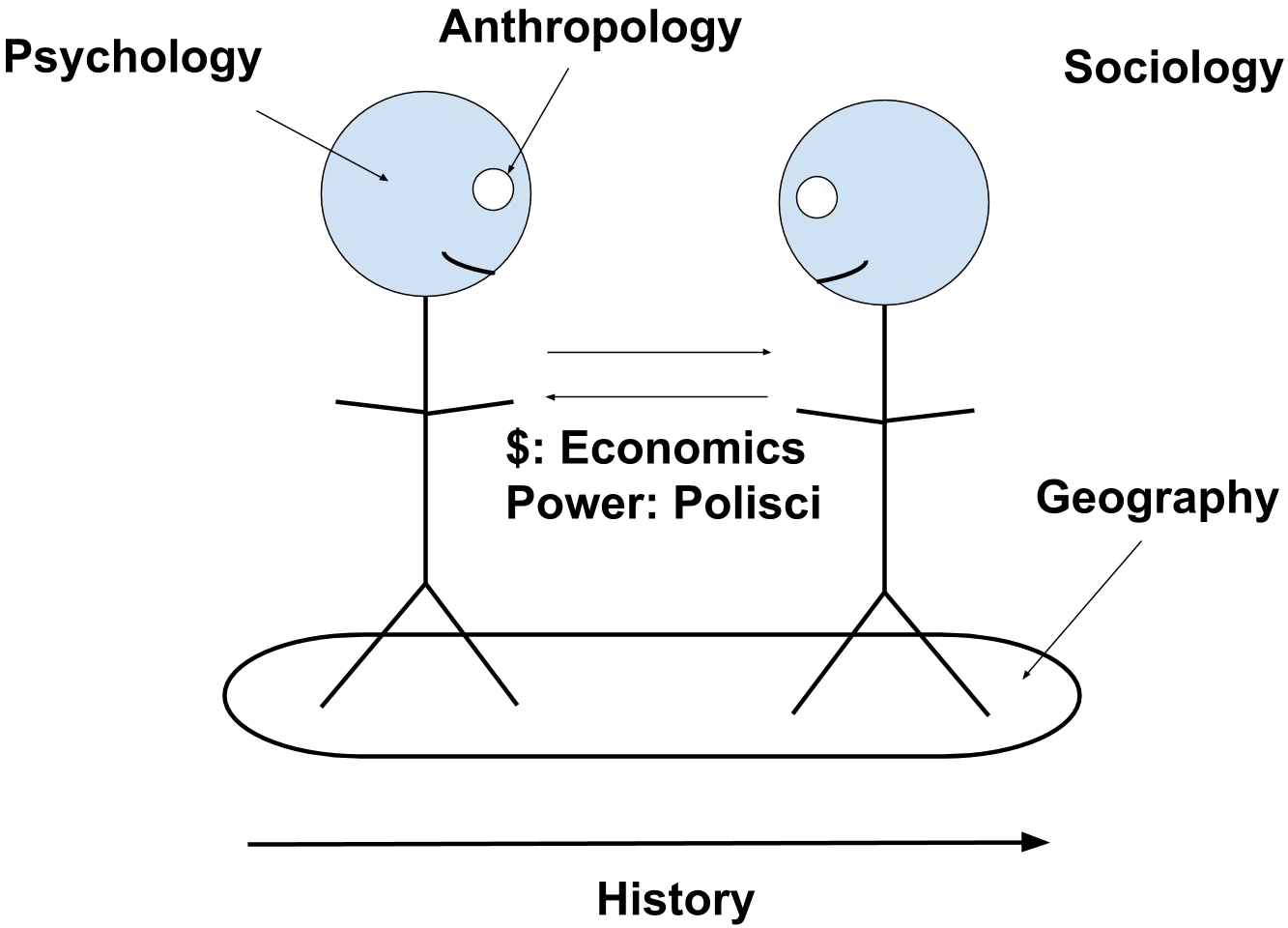
# Quasi-Experiment



# 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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“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

- Too few rows
  - No counterfactuals
  - External validity
  - Selection effect: E.g. vulnerable populations are less likely to report police misconduct
  - Ecological inference
- Too many rows
  - p hacking, in-sample fitting and testing
- Too few columns
  - Unobserved variables: E.g. 2013 NFP project: motivation of mothers in/out of the program
- Too many columns
  - Post-treatment controls
  - Noise
- The wrong values
  - Missing values
  - Noisy values (e.g. conceptualization - operationalization - measurement)
  - Systematically biased values
- Model specification
  - Relationship between rows, columns, values, e.g. linear v. non-linear, SUTVA
- Ethics
  - E.g. send mailers placing non-partisan judicial candidates 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
- Model all people involved (politicians, inspectors, judges, not just defendants)
- Potential bias at every step

# 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
- Political Economy of Terrorism
- Minimum Wages and Employment