

Location, Artificiality, & Related Design Issues

Lecture 7

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EPS Lectures

Location, Artificiality, and Related Design Issues

Levels of Analysis

Definition (Individual Decision-Making Experiment)

Experiment in which the subjects' choices are not interactive and the experimenter only observes individual level behavior.

Definition (Group Decision-Making Experiment)

Experiment in which the subjects' choices are interactive and the experimenter observes both individual and group choices.

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- This is an advantage in that both types of behavior can be studied and more interactive, simultaneous, models of causality can be considered as we discussed earlier.
- Also, in situations where people are making interactive decisions, to better understand the “human” effects of interaction, having the decisions be interactive captures those effects.

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- Also can potentially lose some control over the manipulations for the individuals (strategy method can help with this somewhat).
- The decision on whether to use an individual decision making experiment or a group decision making experiment thus depends on the question studied. In some cases, a researcher may find it advantageous to do both.

Location of Experiments

Field Experiments

Definition (Field Experiment)

Where a researcher's intervention takes place in subjects' natural environments and the researcher has only limited control beyond the intervention conducted. Usually the relationship between the researcher and the subject is conducted through variables outside of the researcher's control.

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- Theoretically a survey experiment could be conducted in a laboratory.
- However, then it is difficult to draw the distinction between a survey experiment and a individual decision-making experiment where a subjects is given only a flat fee or reward for participating or is unpaid.
- So we classify survey experiments as a type of field experiment.

Location of Experiments

Internet Experiments

Definition (Internet Experiment)

Experiment where the subjects' interaction with the experimenter or other subjects is largely via the internet and the relationship between the researcher and the subject is direct, albeit through the internet.

Location of Experiments

Lab in the Field Experiments

Definition (Lab in the Field Experiment)

Experiment where the subjects participate in a common physical location (called the lab in the field) but the experimenter, to some degree, brings the laboratory to the subjects' natural environment more than the subjects come to the laboratory.

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 - nature of stakes (again, they are speaking primarily to experimentalists who use incentives to motivate subjects),
 - & finally nature of the environment in which the subject operates (location).

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- Harrison and List equate field with their definition of an ideal experiment.
- Yet not all experiments conducted in the field meet these criteria.
- Sometimes field experiments use deception (in fact for subjects not to know they are in an experiment, deception is required), sometimes the control is seen as unnatural, sometimes not all subjects’ choices can be observed, & sometimes the experimenter is not able to exercise the control over important variables.

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- **Deception may be only way to establish results.**

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- Some technologies and manipulations used in experiments that require subjects to go to a laboratory.

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- Advantages:
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 - a greater guarantee of anonymity to subjects.

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 - subjects may not believe that there are other subjects involved in the experiment.

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- Important not to conflate the definition of experimentation with what is believed to be necessary to derive causal inferences.
- **Some experiments have theoretical baselines**

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- The procedure works as follows for N comparisons:
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- Rank the comparisons by their corresponding p -values (probabilities of significance), where 1 denotes the smallest and N the greatest and denote the rank as i .

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- Benjamini and Hochberg (2001) further show that rejection of only null hypotheses such that the p -value is less than $\frac{(\frac{1}{15}) q^*}{\sum_i \frac{1}{i}}$ controls the FDR at q^* when the tests have dependencies.

Artificiality in Experiments

Experimental Effect

Definition (Experimental Effect)

When subjects choices in an experiment are influenced by the fact that they are participating in an experiment and are different from what they would be if the manipulations and control exercised in the experiment took place via the DGP without experimental intervention.

Artificiality in Experiments

Dealing with Experimental Effects

- Attempting to make the intervention as unobtrusive and natural as possible is one possible solution to the problem that subject awareness of the experimental manipulation may affect their behavior leading to results that would not follow if the same events occurred via the DGP.

Artificiality in Experiments

Dealing with Experimental Effects

- Attempting to make the intervention as unobtrusive and natural as possible is one possible solution to the problem that subject awareness of the experimental manipulation may affect their behavior leading to results that would not follow if the same events occurred via the DGP.
- But this is not always possible to implement. Suppose a researcher is interested in studying voter choices using a untried and proposed voting mechanism like storable votes, as in the research of Casella, Gellman, and Palfrey (2005).

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- Many aspects of an experiment interact to either mitigate or increase the effect of experimental artificiality.
- Sometimes mitigating artificiality in one direction may lead to an increase in artificiality in another direction as in the use of monetary incentives in a voting game.

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- When subjects are recruited from a wide variety of experiences, then avoiding a particular context that is possibly well known only to a subset of the subjects may be desirable.

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- “It is not meaningful or helpful to talk about ‘experimenter effects.’ There are instructional and procedural effects, including the presence or absence of an experimenter, what he/she knows or does not know ..., and what he/she does or does not do. All of the elementary operations used to implement an experiment are treatments that may or may not have a significant effect on observed outcomes.”

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- Goal may be to see how subjects who have experience in a particular context react when that context is removed and the situation is not natural to the subjects.

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- The experimentalist is engaging in a type of deception.
- **It is important that such experiments be given special scrutiny. Discuss later.**

Definition (Experimental Cross-Effects)

When subjects' choices in an experiment are influenced by the manipulations they have received in previous experiments.

Definition (Behavioral Identification Problem)

When an empirical method is unable to identify parameters of interest given how agents actually behave.

Definition (Behavioral Evaluation)

An evaluation of a methodology used to identify parameters from nonexperimental data with experimental data in which the parameters are already known.