

# Welcome and First Lecture

Department of Government  
London School of Economics and Political Science

1 Background/Context

2 Experimental Primer

3 Introductions

4 Administrative Stuff

**1** Background/Context

2 Experimental Primer

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# Experiments

Oxford English Dictionary defines “experiment” as:

- 1 A scientific procedure undertaken to make a discovery, test a hypothesis, or demonstrate a known fact
- 2 A course of action tentatively adopted without being sure of the outcome

# Experiments

- “Experiments” have a very long history
- Major advances in design and analysis of experiments based on agricultural and later biostatistical research in the 19th century
  - R.A. Fisher
  - Jerzy Neyman
  - Karl Pearson
  - Oscar Kempthorne

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- RCTs came later to medicine (circa 1950)
- And have been a major part of the “credibility revolution” in economics
  - See, especially, LaLonde (1986)

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- First experiment by Gosnell (1924)
- Gerber and Green (2000) first major experiment in political science

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  - “Split Ballots” (Schuman & Presser; Bishop)
- 1983: Merrill Shanks and the Berkeley Survey Research Center develop CATI
- Mid-1980s: Paul Sniderman & Tom Piazza performed the first survey experiment<sup>1</sup>
  - Then: the “first multi-investigator”
  - Later: Skip Lupia and Diana Mutz created TESS

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<sup>1</sup>Sniderman, Paul M., and Thomas Piazza. 1993. *The Scar of Race*. Cambridge, MA: Harvard University Press.

# In Social Science III

- Field experiments emerge in the 1990s
  - Voter mobilization
  - Poverty alleviation
  
- The “credibility revolution” in economics in the 2000s
  - Rise in academic and public/private-sector use of RCTs
  - Diversification of topical focus: political conflict/violence, legislative representation, tax policy
  
- Mid-2010's see emergence of experiment-driven “behavioural science” and “behavioural public policy”
  - We now live in the “nudge” era

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  - Evidence-based budgeting
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  - Evidence-based politics?
- In the US, UK, and elsewhere politicians and bureaucrats face pressure to know “what works?” and to implement policies that “work”
- Experiments are seen as a particularly useful — but perhaps limited — way to know “what works”

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- 2 Are experiments always a credible research method? When can experiments fail?
- 3 Can we generalize from experiments to the “real world”?
- 4 When is it ethically acceptable to experiment on people?

# Questions?



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# What kinds of questions can we answer with experiments?

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- Forward causal questions
  - Can X cause Y?
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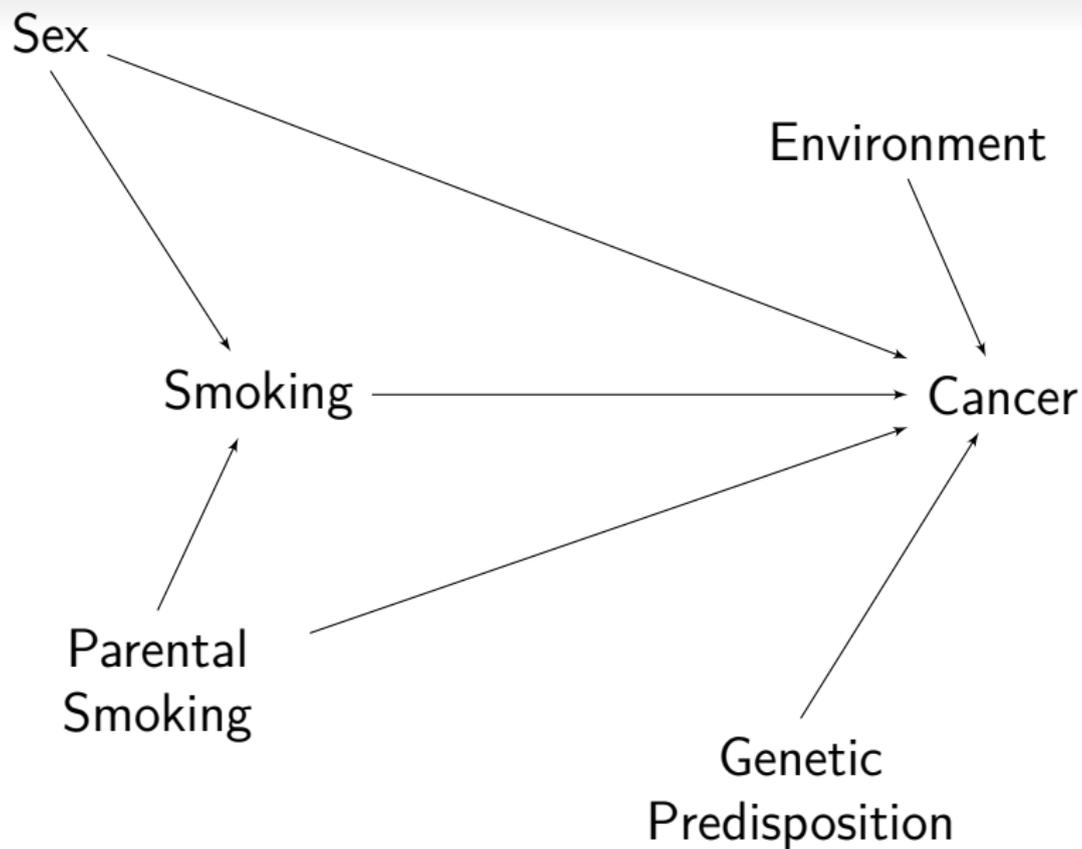
- Forward causal questions
  - Can X cause Y?
  - What effects does X have?
- Backward causal questions
  - What causes Y?
  - How much of Y is attributable to X?

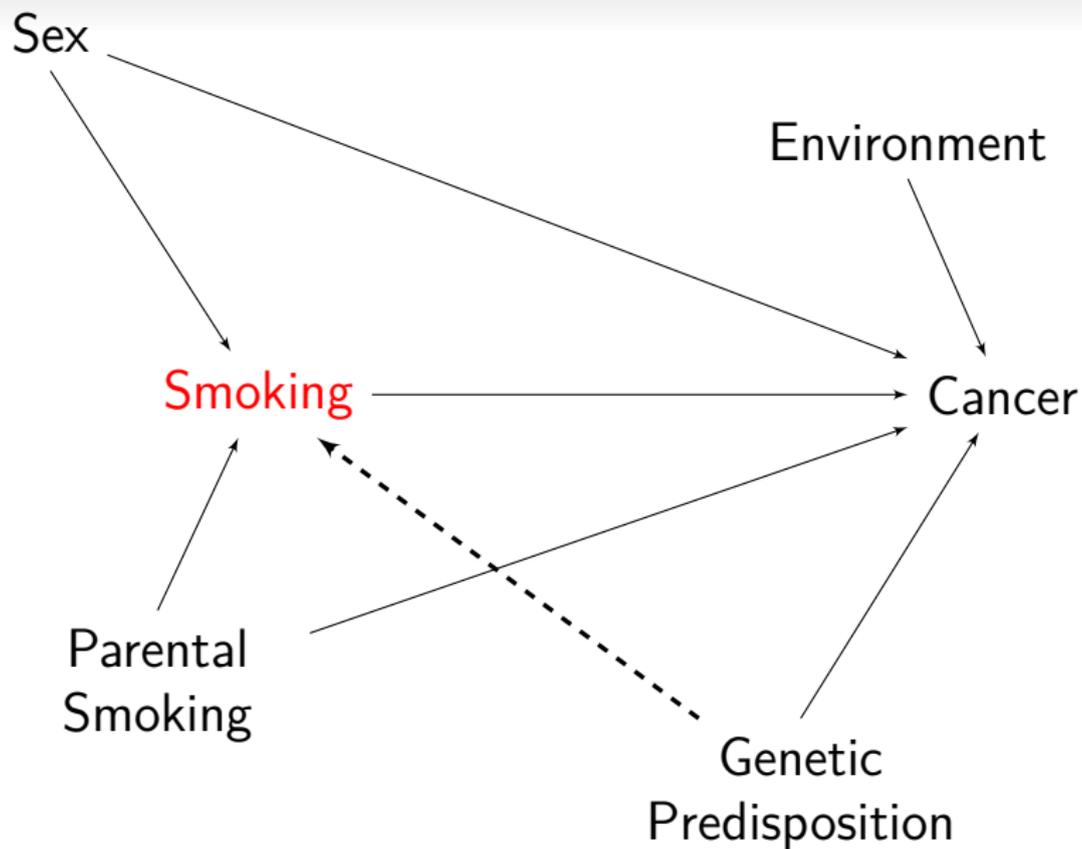
# Principles of causality

- 1 Correlation/Relationship
- 2 Nonconfounding
- 3 Direction (“temporal precedence”)
- 4 Mechanism
- 5 Appropriate level of analysis

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# Establishing Relationship

- This is fairly trivial
- Simply find value of  $Corr(X, Y)$
- In causal inference we often talk about correlations in terms of *differences*
  - Difference in values of  $Y$  across values of  $X$
  - The presence of a difference indicates a correlation

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- 1 Correlating a “putative” cause ( $X$ ) and an outcome ( $Y$ )
- 2 Identifying all possible confounds ( $Z$ )
- 3 “Conditioning” on all confounds
  - Calculating correlation between  $X$  and  $Y$  at each combination of levels of  $Z$

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- “Reverse causality” is vague, referring to:
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  - Sequentially reinforcing causality between  $X$  and  $Y$
- Causation is strictly forward moving in time
- $X$  must precede  $Y$  in time for  $X$  to cause  $Y$ 
  - $X$  can be *measured* after  $Y$  as long as it comes before it

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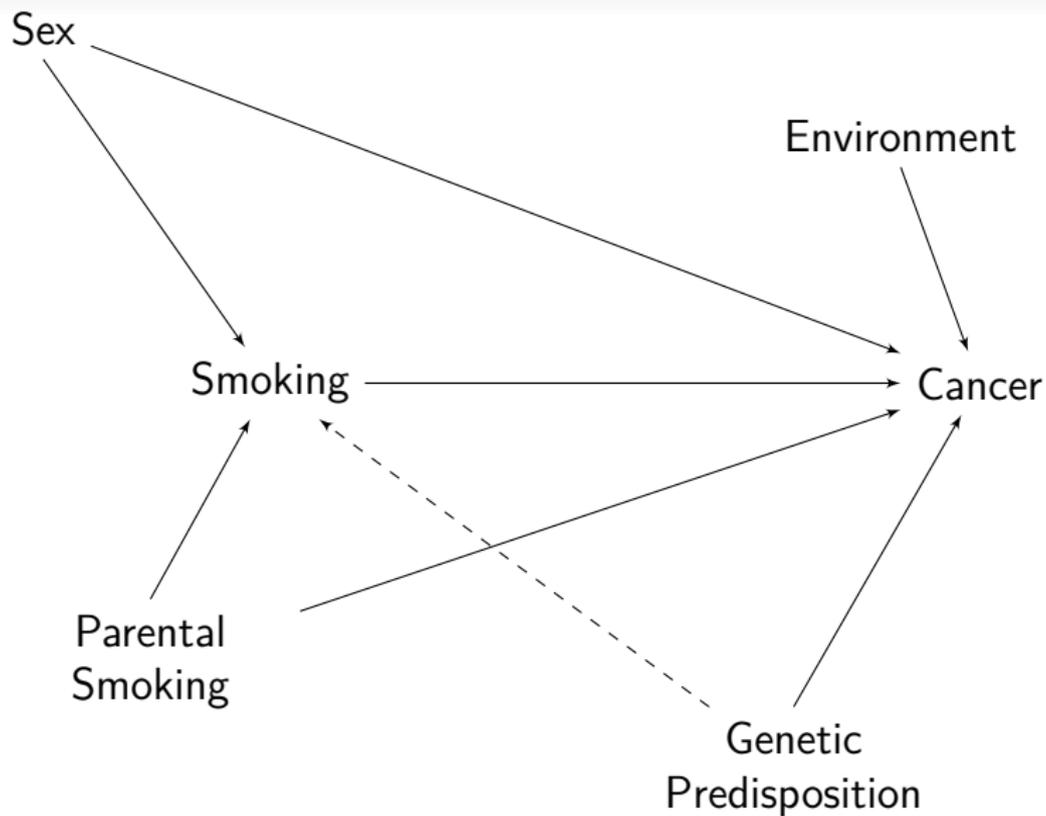
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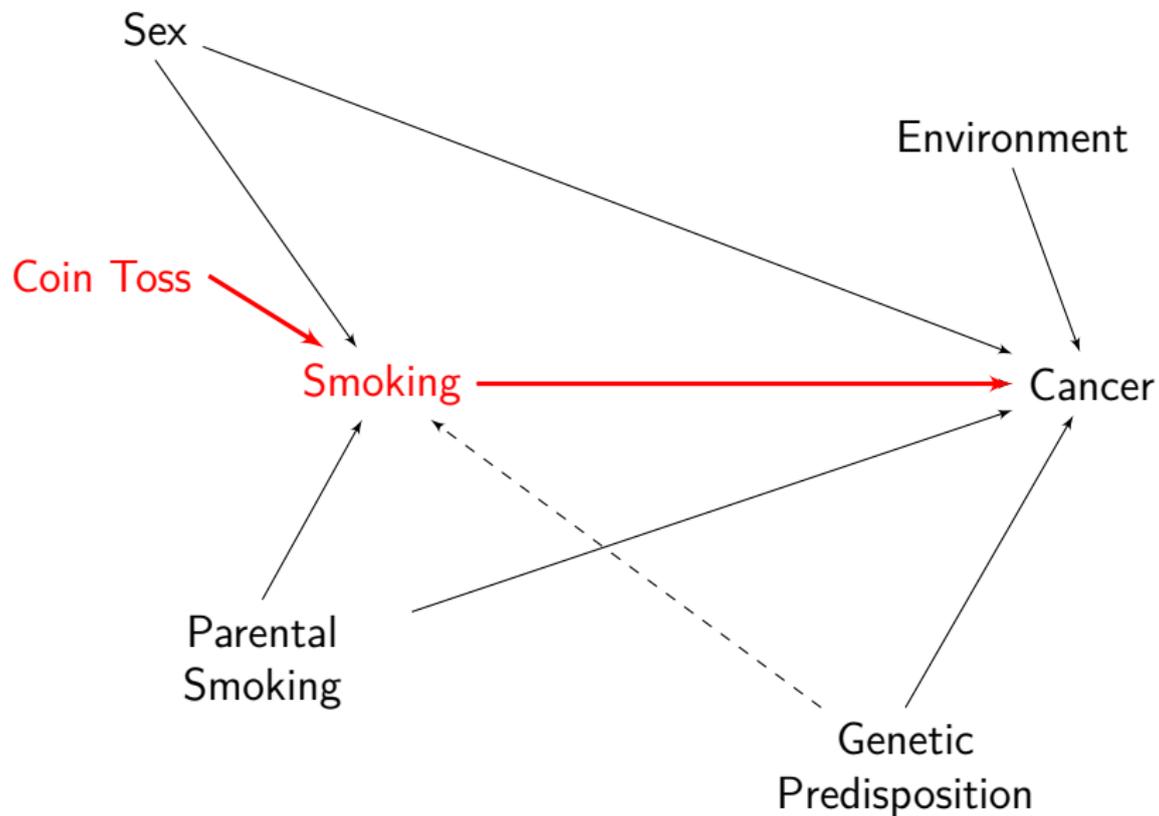
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- 1 Draw causal inferences through *design* not *analysis*
- 2 Randomization breaks selection bias
- 3 We don't need to "control" for anything
- 4 We see "causal effects" in the comparison of experimental groups





# Mill's Method of Difference

If an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance save one in common, that one occurring only in the former; the circumstance in which alone the two instances differ, is the effect, or cause, or an necessary part of the cause, of the phenomenon.

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# Definitions

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- If we manipulate the thing we want to know the effect of ( $X$ ), and control (i.e., hold constant) everything we do not want to know the effect of ( $Z$ ), the only thing that can affect the outcome ( $Y$ ) is  $X$ .

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# Who am I?

- Thomas Leeper
- Assistant Professor in Political Behaviour
- Originally from Minnesota (USA)
- Interested in public opinion and political psychology
- Office hours:  
Mon 10:30–1:30; Fri 9:30-10:30 CON 4.11  
(Sign-up on LSE for You)  
Otherwise, email: [T.Leeper@lse.ac.uk](mailto:T.Leeper@lse.ac.uk)

# Who are you?

- Where are you from?
- What interests you about government or politics?
- What do you hope to learn from the course?

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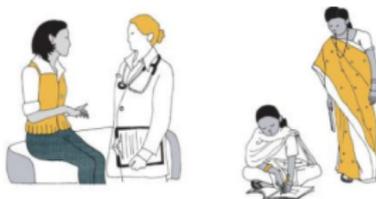
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# Course Resources

- Reading List:  
<https://lse.rl.talis.com/lists/BA9D65E3-F764-8018-1883-4587DCB78F4F.html>
- Gelnnerster and Takavarasha's *Running Randomized Evaluations*
- Moodle:  
<https://moodle.lse.ac.uk/course/view.php?id=5709>
  - Slides (after lecture)
  - Forums
  - Assignments

# Textbook



running **randomized** evaluations  
a practical guide



RACHEL **GLENNERSTER** KUDZAI **TAKAVARASHA**

# Schedule: Michaelmas Term

MT 1 Introduction (Sep. 29)

MT 2 Statistical Foundations I (Oct. 6)

MT 3 Statistical Foundations II (Oct. 13)

MT 4 Practical Issues (Oct. 20)

MT 5 The Politics of Evidence (Oct. 27)

*Reading Week*

MT 7 Substantive Topic 1 (Nov. 10)

MT 8 Substantive Topic 2 (Nov. 17)

MT 9 Substantive Topic 3 (Nov. 24)

MT 10 Substantive Topic 4 (Dec. 1)

MT 11 Substantive Topic 5 and Conclusion (Dec. 8)

ST 1 Revision Session (Apr. 27)

# Substantive Topics?

This is your decision! What should we discuss?

- Voter mobilization
- Social media
- Poverty alleviation
- Political development
- Policy nudges
- Political representation
- Public health
- ...

Decide over next 2–3 weeks!

# Learning Outcomes

- 1 Describe the logic of randomized experimentation for studying causal effects of interventions in comparison to other approaches.
- 2 Evaluate the strengths, weaknesses, and ethics of experiments as a research design and evaluation method.
- 3 Analyse the use and utility of experimental methods in real-world cases.
- 4 Apply the logic of experimental methods to political science research questions.

# Summative Assessment

- Breadth: 90-minute written exam (ST)
- Depth: 2,250-word summative essay consisting of either:
  - 1 Research Proposal, or
  - 2 Journalistic Case Study
- Deadline for essay is **5 December 2017**
- Exam and essay each count equally (50%)

# Summative Essay: Option A

Craft an experimental research design:

- Research question
- Theoretical contribution
- Testable hypotheses
- Description of the proposed data collection and analysis

# Summative Essay: Option B

Write a case study of “real-world” use of experimentation:

- Identify a recent use of experimentation in a public or private sector setting
- Describe the experiment(s) and what was learned
- Critically evaluate how the experiment(s) informed policy, debate, or practice

# Formative Assessment

- 1 Presentation of final essay topics in Weeks 9 and 10
- 2 Technical problem set due in MT Week 5

# Questions?

