Chapter 1

Economics: The Study of Choice

Overview

This chapter introduces the student to the discipline of economics. It emphasizes the importance of making choices and defines the three basic questions addressed by economics. The chapter places the economic way of thinking and the role of models in the context of the general scientific method. The appendix to this chapter reviews basic graphing techniques for later use.

Featured in this chapter are contemporary examples and illustrations. Opportunity cost is highlighted. There are three Cases in Point to demonstrate the applicability of economic analysis to real-world situations. The first describes the rising cost of energy, the second describes the kinds of work performed by economists, and the third looks at a possible cause of baldness.

The Appendix to Chapter 1, found at the end of the book, reviews graphing skills, including an extensive section on teaching students how to graph linear functions. In addition, the material on curved lines includes the role of the tangent line in finding slope. There are three Try It! exercises in this appendix to encourage student learning. The first is on graphing and finding slope from a table display; the second asks the student to interpret a negatively sloped curvilinear graph and tangents to it; the third illustrates the effect of scale on the interpretation of a time series graph.

Learning Objectives

1. Define economics.
2. Explain the concepts of scarcity and opportunity cost and how they relate to the definition of economics.
3. Understand the three fundamental economic questions: What should be produced? How should goods and services be produced? For whom should goods and services be produced?
4. Explain the distinguishing characteristics of the economic way of thinking.
5. Distinguish between microeconomics and macroeconomics.
6. Explain how economists test hypotheses, develop economic theories, and use models in their analyses.
7. Explain how the all-other-things unchanged (ceteris paribus) problem and the fallacy of false cause affect the testing of economic hypotheses and how economists try to overcome these problems.
8. Distinguish between normative and positive statements.

Appendix 1: Graphs in Economics

1. Understand how graphs show the relationship between two or more variables and explain how a graph elucidates the nature of the relationship.
2. Define the slope of a curve.
3. Distinguish between a movement along a curve, a shift in a curve, and a rotation in a curve.
4. Understand nonlinear relationships and how they are illustrated with nonlinear curves.
5. Explain how to estimate the slope at any point on a nonlinear curve.
6. Explain how graphs without numbers can be used to understand the nature of relationships between two variables.
7. Understand and use time-series graphs, tables, pie charts, and bar charts to illustrate data and relationships among variables.

Common Student Difficulties

1. Students are accustomed to skimming the introductory chapters of a text (and instructors often do the same thing in their lectures). The material in Chapter 1 and its Appendix, however, is fundamental to everything that follows. Skimming is likely to lead to confusion. For many, perhaps a majority, economics will be an alien subject, one that they have not encountered except accidentally in high school social studies or history courses. Many students will be enrolled because it is required for their major or because they had no other option for a particular distribution requirement in general education at the time they registered. As a result, many students in the class will have negative attitudes about the subject. It is important to overcome these negative preconceptions as much as possible and as soon as possible. For this reason, the material in this chapter should be developed carefully. Do not skim over it by listing the definitions quickly and going on to the more interesting (to the instructor) topics in successive chapters. The chapter intuitively develops such basic concepts as marginal cost and benefit and opportunity cost. It takes time for students who know nothing about the subject to assimilate the material. Allow that time. Make one or more assignments that everyone should be able to complete successfully. Nothing breeds success like success. Let them succeed early on.

2. The math-phobic students will "tune out" or freeze when the material in the Appendix is presented and may be equally concerned about the section on Economics as a Science. Again, take time by working examples on the board or overhead and by giving them plenty of samples to work on their own. Encourage them to use the Try It! exercises. Certainly, group work in class is the least intimidating. Only a small number of peers know about mistakes and they can learn from peers who are less math-phobic. Repetition is critical. Begin a subsequent class meeting with a numeric example related to the class period from the previous meeting. Let the students try to interpret the graph or work the problem on their own or in groups before explaining the example. Students learn by doing even if in very short but repetitive exercises. If the examples they work come from the "real world" so much the better. That will help to show the relevance of the subject. Do not hesitate to continue presenting example problems from class periods several days earlier. Homework problems or quizzes on the same subject matter can supplement such examples.

Suggestions for Active Learning

Micro Essays

1. Why is the opportunity cost of a particular choice the value of the next best alternative rather than the sum of the values of all the alternative choices given up?
2. Identify a choice you made yesterday. List at least four alternatives you had. Which was the next best choice available to you? Would others have placed your second choice second on their lists? Why or why not?
3. The text example of movements in the stock market and the average temperature in San Juan shows that relationships between variables exhibited by sample data may be meaningless. Describe one way we can guard against accepting such relationships as real.
4. How are facts and hypotheses related to each other, if at all?
5. Why does a change in a variable assumed constant cause a line graph to shift?

Group Activities

Discussion of Micro Essays: The group discussion of micro essays described in the preface is a good way to introduce group work in a class. It should take less than 15 minutes total. Another way to use one or more of the micro essay topics is to give them as group quizzes. Follow all the procedures for a quiz. Hand out or write the quiz on the board or overhead and give a specified time to complete the answer. Have three to five students answer the question with only one response. You can either collect the group answers for later evaluation or ask for oral presentations and discussion in class.

Interpreting Data: One way to introduce the interpretation of data is to have groups transfer the same data onto pre-made grids of different scales. The third Try It! exercise in the Appendix is an example. Pose the same question to all the groups. For instance, in the text example about tax changes and income, the question could be, "Do increases in the federal tax rates increase federal revenues?" Ask each group to answer the question after completing the graph. Have the groups report their answers orally. Then display all the graphs of those whose answers agree next to each other. If this is done before the Appendix is read completely, the significance of scale will be clearly demonstrated in a memorable way. The group graphing will also help those who lack mathematical sophistication to see the point as well as the more mathematically oriented students. If asked to complete the graphing individually as a homework assignment, the math-phobic students will struggle with the graph and lose the point of making it.

Demonstrating Correlation (or Lack of It): A similar exercise can be completed showing correlation or lack of it by providing every group with the same time series already graphed and time-series data for another unnamed variable which they are to graph on the same sheet. Each group should have a different second variable unless the class is so large that preparation is inordinately difficult. If there are a large number of groups, try to have the same number of duplicate groups for each second variable. Ask each group whether the two variables are related. It is best if the groups display their completed graphs to the class. In large sections, the instructor should make correct graphs of each pair and put them on transparencies for the overhead. Let students agree or disagree with the conclusions of the groups about the

relatedness of their variables. Then identify the mystery variables for each group. Have them reconsider the relatedness or lack of it. Whatever they conclude about relatedness, ask them to generate hypotheses which would explain their conclusion. Again, have them report their conclusions and their best explanatory hypothesis to the class. This exercise can be completed over two class periods. Complete the first part in class, assign the second part to be done as an out-of-class assignment, and hold the reporting of the second part in a subsequent class meeting.

In-Class Activities

One simple class activity that can illustrate correlation versus causation is to have students stand on opposite sides of the room based on whether their first names end in a consonant or a vowel (counting "y" as a vowel). You can predict in advance that the average height of those with names ending in consonants will be greater than the other group. Once the students are grouped, they can give their heights to a recorder who enters them into a calculator and determines the average. If the class is large enough and the enrollment is fairly random, the consonant group will have greater average height. Does calling giving children names with a consonant ending cause those children to grow tall? Have them brainstorm other hypotheses consistent with the outcome.

Eventually, someone will probably notice that the consonant group has more male students than female students, whereas the vowel group has more female students than male. In some instances, both groups may be dominated by the same gender, but the relative weighting of males will still be higher in the consonant group. In fact, there is a larger share of common male first names in the United States that end in consonants than the share of female names that end in consonants. The difference in height of the two groups is really associated with the larger proportion of males in the consonant group and the fact that in general males are taller than females. Warning: If the class enrolls primarily one gender with only few of the other, or if it enrolls a large proportion of foreign students, the association between "maleness" and ending consonants is likely to be broken. Further, if the class is small, there is a greater likelihood of exceptionality and the failure of the correlation to hold. On the other hand, if the class is small it would be relatively easy to check the class roster to determine whether the experiment would work. Classes of 40 or more should be large enough.

Web Sites

http://ecedweb.unomaha.edu/home.cfm
The economic Education Web provides economic resources for university and college teachers. The site provides many links to economic data and teaching ideas for both traditional and cyber classrooms.

http://www.nabe.com
The National Association for Business Economists is a membership organization for economists. Much of its website is available to the public, including a summary of the biennial salary survey. See the summary in "Lecture Supplements" below. The Careers page has a good summary of the types of jobs open to economics graduates.

http://www.councilforeconed.org
This is a link to the Web site of the Council for Economic Education. The site contains reference materials, instructions on using the internet for teaching, and links to state council Web sites in most states. State councils and Centers for Economic Education at various universities are listed here with addresses, phone numbers, and web addresses, if applicable. The National Council publishes numerous materials on various topics in economics suitable for high school students. These materials are especially appropriate for the introductory part of a college level principles course, since so many students have never studied economics before.

http://www.econedlink.org/
The National Council Web site links to another Economics America site that contains material useful to both faculty and students. Econ Ed Link offers an analysis of a news event of the week using economic theory and several short pieces on applying economic theory to contemporary issues. Since these change regularly, the site is especially good for finding current examples to add to lectures. These materials can also be used as Internet assignments. Have students read one of the topics or the week's news analysis. Different kinds of assignments can then be made. Ask students to identify economic concepts being used, respond to a question specific to the reading, or to critique the analysis.

Lecture Supplements

Economics in the News

2008 Salary Survey, National Association for Business Economics, www.nabe.com
The 2008 salary survey reports the median base salary of the 611 responding members was $119,999. This is a 10% increase over that reported in 2006. Additional gross compensation (median $25,000) was reported by 70% of the respondents. Twenty-five percent reported secondary professional income (median $10,000). The median entry-level salary was given as $59,998 which was up 12% from 2006. Employers favored master's and bachelor degree holders.

Eric Planin, Putting a Bill Back in the Bottle, *The Washington Post National Weekly Edition* 15, 25 (20 April 1998), pp. 29–31.
Summary: A proposal to create a national standard for drunken driving gained a lot of popular support in early 1998. The proposal would have set a level of 0.08 grams of alcohol per deciliter of blood as the legal definition of drunkenness. This is in contrast to the most common state definition of 0.10 grams of alcohol per deciliter of blood. In order to encourage states to adopt the new standard, states would lose up to 10 percent of federal highway money for noncompliance.

Proponents of the new standard argue that the 0.10 standard is too generous. It allows a 170-pound man to consume five drinks in two hours and still be considered sober. Studies indicate that from 500 to 1,000 lives could be saved each year by adopting the new standard. Opponents of the new standard argue that the studies cited by the proponents are inconclusive. Given this lack of evidence, they see no compelling reason to interfere with the traditional role

of states in determining sobriety standards. Others, especially from rural areas, argue that in contrast to urban communities, taverns often provide the main location for family gatherings. Creating a definition of drunk driving that would inhibit this community gathering would reduce socializing without saving lives. The population is too sparse in these areas for the change in standard to have much effect on car accidents.
Cynics point out the heavy contributions made to politicians of both parties by those who might lose financially if the new standard were adopted. Beer wholesalers contributed $1.3 million to congressional races in the 1995–1996 election. In the same election, the National Restaurant Association contributed $880,000. Beer, wine, and other alcoholic beverage manufacturers and distributors spent $3.5 million in unregulated soft money during the years of 1995 and 1996. Ultimately, the House Rules Committee kept the new standard from going to the House floor for a vote.

Commentary: Any controversial political issue provides an example of making choices and can be analyzed by the economic way of thinking. There are several examples of incentives at work in this situation. Those who drafted the bill provided a cost for noncompliance thereby creating an incentive for states to adopt the standard. Groups that contributed funds to congressional campaigns, no doubt, hoped that concern for losing such funds in the future would serve as an incentive to oppose legislation unfriendly to the alcohol industry. Congressmen from rural districts probably feared the loss of votes in the next election a powerful incentive to oppose the new standard.

It is likely that all these people were maximizing something, but their goals were not alike. Some were trying to maximize their votes in the next election; others, the amount of campaign funds; still others, the reduction in drunk-driving deaths. Deciding at the margin is also illustrated. The saving of 500 to 1,000 extra lives is a potential marginal benefit from the legislation. Although marginal costs are not identified explicitly, it is clear that for the majority of those voting, the potential marginal benefit did not offset the likely marginal costs whether monetary or in some other form.

It is also clear from this situation that the Congressmen involved have different values. Those who place the highest priority on stopping drunk driving would probably agree with the following statement: “Any reduction in drunk driving is important.” This is a normative statement. It is a value statement and cannot be tested. Those who say that the studies on lives saved are inconclusive would probably agree with the following statement: “The new standard would not save very many lives.” This is a positive statement. It can be tested. A good in-class group exercise would be to have students working in groups design a study to test this statement.

Rivka Tadjer, Tired of Hiring Recruiters Instead of Talent?, *Small Business Computing & Communications* (August 1998), pp. 55–56.
Summary: Newspaper classified ads and pricey recruiting agencies have a new rival in online job searches. Small firms are able to search nationwide for possible employees and enhance the pool from which they might choose employees. Furthermore, the cost is quite small. Registering a firm with an online job search community site is often $100 or less. Major recruiting firms often take 30 percent of the annual salary for a high-level executive placement.

Internet recruiters claim that an advantage of the Internet search is that people who look for jobs in this way are comfortable with technology and tend to be more independent and creative.

Commentary: The search for good employees arises because of the scarcity of labor. Even if there are many unemployed people, there may be only a few of them who are qualified for the positions available. Different firms often need employees with the same skills and therefore compete for the same workers. Small firms historically have used local newspaper ads for most of their positions and professional recruiting firms on occasion for an especially important position. The online search offers greater ability to compete for workers by making the position known to job seekers nationwide, perhaps even worldwide. Thus, technology may change the nature of competition for employees and level the playing field between big firms and small firms. Certainly, it can reduce the scarcity in the labor market faced by a small firm that ordinarily would restrict its search to a local area.
In deciding whether to use a Web job search service, the firm should look at the marginal cost and marginal benefit of alternative job search methodologies. This is an example of the how to produce question in action. Since the online services are so inexpensive, it would appear likely that they will take an ever greater share of the market. As reliance on such services spreads, job seekers may have to alter their own search strategies and spend more time on online searches for jobs. Since the economy is very interdependent, a change in one area has repercussions far afield.

Lecture Extensions

The Concept of Maximization

Economists have stressed the maximizing behavior of humans: the careful calculation of gains and losses from taking an action or its alternative. Historically, this calculation was nearly always expressed in money terms, although occasionally non-monetary implications were mentioned but then ignored. Sometimes this kind of activity has been considered the essence of rationality and gives the impression of humans who are selfish, always thinking with their adding machines or computers but never allowing emotion to enter into consideration. The fictional maximizer has been called homo economicus (economic man). This picture of a grasping, money-grubbing human calculator has been much maligned in critiques of economics. The homo-economicus just described, though, is only a caricature of the real maximizing behavior modern economists mean when they speak of maximization. Unfortunately, economists themselves often contribute to the caricature by oversimplifying the meaning of maximization. The modern maximizer is much more complex than the caricature and possesses a much richer set of values and behaviors.

Richard B. McKenzie and Gordon Tullock provide an excellent source for this broader explanation in The New World of Economics. McKenzie and Tullock argue that people act purposefully to improve their lot. Thus, people with many different life-styles can be and are acting rationally. It is just as rational for Mother Teresa to choose a life of relative poverty given her values, as for Donald Trump to choose a life of extreme accumulation given his. It is important to emphasize that the maximizing behavior thus described is just that: an attempt to describe how people actually behave in a whole range of circumstances, many of which involve no money at all. It is a positive statement rather than a normative one.

The concept of rationality adopted by economists differs from that of many other social scientists. In fact, many others argue that people behave irrationally much of the time and that the environment determines what people do. Economists, on the other hand, believe that people do what they can to overcome the obstacles the environment places between them and their goals. Their ability to do this will be limited by how great the obstacles are and how intense their desire to achieve the goal is. Far more will be done to achieve a goal held with great intensity than for a goal that is merely desirable. The environment certainly influences the outcome, but for economic theory it does not determine the outcome. Given such a concept of maximizing behavior, the economic way of thinking can be applied to many topics seemingly unrelated to money. Economists explore such diverse topics as the choice of a spouse, the rationality of drug usage, sexual behavior, and voting patterns.

Experiments for Economics

The text notes that economists usually do not have the luxury of a controlled laboratory experiment since the world is their laboratory. Some economists, however, have designed laboratory experiments, often using laboratory animals and sometimes using human subjects. The animal experiments have demonstrated that even animals respond to incentives and make choices based on their perceptions of "costs" and "benefits." Experiments using students are often used to illustrate economic principles in classes. Students are presented with a situation and given possible actions. Their spontaneous choices usually culminate in the outcome which economic theory predicts.

Theory in Focus

Did the Persian Gulf War Turn a Profit?

The United States won an impressive victory in its 1990 war with Iraq. Was the operation a financial success as well?

U.S. allies pledged to pay the United States $54.6 billion to support the war effort. The Department of Defense spent about $60 billion to fight the war. That suggests that the war might have generated a financial loss of about $5.4 billion.

But Heritage Foundation defense policy analyst Baker Spring suggests there is a difficulty in interpreting the total cost figure. "That cost figure includes the cost of all the soldiers, all the materiel, all the American military force that General Schwartzkopf used to prosecute the war" he says. "A lot of those costs would have been incurred anyway. We would have been paying the soldiers, operating the ships, and flying the planes whether there had been a war or not." Mr. Spring's observation suggests that the costs of the war be considered at the margin: What costs did the United States incur by fighting the war that it would not have incurred otherwise? What was the marginal cost of having one more war? "Consider, for example, a soldier who was already on active duty before the war started," says Mr. Baker. "You wouldn't count that soldier's salary in the marginal cost of the war; the soldier would have been paid anyway. But soldiers in combat receive hazardous duty pay; you would count that extra cost. In general, the marginal cost of the war is the amount by which spending increased as a direct result of the war effort."

The federal government's Office of Management and Budget (OMB) estimated what it calls the "incremental" cost of the war, a concept equivalent to Mr. Baker's notion of marginal cost. That estimate suggests that the marginal cost of the war was $36.1 billion; far less than the payments the United States received from its allies.

U.S. casualties in the war, another cost, were remarkably low. In fact, some analysts argue that the war effort may actually have saved U.S. lives. The leading cause of deaths among U.S. soldiers has traditionally been highway accidents. The war separated 400,000 soldiers from their cars for several months; the death toll from military highway accidents dropped dramatically during Operation Desert Shield and Operation Desert Storm.

Of course, most of the cost of the war was not borne by the United States. Iraq and Kuwait suffered the brunt of war damage to people and to resources. For the people of those countries, the cost of the war was huge. For the United States, however, an analysis of the war's cost at the margin suggests that the effort generated an impressive profit.
Source: Did Desert Storm Turn a Profit? *The Margin* 7 (Fall 1991), p. 13.

Additional Materials

Readings for Students and Faculty

William E. Becker et al. *Teaching Economics: More Alternatives to Chalk*, Edward Elgar publishing, 2006. This is a collection of essays on game theory, classroom experiments, cooperative learning, case method, large lecture class techniques, and more.

Becker, Gary. Crime and Punishment: An Economic Approach, in N.O. Alper and D.A. Hellman, eds., *Economics of Crime*, 2 ed., (Needham Heights, Mass.: Simon and Schuster Custom Publishing, 1997).

Cole, Don, ed., *Economics 99/00*, 28 ed., Part 1 (Guilford, Conn.: Dushkin/McGraw-Hill, 1999).

McKenzie, Richard B., and Gordon Tullock, *The New World of Economics* 6th ed. (New York: McGraw-Hill, Inc., College Custom Series, 1996).

Stigler, George. Nobel Lecture: The Process and Progress of Economics, *Journal of Political Economy 91* (August 1983).

Hausman, Daniel M. and Michael S. McPherson. Taking Ethics Seriously: Economics and Contemporary Moral Philosophy, *Journal of Economic Literature 31*, 2 (June 1993).

Audio/Video Materials, Software and CD-ROM's

The Illustrious Yet Elusive World of Microeconomics and The Prime-Time World of Macroeconomics, by The Standard Deviants. Videocassette reviews major concepts of microeconomics or macroeconomics with actors and animation in a series of "sound bytes" with Student Workbook. Color, approximately two hours each, VHS. Cerebellum Corporation,

Vienna, Virginia. These tapes cover virtually all the microeconomic or macroeconomic portions of the text in a series of short skits. References to them will not be included elsewhere although some segments apply to virtually every micro or macro chapter. Their intended use is for student review by playing, interrupting, and repeating segments on the concepts covered in the course as they are presented or in an overall review. It is possible to use these short segments in class as a summary of a concept to reinforce learning. They rely on college student humor.

Taylor, Timothy. Lecture 1: How Economists Think, *Economics*, The Great Courses on Tape, 2 parts, 20 lectures on cassette tape, 45 min. each lecture. Available from The Teaching Company, Springfield, Va.

Virtual Economics: An Interactive Center for Economic Education. (New York: National Council on Economic Education, 1995). CD-ROM for Mac/Windows.
Contains interactive virtual museum with exhibits on various economic concepts. With a point and click format, each exhibit provides audio and video narration that includes definitions, examples, and references to texts, teaching tips, and lesson plans. While the virtual museum is appropriate for student use, the extensive library of resources for faculty provides numerous supplements.