

BEEM109
Experimental Economics and
Finance
2009
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Times and rooms

- Monday 11-13
- Friday 1-2
- Both in Xfi computer suite
- I may want to use FEELE for some Finance and Game experiments (Econport software does not run here.)
- FIVE lectures then your experiments and presentations

Today's lecture

- Introduction
- Organization
- How to run an experiment

Further topics

- Financial Market experiments
- Experiments in Game Theory
- Fairness
- Neuroeconomics
- Anomalies in Decision making under uncertainty and behavioural finance

Introduction

- Is economics a science?
- The role model: physics
Main characteristics:
 - Rigid mathematical theories
 - Rigid experimentally testingExample: Galilei and the tower of Pisa
 $s = -1/2t^2g$, material not relevant

And Economics?

- Rigorous mathematical models: Plenty!
 - Core model: general equilibrium
 - Conflict with institutionalists, example of economic history
- Empirical research: Plenty
 - But it assumes rather than tests economic theory
- Experiments:
 - A very recent development

Need for experiments

- Ways to evaluate theories: plausibility, generality, predictive success
- Difficult to sort out cause and effect when many factors change simultaneously

Arguments against experiments

- Human behaviour not predictable because of their free will
 - Laboratory situations do not capture the real world (subjects are paid peanuts), but our models do.
 - Utility maximization is a tautology
 - Utility is not the same as money
- Experiments check the validity of arguments

Pioneers

- Chamberlain
- (Simon*: bounded rationality, satisficing, AI)
- Nash* / Milnor, Rand
- Sauermann / Selten*
- Smith* / Plot
- Allais*
- Kahneman* / Tverski
- Fouraker / Siegel

Schools of thought (parody?)

- Read Selten (1991) on various positions
- Neoclassical economist / Bayesian
 - Economics relies on very few psychological assumptions which are self-evidently true. Hence there is no need to conduct experiments or to change economics whenever there is a new fad in psychology. (Robbins)
- The neoclassical experimentalist
 - Behavioural anomalies are short-run phenomena which vanish if people have the opportunity to learn from mistakes and if the experiment is properly designed. (Binmore)

Schools of thought

- Behavioural economist (Fehr / Schmid / Camerer)
 - Adjust utility theory such that it fits data better (fairness)
- Behavioural Finance (Thaler, Schleifer)
 - Find anomalies and behavioural biases in financial data which allow you to make money
- Bounded Rationality / Cognitive psychology (Simon / Selten / Kahnemann / Tversky)
 - Procedural models of thinking
 - “Bottom up” process of modelling

Literature

- Friedman Sunder
- Guala
- Holt, Ch 1
- Selten

Let us run an experiment!

- (Here we run Rosie's guessing game using veconlab)

How to run an experiment

1. Purpose
2. Design
3. Subjects
4. Instructions, test rounds
5. Pilots
6. Recruitment
7. Payments
8. Statistical evaluation

Purpose (Roth)

- Speaking to theorists
 - Rosie's experiment
- Searching for facts
 - Are economics students different?
- Whispering in the ears of princess
 - Roth and kidney exchange
 - Test bed, wind channel, Grether and Plott: testing existing market institutions
- Which hypothesis do you want to test?

How to conduct experimental research

- Get an idea
 - read the literature, but not too much
- Get money

Design of a session

- Simplicity, transparency and control vs realism
 - Internal vs external validity
- Game character
- Time limit
- "independent observations"
- Learning vs one-shot games, repetitions, which do count?
- Honesty
- Payment
- No need to use computers!

Design of an experiment

- HOW MANY SESSIONS?
- BUDGET CONSTRAINT!
- Focus vs nuisance variables
- Keeping nuisance variables constant
- Treatment variables
 - Randomization design
 - Block design
 - Fractional factorial design
- Double blind experiments
- Within subject design
- Ensure that enough subjects show up on time!

Subjects and room

- Typically: students
- “Practitioners” will bring their experience to the lab
- Don’t pay executives!
- “field” experiments
- Prevent uncontrolled communication and exchange of information (video experiments)

Instructions, test rounds

- The biggest bore, necessary like in a new parlour game
- Clarity of instructions is crucial
- Avoid jargon, misinterpretations, allusions to the real world
- Foreign languages
- Don’t bias subjects by giving away the purpose of the experiment!
- Test questions
- Test rounds

Pilot sessions

- Necessary to check for bugs, both in software, design and instructions
 - Typos
 - Incorrect implementation
 - How expensive will it get?
 - Time length.

Recruitment

- Now all computerized, we get our experiments filled within hours
- Possibility to restrict access to certain groups

Payments

- Payment = money
- Payoff = utility
- Controlling for risk aversion (Roth, Malouf), “irrational” risk avoidance
- Controlling for fairness and spite
- Not every round has to be paid
- Keep it secret!

Statistical evaluation

- Descriptive statistics
- Often there are no established theories or these are themselves in question
- Keep it simple, use non-parametric statistics: Binomial test, sign test, Wilcoxon test, Fisher test, Spearman’s rank correlation test
- All parametric and econometric tests have many more auxiliary assumptions, also probit and logit approaches
- Testing initial hypotheses vs generating new knowledge.

Suggestions for Experiments

1. Network Externalities.
2. Insurance.
3. Bubble experiment.
4. 2x2 games
5. Hold up problem
6. Sports Draft
7. (Mini) ultimatum games / Dictator games / reciprocity
8. Bank Runs.
9. Signalling.
10. Bertrand Complements.
11. Cournot Market
12. Behavioural Biases / Anomalies
13. Cascade experiment
14. Public Good/PD.