

Considering Interference in Field Experiments

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Abstract

We plan to write a paper about how interference hypotheses can and should be used to analyze the results of field experiments in which there is a high probability that subjects interacted between the administration of treatment and the observation of outcomes.

1 Introduction

Networks are integral parts of human interaction and hence social science research. If one unit in a network gets treated, the effect may trickle down throughout network. The currently established framework for causal inference relies on SUTVA (Stable Unit Treatment Value Assumption). It assumes that whether or not one person/unit/node is treated, does not affect any other unit. However, SUTVA breaks down in a network setting. It is therefore imperative to take the interference structure into account. Rather, in policy planning or designing marketing campaigns, a researcher may be interested in studying the propagation of treatment effect itself.

In field experiments on social groups, interference may be substantial. In this project we intend to study interference models for randomized experiments conducted on social networks and causal inference basis this.

1.1 tasks

- Points about why it is interesting to study propagation. (BD)
- Outline of the paper (SP)

2 Background

Review of relevant methodological work and substance.

2.1 tasks

- Paragraph on each category of papers that serve as relevant background (SP)
 - Interference models (diffusion, propagation) (BD – find papers)
 - Experiments on networks (applications) (BD – find papers)
 - Approaches to inference or estimation with propagation
 - Potential outcomes framework (SP – find papers)
 - Review of political networks (legislative networks)
 - Review of field experiments (BD – find papers)

3 Research Design

We plan to re-analyze data from past field experimental studies to understand how conclusions regarding direct effects and interference effects depend upon

3.1 tasks

- Develop a list of alternative propagation models to evaluate. (SP)

4 Analysis

- Present original results from studies that we replicate.
- Present results when we assume some form of interference
- Explore how alternative assumptions regarding interference change results

4.1 tasks

- Replicate Nickerson. (SP)
- Plot the ideological networks. (BD)

References