

ECONOMICS IN THE LABORATORY

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Experimental economics



1. Economics in the Laboratory

- A. Test a theory, or discriminate between theories
- B. Explore the causes of a theory's failure
- C. Establish empirical regularities as a basis for new theory
- D. Compare environments
- E. Compare institutions
- F. Evaluate policy proposals
- G. The laboratory as a testing ground for institutional design

2. What Have Economists Learned from Experiments?

- A. Institutions Matter
- B. Unconscious Optimization in Market Interactions
- C. Information: Less Can Be Better
- D. Common Information is Not Sufficient to Yield Common Expectations or "Knowledge"
- E. Dominated Strategies Are for Playing, Not Eliminating
- F. The Endowment Effect
- G. Fairness: Taste or Expectation?

3. Methodology and Experiment

why do economists conduct experiments?

- **Environment** (specifying the initial endowments, preferences and costs that motivate exchange)
- **(Monetary rewards)**
- **Institution** (the experimental instructions which describe the messages and procedures of the market)
- **Behaviour**

Economics in the Laboratory

A. Test a theory, or discriminate between theories

- The economic and game theory
- The auction literature

B. Explore the causes of a theory's failure

- Reexamine
- The bargaining literature

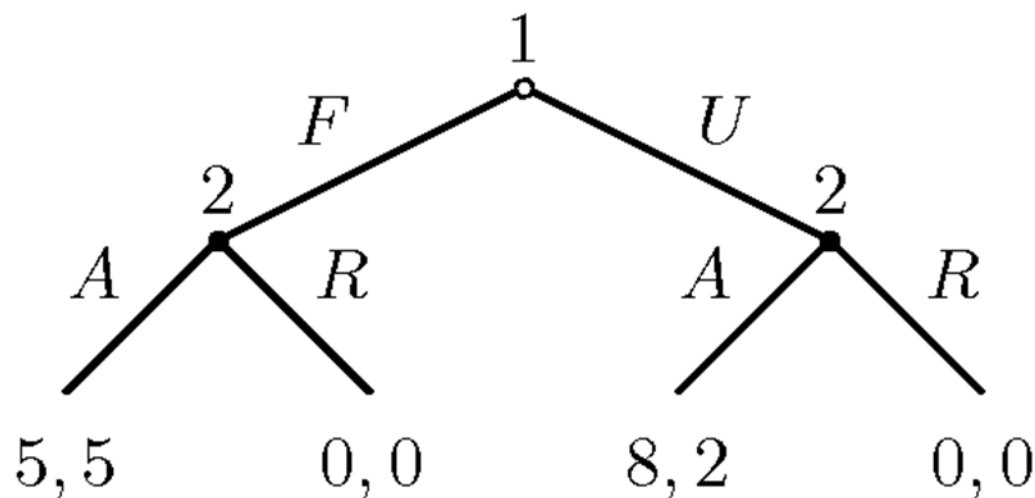
C. Establish empirical regularities as a basis for new theory

- The continuous double auction

D. Compare environments

- Nash model (Nash equilibrium)
- Ultimatum game

Stated simply, Alice and Bob are in Nash equilibrium if Alice is making the best decision she can, taking into account Bob's decision while Bob's decision remains unchanged, and Bob is making the best decision he can, taking into account Alice's decision while Alice's decision remains unchanged. Likewise, a group of players are in Nash equilibrium if each one is making the best decision possible, taking into account the decisions of the others in the game as long as the other parties' decisions remain unchanged.



E. Compare institutions

- The comparison of English, Dutch, first and second price sealed bid auctions
- Uniform and discriminative price multiple unit auctions

F. Evaluate policy proposals

- Treasury auction
- one-price auctions

G. The laboratory as a testing ground for institutional design

- Arizona Stock Exchange (AZX)

What Have Economists Learned from Experiments?

Institutions Matter

institutions matter because incentives and information matter

Unconscious Optimization in Market Interactions



Information: Less Can Be Better

subjects bargained over the division of 100 lottery tickets, each representing a chance to win fixed large or small prizes for each of the two players, with the prizes generally being different for the two players. When the two players know only their own prizes (and each other's percentage of the lottery tickets), the outcome conforms to the Nash bargaining solution. When the bargainers also know each other's prizes the Nash prediction fails; in short, Nash theory is not falsified, it is just not robust with respect to the bargainers knowing both prizes.

The Endowment Effect

Students with the mugs
were willing to sell
them, on average, for

\$4.50



Students with no mugs
were willing to buy
them, on average, for

\$2.25



Fairness: Taste or Expectation?



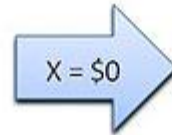
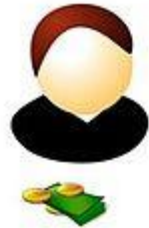
PLAYER 1



PLAYER 2



PLAYER 1

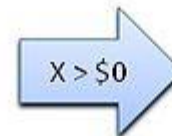
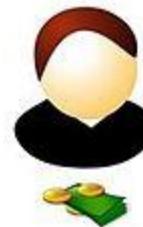


PLAYER 2



Where X is Money Transferred.

PLAYER 1



PLAYER 2



Where X is Money Transferred.

Methodology and Experiment

- **Auxiliary hypotheses** (All tests of a theory require various auxiliary hypotheses that are necessary in order to interpret the observations as a test of the theory)
- **Duhem-Quine problem**
- "replication"

THANKS
