

Introduction to Field Experiments for Public Policy

Escuela de Invierno en Métodos y Análisis de Datos UCU-DCSP

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Overview This course introduces field experiments as a tool for evaluating public policy interventions and for learning about public policy debates. Students will learn to think about randomized experiments as a tool for evaluating public policy. This class will not cover the topics which require much exposure to statistics such as the design of field experiments (for example, it will omit power analysis). However, it will involve learning a little about what it means to say that a difference of means is an unbiased estimator of a treatment effect. The last section of the class will involve consideration of experiments in which the researcher cannot control whether or not the experimental subjects take-up or directly experience the treatment. These situations, in which assignment to treatment is a nudge toward exposure to a treatment rather than a requirement, are common in the social sciences and we show how randomized assignment, as an instrumental variable, allows one to produce unconfounded estimates of causal effects for those subjects who comply (non-randomly) with treatment.

Books The class is too short to require extensive reading. However, here are a few resources to support your independent study.

Gerber, A. and Green, D. (2012). *Field experiments: Design, analysis, and interpretation*. WW Norton (see also <http://isps.yale.edu/FEDAI>)

Glennerster, R. and Takavarasha, K. (2013). *Running Randomized Evaluations: A Practical Guide*. Princeton University Press

Dunning, T. (2012). *Natural experiments in the social sciences: a design-based approach*. Cambridge University Press

Schedule Note: This schedule is preliminary and subject to change.

Please try to have read the assigned readings (choosing between the Paluck and Green or the Butler and Brookman readings) before the first class meeting.

Feel free to bring laptops. We may have some very simple online data analyses using the R statistical language using <http://www.r-fiddle.org/> or another online R platform.

July 11—Introductions, Experiments, Potential Outcomes, and Treatment Effects

Introductions: What *debates* or *unanswered questions* about public policy interest you? I emphasize debates because experiments require at least two points of view in order to be designed meaningfully. As Rosenbaum (2010, Chap 5) puts it, “Competing Theories Structure Design.”

Questions and Reading: What is the point of experiments? What are the key characteristics of experiments? Why are experiments special? What do we mean by “causal inference”? How is a “treatment effect” a “causal effect”? Can we convince ourselves that experiments have special advantages? How do experimental research designs differ from some common non-experimental designs? What are the strengths and weaknesses of the different designs?

[Gerber and Green, 2012, Chap 1](#)

Extra Reading: [Kinder and Palfrey, 1993](#)
[Glennerster and Takavarasha, 2013](#), Chap 1 and 2
[Angrist and Pischke, 2009](#), Chap 2

July 12—0900–1200—Statistical Inference for Causal Quantities: Unbiased Estimation of the ATE

Questions and Reading: Given an experiment, what have we learned when we subtract the mean outcome in the control group from the mean outcome in the assigned to treatment group? When people say the observed difference of means is an unbiased estimator of the unobserved difference of mean potential outcomes what do they mean?

[Gerber and Green, 2012](#), Chap 2

Paluck, E. L. and Green, D. P. (2009). Deference, dissent, and dispute resolution: An experimental intervention using mass media to change norms and behavior in rwanda. *American Political Science Review*, 103(04):622–644

or

Butler, D. M. and Broockman, D. E. (2011). Do politicians racially discriminate against constituents? a field experiment on state legislators. *American Journal of Political Science*, 55(3):463–477

Extra Reading: [Gerber and Green, 2012](#), Chap 3 On characterizing variation between experiments in estimates of causal effects. This reading helps us understand what confidence intervals and hypothesis tests mean in randomized experiments.

July 12—1300–1600— Encouragement Designs

Questions and Reading: When treatment may be randomized, we can calculate the “intent to treat”, or ITT, effect. The effect of the act of randomization, however, may not be as substantively interesting and useful as the effect of experiencing the experimental treatment. In many social studies, researchers who can control the randomization itself cannot control who experiences the treatment. [Angrist et al. \(1996\)](#) showed that random assignment itself could be used to learn about the causal effects of treatments that were non-randomly experienced although randomly assigned. This idea that an experiment could merely randomly “encourage” subjects to experience a treatment expands the range of social science and policy questions that can be addressed with experiments.

[Gerber and Green, 2012](#), Chap 5

Gerber, A. S. and Green, D. P. (2000). The effects of canvassing, telephone calls, and direct mail on voter turnout: A field experiment. *American Political Science Review*, 94:653–663

Extra Reading [Gerber and Green, 2005](#)
[Imai, 2005](#)
[Hansen and Bowers, 2009](#)

References

- Angrist, J. and Pischke, J. (2009). *Mostly harmless econometrics: an empiricist's companion*. Princeton Univ Pr.
- Angrist, J. D., Imbens, G. W., and Rubin, D. B. (1996). Identification of causal effects using instrumental variables (Disc: p456-472). *Journal of the American Statistical Association*, 91:444–455.
- Butler, D. M. and Broockman, D. E. (2011). Do politicians racially discriminate against constituents? a field experiment on state legislators. *American Journal of Political Science*, 55(3):463–477.

- Dunning, T. (2012). *Natural experiments in the social sciences: a design-based approach*. Cambridge University Press.
- Gerber, A. and Green, D. (2012). *Field experiments: Design, analysis, and interpretation*. WW Norton.
- Gerber, A. S. and Green, D. P. (2000). The effects of canvassing, telephone calls, and direct mail on voter turnout: A field experiment. *American Political Science Review*, 94:653–663.
- Gerber, A. S. and Green, D. P. (2005). Correction to [Gerber and Green \(2000\)](#), replication of disputed findings, and reply to Imai (2005). *American Political Science Review*, 99(2):301–313.
- Glennerster, R. and Takavarasha, K. (2013). *Running Randomized Evaluations: A Practical Guide*. Princeton University Press.
- Hansen, B. B. and Bowers, J. (2009). Attributing effects to a cluster randomized get-out-the-vote campaign. *Journal of the American Statistical Association*, 104(487):873–885.
- Imai, K. (2005). Do get-out-the-vote calls reduce turnout? the importance of statistical methods for field experiments. *American Political Science Review*, 99(2):283–300.
- Kinder, D. and Palfrey, T. (1993). On behalf of an experimental political science. *Experimental foundations of political science*, pages 1–39.
- Paluck, E. L. and Green, D. P. (2009). Deference, dissent, and dispute resolution: An experimental intervention using mass media to change norms and behavior in Rwanda. *American Political Science Review*, 103(04):622–644.
- Rosenbaum, P. R. (2010). *Design of Observational Studies*. Springer.