

---

*Classroom*

# ***EXPERNOMICS***

Volume 1, Number 2

Fall 1992

---

*INSIDE THIS ISSUE:*

Reed's Laboratory-Oriented Introductory Economics Course *Jeffrey Parker*

Experimental Derivation of Demand Curve *John Brock*

Psycho-Economics: Studies in Decision Making *David Gillette and Robert delMas*

---

If you would like to be placed on our mailing list, please contact:

Greg Delemeester  
Department of Economics  
Marietta College  
Marietta, OH 45750 (614) 374-4630

or

John Neral  
Department of Economics  
Frostburg State University  
Frostburg, MD 21532 (301) 689-4265  
(301) 689-4386  
BITNET: E2ECNER@FRE.TOWSON.EDU

## REED'S LABORATORY-ORIENTED INTRODUCTORY ECONOMICS COURSE

*Jeffrey Parker\**

Most readers of this newsletter would likely agree that experiments can be enjoyable and educational complements to the more familiar lecture and discussion components of the introductory economics course. However, few of us have "free" class sessions during the term that can be devoted to experiments, so the opportunity cost of including experiments is usually a concentration of lectures into fewer hours.

At Reed, we began introducing experiments into our one-semester introductory course in 1989 and quickly found this opportunity cost severely limiting. To provide time for more complete integration of experiments, we began in 1991 to supplement our three weekly 50-minute lecture/discussion meetings with a required 50-minute lab session each week. In addition to experiments, the lab sessions are used to increase discussion of examples and case studies.

Currently, four experiments are performed in the microeconomics segment of the course. A double-oral auction experiment is the centerpiece of our discussion of markets,

equilibrium, and gains from exchange. In the second experiment, students are competing sellers in a market that becomes increasingly more concentrated through mergers until ending with a monopoly. (The instructor or a central computer program plays the role of buyers in essentially a posted-offer market.) This experiment complements the class treatment of perfect and imperfect competition, and also provides some experience with the functional differences between auction and posted-offer market institutions.

A product-quality experiment has students trading gold widgets and silver widgets. The gold widgets have higher values and higher costs. The object of the experiment is to demonstrate the ability of the market to encourage the production of the "right" degree of quality (i.e., gold should be produced and consumer only if the marginal benefit relative to silver for the buyer exceeds the marginal cost for the seller). This experiment is also a very effective tool for showing how the market can achieve allocative efficiency--the market must decide which individuals should produce and consumer two alternative commodities. The final experiment examines willingness to provide public goods in a voluntary-contribution setting.

The experiments are usually performed contemporaneously with the class coverage of related theories. Students are then given detailed information about the setup and results of the experiments and assigned to write a "lab report" explaining how (or whether) the results of the experiment conform to the predictions of the theories being developed in the text and in class. A series of leading questions (e.g., "What was the demand curve in this experiment?") is provided to help them structure their thinking about the experiment. All or part of the following week's lab session is devoted

to a group discussion of the results of the experiment and the conclusions that they have drawn in their reports. Since the students enter with varying interpretations, this discussion always features a lively interchange in which the instructor can play the role of moderator (or consultant or referee) more than leader. Subtle points about the institutions and dynamics of the experimental market that would be obvious only to a participant are often raised, which bring to life abstract hidden assumptions of market models.

The experiments have come to be an important element of Reed's introductory course. They provide a common, if somewhat artificial, experience that can be used repeatedly for class examples. Most importantly, the reports and discussions that follow the experiments are unique opportunities for students to apply, first individually and later collectively, the theories they are studying. We find that students exhibit an extraordinary degree of involvement with these assignments, which often draws their interest toward economics.

*\* Department of Economics  
Reed College  
Portland, OR*

## EXPERIMENTAL DERIVATION OF A DEMAND CURVE

John Brock\*

Most of the concepts presented in Principles of Microeconomics are particularly abstract to the average introductory student. This "Coke game" is designed to bring life to a few of these concepts so that students will better understand and retain important principles. Further, the active nature of the game provides a very welcome variation to the usual lecture format.

Since actual money and Cokes change hands, this experiment works especially well with relatively small classes. I have used the experiment in classes of 20-24 students quite successfully.

The following concepts are introduced through the use of this experiment: law of demand and the "ceteris paribus" assumption, consumer surplus, competitive equilibrium and pareto optimality, and monopoly power and profits. Since students are using their own money to purchase Cokes, the message being sent is particularly powerful.

The experiment is not too costly in terms of lost time for other material. I use the following schedule of activities: For the first lesson on demand, I bring two Cokes into class. Then, I proceed with the following set of questions and show of hands: "How many of you are longing for an ice cold Coke?" (i.e., wants)  
"How many of you have the money to buy a Coke?" (i.e., ability)  
"How many of you want to buy a Coke for ten cents? twenty cents? thirty cents?" (continue until 2 hands are left)  
I construct a table on the board displaying the quantity demanded at the various prices.

Then, plot data and construct "line of best fit." Discuss law of demand, non-price determinants (size of class, temperature, time of day, price/availability of substitutes, etc.) and shift of the curve.

Later in the course (just before the lesson on monopoly), I distribute the "Purchase Agreement Form" about 10 minutes before the end of class. Collect completed forms at end of class and remind students to bring money next lesson. Before the next lesson I plot data, run regression, and prepare overheads displaying data and the resulting demand curve. (Note: I ignore the tails in order to use linear approximation.) Assuming a simple  $AC = MC = \$0.50$  (assume total economic cost per Coke is \$0.50), I construct a competitive supply curve and calculate the competitive equilibrium quantity. During the next lesson on monopoly, I indicate the competitive equilibrium, but explain to the class that I am a Coke monopolist! I then charge the monopoly price calculated by setting  $MR = MC$ , and sell the resulting quantity of Cokes.

For the remainder of the lesson we discuss the consumer surplus under both competition and monopoly, the monopoly profit and DWL, the pareto optimality of the competitive equilibrium, and the methodology for calculating the MR and profit maximization. The process of generating real numbers provides greater interest and meaning to the material.

### **PURCHASE AGREEMENT FORM**

I understand that:

1. Once the market price is determined, I am obliged to buy the number of Cokes that I indicate on this form that I will purchase.
2. If the market price settles at a level above the highest price at which I

indicate I will buy, then I will not be able to buy any Cokes.

3. I can drink the Coke(s) in class during the next lesson.
4. This offer is valid for the next lesson.
5. For each price listed below, complete the following statement: "At a price of \$\_\_\_\_\_, I am willing to purchase \_\_\_\_\_ Cokes at our next meeting?" (If I do not wish to purchase any Cokes at that price, I will enter a zero.)

Price	Quantity Willing to Purchase at this Price
-----	-----
\$1.00	
0.95	
0.90	
0.85	
0.80	
0.75	
0.70	
0.65	
0.60	
0.55	
0.50	
0.45	
0.40	
0.35	
0.30	
0.25	
0.20	

Signature: \_\_\_\_\_

---

\* Department of Economics  
Air Force Academy  
Colorado Springs, CO

## PSYCHO-ECONOMICS: STUDIES IN DECISION MAKING

*David Gillette\* and Robert delMas\*\**

Last spring experimental economics played a significant role in the first offering of an interdisciplinary course we taught on decision making skills. The primary objective of the course was to improve critical thinking skills and increase students' awareness of reasoning processes that lead to errors in decision making. We sought to heighten this awareness through student participation in both economic and psychological experiments. Three of the experiments we performed seem of interest to this forum.

Without any formal introduction to economics we began the first class by asking students to respond with only one or two words on a slip of paper to the question: "What comes to mind when you hear St. Louis, Kansas City, New York, or L.A. and 5 o'clock rush hour traffic?" Then, before tabulating their responses, we immediately conducted the first round of a double oral auction market for an unknown good. After the first round, we again asked them to respond with only one or two words on a slip of paper to the question: "If economic markets regularly behaved in this fashion, how would you describe their behavior?" After collecting their responses, we completed several additional rounds of the experiment.

The most common responses to the rush hour question were: stress,

headaches, and frustration; and the most common responses to the market question were: unorganized, unstable, chaotic, and confused. Students were both surprised and amazed at the conclusion of the experiment when the entrusted student opened a sealed envelope containing the correctly predicted equilibrium price and quantity. The use of experimental economics in this manner provided a credible demonstration of organization and social cooperation, maybe even an invisible hand, in what had at first appeared to them to be utter chaos. It was then simple to discuss how, as in the rush hour example, many participants in a common activity could each have different goals (or perspectives) but still, even unknowingly, work together for the benefit of society.

A second experiment focused on marginal analysis. To demonstrate marginal changes we involved the students in a classroom development of a market demand curve for Hershey's Kisses. Several students judged their level of well-being on a scale of 0-100 and were then asked to consume several Hershey's Kisses one at a time. After each Kiss they were asked to again rate their present level of well-being. Marginal utils were calculated and individual and market demand curves constructed. (Previous experience with marshmallows suggests that they are a better commodity to use than chocolate--several chocolate addicts volunteered and it took quite some time for diminishing marginal utility to set

in. For one student, it never did.) The most revealing and frequent comment from class members, many of whom had previously taken several economics courses, was that markets did not just exist, but rather were composed of individuals.

As mentioned above, the students also participated in classroom simulations of classic psychological experiments on reasoning biases. Most of the simulations were modeled after experiments conducted by Daniel Kahneman and Amos Tversky. Students were not informed of the nature of the experiments or the anticipated biases until after the results of an experiment were presented. We tried to get the students to talk about biases they saw in the pattern of responses prior to labelling the biases or presenting psychological explanations of behavior. The economic and psychological experiments were interspersed, which allowed us to promote discussions of how the reasoning processes demonstrated in psychological experiments could account for behaviors in the economic experiments.

One experiment on preference reversals and transitivity appeared to effectively highlight the ties between economics and psychology. We essentially replicated an experiment performed by Tversky many years ago (due to space constraints simply refer to his article, "Intransitivity of Preferences," *Psychological Review*, 1969, Vol. 76, No. 1, 31-45). Several students became really excited about this experiment

which resulted in one of the best discussions of the course.

We of course invite any interested readers to contact us for further information on the experiments we used and how we conducted them, or about the interdisciplinary course itself.

---

*\* Department of Economics  
Truman State University  
Kirksville, MO  
\*\*General College  
University of Minnesota  
Minneapolis, MN*

---

---

DEPARTMENT OF ECONOMICS  
FROSTBURG STATE UNIVERSITY  
FROSTBURG, MARYLAND 21532-1099