

Experimental Economics

**Introduction by
James C. Cox, Director**



Outline

What is Experimental Economics?

- **Empirical Science**
- **Examples of Experiments**
- **Policy Applications**
- **Brief history of experimental economics**

What is EconPort?

- **An economics digital library**
- **A virtual (Internet) experimental lab**

Experimental Economics

Controlled experiments

- **with human subjects**
- **who are economically motivated**
 - **by their own “home grown” values for tangible commodities, OR**
 - **by experimenter-assigned “induced values”**

Economics experiments provide

- **empirical tests of economic theories**
- **“wind tunnel” tests of economic policies**
- **an effective method for teaching economics**

Examples of Experiments

- **Double auction markets (lab version of NYSE)**
- **Posted price markets (lab version of retail trade)**
- **Ascending price auctions (lab version of eBay)**
- **Sealed bid auctions (lab version of procurement contracting)**

Example of Use of Induced Values

- **Draw individual (abstract) item values from a uniform distribution between \$50 and \$100 and assign them to subject buyers**
- **Draw individual (abstract) item costs from a uniform distribution between \$25 and \$75 and assign them to subject sellers**

Example of Use of Induced Values (cont)

- Put the buyers and sellers together in a computerized market and let them trade
- If a buyer with item value \$79 and seller with an item cost of \$44 agree to trade one unit at price \$60 then
 - the experimenter pays the seller in cash the profit amount $\$16 = \$60 - \$44$
 - the experimenter pays the buyer in cash the consumer surplus amount $\$19 = \$79 - \$60$

An Example of Research and Teaching Questions

- **Setup an experiment in which subjects trade items with induced values**
 - **for 10 periods in a posted offer market**
 - **for 10 periods in an ascending price auction**
 - **for 10 periods in a sealed bid auction**

An Example of Research and Teaching Questions (cont.)

- **Use data from the experiment to**
 - **compare prices and quantities traded in the three types of markets**
 - **compare consumer surpluses and seller profits in the three types of markets**
 - **compare market efficiencies in the three types of markets**
- **Introduce a tax, subsidy or price control and then use data to compare the effects across the three types of markets**

Examples of Policy Applications

- **Agenda control**
- **Anti-trust**
- **Electric utility deregulation**
- **Emission permits markets**
- **Environmental amenities**
- **Externalities**
- **Group decision processes**
- **Markets in water rights**
- **Natural gas markets**

Examples of Policy Applications (cont.)

- **Space station pricing**
- **Spectrum auctions**
- **Privatization of passenger rail transportation**
- **Procurement contracting**

Examples of Public Finance Applications

- **Tax incidence**
- **Tax compliance**
- **Voluntary contributions to public goods**

Brief Outline of the Historical Development of Experimental Economics

- Edward Chamberlin is credited with running the first economics experiments while teaching in the late 1940s. (Chamberlin 1948)**
- One of Chamberlin's students, Vernon Smith, began conducting hand-run experiments some years later (Smith 1962)**
- general use of experiments for either teaching or research came many years later**

Computerized Economics Experiments

- **In 1977 at the university of Arizona, the first computerized market experiments were conducted**
 - **Since the mainframe computer technology of the day was costly, other similar economics facilities did not exist**
- **During the 1980s, personal computers became much more common, as did local area networks**
 - **more labs facilities were created, but they were typically available only to small groups of researchers**

World Wide Web

- **During the 1990s, the advance of IT technology and the World Wide Web greatly reduced the barriers to sharing software and other types of information.**
- **This provided the foundation for us to share experimental economics software that had long been effectively available only within the confines of labs.**

EconPort

www.EconPort.org

EconPort is

- **a national educational resource**
- **created and disseminated under National Science Foundation grants**

EconPort is the economics component of the National Science Digital Library

EconPort

A digital library with resources for both research and teaching

- **Experimental economics software**
- **Handbook covering many economics topics**
- **Glossary**
- **A searchable portal of resources hosted elsewhere on the Internet**
- **Other collections**

A Flexible Resource

EconPort can be used to conduct teaching and research experiments even if you do not have access to a dedicated experimental economics laboratory