The plan for today

- Review: What are the four hurdles on the way to establishing causality?
  - Review your notes and be prepared to participate
  - Homework questions sharing&feedback
- Research designs: How do we get over these 4 hurdles?
- Researcn desings: Examples

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Four hurdles on the way to establishing causal relationships

1. Is there a credible causal ***mechanism*** that connects X to Y
2. Could Y cause X?
3. Is there covariation between X and Y?
4. Is there some confounding variable Z that is related to both X and Y and that makes the observed association between X and Y spurious?

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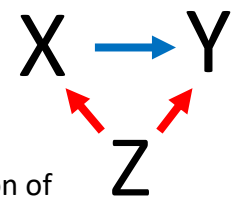
Problems when getting over the four hurdles...

- My (made-up) example:
  - The work of being a president or PM improves one's speaking skills.
  - Example of a selection effect



- Your homework assignment
  a) Divorce rate in Maine (X) and consumption of margarine (Y)
  b) The No. of firefighters (X) and the property damage (Y)
  c) Money spent on snow-ploughing (X) and the No. of cancelled flights due to snow (Y).

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Research design

- = a strategy that allows researchers to evaluate as conclusively as possible the question about whether X causes Y

- Experimental research design (experiment)
- Observational research design

4

Experiment

- = a research design in which the researcher both controls and randomly assigns values of the independent variable to the participants

- ***"Controls"***
- ***"Randomly assigns"***
  - Treatment group; Control group
  - Randomness is crucial – makes groups identical
    - → **controls for <u>all</u> possible (even unknown) confounding variables**

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How well does an experiment clear the four hurdles?

- Think about it for 2 minutes and be prepared to share.

- First?
- Second?
- Third?
- Fourth?
  - Very good at crossing the 4th hurdle!
  - Internal validity

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Drawbacks of experiments

- Not all independent variables are suitable for experiments
- (Often unknown level of) external validity
  - Random assignment v. random sampling (!)
  - Sample of convenience
- Ethical dilemmas
- Risk of misinterpreting our X as the most important cause of Y

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Observational designs

- = a research design in which the researcher does not have a control over values of the independent variable, which occur naturally
  - Needs variability on the independent variable and on the dependent variable
- Variability across
  - Spatial units
    - = cross-sectional observational studies
  - Time
    - =time-series observational studies

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How well do observational studies clear the four hurdles?

- First?
- Second?
  - Sometimes can't be sure
- Third?
- Fourth?
  - Control for the effects of other possible influences by including them in a multivariate analysis
  - Disadvantage: We will never know if we have controlled for all possible causes of Y
  - Advantages: suitable for a wider range of variables, chance at a greater external validity

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Don't be confused by…

- Natural experiment
  - Random assignment to groups is not controlled but it's "as-if random"
  - Example: does watching West German TV influence beliefs about communism? Geography takes care of the "as-if random" assignment into watchers/non-watchers
- Quasi-experiment
  - Treatment and control group but no random assignment
  - Example: the number of highway fatalities before and after increasing the speed limit

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Examples of experimental studies

- Hobolt, S. and J. Wittrock. 2011. "**The Second-Order Election Model Revisited: An Experimental Test of Vote Choices in European Parliament Elections**." *Electoral Studies* 30: 29-40. DOI:10.1016/j.electstud.2010.09.020
- Gerber, Alan S., and Donald P. Green. 2000. "**The Effects of Canvassing, Telephone Calls, and Direct Mail on Voter Turnout: A Field Experiment**." *The American Political Science Review* 94, no. 3: 653–63. https://doi.org/10.2307/2585837.
- Ringlerova, Z. 2021. "**The Impact of Immigration on Attitudes toward the EU: Evidence from a Three-Country Survey Experiment**." *JCMS: Journal of Common Market Studies*, https://doi.org/10.1111/jcms.13237.
- Rho, Sungmin, and Michael Tomz. "**Why Don't Trade Preferences Reflect Economic Self-Interest?**" *International Organization* 71, no. S1 (2017): S85–S108. doi:10.1017/S0020818316000394.

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Examples of observational studies

- Lai B, Thyne C. 2007. **The Effect of Civil War on Education, 1980—97.** Journal of Peace Research. 44(3):277-292. doi:10.1177/0022343307076631
- Nagel Robert U. 2021. **Gendered preferences: How women's inclusion in society shapes negotiation occurrence in intrastate conflicts.** Journal of Peace Research. 58(3):433-448. doi:10.1177/0022343319899456
- Fortna, Virginia Page. "**Do Terrorists Win? Rebels' Use of Terrorism and Civil War Outcomes**." *International Organization* 69, no. 3 (2015): 519–56. doi:10.1017/S0020818315000089.
- And many more...

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Comparing observational and experimental research designs

	True experiment	**Observational studies**		
		Observational study	Natural experiment	Quasi-experiment
Treatment and control group	**yes**	no	**yes**	**yes**
Randomization	**yes**	no	**"as if" random**	no
Control over the treatment	**yes**	no	no	no

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