



Public Lecture:

“How the Guardian uses and thinks about data”

**Andrea Nardelli**

**Data Editor for *The Guardian***

4pm, Wed 27 January

Manor Road Building Lecture Theatre

# Political Analysis: Introduction and Research Design

Week 1

18 January, 2016

Prof. Andrew Eggers

# Our aims

- **Improve your ability to assess evidence on empirical questions.**
- **Give you the tools to do your own data analysis.**

# Assessing evidence on empirical questions

For example:

- Does first-past-the-post discourage political engagement compared to other electoral systems?
- Do majority-Islamic countries have worse human rights records, controlling for wealth and other factors?
- Does satellite technology help avoid interstate wars?
- Does decentralization of the political system change its political culture? (Prelims specimen exam paper)
- What causes party systems to change over time? (Prelims specimen exam paper)
- What explains the rise of populism in advanced democracies? (Prelims specimen exam paper)



# Of Time and the Development of Partisan Polarization

Luiza Sisker University of California, Berkeley  
M. Kent Jennings University of California, Santa Barbara

In this article we address the topic of increasing partisan polarization in the American mass public, focusing on the role of individual-level development and other experiences and the interaction between the two. We report on results of individual development that consist of defining attitudes in a large, national survey administered to a representative sample of the American public. We then report on the results of a series of experiments that use a large, national survey to provide initial evidence of these findings. We then use simulations to generate expectations about how these findings would play out across cohorts, time, and life. These expectations are evaluated through a series of analyses of historical data. Finally, data from 1973 to 2004 are used to evaluate the new predictions about the direction of individual-level development and their implications for the timing, nature, and degree of partisan polarization in the U.S. electorate.

In his classic 1983 essay, "Of Time and Partisan Politics," Gerson proposed an elegant model that helped account for the emergence of partisan conflict. In our view, this model is strikingly relevant, although challenged in some of certain specifics, the model has proved to be remarkably flexible. A particularly valuable aspect of the work consists of the demonstrated linkage between individual-level learning processes and the unfolding character of the political party system. The concepts of time and context are integral to the model. The passage of time is used to define an individual's cumulative experience with the party system and the accompanying growth in partisan attitudes. Context is emphasized throughout, how the direction of the party system in a given polity can affect the growth of partisan attitudes.

This article is written in the spirit, though not in the particulars, of Gerson's work. Our topic is partisan polarization rather than stability, and we consider one nation, the United States. However, as with Gerson we anticipate that the linkage between individual development

and individual construction of attitudes in the party system. We use a similar model of adult political learning but intend to include the development of attitudes between partisanship and issue positions. Instead of variation by type and degree of partisan change over time, we seek the development of partisan attitudes, but also an increasing polarization as a long-term process. We do not just use one set of "historical" data such as that in partisan attitudes.

Careful media analysis notwithstanding, what we largely agree that the American public has not become more polarized in the sense of being more ideologically homogeneous or in the sense that citizens hold more divergent views on major public issues (King, Gue, Ivers, and Brown 1998; Przeworski 2000; Barber, et al. 2000). In partisan polarization in the literature that has been the case. Democrats and Republicans in the electorate have become increasingly ideologically aligned and the issue opinions differ between them have widening (e.g., Rosenwasser and Saunders 1996,

partisan environments. These simulations clarify the relationship between learning processes and context. They also can both experimentally and non-experimentally generate historical "election" results over various time stretching from 1973 to 2004.

## The Stability of Political Affiliations and Attitudes

Although commonly accepted, the proposition about declining openness across the adult life span has rarely been subjected to the scrutiny of long-term panel data. We use panel data from the public attitudes/government opinion survey to address the stability of partisan affiliations and partisan support for this proposition and to expand upon it. We have observations for the youth sample across all four waves of the general election and seven other waves for others, thus permitting us to look at the patterns of persistence up to age 50. In addition, we have data and new wave data for the parent sample. Table 1 presents the continuity coefficients for the 11 11-month waves of a national measure. The correlations indicate attitudinal continuity across adjacent years of observation. In order to assess a sense of life stage progression, the age with the greatest stability is each panel's calendar time, with the generalizing continuity expressed in terms of mean age.

Individual attitudinal continuity, when it exists, affects youth age from 16 to 26, whereas continuity was much more pronounced over the next decade, a trend found for a number of other orientations as well (Jennings and Markus 1984). Across the three time frames—in the youth sample from 16 to 26, across the general wave to mean age 16 plus, especially among those given the mean age time span represented by that third period, notably only, the 11 measures range widely in terms of attitude stability, and the political orientations that have been observed are those since 1984. The overall stability is not to deny the likelihood of interaction effects involving life stage, political history, and the stability of partisan attitudes (Jennings and Markus 1984).

Drawing on the parent sample from the same period, we assess the degree of declining openness. The gains predicted by the parents across the first two panel periods

on the five measures that used in 1983 are, probably not nearly as sharp as those suggested by the youth cohort during the same two-time frames. These measured gains in stability between consecutive adulthood waves suggest a promising effect in the middle to late middle years. Combining the youth and parent panels results in a modest life span updating of this sort is likely, but the evidence is inconclusive and the results are similar to those based on long-term surveys of special populations (Doherty, Cohen, and Swanson 1990; Sears and Funk 1990). Treated this way, in eight of the 11 measures the overall pattern is one of early gains and then gradual movement at least or no change over the remaining years.

The three measures most likely to attract attention. First, parent PDI stability substantially exceeds that found in the younger generation. A generalized accounting for this recognition process party ties is simply being generally more reliable in the cohorts coming of age after 1960 is a likely and feasible 1984. Age 16, whereas a life cycle explanation allows for even greater strengthening of partisanship well after middle life to the unique features of partisanship as a chronic, frequently unidirectional interaction with high affective roots. In the parent or current above between these alternative explanations, but the stability does not outpace of PDI. Much lower parental stability with respect to the seven issues represented by evaluation of the respondent's movement and the likelihood of movement contains the other two exceptions. These were measured items on the class of 1960 vote of political age and developed their attitudes. By contrast, the issues for the parent generation when they were of study well into middle age and found themselves trying to graft their issues onto previous orientations.

## The Linkage of Issue Positions and Party Identification

In addition to our report that the increasing stability of partisanship and party attitudes will be matched by a strengthening linkage between the two. People in a reasonably stable party system should increasingly come to understand the issue positions. Differentiating the parties and respond by bringing their policy views and partisan affiliation into greater alignment. In so doing they would either come to adopt the policy views advocated by the party with which they identify or adjust their position of stance to be consistent with their own partisanship.

As the degree of which these patterns is expected higher and lower in the same way that it is not in the literature. In the article, we compare the two in the literature.

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Research support for the first wave of this research (1973-83) came from the National Science Foundation (grant 78-08500 to M. Kent Jennings) and the Social Science Research Council (grant 78-08500 to M. Kent Jennings). The authors thank the following people for their assistance in the collection of data: Barbara A. Berke, Barbara A. Berke, and the Institute for Governmental Studies at the University of California, Berkeley.

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In partisan divisions interacting with individual learning processes.

## Simulating Developmental and Period Effects in Party-Issue Correlations

We have suggested that growing party issue correlation at the individual level requires a relatively stable partisan system in terms of the issue positions parties are taking and the groups whose interests they are seeking to advance, though not necessarily stable in terms of what particular issues are on the agenda. This argument by no means rules out issue-related differences in terms of what particular attitudes become linked to partisanship or in how strongly the linkage fits. Quite the contrary, as cohorts begin to study issues their partisan allegiances and attitudinal dispositions, the particular linkage being forged between the two should vary with the structural historical work at the time. Thus, issues, groups, and parties become connected in a way that should depend upon how they are aligned in the political environment that marks the individual's coming of age.

Each time a new generation of young voters comes to vote would change across time and cohorts given varying assumptions about the nature of party differences or an issue. Specifically, we modeled estimates at times in regard to consistency at time  $t+1$  after an assessment that is predicted on the magnitude of the party difference (right and left) and the individual's openness to change. Individuals who come of age when the party difference was already strong were modeled as growing in consistency by the amount indicated in Figure 1 (above). For those who come of age prior to the emergence of the party difference, growth in consistency was determined by their level of openness. Consistency levels were modeled in response to the magnitude of the party difference, which varies over time in view of the election.

The first scenario assumed a constant party difference on an issue over the entire time span (1973-2004). This is the pattern predicted for an issue in 1973 and continued to differ in the same way as the issue came on the next 30 years. A fairly simple model is the double-link distribution of Democrats and Republicans on a particular issue. The predicted level of a given individual's consistency develops from the proportion that constant increases with time, which is the behavior in Table 1 above. Each cohort enters from the same coefficient matrix on a particular issue (linking across waves), which is also used by comparing age-linking across waves in our original model in Figure 1, actually, across waves in our

time-linking across cohorts. The "generational effect" is either looking across the diagonal. Overall, the extent of the party change in the electorate, defined as the average consistency coefficient (not reduced by one), is constant over time.

In this simulation, what matters is the generating of consistent links across waves and time, which is the behavior in Table 1 above. The overall change is obtained by averaging across cohorts, which is the behavior in Table 1 above. The overall change is obtained by averaging across cohorts, which is the behavior in Table 1 above.

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6-8. Evaluation of Black (1), Women's Movement (2), and Labor Union (3) was obtained using the 1978 wave of the Survey of Attitudes Toward Political Parties. The simulation study the term "Dignity" was used in 1983 while "Welfare" was used in 1973-83. "Women's Liberation Movement" and in 1973-83. "Women's Movement" used in 1983. N/A also means no linkage changes.

Question: Do Only in the Political Institutions Study?

9. Legitimacy of Militancy, 7-point scale anchored by "The use of weapons should be made legal" and "The possibility for using weapons should be as high as that for any other use."

10. School Integration, 3-point scale with an intermediate that described the issue and showed our data with no opinion, the question continued with "Do you think the government in Washington should do it to that white and black children go to the same schools or stay out of the area as it is now of it?" "Dignity" responses were coded in the middle.

11. Peace in School, 3-point scale. After an introduction that described the issue and showed our data with no opinion, the question continued with "Which do you think—schools should be allowed to start each day with a prayer or religion does not belong in the schools?" "Dignity" responses were coded in the middle.

Question: Do Only in the NIS Studies?

12. Government Social Spending, 7-point scale anchored by "The government should spend more money on social issues such as health and education, in order to reduce spending" and "It is important for the government to provide many more services even if it means an increase in spending."

13. Limited Government (based by averaging the responses from four broad choice questions) (1) One, the less government the better; or Two, there are more things that government should do; or Three, I don't care; or Four, the more government the better. (2) One, the more government the better; or Two, there are more things that government should do; or Three, I don't care; or Four, the more government the better.

14. Traditional Values (based by averaging the responses from four broad choice questions) (1) Traditional values are important; or Two, traditional values are not important; or Three, traditional values are important; or Four, traditional values are not important.

15. Religious Freedom (based by averaging the responses from four broad choice questions) (1) Religious freedom is important; or Two, religious freedom is not important; or Three, religious freedom is important; or Four, religious freedom is not important.

16. Religious Freedom (based by averaging the responses from four broad choice questions) (1) Religious freedom is important; or Two, religious freedom is not important; or Three, religious freedom is important; or Four, religious freedom is not important.

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# Assessing evidence better: exams and essays

*Explain the basis of empirical evidence you cite.*

“Evans and Tilley say X, but  
Fisher says Y”

“Evans and Tilley’s regression  
analysis of the British Election Study  
indicates X, but Fisher (using the  
same data) says Y once we properly  
control for age and education”

*Assess the empirical evidence you cite.*

“Evans and Tilley say X.”

“Evans and Tilley say X, but their analysis  
does not account for important  
factors ...”

“Evans and Tilley say X, but their analysis  
only indirectly addresses the question  
because ...”

“Evans and Tilley say X, and their analysis  
is particularly credible because ...”

# Assessing evidence better: the rest of your life



Department  
for International  
Development

How to Note  
March 2014

## Assessing the Strength of Evidence

### Contents

<b>Introduction.....</b>	<b>2</b>
Background: research and evidence in DFID .....	2
Why does the strength of evidence matter? .....	2
What is the purpose of this guidance note? .....	2
Scope and coverage of this Note .....	3
A note on terminology .....	3
Applying this guidance note.....	4
<b>Part I: Describing a single study .....</b>	<b>5</b>
Type of research.....	5



# Doing your own data analysis

**Then:** Data hard to get and (learn to) process; only specialists did data analysis

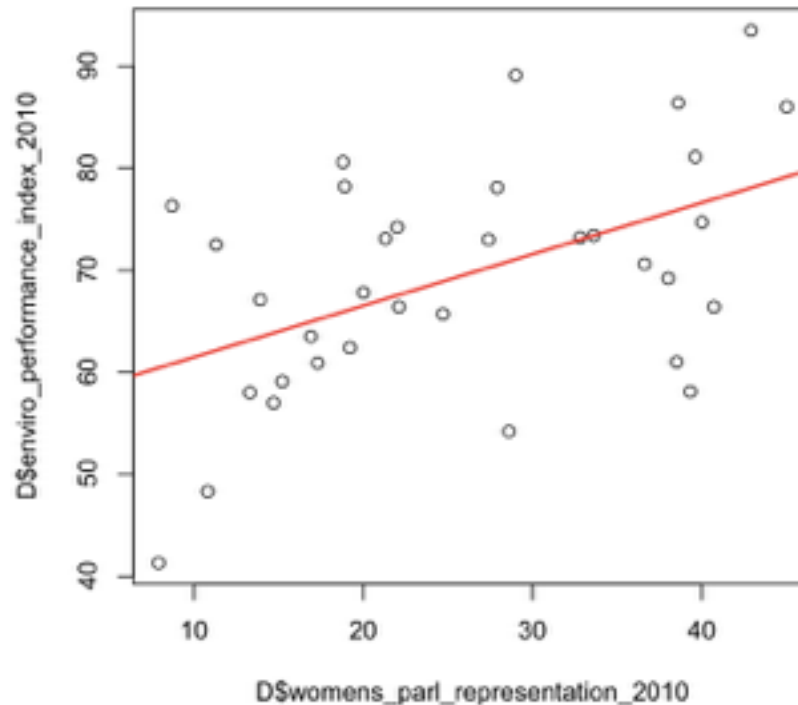


**Now:** Data easy to get and (learn to) process; everyone can do data analysis



# What you'll learn

```
# download the Lijphart dataset
D = read.csv("http://andy.egge.rs/data/L.csv")
# make a scatterplot
plot(D$womens_parl_representation_2010, D$enviro_performance_index_2010)
# add a regression line
abline(lm(D$enviro_performance_index_2010 ~ D$womens_parl_representation_2010),
col = "red", lwd = 2)
```



# Why should I learn to do my own data analysis?

- To better assess evidence
- To produce your own evidence: tutorial essay, research paper, dissertation, beyond
- To get a job, or do more interesting things at a job: “the intern who stopped making coffee”
- You may not know yet why!

# Political Analysis: a snapshot

## Lectures by week:

1. Introduction and Research Design (AE)
2. Concepts and Measurement (AR)
3. Descriptive Statistics and Visualization (AR)
4. Case Selection (RH)
5. Bivariate Relationships (AE)
6. Multivariate Relationships (AE)
7. Inference (AE)
8. Synthesis and Review (RH)

## Data labs by week:

2. R basics
4. Descriptive statistics
6. Regression analysis I
8. Regression analysis II

For the time & location of lab sessions, see email from PPE office.

## Lecturers:



Andrew  
Eggers



Andrea  
Ruggeri

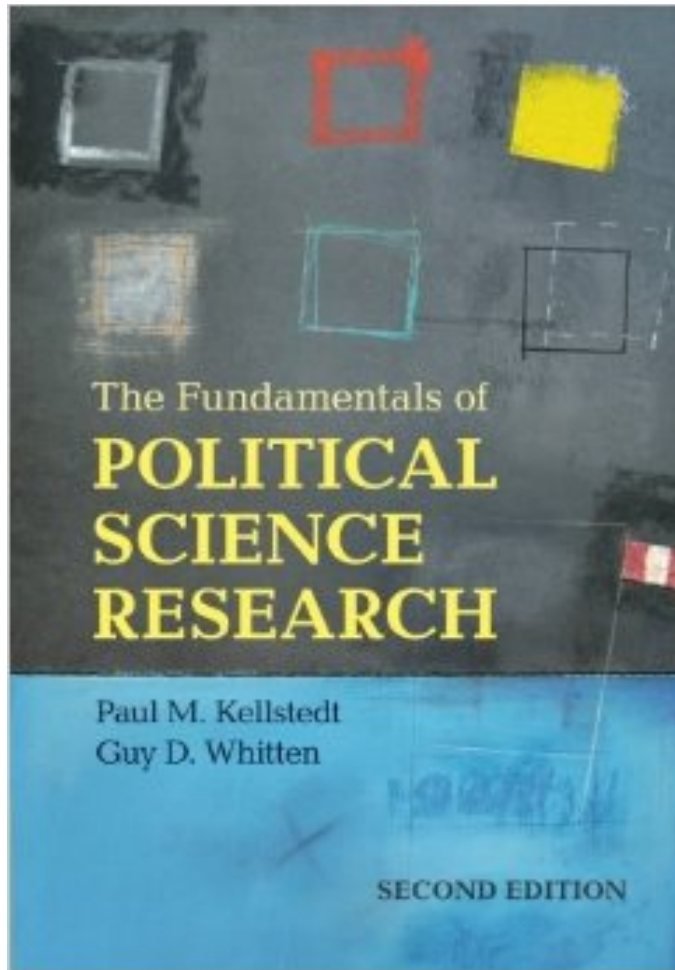


Robin  
Harding

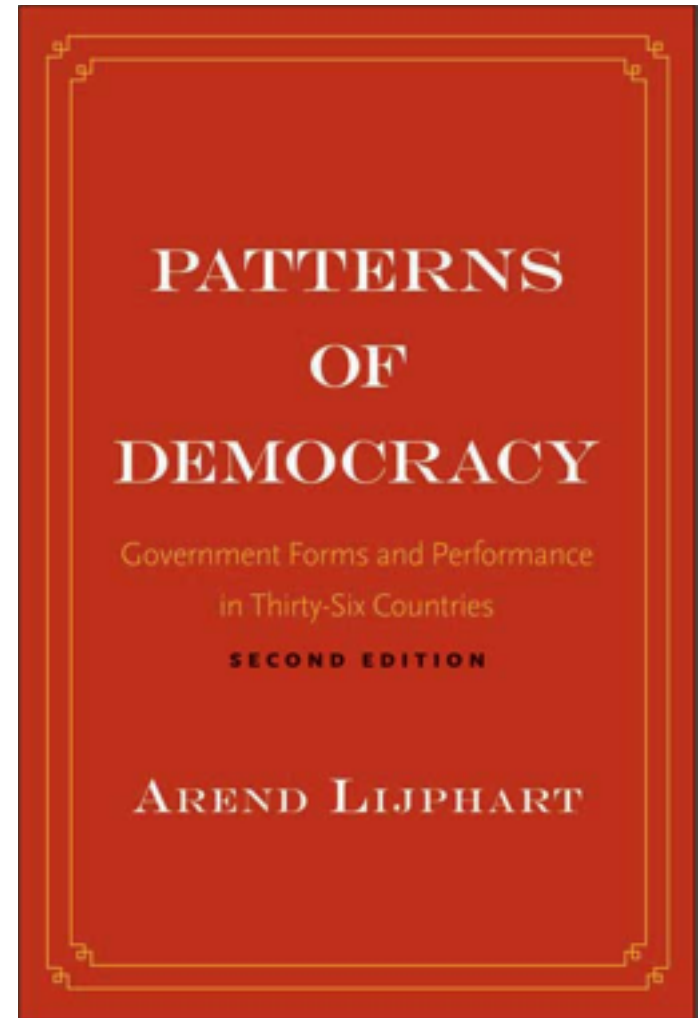
**Assessment:** 2000-word essay (on one of three questions related to Lijphart's claims about effects of consensus democracy) to be submitted by 12 noon Tuesday 3 May 2016

**You won't understand what you're doing in the labs or the essay assignment unless you attend the lectures and/or read the textbook.**

# Books in the course



Main concepts, techniques



Thematic context in which  
to apply those ideas

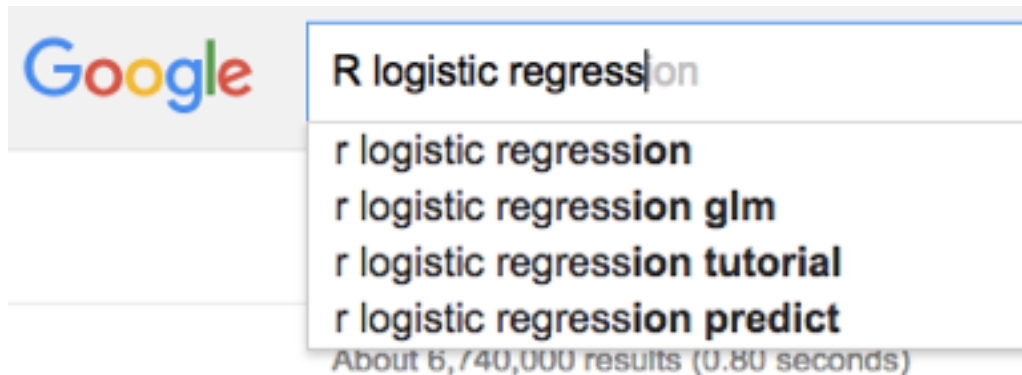
# Software in the course



The programming language we will use



The user interface we will use  
(the program you should download)



One way to get help when you're stuck

# A typology of research questions

## Descriptive questions:

- What proportion of UK citizens support leaving the EU?
- Do democracies have better human rights records than non-democracies?



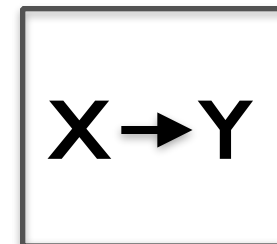
## Explanatory questions (reverse causal questions):

- Why do democracies seldom fight wars against each other?
- Why are incumbent legislators so likely to win re-election?
- What caused the French revolution?



## Forward causal questions:

- What is the effect of campaign spending on election outcomes?
- What is the effect of consensus democracy on political stability?





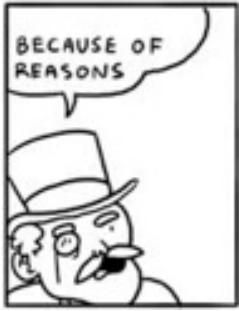


## Research design for descriptive questions

Consider this question: “Is respect for human rights higher in democracies than in non-democracies?”

### Requires

- defining concepts (democracy, respect for human rights), deciding on a procedure for measuring them (Week 2)
- communicating the resulting measures (Week 3) and their relationship (Week 5)



## Characteristics of reverse causal questions ("why" questions)

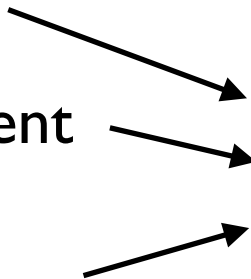
Some start from a single event and seek to explain why it happened.

### Potential causes

Bad harvests

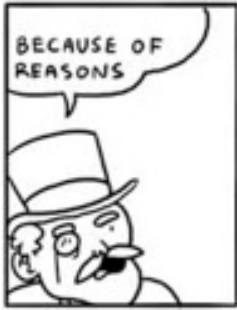
The Enlightenment

Debts from  
American Revolution



### An event: the French revolution





## Characteristics of reverse causal questions (“why” questions) (2)

Others start from a **pattern** and seek to explain why it holds.

### Potential explanations

Economic  
development

Education and values

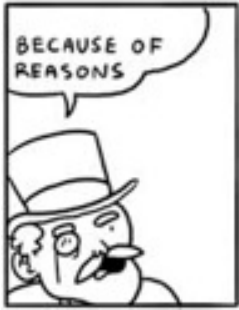
Popular sovereignty



### A pattern:

democracies tend not  
to fight one another

	country	exec_parties_1945_2010	exec_part
1	ARG	-0.93	-1.01
2	AUL	-0.73	-0.65
3	AUT	0.63	0.64
4	BAN	-1.58	-1.33
5	BAR	-1.28	-1.20
6	BEL	1.14	1.08
7	BOT	-1.43	-1.42
8	CAN	-1.08	-1.03
9	CR	-0.37	-0.38
10	DEW	1.31	1.25
11	FDN	1.58	1.48
12	FRA	-0.86	-0.89
13	GER	0.78	0.63
14	GRC	-0.64	-0.55
15	ICE	0.53	0.55
16	IND	0.65	0.63
17	IRG	0.17	0.28

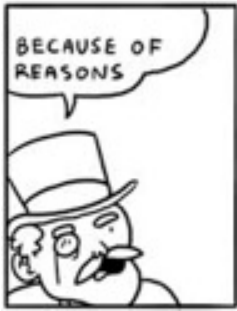


## How do we assess explanations?

A good explanation

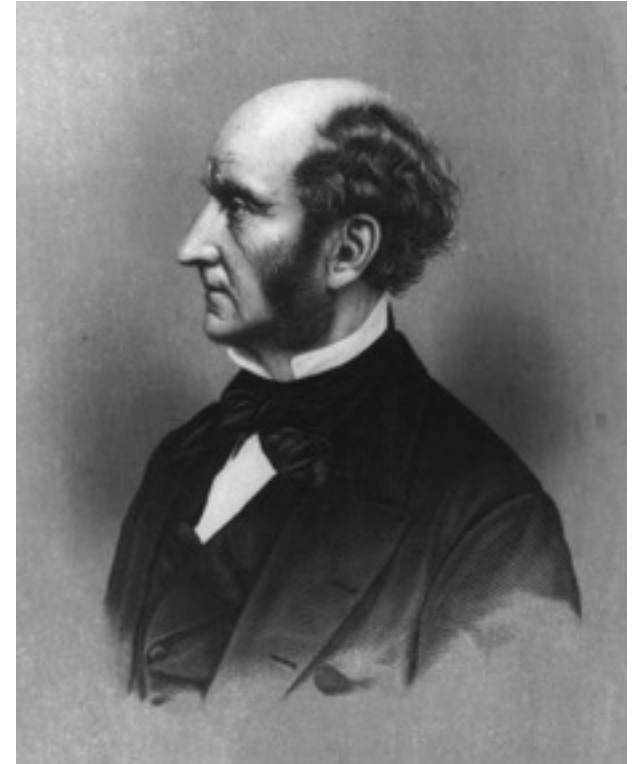
- is, or would have been, useful for prediction
- includes an account of **how** the causes produced the effects (mechanisms, or theory)
- converts a **puzzle** into a “matter of course”\* (Peirce, 1903) [inevitability]
- is “hard to vary” (Deutsch, 2011), i.e. doesn’t work if you alter elements of it

For more on answering explanatory questions, see Andrew Gelman and Guido Imbens, “Why ask why? Forward causal inference and reverse causal questions”, unpublished manuscript 2013.



# Mill and reverse causal questions

Mill's methods clarify why explanation in the social sciences is messy.



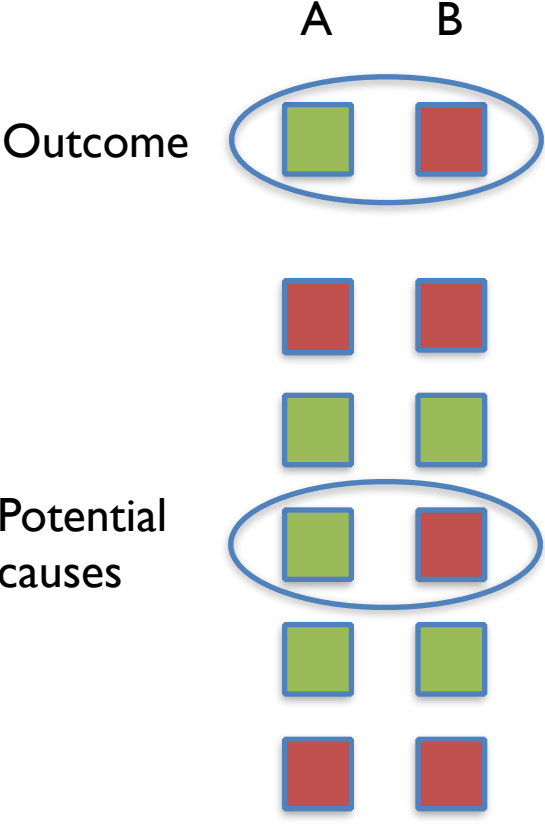
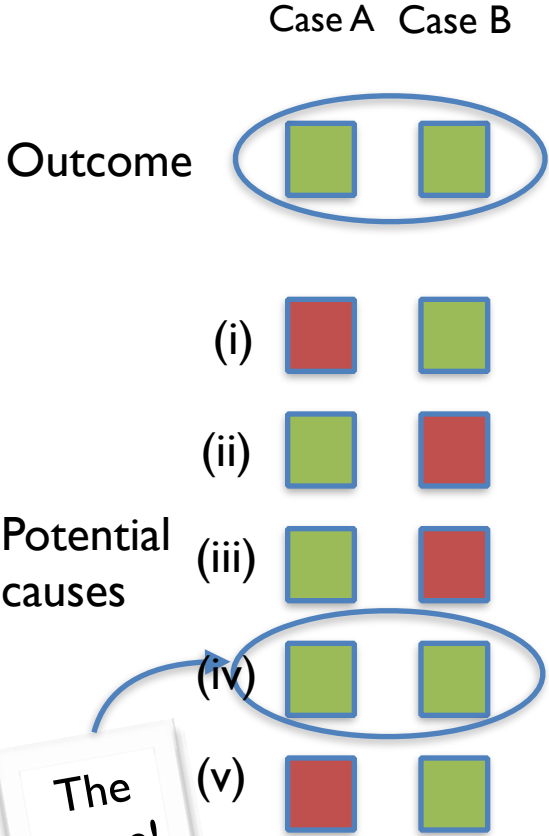
**John Stuart Mill**

*A System of Logic* (1843)

Suppose all of the potential causes can be enumerated and accurately measured. Then these two methods will *in certain circumstances* tell us the cause of an outcome:

### Method of agreement

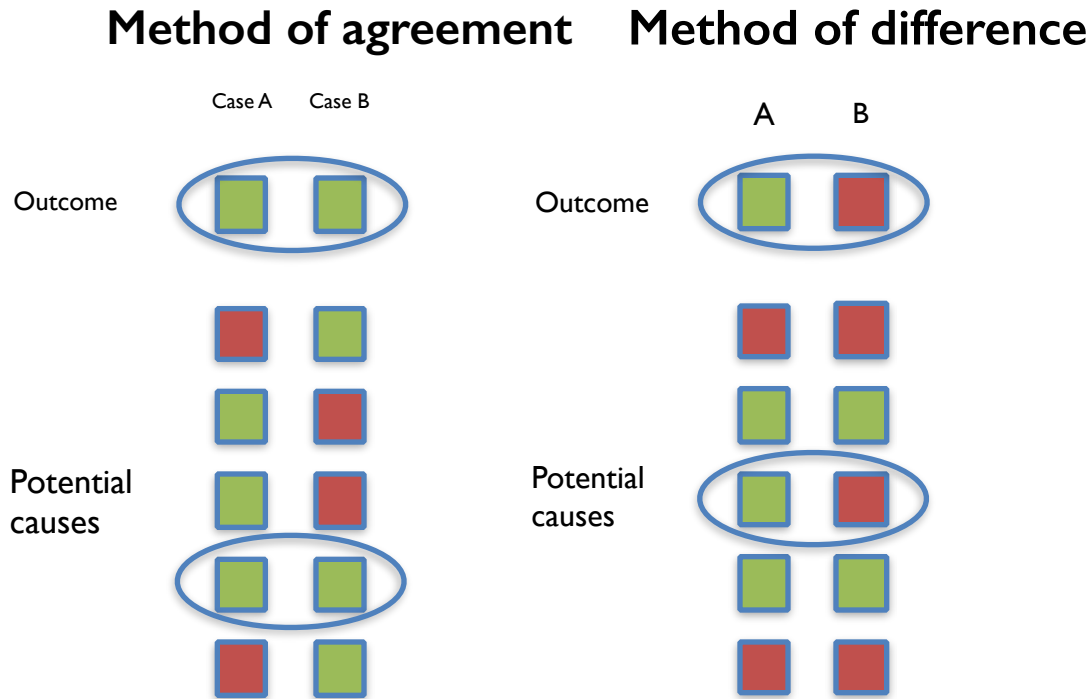
### Method of difference



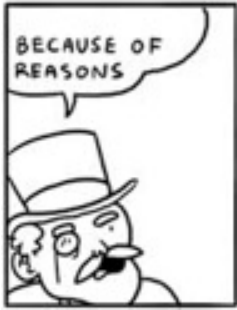
Reverse causal inference from just two cases!!!

# Problems with applying Mill's methods in social science research

- What if there is more than point of agreement or difference?
- How do you know if you have listed all of the potential causes?
- How do you judge agreement when factors are not binary?
- What if there is measurement error or randomness?
- What if two causes both need to be present?



“... in the sciences which deal with phenomena in which artificial experiments are impossible (as in the case of astronomy), or in which they have a very limited range (as in mental philosophy, social science, and even physiology), *induction from direct experience is practiced at a disadvantage in most cases equivalent to impracticability.*” (Mill, *A System of Logic*)

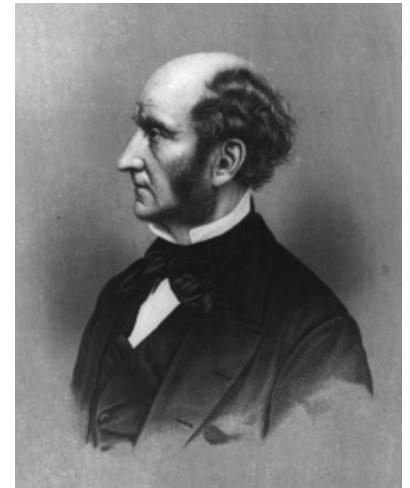


## Answering reverse causal questions in a messy world

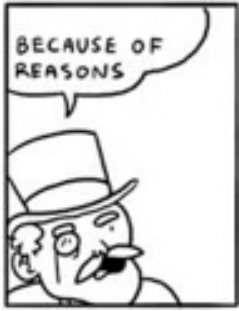
There are important phenomena we don't know or can't observe.

=> Mill's methods can't be applied. (He knew that!)

Explanations in social science will be messy & contested.





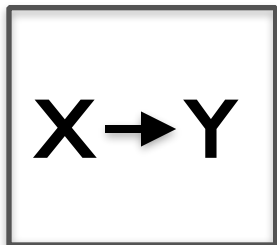


## Research design for reverse causal questions

Types of explanations:

- 1) **Theoretical:** “I offer a theory that shows how the observed pattern is actually not puzzling at all.”
- 2) **Empirical:** “I produce a new measure of [democracy, spending, public opinion] that shows how the observed pattern is not puzzling at all.”
- 3) **Combination of theoretical and empirical:** e.g. “Democracies do not fight each other considerably less than would be expected when you consider their wealth.”

In social science, there can be many “good” explanations for a phenomenon and no clear way to choose one.



Forward causal questions: What is the effect of X on Y?

We think in terms of **counterfactual scenarios**.

*what would  
have happened  
if I had taken the aspirin?  
(treatment)*

**vs**

*what would  
have happened  
if I had not taken the aspirin  
(control)*



Fundamental problem of causal inference  
(Holland, 1986):

We only ever observe **one of these** for any particular individual.

**X → Y**

## **Fundamental problem of causal inference (1)**

Consider these forward causal questions:

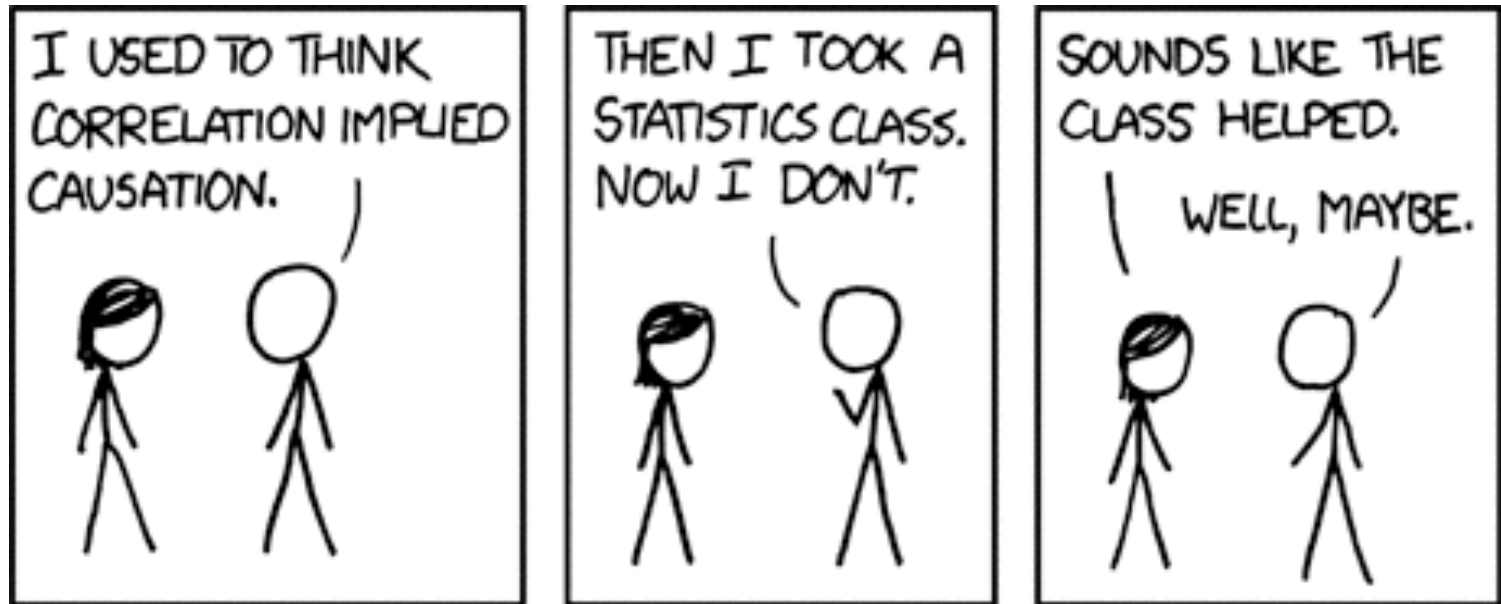
- Does aspirin relieve headaches?
- Does a job training program increase participants' income?
- Do door-to-door campaigns increase voter turnout?
- Does consensus democracy increase political stability?

(1) How does the **fundamental problem of causal inference** apply?

(2) Could we measure the effect with a “before-and-after” comparison?

$X \rightarrow Y$

## Fundamental problem of causal inference (2)

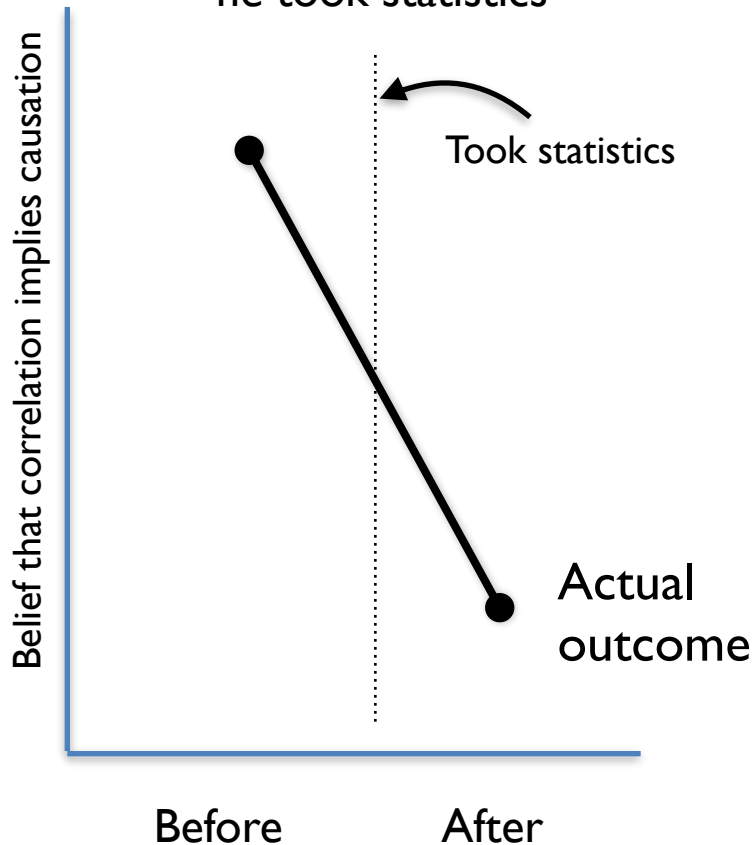


<http://xkcd.com/552/>

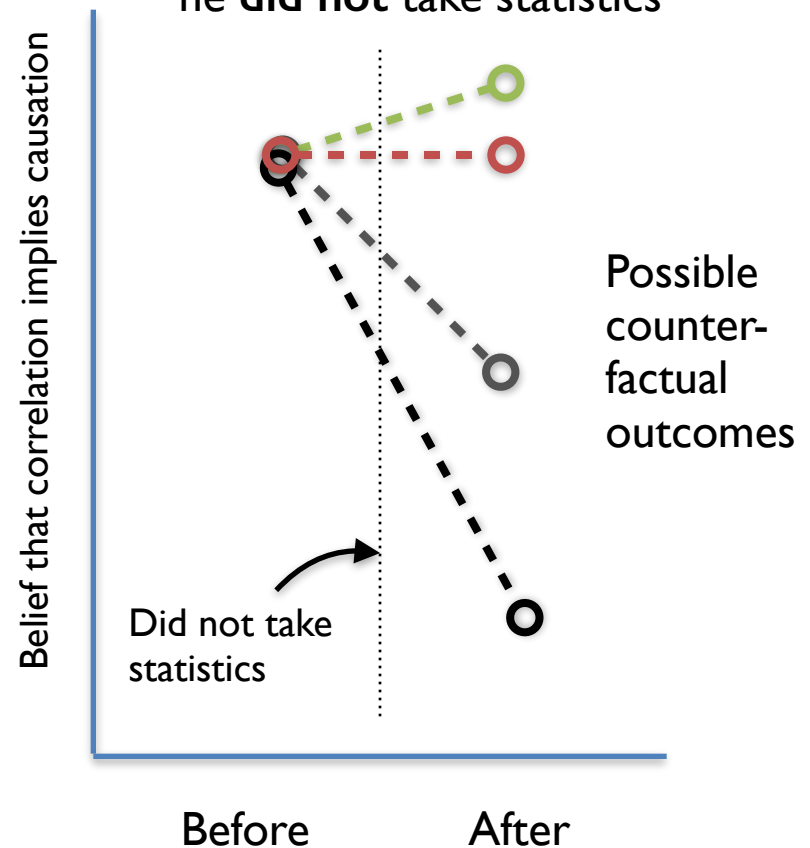
$X \rightarrow Y$

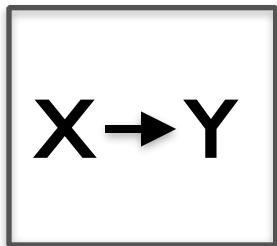
# The problem with the before-and-after design

What we observe:  
outcomes before and after  
he took statistics



What we **don't** observe:  
outcomes after  
he **did not** take statistics





But sometimes the “before-and-after” design is convincing!

When I flipped the light switch, the light turned on.

George W Bush approval rate before 9/11 57%; after 88%.

Why is it convincing in these cases?

Approval rating of U.S. President, from Kellstedt and Whitten p. 28)

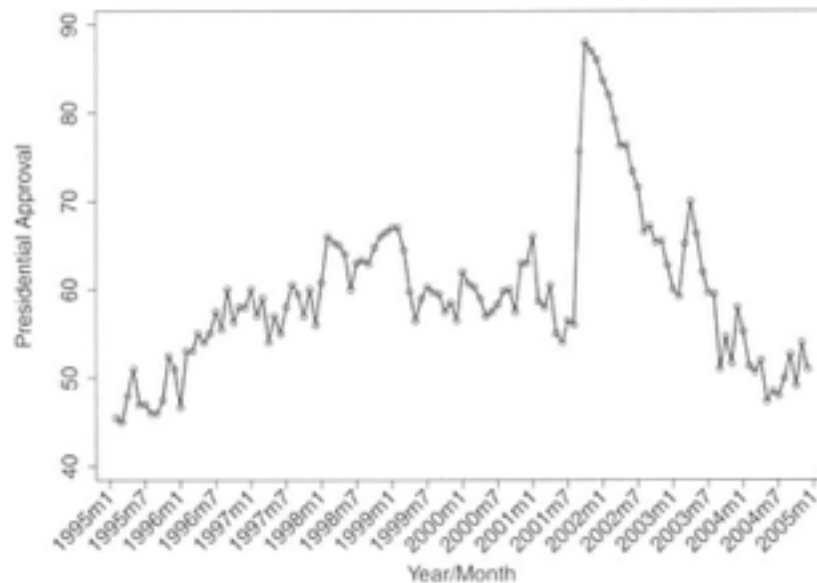


Figure 2.1. Presidential approval, 1995–2005.

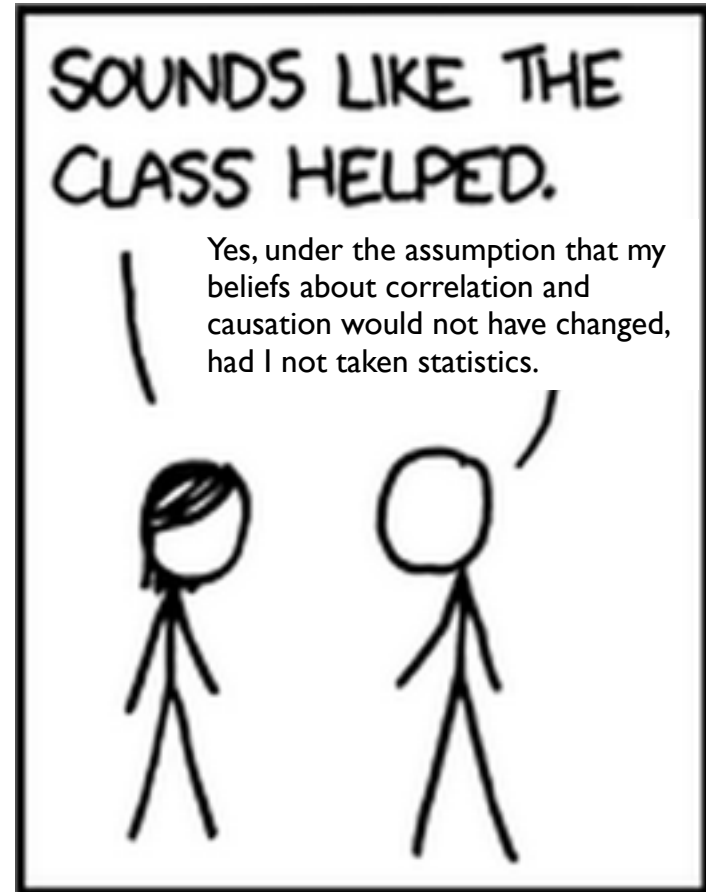
$X \rightarrow Y$

# Dealing with the fundamental problem of causal inference

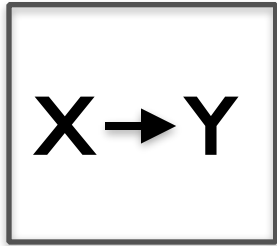
We make comparisons among outcomes we do observe

and

we clearly state the assumptions under which our comparisons will give the right answer.



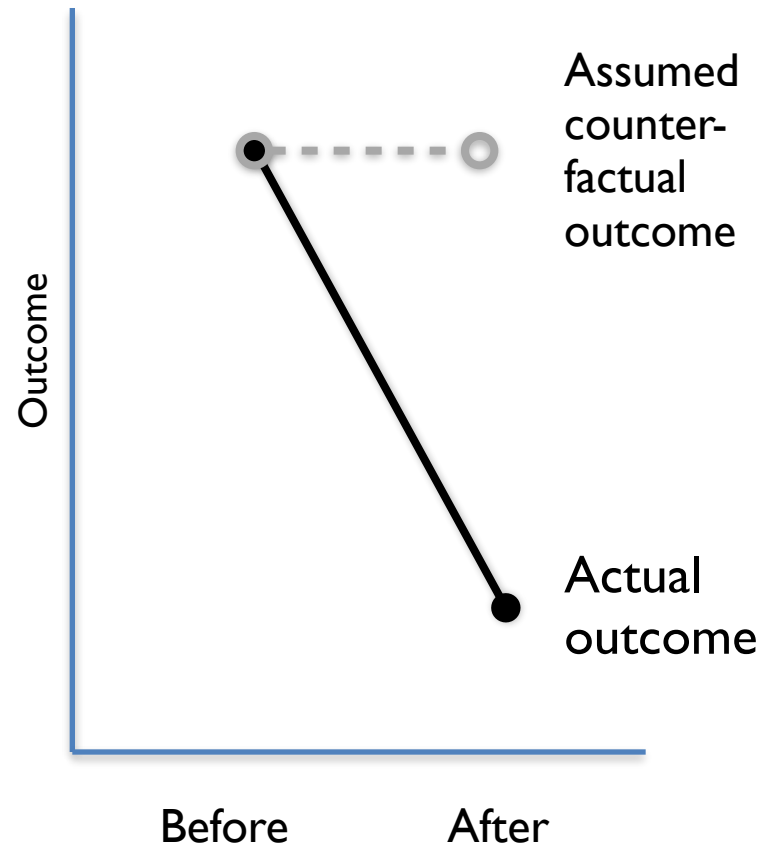
<http://xkcd.com/552/>



# What makes the “before-and-after” plausible

**Comparison:** Same unit(s), before and after an intervention.

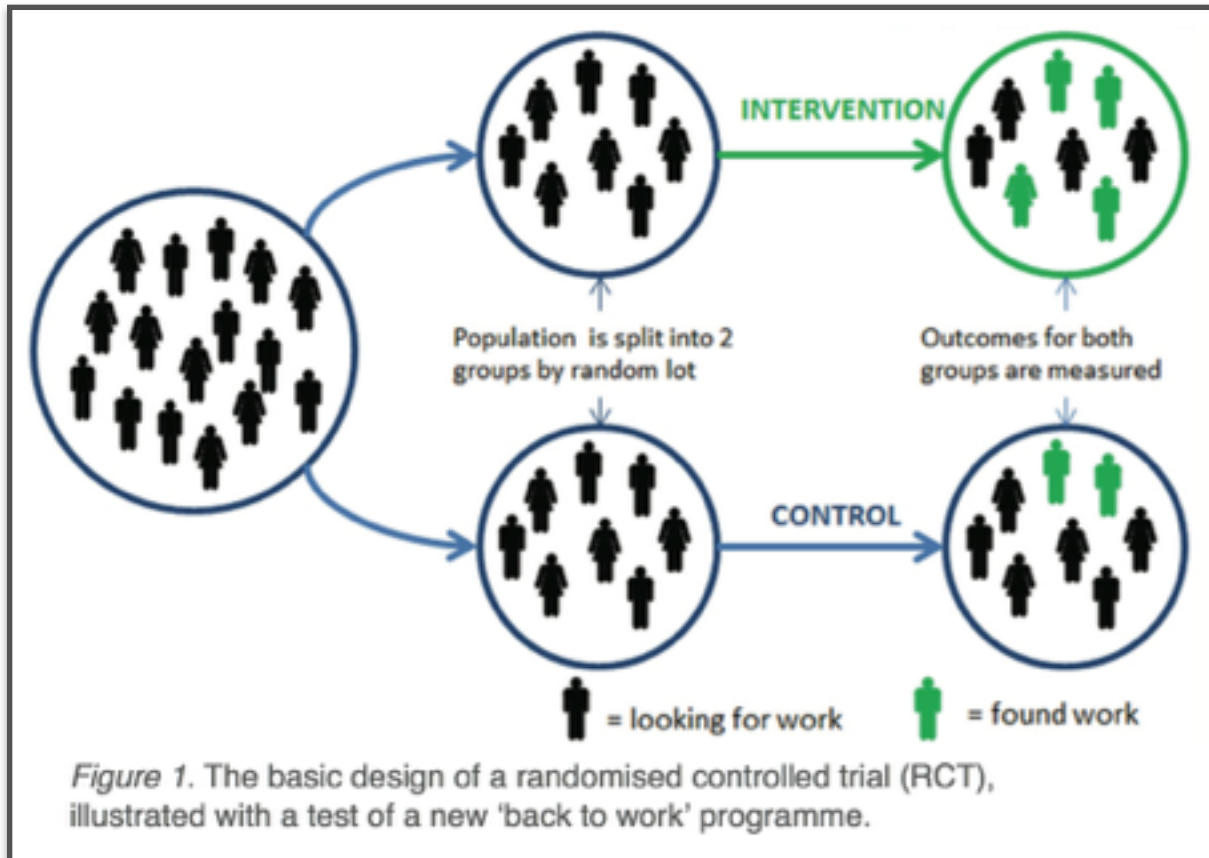
**Key assumption:** No change in outcome if treatment not applied.





$X \rightarrow Y$

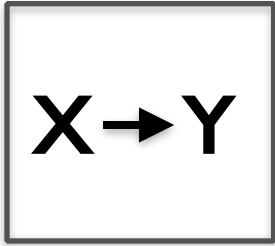
# The gold standard: randomized control trial (RCT)



How would you use an RCT to study

- the effect of aspirin on headaches
- the effect of a job training program on income
- the effect of door-to-door campaigns on voter turnout
- the effect of consensus democracy on political stability

What is the key assumption under which correlation implies causation?



# The most common design: regression analysis

## Comparison:

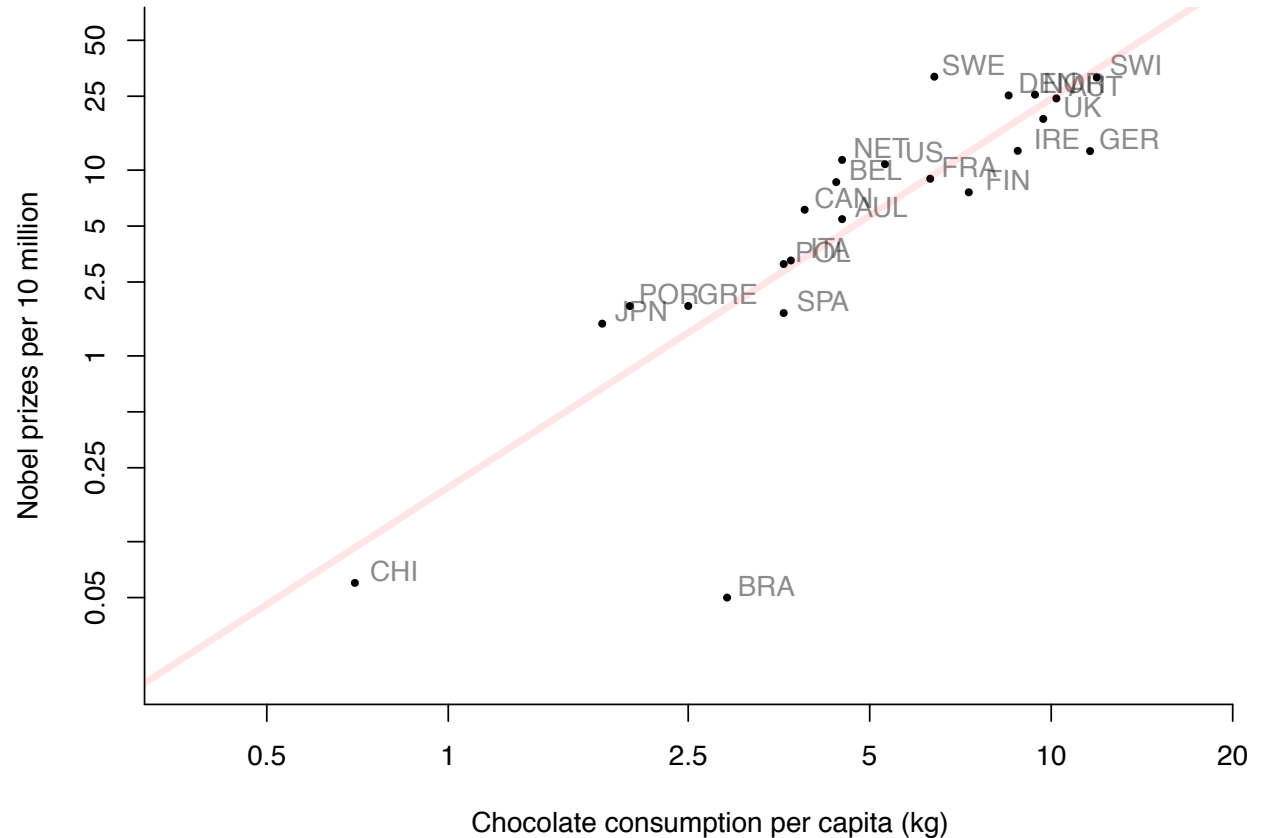
Different units at the same point in time, possibly controlling for other variables.

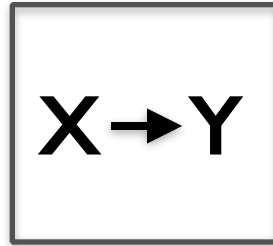
(see Week 6)

## Key assumption:

*Confounding variables* (a.k.a. *selection bias*) are properly accounted for.

Nobel Prizes and chocolate consumption  
(slope = 2.09)

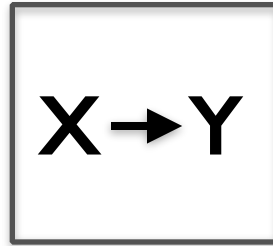




# Implications (I)

Every time you read an article/book in Politics (IR, Economics), ask what kind of research question is being asked:

- Descriptive (what is X? what is relationship between X and Y?)
- Explanatory/reverse causal (what explains/caused Y?)
- Forward causal (what is the effect of X?)



## Implications (2)

For research addressing **explanatory** questions:

- keep in mind the fundamental messiness, and where it comes from
- note the kind of explanation (theoretical, empirical, both) being offered

For research addressing **forward causal** questions:

- ask what RCT one could hypothetically run
- note the kind of design actually used (RCT, before-and-after, regression analysis, etc), the assumptions under which correlation implies causation in this design, and ask whether these assumptions are met



## John Stuart Mill says: social science is hard!

“Nothing can be more ludicrous than the sort of parodies on experimental reasoning which one is accustomed to meet with, not in popular discussion only, but in grave treatises, when the affairs of nations are the theme. . . . ‘How can such or such causes have contributed to the prosperity of one country, when another has prospered without them?’ Whoever makes use of an argument of this kind, not intending to deceive, should be sent back to learn the elements of some one of the more easy physical sciences.”