Experimental economics

LESSON

BPV_APEC Public Economics

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When experimental results meets theoretical prediction, experiments are labeled as "not interesting" and only confirming what economics already know.

When the results contradicts the theoretical prediction, it is said "experimenter made a mistake."

(Vernon Smith,1989)

Experimental Economics

- Progressive way of modern economic theory.

- Using natural science methodology to investigate human behavior.

- Anonymous and based on incentives.

- No deception.

- In the laboratory or in the field.

- Applicable by psychologists (behavioral economics) as well as neuroscientists (neuroeconomics).

History of experimental economics

- Thurstone (1931) – Indifferent Curves

- Morgenstern, von Neuman (1944) – Game Theory

- Dresher a Flood (1950) – Prisoner`s Dilemma Game

- Smith (1950), Plott (1970) – first laboratories of EE

- 1998 official name and established a journal

- 2000 – z-Tree

- 2002 – Nobel Price in economics (Vernon Smith)

- 2006 – first economic experiment at Masaryk University

- 2013 – "cardboard lab" at the faculty

- 2014 - Nobel Price in economics (Alvin E. Roth)

- 2015 – Masaryk University Experimental Economics Laboratory (MUEEL)

Mission
of experimental Economics

- *Speaking to theorists,*

- *Searching for facts,*

- *Whispering in the ears of princes*

Alvin E. Roth (1995)

Methodology
of experimental economics

- Microeconomics model and environment to test in laboratory conditions.

- **Control** of conditions.
  - *Nonsatiation*
  - *Saliency*
  - *Dominance*
  - *Privacy*

V. Smith (1976): Induced Value Theory

- Subjects perceive incentives according to experimenter not own preferences.

- Participants understand the connection between their decision making and payoffs.

- Incentives are significant enough to be taken in mind.

Other methodological issues

- Simple environment.

- Clear and unambiguous instructions.

- Double anonymity.

- Consistent subjects pool and selection mechanism.

Limits
of economic experiments

- Subject pool might not represent whole population.

- Payoffs are not salient.

- Simplified models with low R2

- **External validity**

External and internal validity

- Internal = robustness and replicability

- External = application of the results on the everyday situations
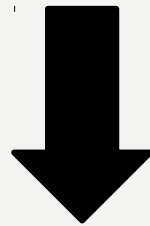
TRADE-OFF

External validity

- External validity is not necessary for every experiment (*Plott*)

- Not even natural science experiments aim to explain the real world.

- Model declined in the lab may be valid in the real environment.

- Success in the lab is on the other hand essential, but not satisfactory condition for generalization.

Examples
of economic experiments

- Ultimatum/Dictator game
- Public goods game

Ultimatum bargaining game

- Original: Güth, Werner, Rolf Schmittberger, and Bernd Schwarze. "An experimental analysis of ultimatum bargaining." Journal of economic behavior & organization 3.4 (1982): 367-388.

- Two players (proposer and responder) bargain over a division of a given sum of money.

  1. **proposer**: makes an offer how to split the sum

  2. **responder:** accepts or rejects

     - if accepted they split the money

     - if rejected neither gets anything

- unique subgame perfect equilibrium the proposer suggests the responder the smallest amount possible and the responder accepts

Dictator bargaining game

- Original: Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. "Fairness and the assumptions of economics." *Journal of business* (1986): S285-S300.

- Two players (dictator and recipient) bargain over a division of a given sum of money.

    1. **dictator**: splits the sum

    2. **recipient:** is informed of endowment left by the dictator

- unique subgame perfect equilibrium: the dictator takes it all

Public goods game

- Original Marwell, Gerald, and Ruth E. Ames. "Experiments on the provision of public goods. I. Resources, interest, group size, and the free-rider problem." *American Journal of sociology* (1979)

- One of the most standard game in experimental economics.

- Each player contributes to **common** or **private account**. Usuall:

  – Each player gets same percentage of total private account contributions.

  – Contributions are multiplied by a coefficient >1.

- The group's total payoff is maximized when everyone contributes all of their tokens to the public pool.

- Game equilibria is zero contribution by every player.

  – But experimental results show a different story.

- Those who do not contribute are called free riders.

Public goods game

- Applicable on charitable giving, fundraising, transportation etc.

- Large contributions to public economics theory.

- Addaptions:

    – Opened communication in the middle of the experiment.

    – Possibility of punishment.

        - People do punish ($\downarrow$contribution => $\uparrow$punishment) and cooperation incereases *(Fehr Gächter, 2000)*

        - "Counter fire" lowers cooperation *(Nikiforakis, 2008)*

        - Stronger punishment increases contributions *(Denant-Boemont, 2007)*

        - Anonymous punishment is more efficient *(Denant-Boemont, 2007)*

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