

# FLS 6415 - Causal Inference for the Political Economy of Development

Week 3 - The Effects of Democracy & Field Experiments

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August 2017

## The Effects of Democracy

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- ▶ What institutional feature do these studies test?

## The Effects of Democracy

- ▶ Why might direct democracy affect economic outcomes?

## The Effects of Democracy

- ▶ Why might direct democracy affect economic outcomes?
  - ▶ Median voter theorem
  - ▶ Item-unbundling
  - ▶ Elite knowledge
- ▶ Political outcomes?
  - ▶ Participation
  - ▶ Elite capture
  - ▶ Procedural legitimacy

## The Effects of Democracy

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- ▶ Why might democracy NOT affect economic outcomes?
  - ▶ Elite respond by using de facto power to re-assert control (Olken?)
  - ▶ Weak accountability: Elections don't sanction politicians
  - ▶ Strong accountability: Local decision-making already responsive
  - ▶ Selection: democracy only happens in countries where the poor already have power
  - ▶ Reverse Causality: Economic outcomes drive democratic transition

## The Effects of Democracy

- ▶ What does Olken test?



## The Effects of Democracy

- ▶ What does Olken test?
  - ▶ Population
  - ▶ Sample
  - ▶ Treatment
  - ▶ Control
  - ▶ Potential Outcomes
  - ▶ Treatment Assignment Mechanism
  - ▶ Outcome Measures

## The Effects of Democracy

- ▶ Why does he use a field experiment?

## The Effects of Democracy

- ▶ Why does he use a field experiment?
- ▶ Threats to causal inference in observable data:
  - ▶ Omitted variables: Political power (or anything else) shapes both political rules and economic outcomes
  - ▶ Selection: Countries which can benefit from direct democracy implement it (Switzerland?)
  - ▶ Reverse causation: Economic growth leads to direct democracy

## The Effects of Democracy

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  - ▶ Project Type
  - ▶ Project Location
  - ▶ Satisfaction

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  - ▶ De facto elite power and lobbying
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  - ▶ Knowledge?
  - ▶ Pre-implementation
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  - ▶ Pre-implementation
  - ▶ Women alter a pre-set elite agenda?
- ▶ What's the theory for a change in satisfaction without a change in projects?

## The Effects of Democracy

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## The Effects of Democracy

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  - ▶ Collective action?
  - ▶ Small villages form coalitions?

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  - ▶ ?
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## The Effects of Democracy

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  - ▶ ?
- ▶ How do their results differ?
  - ▶ Project type/location effects
  - ▶ Similar findings for women's projects



## The Effects of Democracy

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## The Effects of Democracy

- ▶ How do we explain the differing results of Olken and Beath et al?
  - ▶ Chance!
  - ▶ Sample size
  - ▶ Treatment duration expectations
  - ▶ Local accountability for councils
  - ▶ Status of women
  - ▶ Ability to strategically manipulate agenda

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- ▶ Are these 'real' results; would you use them to inform policy?
- ▶ Could they just reflect chance?
- ▶ How far do the results travel?

## The Effects of Democracy

- ▶ What are the differences in Harding and Stasavage?
  - ▶ Treatment
  - ▶ Control
  - ▶ Treatment Assignment Mechanism
  - ▶ Analysis Methodology
  - ▶ Population
  - ▶ Sample
  - ▶ Outcome measures

## The Effects of Democracy

- ▶ What is their evidence?
  - ▶ Attendance Fees + Democracy
  - ▶ Remove fees election date
  - ▶ Support for candidate who removed fees support for removing fees



## The Effects of Democracy

- ▶ How much do you trust the results of Harding and Stasavage?

## The Effects of Democracy

- ▶ How much do you trust the results of Harding and Stasavage?
- ▶ Is Olken or Harding and Stasavage more useful for understanding the effects of democracy?

## Field Experiments

- ▶ Field experiments provide confidence because treatment assignment is **controlled by the researcher**
- ▶ But still take place in real-world environments, so they identify (hopefully) meaningful treatment effects

## Field Experiments

- ▶ Why does randomization help us achieve causal inference?

## Field Experiments

- ▶ Why does randomization help us achieve causal inference?
  - ▶ A treatment assignment mechanism that balances potential outcomes
    - ▶ Every unit has **exactly the same** probability of treatment
    - ▶ No confounding
    - ▶ No self-selection
    - ▶ No reverse causation

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- ▶ With randomization,  $Y_1, Y_0 \perp D$ :

$$E(Y_1|D = 1) = E(Y_1) \tag{3}$$

$$E(Y_0|D = 0) = E(Y_0) \tag{4}$$

$$E(Y_1|D = 1) - E(Y_0|D = 0) = E(Y_1) - E(Y_0) \tag{5}$$

$$= E(Y_1 - Y_0) \tag{6}$$



## Field Experiments

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## Field Experiments

- ▶ But these are just **expectations** (averages)
  - ▶ On average, potential outcomes will be balanced
  - ▶ More likely in larger samples
  - ▶ We cannot verify potential outcomes
  - ▶ But we can assess balance in *observable* covariates
  - ▶ What if some covariates are imbalanced?

## Field Experiments

- ▶ Analysing field experiments
  - ▶ Comparison of means: t-test to test significance
  - ▶ Regression achieves the same thing
    - ▶  $Y_i \sim \alpha + \beta D_i + \epsilon_i$
    - ▶  $Y_i = Y_{0i} + (Y_{1i} - Y_{0i})D_i + \epsilon_i$
    - ▶ Just the conditional expectation function:  $E(Y|D = d)$
  - ▶ Include covariates if:
    - ▶ There is residual imbalance
    - ▶ To increase precision of standard errors

## Field Experiments

- ▶ Clustered treatment/sampling
- ▶ Fixed effects: Adjust coefficients to remove variation in an unhelpful dimension
  - ▶ Eg. if we randomized within schools but not between them
- ▶ Clustered standard errors: Adjust standard errors for correlated errors, usually from clustered sampling or treatment
  - ▶ Eg. If we sampled one village in every municipality
  - ▶ Or if treatment at the village level

## Field Experiments

- ▶ Assumptions
  - ▶ **Compliance with randomization** - Treatment was truly random and accepted
  - ▶ **SUTVA** - Treatment of one unit doesn't affect potential outcomes of other units
  - ▶ **Excludability** - Effects of treatment assignment operate **only** through treatment
    - ▶ Depends if these effects are part of the causal chain

## Field Experiments

- ▶ Limitations of Field Experiments: **Answerable Questions**

## Field Experiments

- ▶ Limitations of Field Experiments: **Answerable Questions**
  - ▶ Small sample sizes still prevent inference
  - ▶ Ethics
  - ▶ Logistics/Finance
  - ▶ Some treatments can't be manipulated (history)
  - ▶ Lack of control over treatment content and context - is it informative?
  - ▶ Long-term effects/adaptation?

## Field Experiments

- ▶ Limitations of Field Experiments: **Internal Validity**



## Field Experiments

- ▶ Limitations of Field Experiments: **Internal Validity**
  - ▶ No guarantee of actual balance (and Inefficient if we already know confounders)
  - ▶ Hawthorne effect: participants adapt behaviour in experiments
  - ▶ Biased measurement if not double-blind (non-excludability)
  - ▶ Average Treatment Effect can be skewed by Outliers
  - ▶ Always complications of non-compliance, SUTVA, attrition
  - ▶ Publication/Selection bias
  - ▶ Unbiased but imprecise; variation still high if lots of other variables also affect Y
  - ▶ Treatment assignment mechanism itself affects outcomes

## Field Experiments

- ▶ Limitations of Field Experiments: **External Validity**

## Field Experiments

- ▶ Limitations of Field Experiments: **External Validity**
  - ▶ What theory are we testing? Can't accumulate knowledge without theory. Causal mechanisms still a black box.
  - ▶ What is our real population? Do we really have a representative sample?
  - ▶ Limited portability of findings - context, population change marginal treatment effects.
    - ▶ Eg. CCTs improve child health only where clinics are available
    - ▶ Requires structural theory and background knowledge
    - ▶ Average effects may not apply to any individual
  - ▶ Naive application of policy implications
  - ▶ How much do the results depend on researcher oversight?

## Field Experiments

- ▶ All these complications mean we need lots of assumptions and background knowledge
- ▶ Just as with other methodologies

## Field Experiments

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- ▶ What is the purpose of field experiments?
  - ▶ To inform policy choices?
  - ▶ To identify causal mechanisms?
- ▶ Are field experiments the gold standard?