The E2e Project's Executive Education:

Randomized Control Trials for Energy-Efficiency Evaluation

August 26, 2013

210 Cheit Hall
Haas School of Business
2220 Piedmont Avenue
Berkeley, California

Randomized control trials (RCTs) are the gold standard for evaluating the effectiveness of programs in a wide variety of fields, including medicine, education, and international development. This course will give an overview of RCTs and describe how they can be applied to evaluate energy-efficiency programs. The course will also provide practical suggestions on how RCTs can be implemented and alternative approaches if an RCT is infeasible. The material covered is designed for energy-efficiency professionals with some training in statistics.

9:00 am – 10:30 am: Introduction to Randomized Control Trial Research Designs

Professor Max Auffhammer, UC Berkeley

Topics: *Energy-efficiency program evaluators face a difficult task. In order to identify savings from a program, they need to describe how much energy would have been consumed if the program hadn't existed. In other words, they need to provide a "counterfactual" description of the world. This session will describe common approaches to developing counterfactuals, including both observational studies and randomized control trials. We will discuss inherent challenges, including sample selection, statistical biases from omitted variables, and external validity.*

10:45 am – 12:15 pm: Implementing Randomized Control Trials to Evaluate Energy-Efficiency Programs

Professor Hunt Allcott, New York University

Topics: *A randomized control trial can be designed in many ways, but the treatment and control groups should be identified prior to implementation of the program. This session will describe common issues confronted in developing randomized control trials including identification of the treatment and control groups and the importance of random assignment to these groups. Good treatment and control groups enable an evaluator to pinpoint the impact of a program and eliminate other influences. The session will also describe several existing and on-going randomized control trials on energy efficiency programs, including those run by Opower.*

University of California Berkeley Haas School of Business

ENERGY INSTITUTE AT HAAS

MIT CEEPR

MITei MIT Energy Initiative

LUNCH 12:15 pm – 1:45 pm

1:45 pm – 3:15 pm: Variants on Randomized Control Trials

Professor Meredith Fowlie, UC Berkeley

Topics: *Randomized control trials offer an effective way to measure the impacts of a program or policy intervention. However, it is often neither practical nor appropriate to mandate or force a group of consumers to receive a "treatment." Fortunately, there are experimental research design alternatives that do not require mandatory assignment. This module will introduce some of these alternatives (including randomized encouragement designs, recruit-and-delay, recruit-and-deny). In addition to working through the nuts and bolts of implementation and analysis, the relative strengths and weaknesses of these design alternatives will be explored.*

3:30 pm – 5:00 pm: Quasi-Experimental Approaches

Professor Lucas Davis, UC Berkeley

Topics: *In some empirical contexts, randomized control trials are simply not practical and/or infeasible. In those cases, quasi-experimental research designs can be an effective substitute. Quasi-experimental studies assign households to treatment and control groups by a method other than random assignment. Their effectiveness depends on program details and the data available. This session describes a set of quasi-experimental approaches, provides examples from the energy efficiency context and discusses their limitations. We will review examples of effective quasi-experimental studies.*