Field Experiment

Joseph Tao-yi Wang
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Harrison and List (JEL 2004)

- What Consists a Field Experiment?
- Various Types of Field Experiments
  - Lab Experiments in the Field (Artefactual Field)
  - Framed Field Experiments
  - Natural Field Experiments
  - Policy Experiments (Social Experiments)
  - Natural Experiments
  - Thought Experiments (and Neuro!)

What is a Field Experiment?

- Field: "…an investigation, study, etc., carried out in the natural environment of a given material, language, animal, etc. and not in the laboratory, study, or office."
  – Oxford English Dictionary, 2nd Ed.
- What are the components of a natural environment?

Six Factors of the Field

- Nature of the Subject Pool
- Nature of the Information Subjects Bring In
- Nature of the Commodity
- Nature of the Task or Trading Rule Used
- Nature of the Stakes
- Nature of the Location (Environment)

Categories of Experiments

1. (Conventional) Lab Experiments
2. Lab Experiments in the Field
   - Non-standard subject pool (or location?)
- Neutral Context: Artefactual Experiment
- Field Context: Framed Field Experiment
3. Natural Field Experiment

Why are They Important?

- In the Field, the key to evaluate "treatment effects" is to construct a counterfactual by
- Controlled Experiments (most convincing)
- Natural Experiments (Can't have outcome shocks correlated with treatment)
- Propensity Score Matching (PSM)
- Instrumental Variables (IV)
- Structural Estimation (impose structure)

Lab Experiments in the Field

- Neutral Context: Artefactual Field Experiment
  - Not "Artificial," but "Artefactual"
- Subject Pool: Students used for convenience
  - Are they representative?
- Selection Bias to the Lab
  - Who will come? Is this correlated with behavior?
  - Risk averse people might not want to come (and make risky choices in the experiment)

Lab Experiments in the Field

- Recruitment Bias (Rutstrom, IJGT 1998)
- Elicit values of a private commodity
- $0 →$2 →$10 show-up affect who comes
- Can correct with relevant characteristics
- Same as exit polls correcting selection bias

Lab Experiments in the Field

- Are Students Different? (Harrison-Lesley96)
- Can we mimic large survey results using only a student sample?
  - A statistical model with student data and demographics predicts national survey results
- Students are representative conditional on their socio-demographic characteristics!
  - Problem is whether they are diverse enough…

Lab Experiments in the Field

- Are Students Different?
- If age affects behavior, how can students of age 18-24 predict that of age 18-70?
- Could be even worse if unobservable characteristics (can affect behavior)
- At least try to collect a batch of individual characteristics for "conditional" comparison

Lab Experiments in the Field

- Lichtenstein and Slovic (1973)
  - Preference reversals in downtown Las Vagas
- Kagel, Battalio and Walker (1979)
  - How prices, weekly feedback on usage, conservation info. affect electricity demand
  - Volunteers vs. random sample
- Binswanger (1980, 1981)
  - Holt and Laury (2002) in India

Lab Experiments in the Field

- Smith, Suchanek and Williams (1988)
  - Asset Bubbles
  - One experiment was done with "professional and business people" in the Tucson community"
  - Still had a bubble (but with heavy volume and did not burst at the end) – more of a "bubble"?!
- Recall: Henrich et al. (2001, 2004) and Tanaka et al. (2008)

Lab Experiments in the Field

- Field Context: Framed Field Experiments
- Information Subjects Already Have
  - "Neutral context" can mean "no control over the context subjects might impose"
- Commodity
  - "Induced demand" or "Things they know"
  - Hanoi Tower Game: Computerized McDaniel and Rutstrom (2001) vs. Montessori
  - Field Substitutes (Can this affect behavior?)

Lab Experiments in the Field

- Task Nature: Is this their everyday life task?
- Harrison and List (2003)
  - Do pro-sports card-dealers suffer the winner's curse in auctions?
  - They have heuristics developed to avoid the winner's curse (but specialized for dealers)
- Would other heuristics help people avoid "money pumps"?

Lab Experiments in the Field

- Stakes (Monetary or Mental)
- Poor Country/Double Stakes
  - Slonim and Roth (1998), Holt and Laury (2001)
- Target People who really Care
- Bohm (1972)
  - Swedish TV program for a closed community
  - Six procedures all produce the same bids
- Follow-up: Bohm (JPubE1984)

Natural Field Experiment

- Natural Field Experiment
  - A experiment in an existing economic institution so that subjects don't even know they are part of an experiment ("Not" deception? It's "life"…)
- Levine and Plott (1977)
  - Levine's flying club wants to design fair agenda
  - Plott suggested Levine to propose the agenda that would lead to his desired outcome
  - Later surveys elicited preferences
- Back to the Lab: Levine and Plott (1978)

Natural Field Experiment

- List and Lucking-Reiley (2002)
- Charitable Contribution Solicitation
  - Raise $3,000 to buy a computer
  - Assign different seed money amounts (10%, 33%, 67%) and refund (if goal is not met)
  - 3000 HH with income > $70k; donated before

Other Field Experiments

- Policy Experiments (Social Experiments)
  - Evaluate Policy Effectiveness by randomizing between treatment and control group
  - Ester Dufflo, Michael Kremer are experts who work in developing countries (Kenya, India,…)
- Natural Experiments
  - Simply observe naturally occurring controlled comparisons between treatments

Other "Field" Experiments

- Thought Experiments
  - Are "thought experiments" really field experiments?
- Neuroeconomic Experiments are "real thought experiments"
  - Neuronal activity are measured during their "natural reaction" to stimulus!
  - Key: Monitor the natural mental process when the experimental treatment is administered

Conclusion

- Field Experiment try to make experiments less artificial
- But why are lab experiments deemed "unnatural"? "Neutral language"?
- Maybe conducting experiments "naturally" is what we need
  - Neutral language is only a benchmark…