

Pedagogy Brownbag

Games and Simulation

Activities in the Classroom

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Agenda

1. Why incorporate games into your course?
2. Examples
3. Hazlett's (2006) "Dos and Don'ts"
4. Group discussion

1. Why incorporate games into a course?

- “Games” = classroom experiments, simulations, etc.
 - Computer aided games, “paper games”
- Holt (1999):
 1. They are usually fun for students.
 2. Build intuition for theory through first-hand experience.
 3. Powerful illustration of noise and dynamics of markets and other institutions.
 4. Generate data for assignments

2. Examples

- Basic classroom game: **double-auction**
 - Students are assigned roles as sellers and buyers of a hypothetical good.
 - Students know only their own cost of production, or their consumption value.
 - Students are instructed to maximize their individual utility by mingling and arranging trades.
 - Through trades and observations of other trades, classroom market tends to converge to equilibrium.

Examples

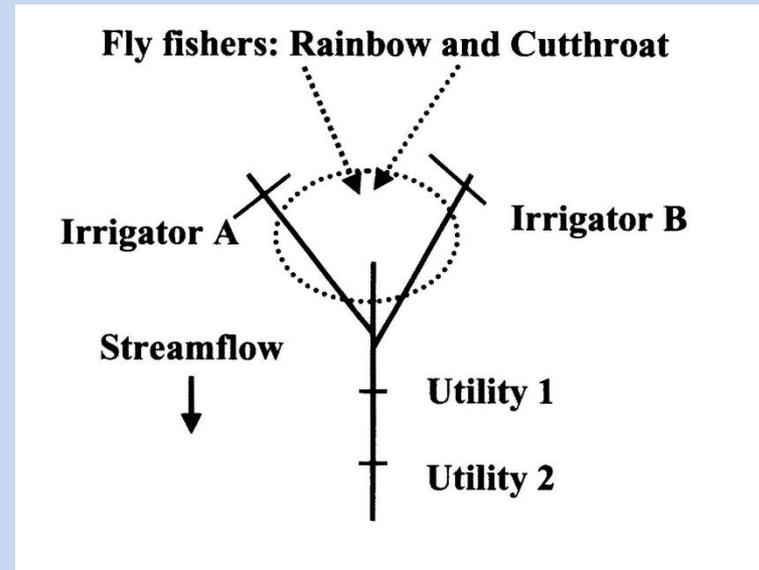
- Strategic behavior (e.g. basic prisoner's dilemma)
- Externalities
- Public goods
- Many extensions of the double-auction (market power, cooperation, price/quantity controls, etc.)
- Many others online and in the literature

Example: **water bank game** (Crouter '03)

- Modified double-auction with a positive externality.
- Background:
 - Markets for scarce water in the western U.S.
 - Idaho “water banks”:
 - Government-backed exchange for short-term lease contracts for water.
 - Purchase/lease of irrigation diversion rights for in-stream flows that benefit wildlife.

Water bank game setup

- Three types of participants:
 1. Irrigators
 - Have diversion rights (property rights) to the water
 - May use or lease
 2. Utilities
 - Must purchase diversion rights
 - Generate power from instream flows
 3. Fly fishers
 - Benefit when utilities purchase diversion rights.
 - May or may not be able to purchase rights themselves.



Water bank game setup

- Two phases of play:
 - Phase 1: Irrigators and utilities play a double auction for a few periods. Fly fishers must observe and record their own utility outcomes.
 - Social surplus is also recorded.
 - Phase 2: Fishers are allowed to participate.
 - Individual fisher's utility from a diversion right is fairly low. This may incentivize cooperation among fishers, or with other participant types, in order to influence the market allocation.

Water bank game setup

- Debrief discussion:
 - **Phase 1:**
 - Market equilibrium
 - Allocative efficiency
 - **Phase 2:**
 - Efficiency implications of including fly fishers in market
 - Free-riding, collective action....
- Expected outcomes: illustrate for students...
 - External costs of resource use
 - Potential for social surplus from the creation of markets
 - Collective action barriers to promoting ecosystem service generation.

2. Hazlett's (2006) Do's and Don'ts

- Do choose experiments that promote deep understanding.
- Do motivate participants to behave as they would in a true market situation, in order to make the experience and results useful.
- Don't use a lengthy experiment to demonstrate a concept that students could easily master from a brief explanation.

Hazlett's (2006) Do's and Don'ts

- Do choose experiments consistent with your course goals and your teaching style.
- Do choose experiments that provide opportunities for students to make decisions, so that the activity holds their interest.
- Do consider carefully how much of the relevant economic theory students will need to know in advance, versus what they can discover from participating and analyzing their results.

Hazlett's (2006) Do's and Don'ts

- Do motivate students to arrive on time, but don't rely on everyone arriving on time.
- Do consider arranging for an assistant to help distribute instructions and record results, especially in large classes.
- Do distribute a copy of the instructions for hand-run experiments to each student, read them aloud, and pause for student questions.

Hazlett's (2006) Do's and Don'ts

- Don't tell participants what you expect to happen during the experiment, or step in to influence the outcome.
- Do watch for confused students and offer them more help to understand the instructions.
- Do consider implementing on-the-spot useful suggestions students make during the experiment.

Hazlett's (2006) Do's and Don'ts

- Don't lie or mislead the participants.
- Don't insist that an experiment continue enough periods to produce perfect data or desired outcome.
- Do prepare follow-up questions that encourage students to analyze the results, either as a writing assignment or an in-class discussion.

Hazlett's (2006) Do's and Don'ts

- **Don't** circumvent the learning process by providing the follow-up analysis yourself, before students have had a chance to “wrestle” with the results.
- **Don't** turn the experiment into a zero-sum game by combining a grade for the experimental outcome with a course grade.
- **Do** put questions on course exams that cover what students have learned from the experiments.

Group discussion

- Experience with classroom games?
- Challenges and opportunities of integrating classroom games into 300-level “Bacc Core” courses.
- Classroom games and post-principles microeconomic theory: can experiments help students with quantitative skill development?

References

- Crouter, Jan. 2003. "A water bank game with fishy externalities." *Review of Agricultural Economics* 25(1): 246-258.
- Hazlett, Denise. 2006. "Using classroom experiments to teach economics." Chapter 2 in *Teaching Economics: More Alternatives to Chalk and Talk*. Becker, William E., Michael Watts, and Suzanne R. Becker eds. Northampton, Massachusetts, USA: Edward Elgar.
- Holt, Charles A. 1999. "Teaching economics with classroom experiments: A symposium." *Southern Economic Journal* 65(3): 603-610.