EVALUATING POLICIES II

MPA 612: Economy, Society, and Public Policy

April 10, 2019

Fill out your reading report on Learning Suite

PLAN FOR TODAY

Evidence-based public policy and administration

🎶 "DAG I amaze and astonish" 🎶

Identification and research design

EVIDENCE-BASED PUBLIC POLICY AND ADMINISTRATION

What is the role of social scientists in the policy process?

What is the relationship between social science research and public administration?

EVIDENCE-BASED MEDICINE

MODERN EVIDENCE-BASED MEDICINE

Apply evidence to clinical treatment decisions

Move away from clinical judgment and “craft knowledge”

Is this good?

EVIDENCE-BASED POLICY

RAND health insurance study

Oregon Medicaid expansion

HUD’s Moving to Opportunity

Tennessee STAR

POLICY EVIDENCE INDUSTRY

Utah's Evidence-Based Workgroup

Jameel Poverty Action Lab (J-PAL)

Cochrane Collaboration

Campbell Collaboration

Should we have evidence for every policy or program?

No!

Science vs. art/craft/intuition

Ellie Murray
@EpiEllie

Follow

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   IF U DONT SMOKE,
   U ALREADY
    BELIEVE IN
  CAUSAL INFERENCE
   WITHOUT
  RANDOMIZED TRIALS
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#HistorianSignBunny #Epidemiology

10:13 PM - 12 Jul 2018

200 Retweets **612** Likes

29 200 612

Should we have evidence for every policy or program?

No!

Science vs. art/craft/intuition

Parachutes

Smoking

Reducing the drinking age

DAG I AMAZE AND ASTONISH

CORRELATION VS. CAUSATION

How do we figure out correlation?	How do we figure out causation?
Math and statistics	Philosophy. No math.

How do we know if X causes Y?

X causes Y if...

...we intervene and change X
without changing anything else...

...and Y changes

WHAT IS CAUSALITY?

Y “listens to” X

X isn’t the only thing that causes Y

A light switch causes a light to go on, but not if bulb is burned out (no Y despite X) or if the light was already on (Y without X)

CAUSAL RELATIONSHIPS?

A light switch causes a light to be on

Lighting fireworks causes noise

Getting an MPA increases your earnings

Tariffs reduce trade

CAUSAL RELATIONSHIPS?

People wear shorts when ice cream trucks are out

Rooster crows are followed by sunrise

Colds go away a few days after you take vitamin C

CAUSATION

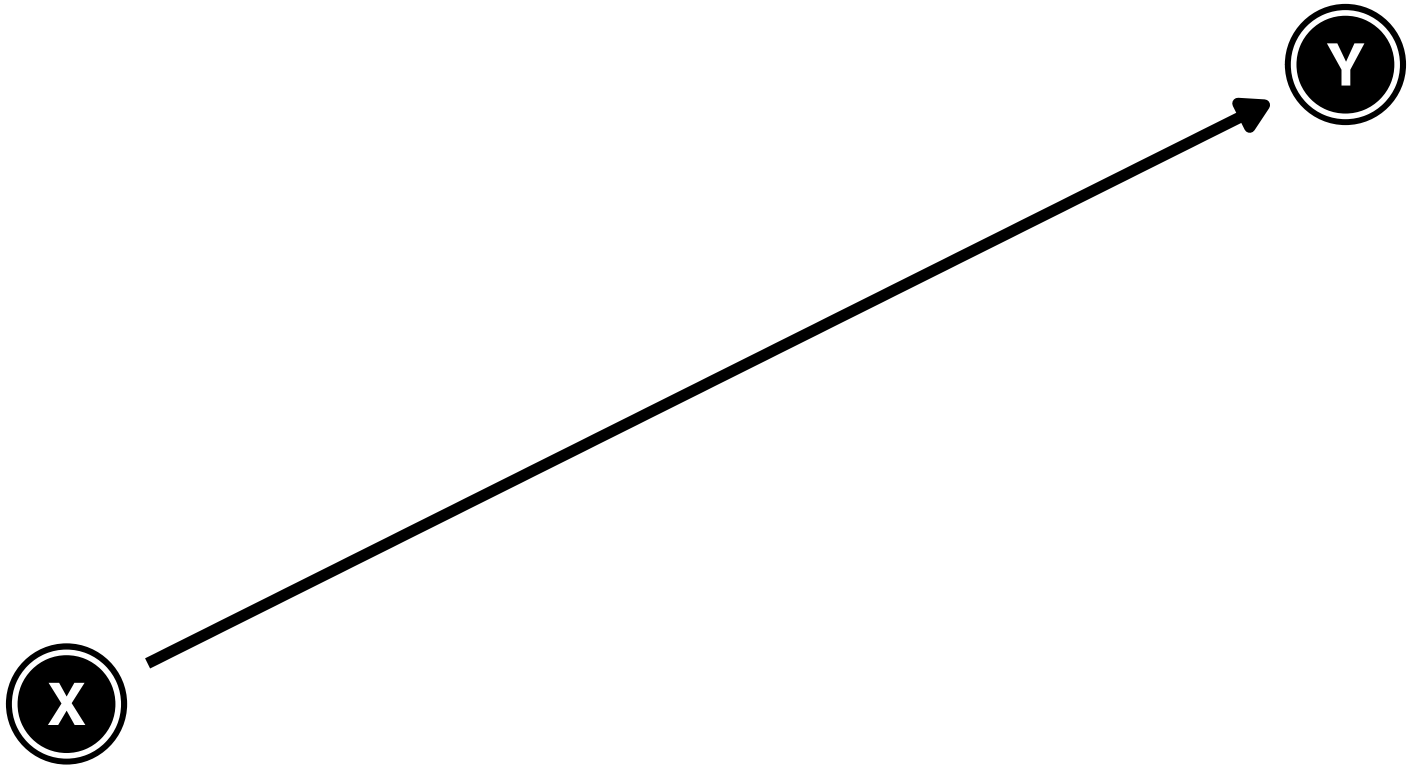
Causation =
Correlation + time order +
all other factors ruled out

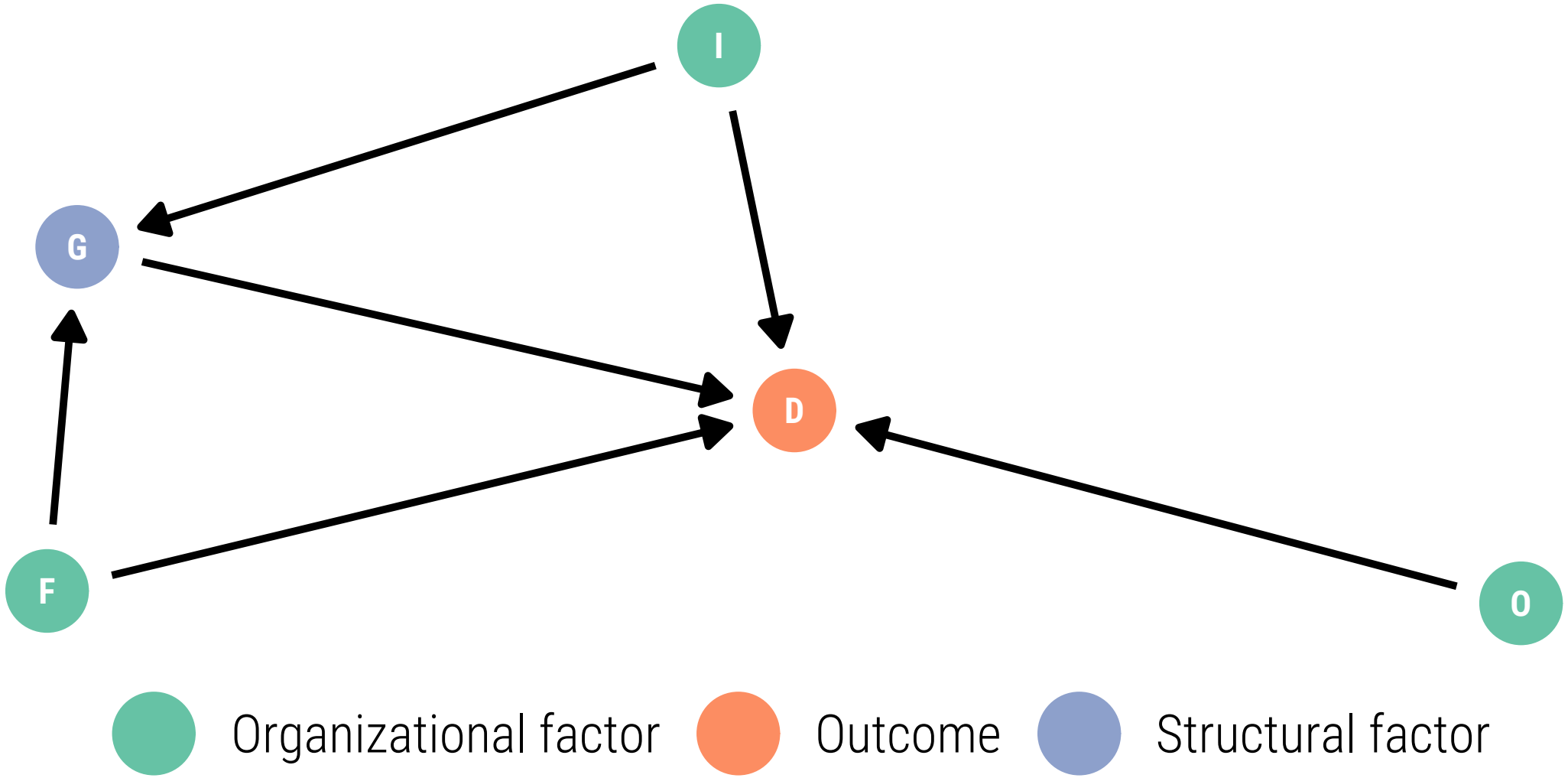
How do you know if you have it right?

You need a philosophical model

DAGS

Directed acyclic graphs encode our understanding of the causal model (or philosophy)




I
G
D
F
O
Organizational factor
Outcome
Structural factor

What is the causal effect of an additional year of education on earnings?

Step 1: List variables

Step 2: Simplify

Step 3: Connect arrows

Step 4: Use logic and math to determine which arrows to measure

1. LIST VARIABLES

Education (treatment)

Earnings (outcome)

List anything that's relevant

Things that cause or are caused by treatment, especially if they're related to both treatment and outcome

You don't have to actually observe or measure them all

1. LIST VARIABLES

Education (treatment)

Earnings (outcome)

Location

Ability

Demographics

Socioeconomic status

Year of birth

Compulsory schooling laws

Job connections

2. SIMPLIFY

Education (treatment)

Earnings (outcome)

Location

Ability

Demographics

Socioeconomic status

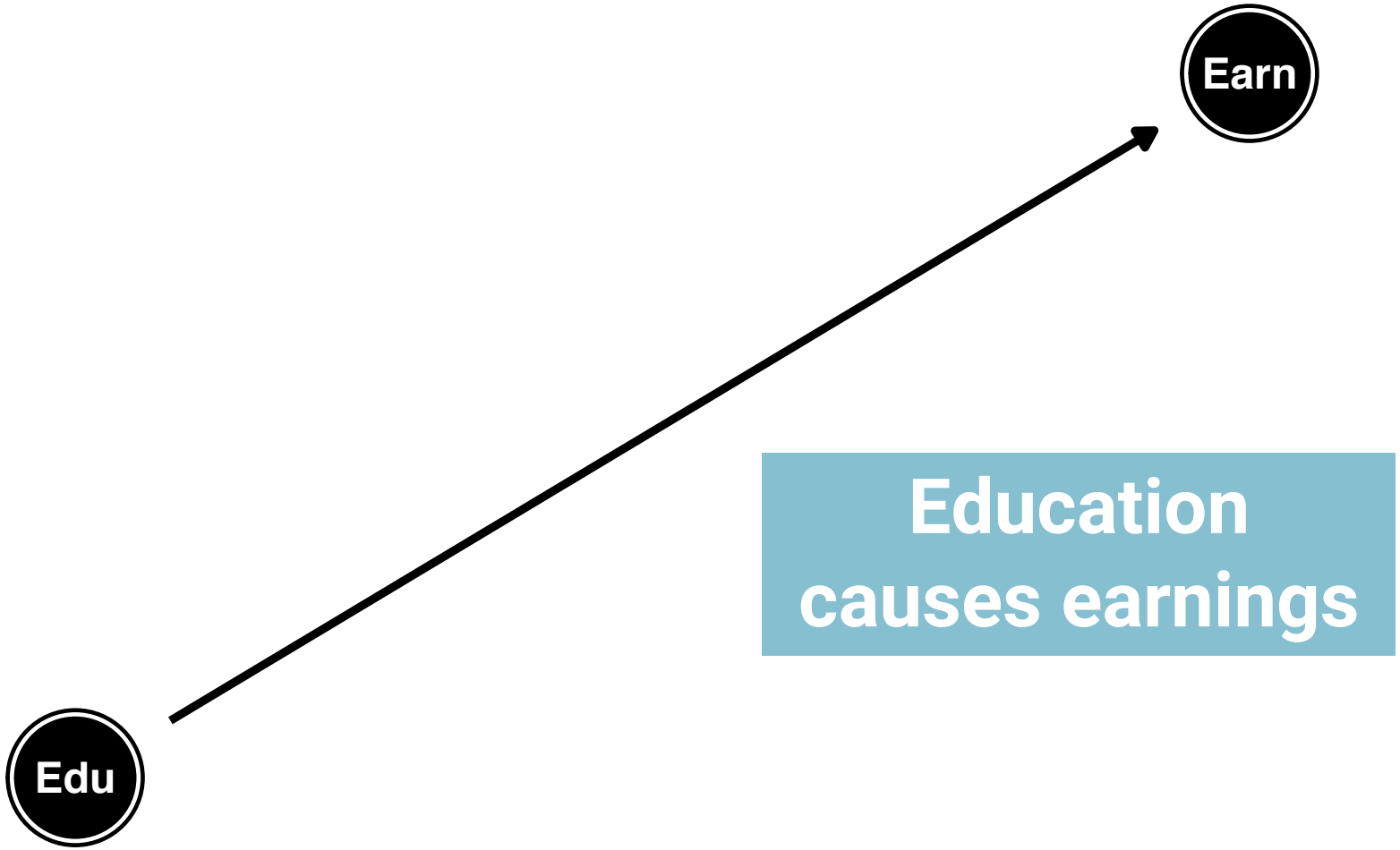
Year of birth

Compulsory schooling laws

Job connections

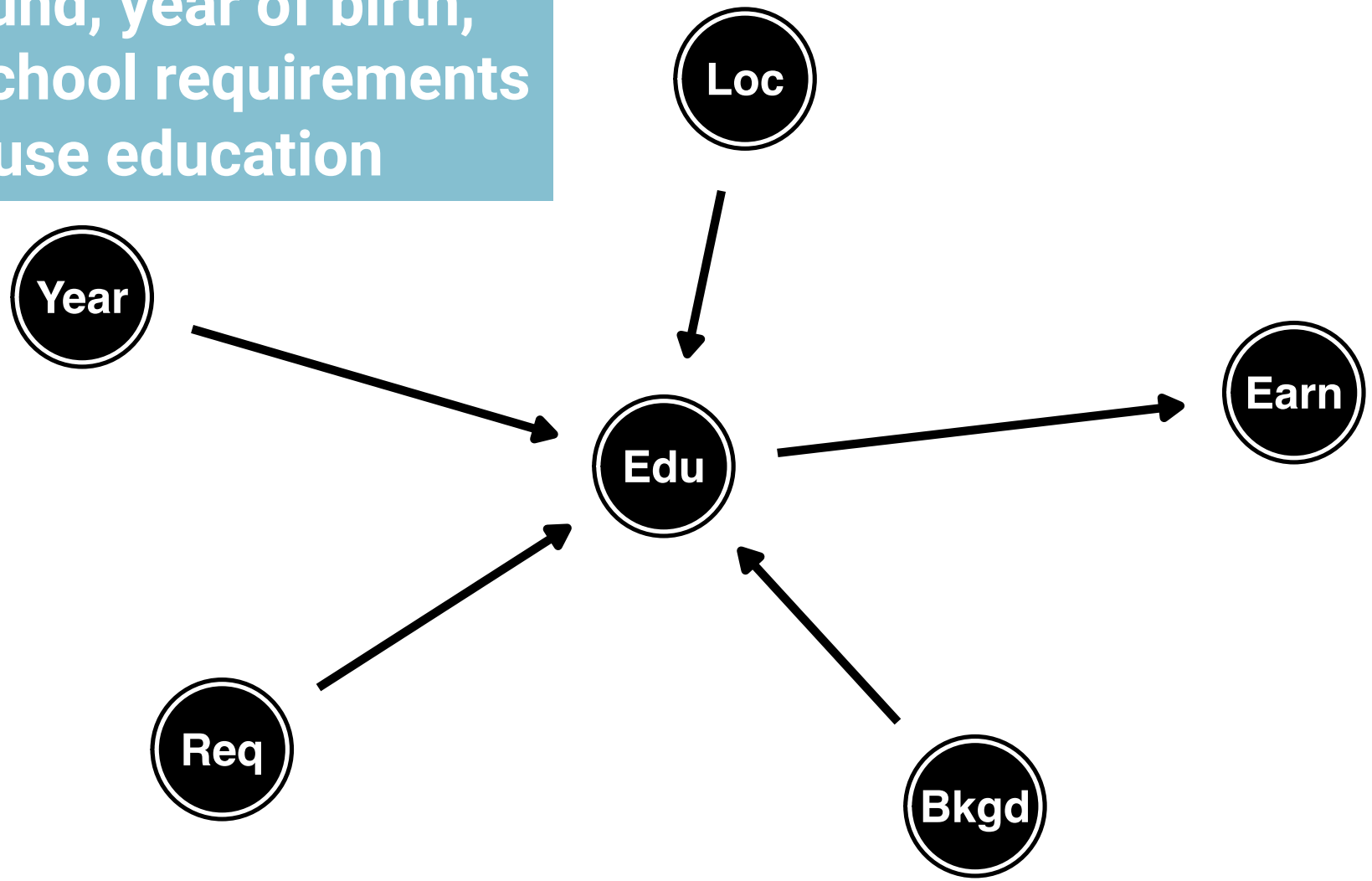
Background

3. DRAW ARROWS

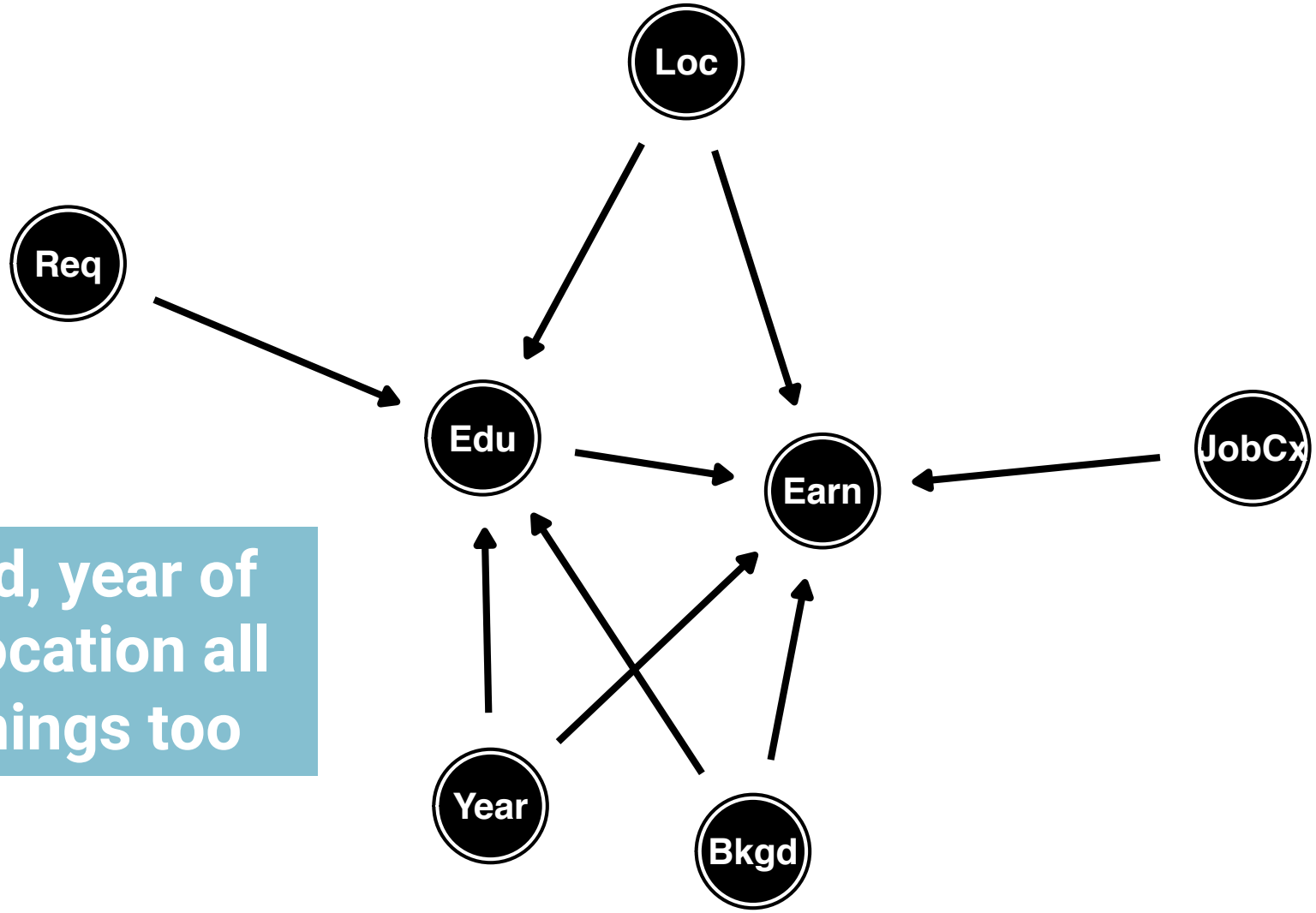


3. DRAW ARROWS

Background, year of birth, location, school requirements all cause education

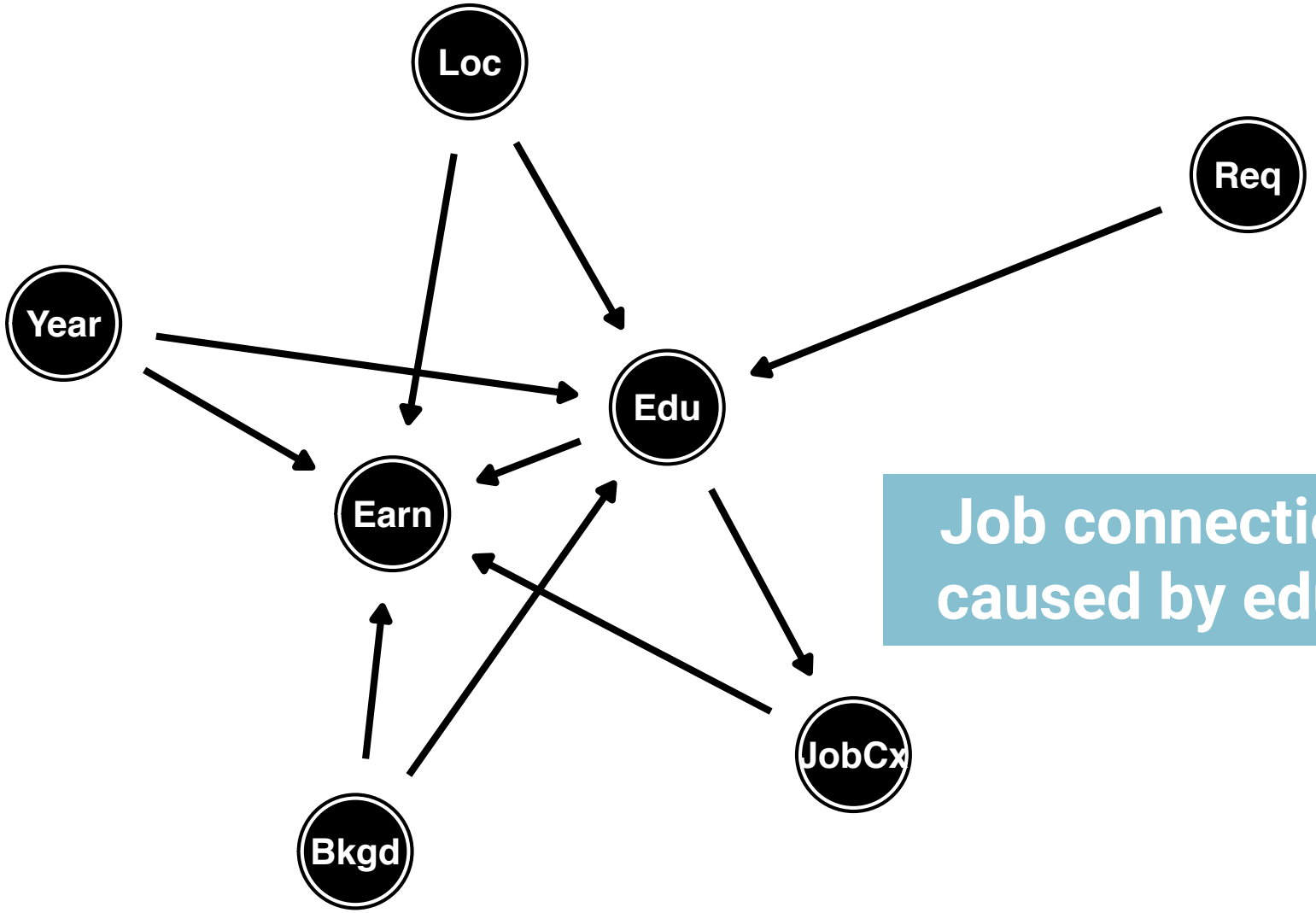


3. DRAW ARROWS



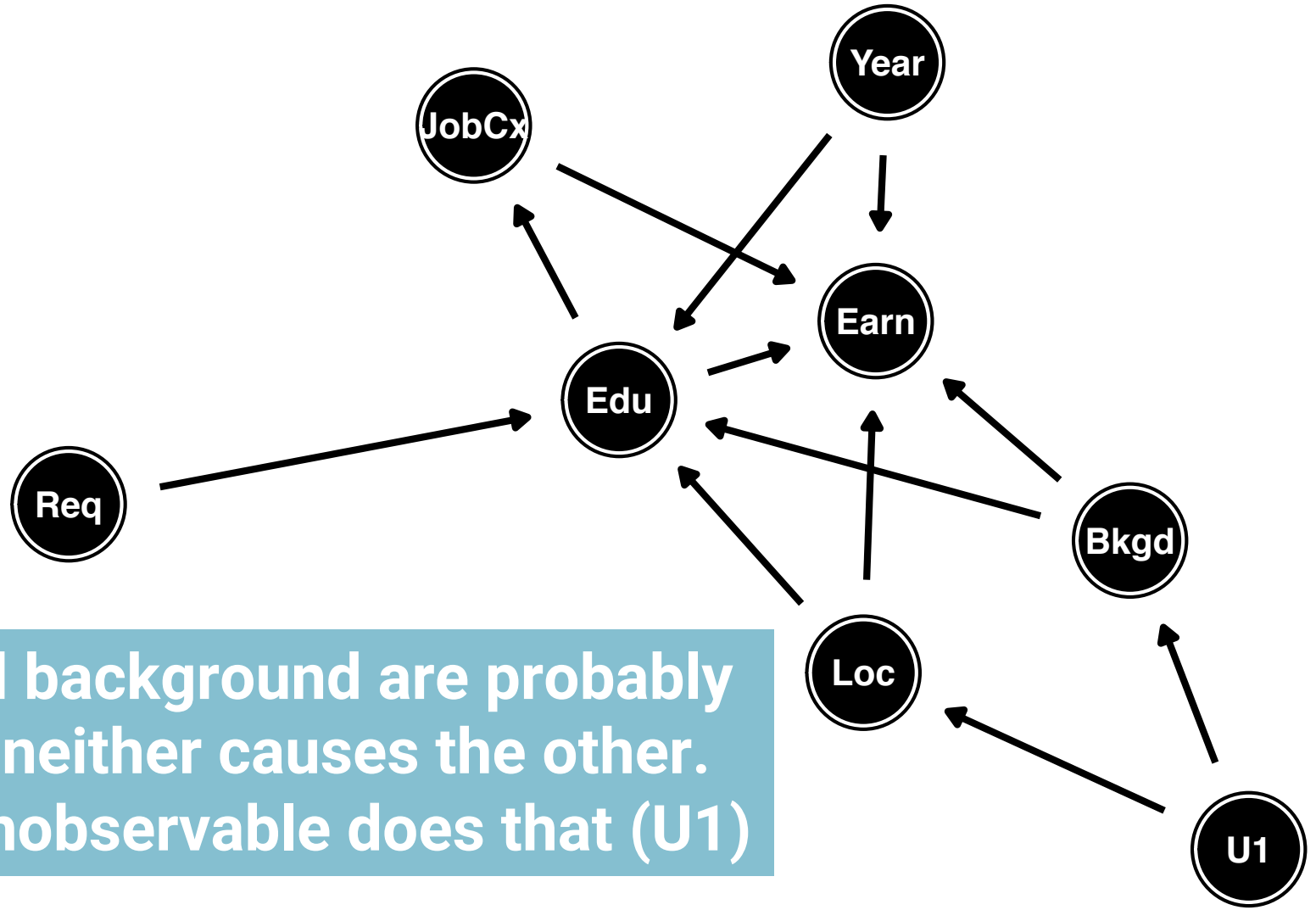
Background, year of birth, and location all effect earnings too

3. DRAW ARROWS



Job connections are caused by education

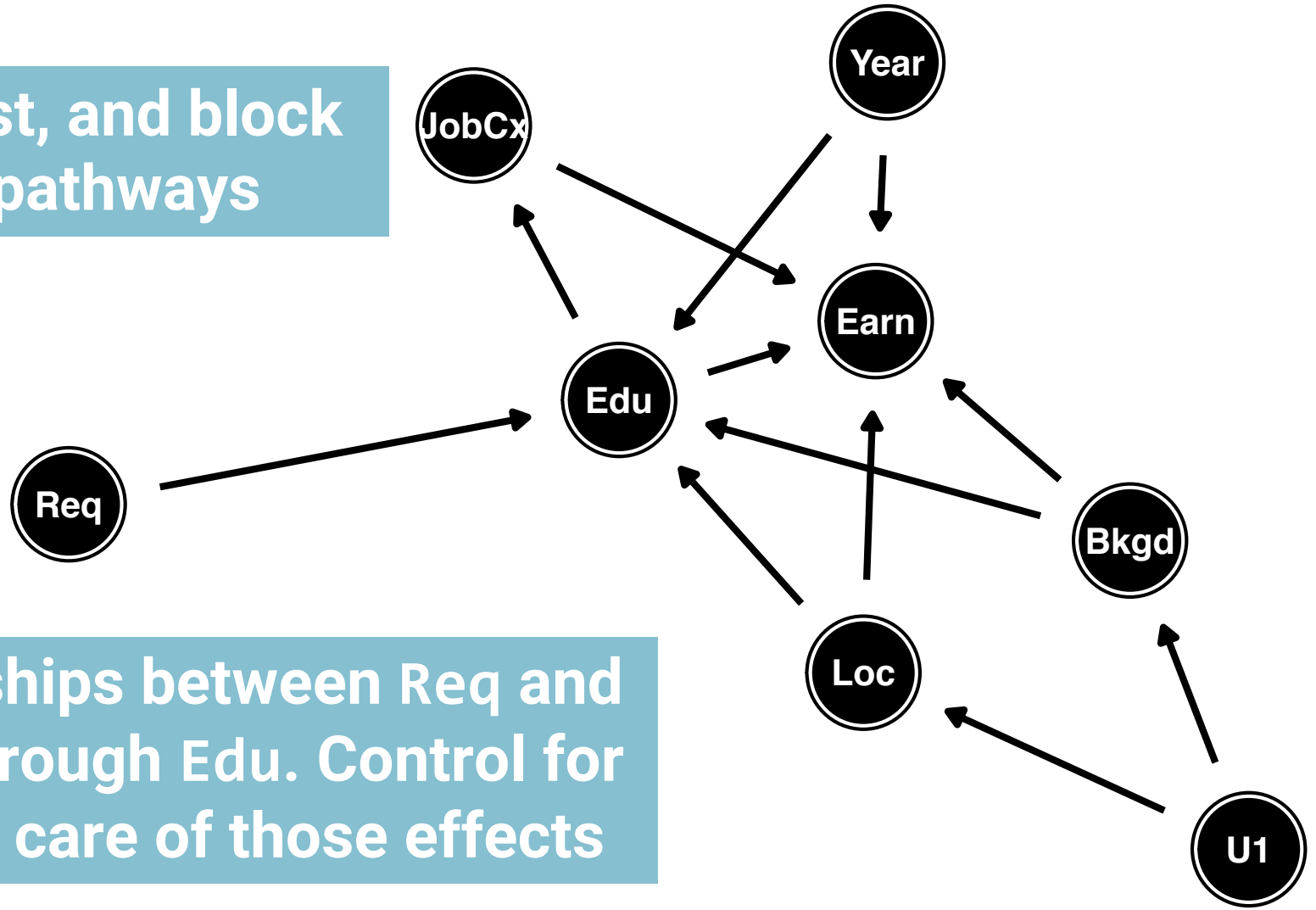
3. DRAW ARROWS



Location and background are probably related, but neither causes the other. Something unobservable does that (U1)

4. MEASURE AND CONTROL FOR STUFF

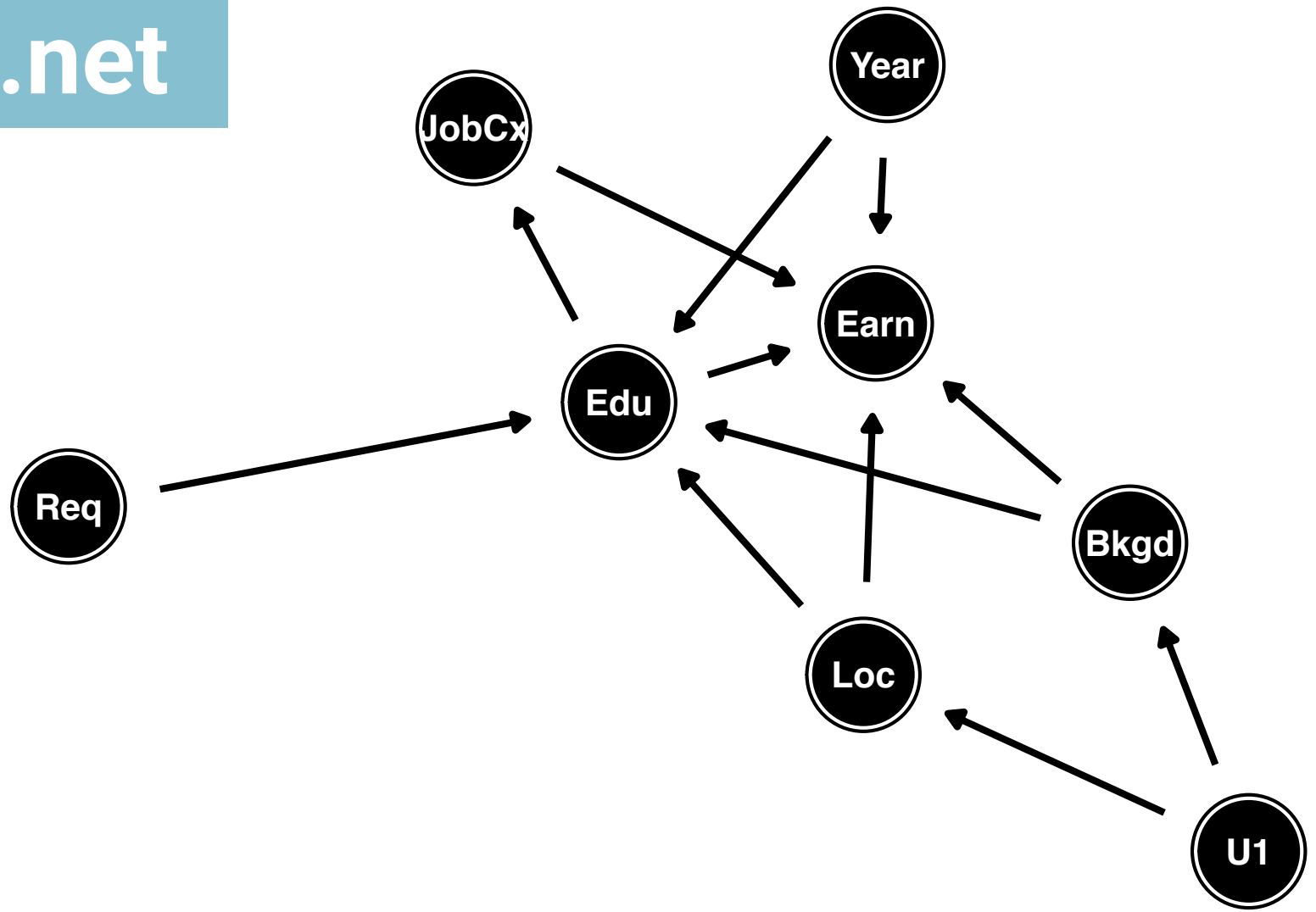
Measure, test, and block different pathways



All relationships between Req and JobCx go through Edu. Control for Edu to take care of those effects

LET THE COMPUTER DO SOME OF THIS

dagitty.net



JUDEA PEARL

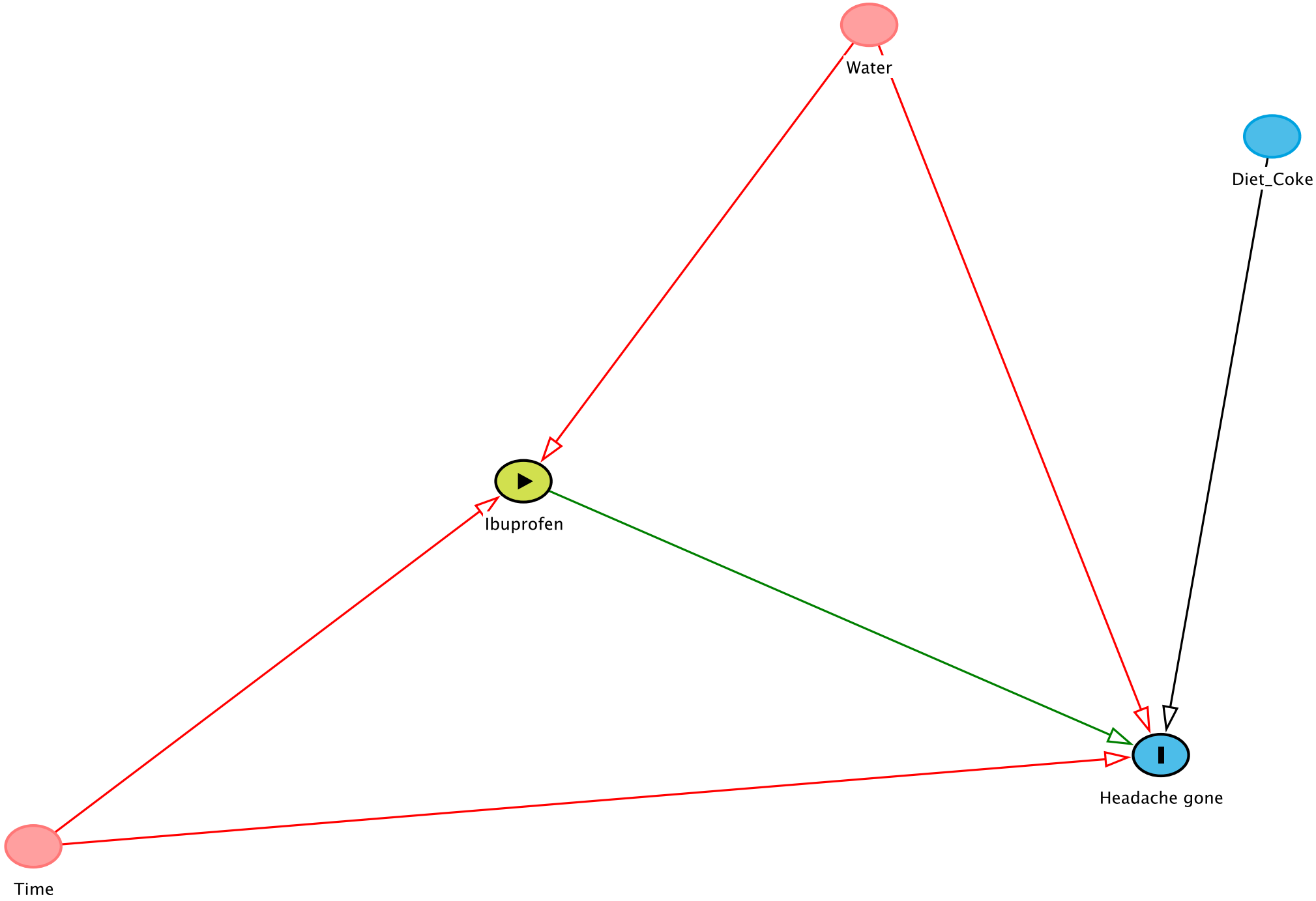
WINNER OF THE TURING AWARD

AND DANA MACKENZIE

THE BOOK OF WHY

THE NEW SCIENCE OF CAUSE AND EFFECT

IDENTIFICATION AND RESEARCH DESIGN


Water
Diet_Coke
Ibuprofen
Headache gone
Time

TRICKY CAUSATION

Fundamental problem of causation in social science

=

We can never see individual counterfactuals

Get around this by inventing counterfactuals

THE CAUSALITY CONTINUUM

Differences

Pre-post

Multiple regression

Matching

Diff-in-diff

Natural experiments

Regression discontinuity

RCTs

Correlation

Causation

MUTLIPLE REGRESSION

Table 2: OLS models for four standardized tests

VARIABLES	(1) Reading	(2) Math	(3) Listening	(4) Words
Small class	6.47***	8.84***	3.24**	6.99***
	(1.45)	(2.32)	(1.42)	(1.60)
Regular + aide class	1.00	0.42	-0.58	1.27
	(1.26)	(2.14)	(1.32)	(1.42)
White or Asian	7.85***	16.91***	17.98***	7.08***
	(1.61)	(2.40)	(1.70)	(1.91)
Girl	5.39***	6.46***	2.67***	5.03***
	(0.78)	(1.12)	(0.74)	(0.94)
Free/reduced lunch	-14.69***	-20.08***	-15.23***	-15.97***
	(0.91)	(1.33)	(0.90)	(1.07)
Teacher white or Asian	-0.56	-1.01	-3.68	0.46
	(2.66)	(3.80)	(2.59)	(3.07)
Years of teacher experience	0.30**	0.42**	0.25*	0.30**
	(0.12)	(0.20)	(0.15)	(0.14)
Teacher has MA	-0.75	-2.20	0.50	0.24
	(1.25)	(2.08)	(1.24)	(1.46)
School fixed effects	X	X	X	X
Constant	431.69***	475.52***	531.28***	428.97***
	(3.12)	(4.49)	(2.84)	(3.59)
Observations	5,728	5,809	5,776	5,790
R-squared	0.08	0.07	0.09	0.06
Number of schools	79	79	79	79

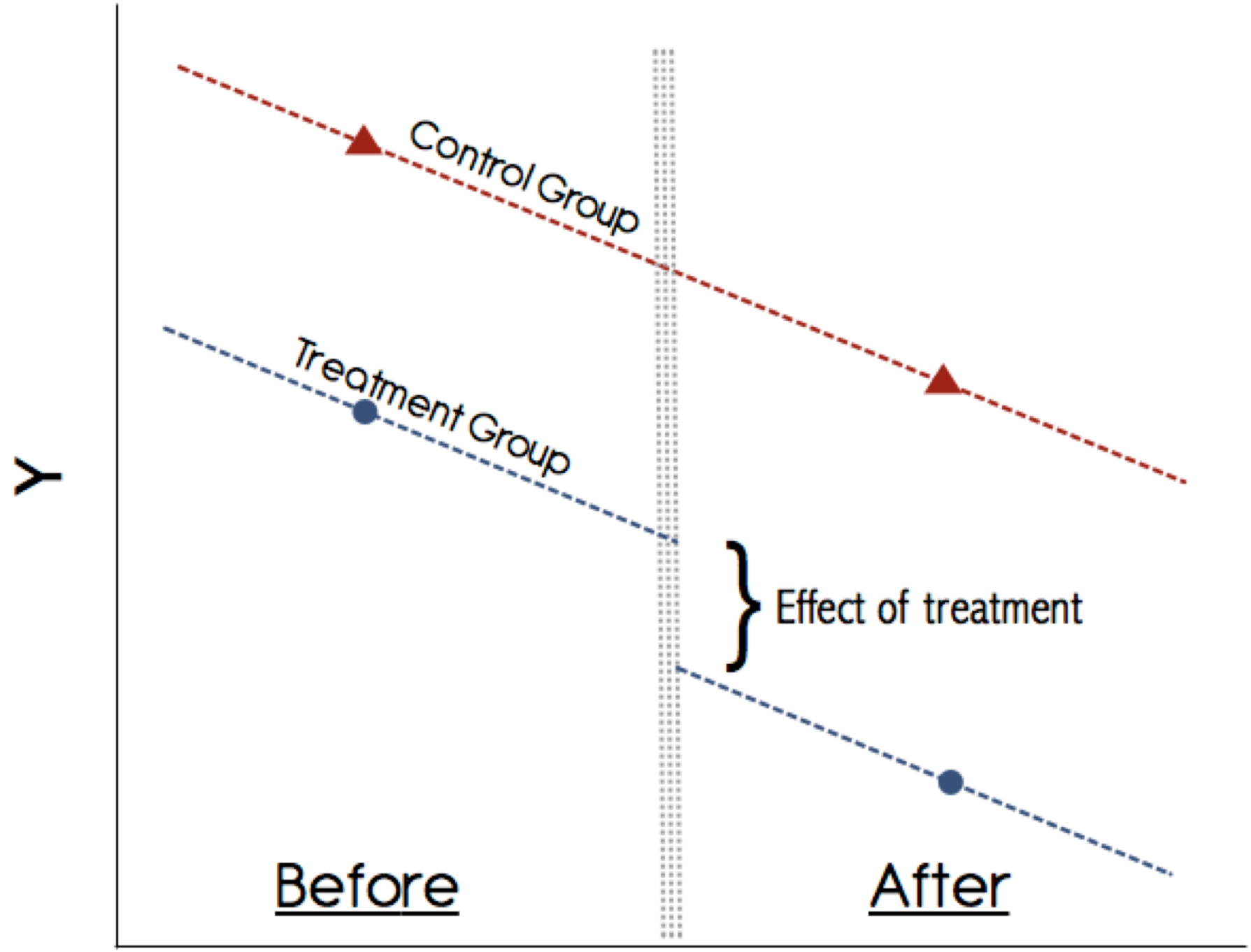
Robust standard errors in parentheses.
Standard errors corrected with Huber-White clustering by kindergarten teacher ID
*** p<0.01, ** p<0.05, * p<0.1

TWO WRONGS MAKE A RIGHT

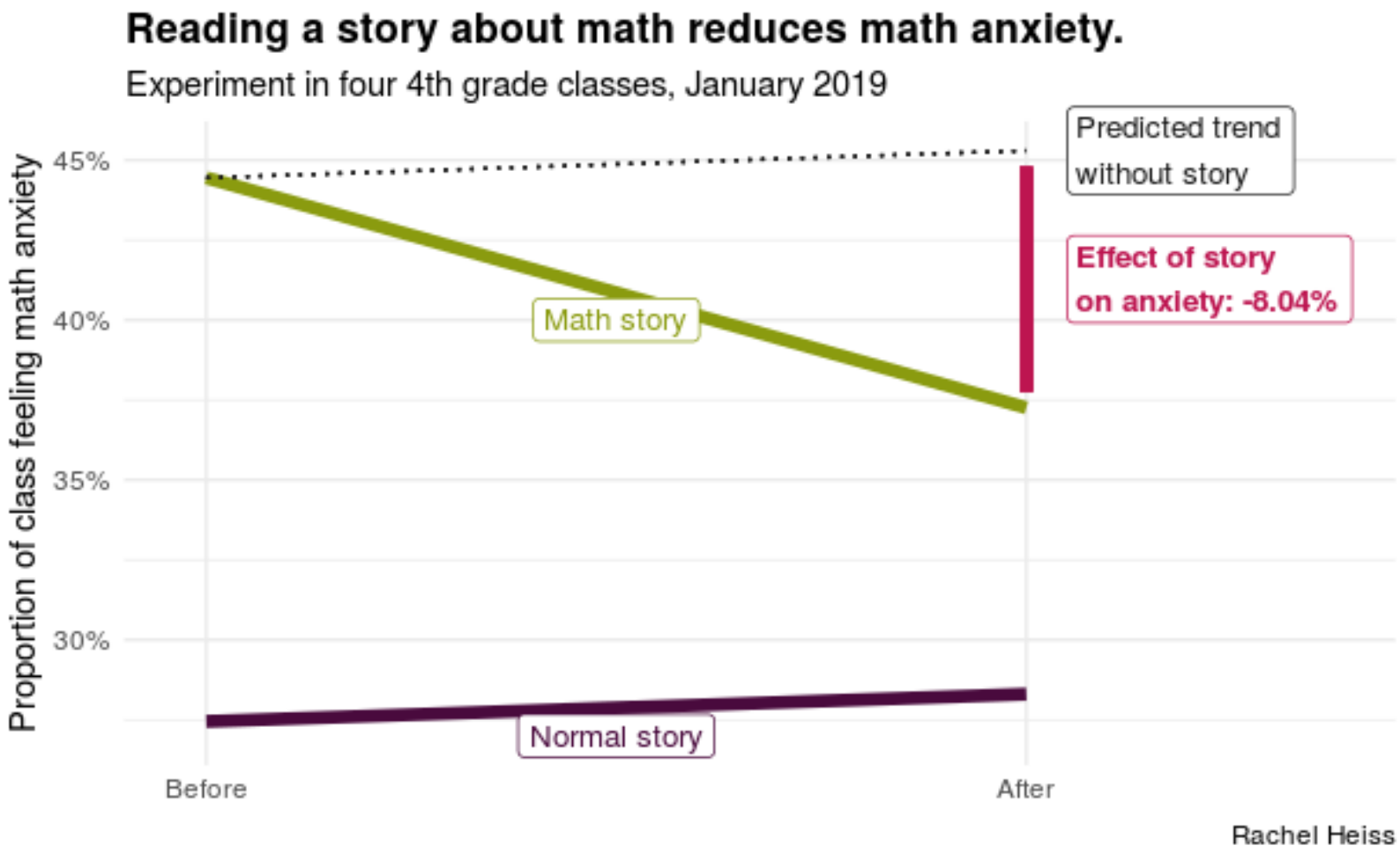
Difference-in-difference (DD)

Compare treatment and control groups before and after intervention

$$\begin{aligned}\text{DD} =& (\bar{x}_{\text{treatment, post}} - \bar{x}_{\text{treatment, pre}}) \\ & - (\bar{x}_{\text{control, post}} - \bar{x}_{\text{control, pre}})\end{aligned}$$


Y
Control Group
Treatment Group
Effect of treatment
Before
After

DIFF-IN-DIFF


Reading a story about math reduces math anxiety.
Experiment in four 4th grade classes, January 2019
Proportion of class feeling math anxiety
45%
40%
35%
30%
Predicted trend without story
Effect of story on anxiety: -8.04%
Math story
Normal story
Before
After
Rachel Heiss

RCTS

Randomized Controlled Trials

Gold standard (kind of)

People can’t select into treatment, there are no omitted variables, and reverse causation is addressed

American Political Science Review

Volume 111, Issue 3 August 2017 , pp. 572-583

Childhood Skill Development and Adult Political Participation

JOHN B. HOLBEIN [a1]

https://doi.org/10.1017/S0003055417000119 Published online: 19 June 2017

Abstract

Recent child development research shows that the psychosocial or noncognitive skills that children develop —including the ability to self-regulate and integrate in social settings—are important for success in school and beyond. Are these skills learned in childhood also important for adult political behaviors like voting? In this article, I use a unique school-based 20-year field experiment to explore whether children who develop psychosocial skills early on are more likely to vote in adulthood than those who do not. Matching subjects to voter files, I show that this intervention had a noticeable long-run impact on political participation. These results highlight the need to better understand how childhood experiences shape civic behaviors later in life. During this critical period, children can be taught the not explicitly political, but still vital, skills that set them on a path toward political participation in adulthood.

Reducing Intimate Partner Violence through Informal Social Control: A mass media experiment in rural Uganda

Research Method

Blocked and clustered field experiment with 6,449 respondents in 112 villages.

Country

Uganda

Co-Authors

Donald Green, Anna Wilke

Partners

Innovations for Poverty Action (IPA Uganda), Peripheral Vision International (PVI)

Research Question

Can mass media shore up informal channels for reducing intimate partner violence?

Abstract

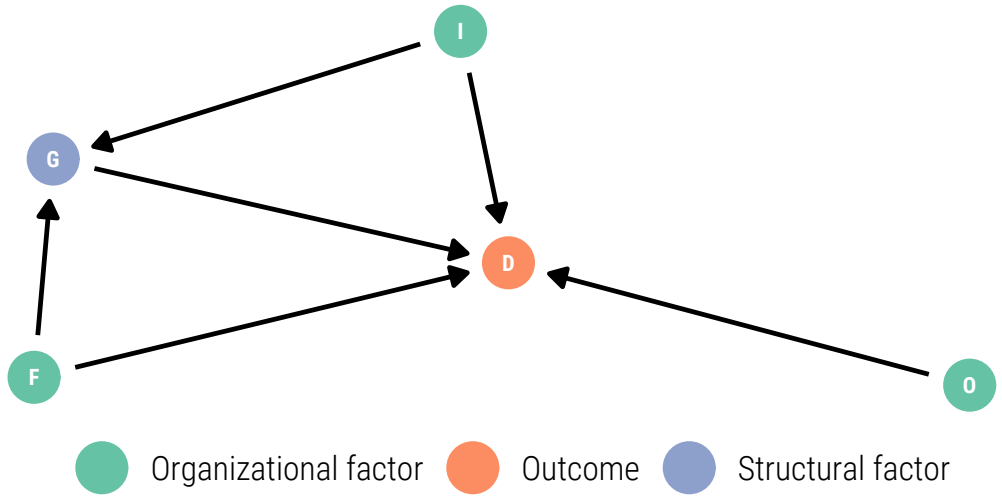
We assess a mass media campaign designed to reduce intimate partner violence (IPV). A placebo-controlled experiment conducted in 2016 exposed over 10,000 Ugandans in 112 rural villages to a sequence of three short video dramatizations of IPV. A seemingly unrelated opinion survey conducted eight months later indicates that villages in which IPV videos were aired experienced substantially less IPV in the preceding six months than villages that were shown videos on other topics. A closer look at mechanisms reveals that the IPV videos had little effect on attitudes about the legitimacy of IPV. Nor did the videos increase empathy with IPV victims or change perceptions about whether domestic violence must be stopped before it escalates. The most plausible causal channel appears to be a change in norms: women in the treatment group became less likely to believe that they would be criticized for meddling in the affairs of others if they were to report IPV to local leaders, and their personal willingness to intervene increased substantially. These results suggest that education-entertainment has the potential to markedly reduce the incidence of IPV in an enduring and cost-effective manner.

Paper

See here for latest working paper.

Replication Archive

Replication by JPAL underway, data forthcoming.


I
G
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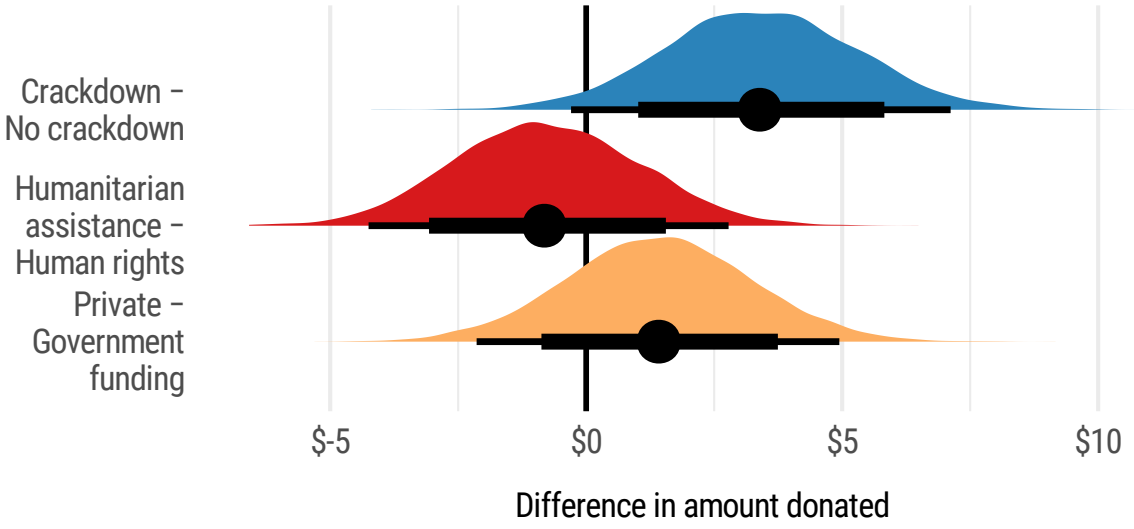
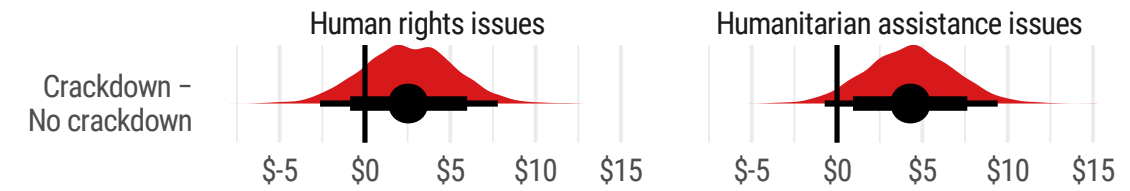
O
Organizational factor
Outcome
Structural factor

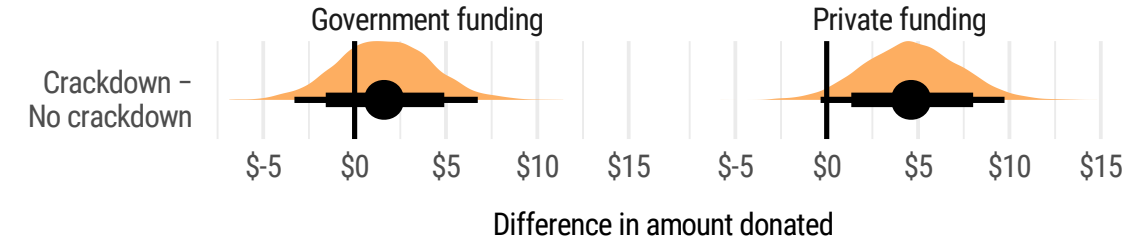
A


Crackdown – No crackdown
Humanitarian assistance – Human rights
Private – Government funding
$-5
$0
$5
$10
Difference in amount donated

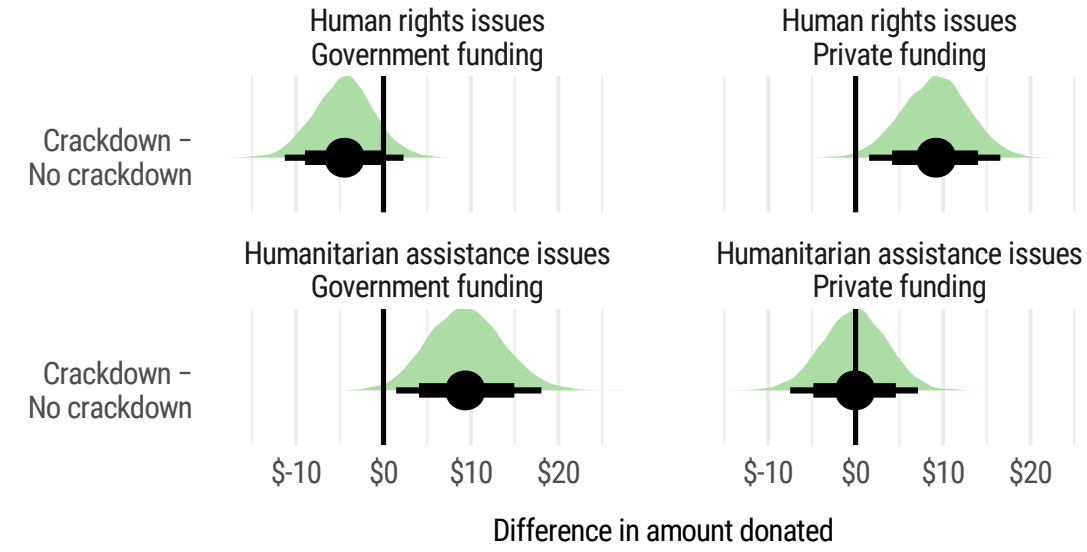
B


Human rights issues
Humanitarian assistance issues
Crackdown – No crackdown
$-5
$0
$5
$10
$15

C


Government funding
Private funding
Crackdown – No crackdown
$-5
$0
$5
$10
$15
Difference in amount donated

D


Human rights issues Government funding
Human rights issues Private funding
Humanitarian assistance issues Government funding
Humanitarian assistance issues Private funding
Crackdown – No crackdown
$-10
$0
$10
$20
Difference in amount donated

BUT

Compliance

Treatment spillovers

Generalizability

Power

Cost

Ethics

Politics

Hawthorne effects

John Henry effects

NATURAL EXPERIMENTS

Assignment is random(ish), not done by researchers

Drafts, lotteries, coin tosses, arbitrary rules, twins, natural disasters, wars

Rain, Emotions and Voting for the Status Quo

Armando N. Meier[†] Lukas Schmid[‡] Alois Stutzer[⋆]

January, 2018

Abstract

Do emotions affect the decision between change and the status quo? We exploit exogenous variation in emotions caused by rain and analyze data on more than 870,000 municipal vote outcomes in Switzerland to address this question. The empirical tests are based on administrative ballot outcomes and individual postvote survey data. We find that rain decreases the share of votes for political change. Our robustness checks suggest that this finding is not driven by changes in the composition of the electorate and changes in information acquisition. In addition, we provide evidence that rain might have altered the outcome of several high-stake votes. We discuss the psychological mechanism and document that rain reduces the willingness to take risks, a pattern that is consistent with the observed reduction in the support for change.

Church Attendance, Petty Crime and Rain

70 Pages • Posted: 3 Apr 2018

Jonathan Moreno
Duke University, Department of Economics, Students

Date Written: March 29, 2018

Abstract

The lack of good data and credible identification strategies have hindered the research exploring the role of religious adherence and church attendance on crime. I provide indirect evidence of the impact of church attendance on crime by using quasi-random variation in the number of Sundays where it rained above a threshold at the time of most religious services. I control for rainfall variation at other times across the year, county and time fixed effects. Based on a panel between 1982 and 2012, I find that one more rainy Sunday at the time of church increases yearly drug related crimes by 1.8%, alcohol related crimes between 1.2 and 1.3%, and 'white-collar' crimes between 0.6 and 1.1%. I do not find an effect for violent crimes. Semi-nonparametric estimations show that these effects start when a county sees eight or more rainy Sundays at church time. I provide evidence that most of these effects are driven by more religious counties. I also present evidence that the effect of religious attendance is greater in areas where there is more crime to begin with. These results are consistent with those found by Gruber and Hungerman (2008).

Keywords: economics of religion, religious attendance, crime

REGRESSION DISCONTINUITY

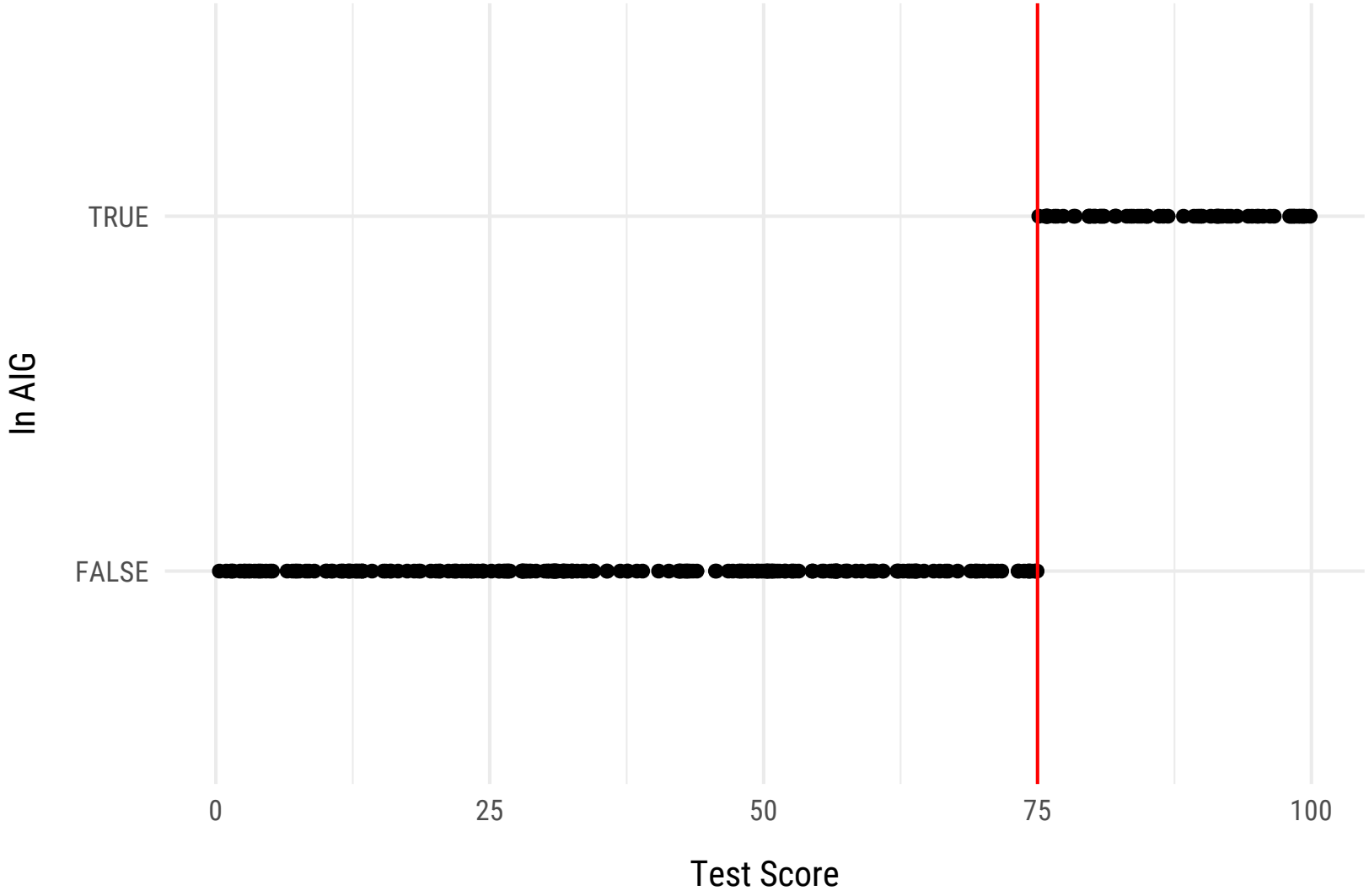
Special kind of natural experiment

Compare outcomes right before and right after an arbitrary rule

People right before/after rule are essentially the same

Age cutoffs, birthdays, eligibility rules, Ramadan start date, terrorist attacks

RUNNING VARIABLE



OUTCOME VARIABLE

Between 72–78, people are basically the same

Treatment and control groups!

After Midnight: A Regression Discontinuity Design in Length of Postpartum Hospital Stays*

By Douglas Almond† and Joseph J. Doyle Jr.‡

Estimates of moral hazard in health insurance markets can be confounded by adverse selection. This paper considers a plausibly exogenous source of variation in insurance coverage for childbirth in California. We find that additional health insurance coverage induces substantial extensions in length of hospital stay for mother and newborn. However, remaining in the hospital longer has no effect on readmissions or mortality, and the estimates are precise. Our results suggest that for uncomplicated births, minimum insurance mandates incur substantial costs without detectable health benefits.

Figure 3A: Additional Midnights: Before Law Change

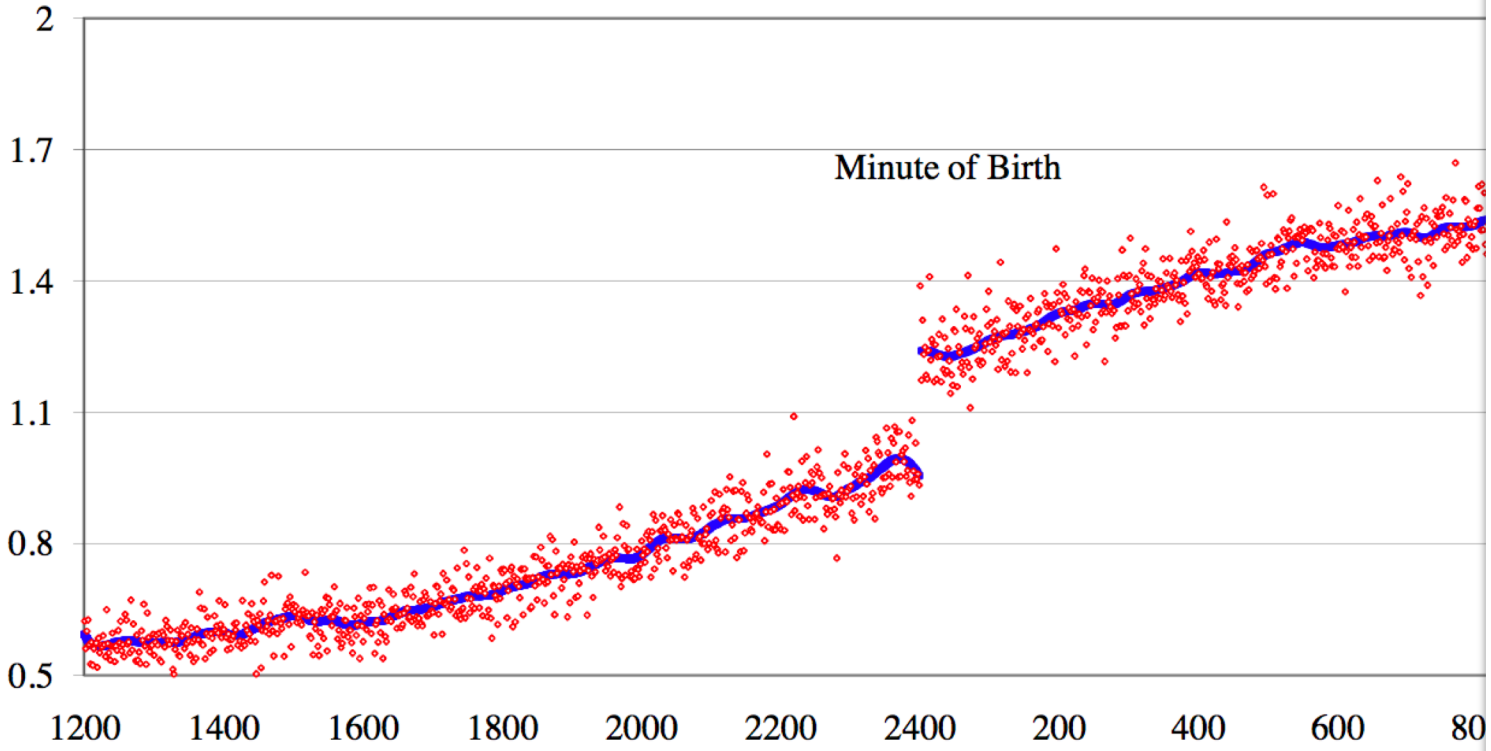


Figure 4A: 28-Day Readmission Rate: Before Law Change

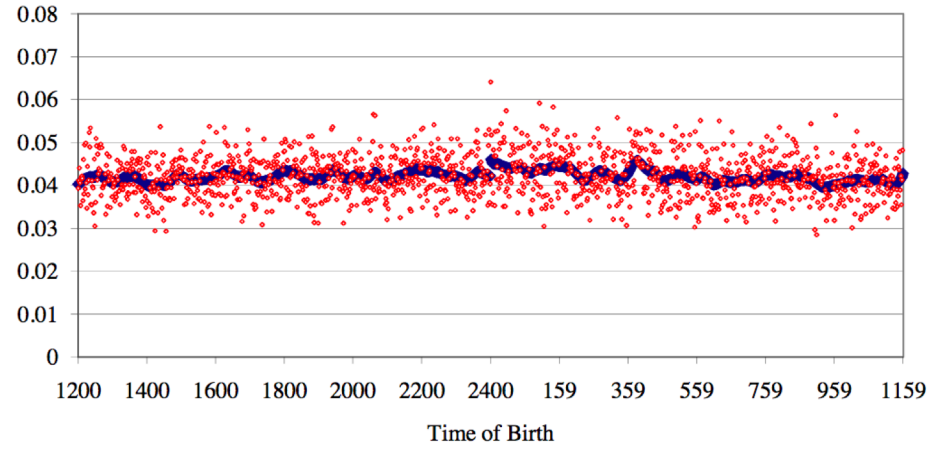
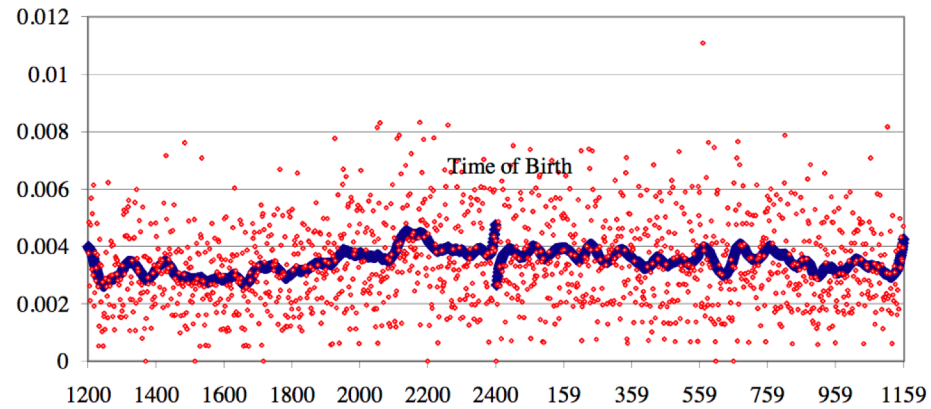


Figure 4C: 28-Day Mortality Rate: Before Law Change



THE EFFECT OF ATTENDING THE FLAGSHIP STATE UNIVERSITY ON EARNINGS: A DISCONTINUITY-BASED APPROACH

Mark Hoekstra*

Abstract—This paper examines the effect of attending the flagship state university on the earnings of 28 to 33 year olds by combining confidential admissions records from a large state university with earnings data collected through the state's unemployment insurance program. To distinguish the effect of attending the flagship state university from the effects of confounding factors correlated with the university's admission decision or the applicant's enrollment decision, I exploit a large discontinuity in the probability of enrollment at the admission cutoff. The results indicate that attending the most selective state university causes earnings to be approximately 20% higher for white men.

I. Introduction

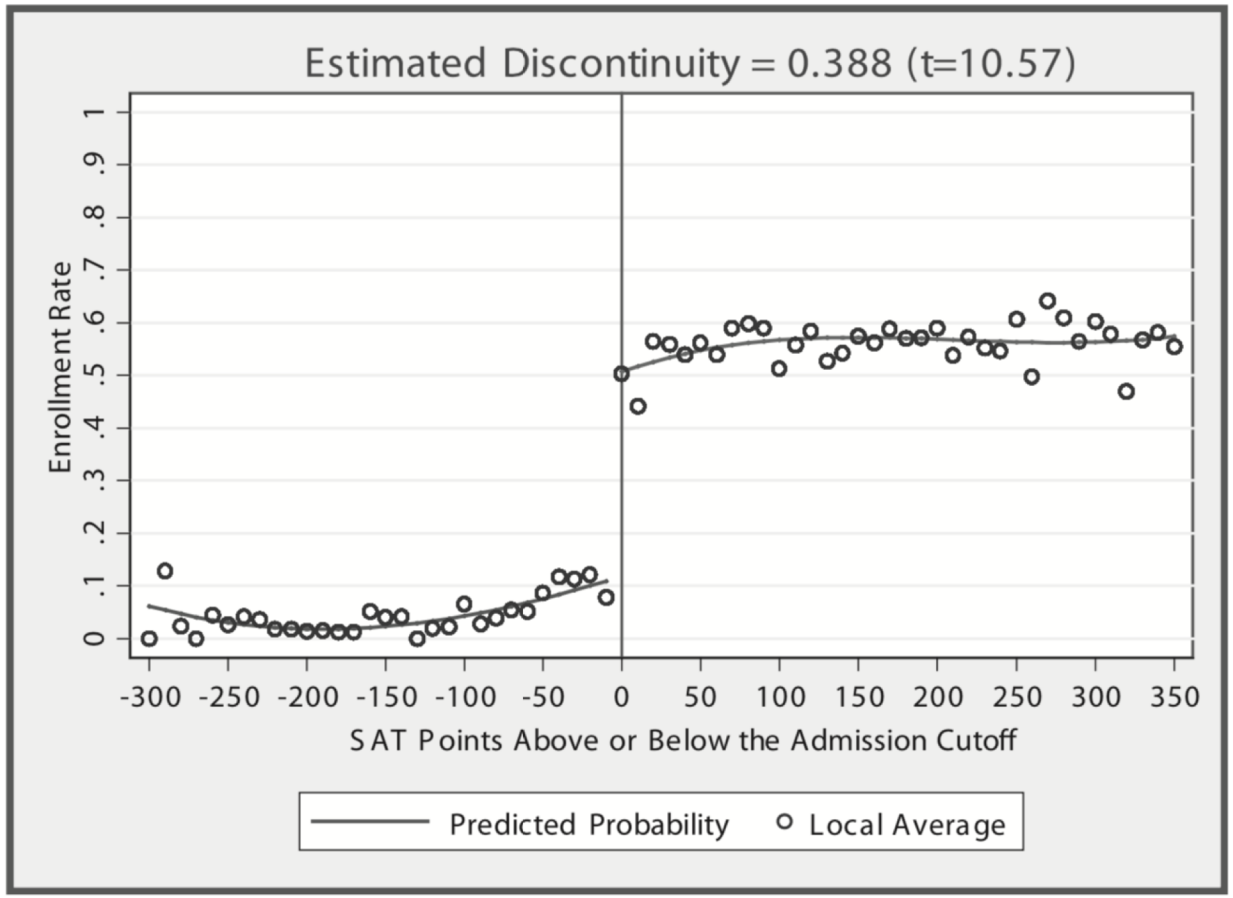
WHILE there has been considerable study of the effect of educational attainment on earnings, less is known regarding the economic returns to college quality. This paper examines the economic returns to college quality in the context of attending the most selective public state university. It does so using an intuitive regression discontinuity design that compares the earnings of 28 to 33 year olds who were barely admitted to the flagship to those of individuals who were barely rejected.

Convincingly estimating the economic returns to college quality requires overcoming the selection bias arising from

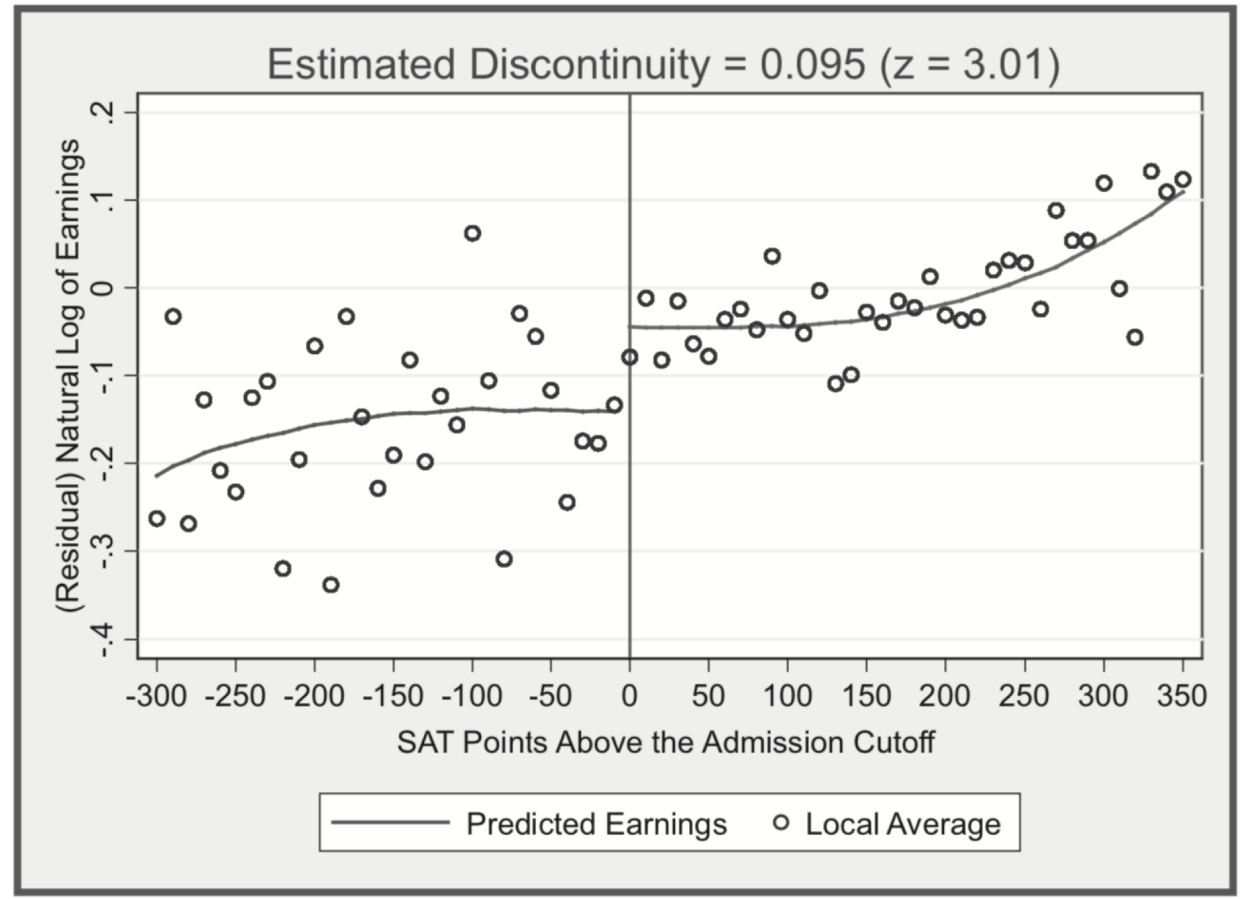
leges but chose to attend less selective institutions. They find that attending more selective colleges has a positive effect on earnings only for students from low-income families. Brewer, Eide, and Ehrenberg (1999) estimate the payoff by explicitly modeling high school students' choice of college type and find significant returns to attending an elite private institution for all students. Behrman, Rozenzweig, and Taubman (1996) identify the effect by comparing female twin pairs and find evidence of a positive payoff from attending Ph.D.-granting private universities with well-paid senior faculty. Using a similar approach, Lindahl and Regner (2005) use Swedish sibling data and show that cross-sectional estimates of the selective college wage premium are twice the within-family estimates.

This paper uses a different strategy in that it identifies the effect of school selectivity on earnings by comparing the earnings of those just below the cutoff for admission to the flagship state university to those of applicants who were barely above the cutoff for admission. To do so, I combined confidential administrative records from a large flagship state university with earnings records collected by the state

FIGURE 1.—FRACTION ENROLLED AT THE FLAGSHIP STATE UNIVERSITY



RAL LOG OF ANNUAL EARNINGS FOR WHITE MEN TEN TO FIFTEEN YEARS AFTER HIGH SCHOOL GRADUATION (FI
POLYNOMIAL OF ADJUSTED SAT SCORE)



doi:10.1017/S0003055414000240

Political Devolution and Resistance to Foreign Rule: A Natural Experiment

JEREMY FERWERDA and NICHOLAS L. MILLER
MIT Department of Political Science

Do foreign occupiers face less resistance when they increase the level of native governing authority? Although this is a central question within the literature on foreign occupation and insurgency, it is difficult to answer because the relationship between resistance and political devolution is typically endogenous. To address this issue, we identify a natural experiment based on the locally arbitrary assignment of French municipalities into German or Vichy-governed zones during World War II. Using a regression discontinuity design, we conclude that devolving governing authority significantly lowered levels of resistance. We argue that this effect is driven by a process of political cooptation: domestic groups that were granted governing authority were less likely to engage in resistance activity, while violent resistance was heightened in regions dominated by groups excluded from the governing regime. This finding stands in contrast to work that primarily emphasizes structural factors or nationalist motivations for resistance.

INTRODUCTION

What type of foreign rule generates greater resistance, one where the foreign power retains governing authority or one where it devolves authority to native elites and institutions? This question—crucially important to debates about foreign occupation, insurgency, and colonialism—remains contested. While some studies suggest that the identity of those in control should be of little significance so long as they possess strong coercive capacity (Kalyvas 2006; Liberman 1996), others suggest that devolution can play a key role in limiting resistance to foreign rule (Edelstein 2008, Hechter, Matesan, and

acteristics of foreign rule. As in most political science settings, the assignment of the variable of interest—in this case, the extent of authority devolved to natives—is usually nonrandom. Indeed, the decision to retain or devolve authority is often highly strategic in nature, depending on factors such as the pre-existing political organization of the subordinate territory (Gerring et al. 2011). Perhaps more importantly, the decision to grant greater authority to natives can itself be an endogenous response to prior resistance against more direct forms of rule (Licklider 1995; Hartzell, Hoddie, and Rothchild 2001; Mamdani 1999). As a result, observed relationships between the extent of native authority and levels of resistance may be spurious.

FIGURE 1. Map of the Demarcation Line across Intersected French Departments

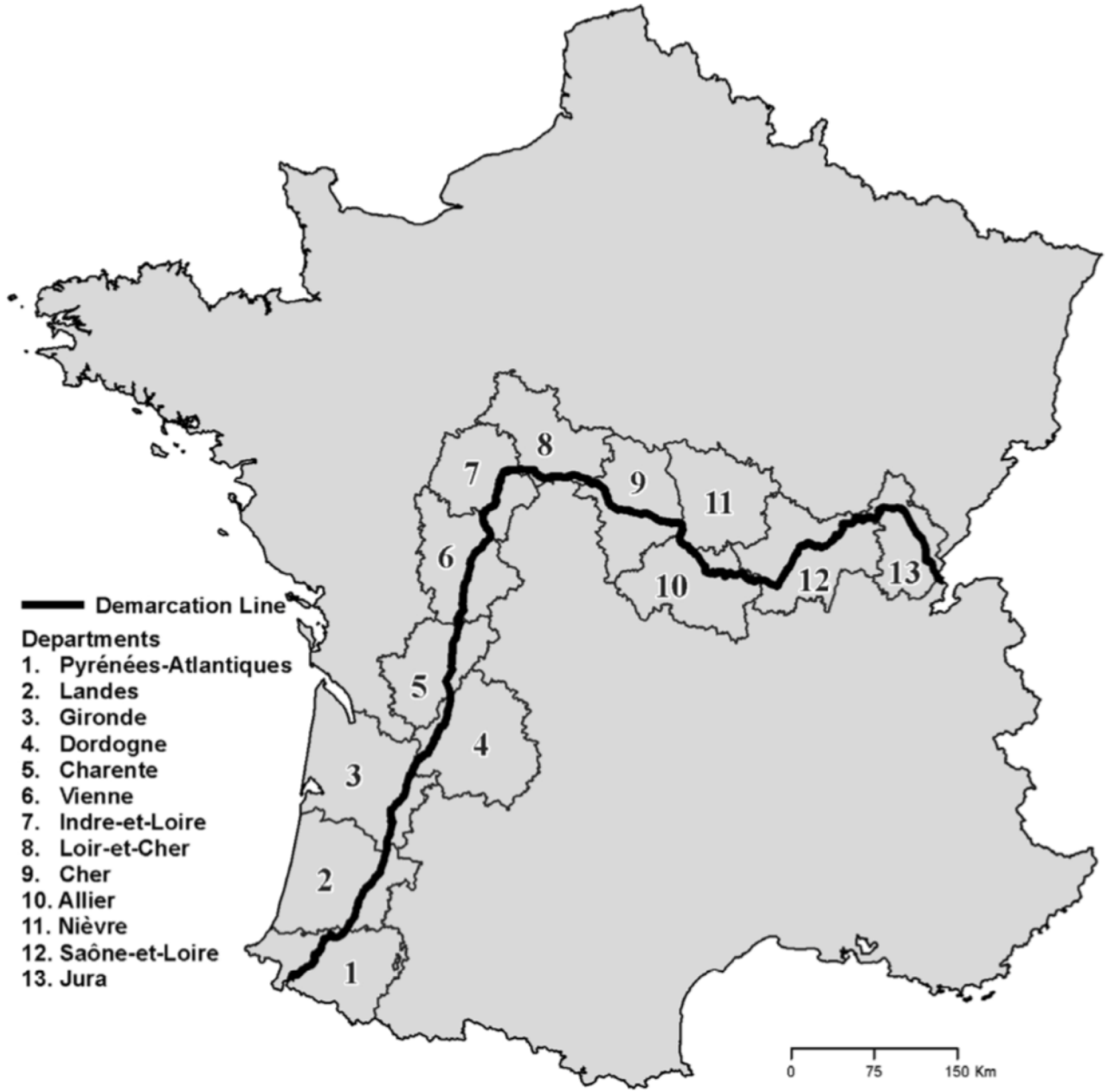
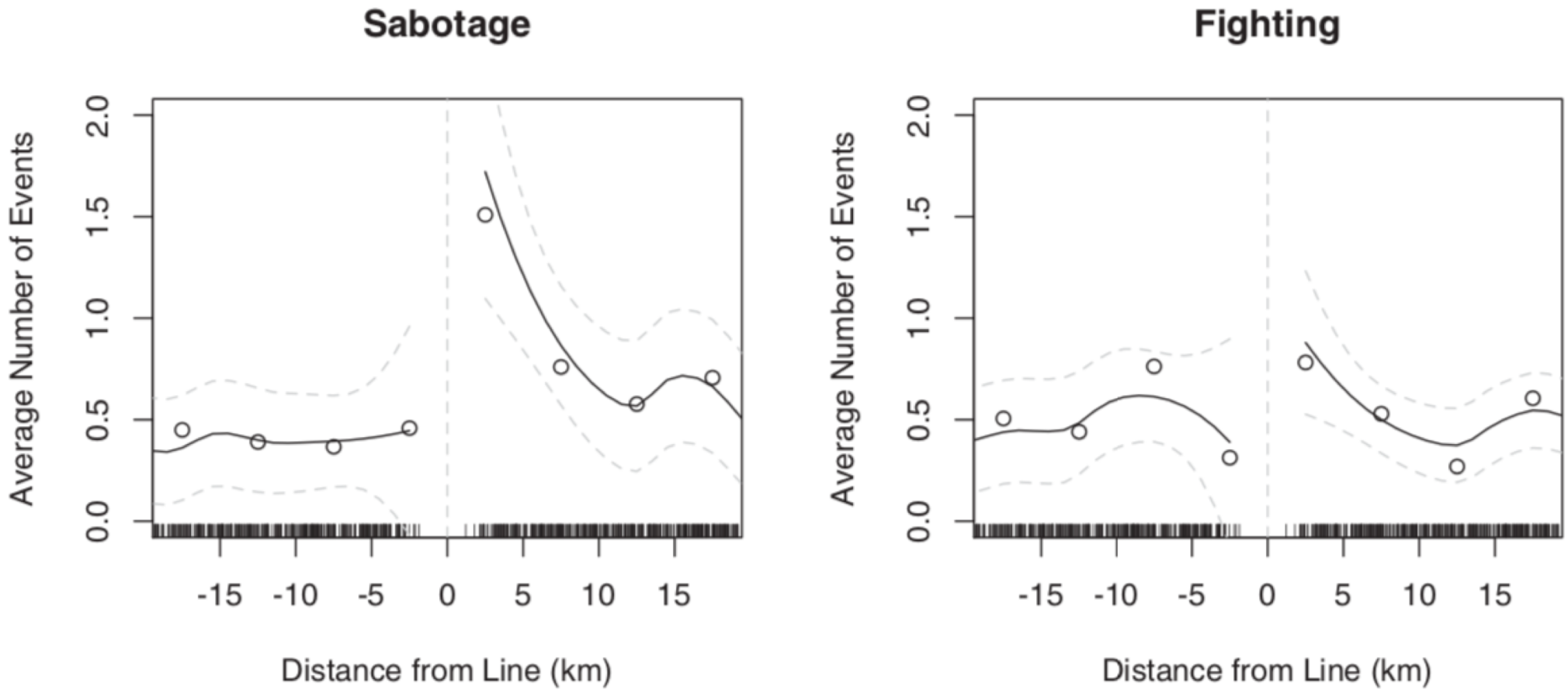


FIGURE 3. LOESS: Events per Commune



Notes: Smoothing parameter = 0.7 km. Negative distances represent Vichy, positive distances represent the German zone. The rug indicates the actual distribution of communes in the sample. Points represent binned means; the grey dotted line represents a 95% confidence interval.

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MORAL OF THE STORY

Evidence-based policy and administration is hard and complex