

# Experiments in economics

## Introduction

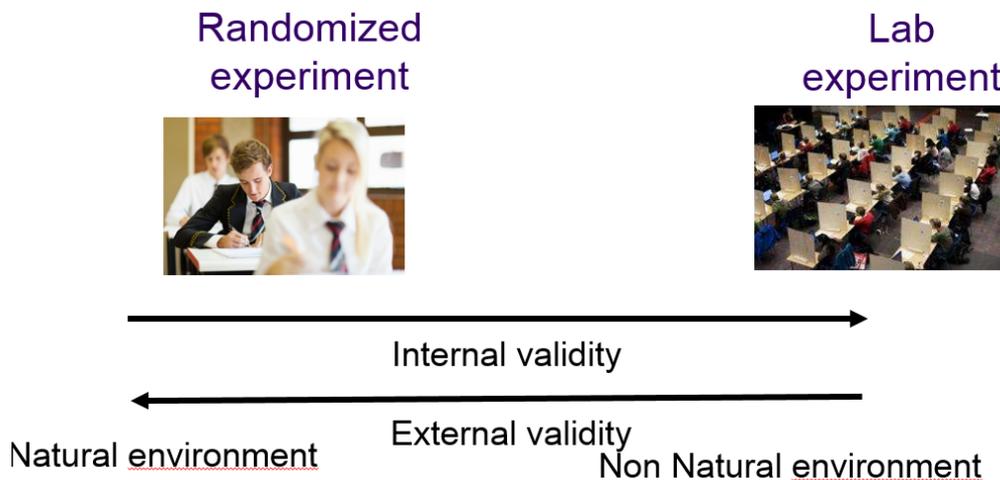
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“*Experimental economics is an ‘exciting new development’.*“

Samuelson and Nordhaus (1992), *Principles of Economics*, 14<sup>th</sup> ed., McGraw-Hill New York, p. 5.

Experimental economics = application of experimental methods to study economic and social issues in order to support, refute, or validate hypotheses.

Experiments may be conducted in the field or in laboratory settings. Both contexts have their own advantages and limitations.



## Natural Experiments

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**Definition:** Natural experiments are observational studies and are not controlled in the traditional sense of a randomized experiment.

Researchers identify the population, or a sub-population, of participants touched by the policy change and attempt to find a naturally occurring comparison group.

## Advantages

(1) Natural experiments may be useful when evaluator-constructed intervention and control groups are unrealistic.

(2) Natural experiments are employed when controlled experimentation is extremely difficult to implement or unethical.

## Limitations

(1) Establishing a similar comparison group may be difficult or challenging.

(2) The approach is not applicable for all type of policy, area.

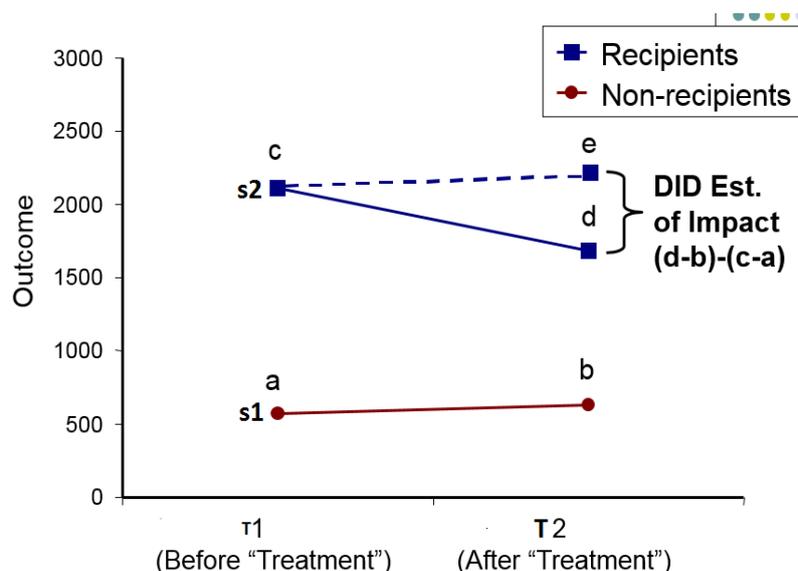
(3) Natural experiments require that the policy change has already been made. Consequently, the natural experiment cannot inform that decision directly.

## Randomized field experiments

**Definition:** Field experiments compare different treatment groups chosen at random, of an intervention or set of interventions specifically designed to test a hypothesis (Duflo 2006).

The process of randomization guarantees that, on average, the two groups will be statistically equal on all observable and unobservable characteristics.

Difference-in-differences or double differences use data collected at baseline and end-line for intervention and comparison groups.



## Advantages

- (1) Randomized Field Experiments can mitigate confounding factors.
- (2) Randomized Field Experiments suppress potential selection bias.
- (3) Less need of complex statistical techniques.
- (4) Transparency.
- (5) Large applicability.
- (6) External validity.

## Limitations

- (1) Applicability in social policy.
- (2) Ethic concerns.
- (3) Monitoring issues.
- (4) Internal validity (exogeneity).
- (5) Spillover (referred to as contagion).
- (6) Human participant constraints.
- (7) Contamination.
- (8) Cost.

## Laboratory Experiments

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**Definition:** Laboratory experiments are scientific methods to experimentally examine an intervention in the laboratory rather than in real world.





## Fiche Technique

Should an experiment replicate reality? No. A good experiment tries to capture the most relevant features of reality in a simple, carefully controlled environment.

### Purposes

- (1) Test a Theory
- (2) Gather Empirical Regularities
- (3) Test Institutions

### Advantages

- (1) Perfect to test theory: high internal validity
- (2) Perfect counterfactual
- (3) No missing values
- (4) Revealed preferences due to incentives
- (5) Relatively cheap
- (6) Feasibility
- (5) Replicability.

### Limitations

- (1) Low external validity due to possible issues regarding representativeness, selection biases, unrealistic and artificial situations, small stakes.
- (2) Some potential threats to internal validity: the “Hawthorne” effect and the demand effect.

### References

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