Placebo Controlled Designs For Noncompliance and Spillovers

Instructor: Donald Green dpg2110@columbia.edu

2 June 2020, 15:00 – 17:00
3 June 2020, 15:00 – 16:00

Organised by Miriam Golden (SPS) together with Annabelle Wittels and Eleanor Florence Woodhouse (Max Weber Fellows)

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Register online

Course Description: Field experiments have become increasingly prominent way of studying politics and political behavior. However, the implementation of experimental treatments in field settings often involves noncompliance, whereby some of those assigned to the treatment group fail to receive the treatment or some of those assigned to the control group receive the treatment inadvertently. In this short course, we will discuss how to model noncompliance, how to identify and estimate causal estimands in the presence of noncompliance, and how to design experiments with noncompliance in mind.

Readings:

> Chapters 5 and 6 in Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton.
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> Arceneaux, Kevin, Alan S. Gerber, and Donald P. Green. 2010. A cautionary note on the use of matching to estimate causal effects: An empirical example comparing matching estimates to an experimental benchmark. *Sociological methods & research* 39(2): 256-282.
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> Cooper, Jasper, Donald P. Green, and Anna M. Wilke. 2020. A Placebo Design to Detect Spillovers from an Education-Entertainment Experiment in Uganda. *Journal of the Royal Statistical Society* – Series A. In press.

Optional background reading for students who are new to potential outcomes and the core assumptions for unbiased inference:

Chapters 2 and 3 in Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton.

Course materials:

Lecture notes, example programs/datasets, and additional readings will be distributed ahead of time.

Topics to be covered:

Estimands: Average treatment effect, intent-to-treat effect, complier average causal effect

Partitioning the subject pool into latent types: Always-takers, Never-takers, Compliers, and Defiers

Theorems: CACE theorems in the presence of one-sided and two-sided noncompliance, respectively.

Estimation: Instrumental variables estimation and avoiding common errors

Design Implications: Recording first-stage results, maximizing compliance, placebo designs to increase power in the presence of noncompliance, and placebo designs to detect spillovers

Exercises:

Students are encouraged to work through the following homework problems in the Field Experiments textbook in order to solidify their understanding of key terms and ideas.

Chapter 5: Exercises 3, 5, 11

Chapter 6: Exercises 3, 5, 7, 9