

AREC 815: Experimental and Behavioral Economics

What Is Behavioral Economics?
What Is an Experiment?

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What Is Behavioral Economics?

What Is the “Standard” Model?

Each individual chooses her “lifetime consumption strategy”
 $x = (x_1, x_2, \dots)$ to maximize

$$\sum_{t=1}^{\infty} \delta^{t-1} \sum_{s_t \in S_t} p(s_t) u(x_t | s_t)$$

where:

- δ is a time-consistent discount factor
- $p(s_t)$ is a rational belief about the probability that s_t occurs
- $u(x_t | s_t)$ is true utility in period t , which:
 - ▶ Does not depend on prior consumption experience
 - ▶ Does not change over time
 - ▶ Does not depend on the consumption or utility of others

Non-Standard Preferences

What are the arguments of $u(x_t | s_t)$?

- Distributional preferences: my utility depends on others' payoffs
- Reference dependence: current period utility depends on both **levels** of consumption and **changes** in consumption over time

Time preferences: today vs. tomorrow \neq day t vs. day $t + 1$

- Quasi-hyperbolic models of (β, δ) discounting
- Alternative models of imperfect self-control

Risk preferences: violations of expected utility theory

- Are weightings linear in probability?
- Does diminishing marginal utility explain risk aversion?

Non-Standard Beliefs and Decisions

Overconfidence, over-estimation of one's own ability

- Example: excess entry into competitions

Projection bias: belief that future will be similar to the present

- Example: going to the grocery store hungry

Law of small numbers, base rate neglect, curse of knowledge, etc.

- Our lizard brains are crap at probability and statistics

Non-standard decision-making:

- Limited attention, salience, mistakes
- Persuasion: does watching TV change our values?

What Is an Economic Experiment?

What Is an Economic Experiment?

“Every experiment may be said to exist only in order to give the facts a chance of disproving the null hypothesis.”

— R. Fisher (1935)

Agreed. Beyond that, great minds do not think alike:



Esther Duflo
Clark Medalist



Al Roth
Nobel Laureate

The Lab Experimental Tradition

“[In an experiment], the economic environment is very fully under the control of the experimenter, who also has relatively unimpeded access to the experimental subjects.”

— Al Roth (1988)

Early economic experiment explicitly tested economic theory:

- Bernoulli (1738): St. Petersburg paradox
- Mosteller and Noguee (1951): Expected utility theory
- Flood (1958): Non-cooperative game theory
- Chamberlin (1948): Market equilibrium

Example: The Dictator Game

Dictator game: example of a standard economic experiment

- H_0 : human beings are purely self-interested
 - ⇒ If so, subjects should keep all the money for themselves
- Subjects make a real decision about real money
- Benefits of controlled lab environment: repeated game, reputation effects shouldn't matter in one-shot, non-strategic interaction
- Note the absence of "treatments"
 - Testing H_0 may or may not involve treatment vs. control comparison

The Lab Experimental Tradition

Experimental economics means different things to different people

Some regularities of economic experiments:

- Typically involve asking people to make decisions/choices which involve economic outcomes in a controlled lab-type environment
- Complete description of the decision problem in neutral language
- Financial incentives are (usually) real
- Subjects are not deceived

The Field Experimental Tradition¹

Labor and development economists use the term **experiment** differently

- An **experiment** is a randomized evaluation of a treatment/stimulus
 - ▶ Except when the treatment isn't actually randomized. . .
- Builds on Fisher (1935) and on the medical literature
 - ▶ Closer to many psychology experiments than the Al Roth version

¹You should never, under any circumstances, use the term "field experiment."

What Is an Experiment?

Experiment

noun

1. A study wherein the researcher introduces plausibly exogenous variation in exposure to a treatment or stimulus and studies the impact of treatment on subjects
2. A study of individual choices in a controlled decision environment, usually through the introduction of structured decision problems associated with financial incentives
3. A study that combines elements of (1) and (2)

What Is an Experiment, and Who Cares?

Different approaches call for different empirical techniques

- The randomized evaluation tradition is strong on statistical rigor
- The lab experimental tradition is strong on theoretical rigor

The best experimentalists understand both approaches

- It is increasingly difficult to play fast and loose with your standard errors (e.g. by not clustering when treatment varies by session)
 - ▶ The randomistas will call you on this
- Also increasingly difficult to sell experimental studies of individual decision-making without explicitly connecting them to theory
 - ▶ Young experimentalists need to understand “structural” estimation