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Introduction

The **Instructor's Manual** is an integral part of the teaching/learning system for *Economics Today*, 17th Edition. Each chapter in the **Instructor's Manual** identifies points to stress and contains a section for those who wish to emphasize theory. Also provided are detailed chapter outlines keyed to the figures and tables in the text, answers to all the Questions for Critical Analysis, additional questions for class discussion, **Lecture Extender Examples** for each chapter to complement those examples in the text, and answers to even-numbered end-of-chapter questions. *Economics Today*, 17th Edition contains two features called **Issues and Applications** and **You Are There** that present current issues and have accompanying questions that ask students to apply what they have learned in the chapter. Suggested answers to the questions that correspond with these features are provided in the **Instructor's Manual**.

The **Instructor's Manual** can also be used to develop lectures in conjunction with the **PowerPoint** presentation. To aid in developing lectures, the **PowerPoint** slides present the material in *Economics Today*, 17th Edition in the same order as the chapter outline. The figures and tables in the text are keyed to the outline in the **Instructor's Manual** and are also available as **PowerPoint** slides. Microsoft Word files for the entire contents of the **Instructor's Manual** are available online, via the Instructor's Resource Center, making it easily customizable. By simply editing the appropriate portion of chapter outlines, solved problems, and other lecture aids, and employing the **PowerPoint** slides, you can rapidly develop a customized set of lectures. No matter how you use the **Instructor's Manual**, you will find it a useful aid for developing interesting and effective lectures.

Chapter 1

The Nature of Economics

■ Overview

This chapter introduces economics as a science. Economics is defined, and its subareas, macroeconomics and microeconomics, are introduced. A discussion of the three fundamental questions faced by every nation of what to produce, how to produce, and for whom to produce follows. Then the two types of economic systems, command and control or the price system, used to answer the three fundamental questions are presented. Economic rationality and self-interest are discussed along with their implications for decision making and economic model building. The concept of behavioral economics is introduced. Economics as a science is closely associated with the development of models. To aid understanding there is a significant section on the methodology of economics in which model construction, the role of assumptions, and determining the usefulness of a model are discussed. Finally, the difference between positive and normative economics is presented. There is a discussion of why it is important to clearly separate these two areas of analysis.

■ Learning Objectives

After studying this chapter students should be able to

- Discuss the difference between microeconomics and macroeconomics.
- Evaluate the role that rational self-interest plays in economic analysis.
- Explain why economics is a science.
- Distinguish between positive and normative economics.

■ Outline

- I. **The Power of Economic Analysis:** The analytical framework of the course is *the economic way of thinking*. The economic way of thinking permits the student to reach informed conclusions about what is happening in the world.
- II. **Defining Economics:** The study of how people allocate their limited resources to satisfy their unlimited wants. The ultimate purpose of economics is to explain how people make choices.
 - A. Microeconomics versus Macroeconomics: **Economics is divided into two types of analysis: macroeconomics and microeconomics.**
 1. **Microeconomics:** The part of economic analysis that studies individual decision making undertaken by individuals (or households) and by firms.
 2. **Macroeconomics:** The part of economic analysis that studies the behavior of the economy as a whole. It deals with economywide phenomena such as changes in unemployment, the general price level, and national income.

III. The Three Economic Questions and Two Opposing Answers: Every nation must address three fundamental questions that concern the problem of how to allocate a society's scarce resources. These questions are: **(1) What will be produced? (2) How will items be produced? (3) For whom will it be produced?**

A. Two Opposing Answers

- 1. Centralized Command and Control:** Also called a command and control system has a centralized authority that decides what items to produce and how many of each, determines how the scarce resources will be organized in the items' production, and identifies who will be able to obtain the items.
- 2. The Price System:** Also called a market system, a price system is an economic system which answers the three basic questions via decentralized decision making.

In a pure price system, individuals own all of the scarce resources used in production. This means those choices about what and how many of each item to produce are made by private parties on their own initiative, as are the decisions about how to produce those items. Finally, individuals and families choose how to allocate their incomes to obtain those items at prices established by privately organized mechanisms. Those prices in turn signal everyone in a price system relative scarcity of different resources, which in turn provides information about what and how many items to produce, how to produce each, and who will choose to buy the items.
- 3. Mixed Economic Systems:** The economic systems of the world incorporate aspects of both centralized command and control and the decentralized price systems.

IV. The Economic Approach: Systematic Decisions: Economists assume that individuals act as if they pursue self-motivated interests and respond predictably to perceived opportunities to obtain those interests.

- A. The Rationality Assumption:** The assumption that individuals will not intentionally make decisions that would leave them worse off.
- B. Responding to Incentives:** An incentive is the reward for engaging in a given activity. People react to an incentive by making a rough comparison of costs and benefits. A negative incentive raises the cost of doing something. If benefits of a given choice do not change, then a higher cost (negative incentive) will decrease or perhaps eliminate a particular choice.
- C. Defining Self-Interest:** The pursuit of goals that make the individual feel better off. In economic analysis, these goals are often those which can be measured in monetary terms, although the pursuit of other goals such as prestige, love, or power can be analyzed using this concept.

V. Economics as a Science: Economics is a social science that utilizes the same types of methods used in biology, chemistry, and physics. Economic models or theories, which are simplified representations of the real world, are developed and used as aids in understanding, explaining, and predicting economic phenomena in the real world.

- A. Models and Realism:** A model should capture the essential relationships that are sufficient to analyze the specific problem or answer the specific question being asked. No economic model is complete in the sense of capturing every detail and relationship that exists in the real world. A model is by definition an abstraction from reality. This does not mean that models are deficient simply because they are unrealistic and use simplified assumptions. Every model in every science requires simplification compared to the real world.
- B. Assumptions:** Assumptions define the set of circumstances in which a model is most likely to be applicable. Every model, therefore, must be based on a set of assumptions.

1. **The *Ceteris Paribus* Assumption: All Other Things Being Equal:** The assumption that nothing changes except the factors being studied. It is used to isolate the effect of a change in one variable on another one by assuming that all other variables do not change.
- C. **Deciding on the Usefulness of a Model:** A model is useful if it yields usable predictions supported by real-world observations. If a model makes a prediction and factual evidence supports the prediction, then the model is useful. Thus economics is an empirical science; that is, it relies on real-world data in evaluating the usefulness of a model.
- D. **Models of Behavior, Not Thought Processes:** Models relate to the way people act in using limited resources and not to the way they think. Models normally generalize people's behavior. Economists are interested in what people actually do, i.e., revealed preferences, rather than what they think they will do, i.e., declared preferences.
- E. **Behavioral Economics and Bounded Rationality:** An approach to consumer behavior that emphasizes psychological limitations and complications that potentially interfere with rational decision making.
 1. **Bounded Rationality:** The idea that people are nearly, but not fully, rational so that they cannot examine every choice available to them but instead use simple rules of thumb to sort among the alternative available to them.
 2. **Rules of Thumb:** A behavioral implication of bounded rationality is that people will use *rules of thumb*; that is, a simplified method of decision making. An important issue is that persons who appear to use rules of thumb may behave *as if* they are fully rational.
 3. **Behavioral Economics: A Work in Progress:** So far, proponents of behavioral economics have not conclusively demonstrated that paying closer attention to psychological thought processes can improve economic predictions.
- VI. **Positive versus Normative Economics:** Positive economics deals with what is. Positive economic statements are "if-then" statements. Normative economics deals with what some person thinks ought to be. Normative economic statements involve value judgments and normally have the words "ought" or "should" in them. Since positive economics predicts consequences of actions, it can be used to predict the effects of various policies to see if the policies aid in achieving desired goals. Positive economics cannot provide criteria for choosing which outcomes or goals are preferable.
 - A. **Distinguishing Between Positive and Normative Economics:** Positive economics is analysis that is strictly limited to making either purely descriptive statements or scientific predictions. Normative economics is analysis involving value judgments about economic policies, a statement about what ought to be.
 - B. **A Warning: Recognize Normative Analysis:** While it is easy to define positive economics, it is often difficult to identify unlabeled normative statements, even in a textbook.

■ Points to Emphasize

The Discipline of Economics

Economics is the study of how people make choices to satisfy their wants. Wants have a special meaning in economics. Wants represent those things that people would buy if they had unlimited income. In economics, we note that income is in fact limited, and thus, people must make choices. These choices are made on the basis of rational self-interest. This means that people make choices that, in their view, make them better off. People do not voluntarily make choices that they believe will make them worse off. This assumption of rational behavior underlies all economic decision making.

Economic Systems and the Allocation of Scarce Resources

Because resources are scarce, every nation must answer the three fundamental questions of what and how much of each item to produce, how each item will be produced, and for whom items will be produced. Emphasize that there are not enough resources to produce as much of everything that the citizens of any nation would want. Thus scarcity requires that choices be made as to which items and how many of each will be produced. Since resources are scarce, decisions about which and how many of each type of resource will be employed to produce those items are to be made. Again, compared to wants, resources are limited. Scarcity also means in practice that everyone cannot have as much of everything that they would like to have. Thus some mechanism must exist to allocate what finally gets produced to the members of each nation.

Economic Models

Economic models are simplified representations of the real world. Economic models frequently present problems for students because they are so abstract. The goal is for students to realize that only essential relationships are needed to deal with the problem at hand. A classic example of using an abstract theory is the decision of whether or not to take an umbrella when going outside. If a person misses the weather report, the person can look outside at the sky. If the sky is overcast or if dark clouds can be seen in the distance, then a prudent person will carry an umbrella. A person reasons that clouds are often associated with rain. If there are clouds of a certain type, then rain is likely but not certain. To actually know if rain will fall in a given place requires a complete knowledge of atmospheric conditions in a rather large area. Even the weather service does not have this kind of information. The simplest theory that can predict is the one that should be used.

Prediction—The Test of a Theory

A model is useful only if it predicts, i.e., if it yields useful implications of how things happen in the real world. It is not correct to fault a model because its assumptions are not realistic or because it is too abstract. The test of a theory is its ability to predict. Economists cannot do controlled experiments the way chemists can. What is done instead is to look at evidence to see if the model can predict. Tests are usually done using statistical evidence and techniques. A great deal of economic research consists of empirical testing of theories.

The Individual in Economic Analysis

The unit of analysis is the individual. It is often difficult for students to distinguish between the individual as an abstraction and a given individual in the real world. The difference between the two can be explained in the following way. The individual as an abstraction is a hypothetical typical individual or as psychologists would say a normal individual. This is a “person” whose behavior is that which is expected most of the time from most persons. Obviously, it is possible to find actual persons who are “abnormal” or who do not behave in the typical way. When we say that the individual is motivated by rational self-interest, this does not exclude the possibility that some persons may choose to not act in their own self-interest (e.g., someone sacrificing his or her life to save a child). It only says that in most of our affairs, we choose to do those things that we believe will benefit us in some way and we choose not to do those things that we believe will make us worse off. Economists have found that economic models work best when the individual is the unit of analysis because at the basis of every decision there are individuals making choices.

Positive versus Normative Economics

The text points out that normative economics can be identified by the use of the word “should.” Other words that provide a flag that a normative statement instead of a positive statement is being made are, good, bad, best, desirable, undesirable, better, and worse. Examples of these are as follows:

1. Decreases in interest rates by the Federal Reserve are good because it stimulates the economy.
2. Increases in interest rates by the Federal Reserve are bad because higher interest rates hurt low-income borrowers.
3. The best policy to get the economy out of a recession is to cut taxes.
4. High gasoline prices are undesirable.
5. It would be desirable to lower the prices of drugs to combat AIDS in poor countries.
6. The increase in prescription drug prices is undesirable because many senior citizens must choose between their drugs and food.
7. It is better to increase the progressive income tax than to increase a regressive sales tax.
8. Of the two methods of financing the war in Afghanistan, it is better to raise taxes on the American people rather than to borrow the money.

■ For Those Who Wish to Stress Theory

Unrealistic Assumptions of Economic Models?

One of the more frustrating aspects of economic analysis is what appears to be the unrealistic assumptions of many economic models. For example, in the realm of macroeconomics, the rational expectations hypothesis in its pure form talks about workers not being fooled by expected changes in the money supply by the Federal Reserve. It is true that most workers cannot tell you what the latest money supply growth rate figures are. They do not subscribe to the *Federal Reserve Bulletin* and read the Federal Open Market Committee report. However, workers do respond to what they perceive to be the expected state of the economy as it affects them. If the Fed is increasing the money supply at a faster rate and the inflation rate rises, workers will react **as if** they had a model of expected inflation. It is their behavior that we measure and predict and not what they are thinking. If the assumption of economic rationality is correct, then they will not be systematically fooled. One approach to explaining the same approach outside economics is to point out that it is highly unlikely that a champion pool player knows the laws of physics with regard to the exact force needed to hit the cue ball and the mathematical formulas needed to compute the exact angle to hit the pool table bank, but his behavior is the same **as if** he did.

■ Further Questions for Class Discussion

1. Political disturbances such as wars and threats of wars in the Middle East often lead to increases in the price of oil. You will often hear people say that the U.S. government should not let the price rise. Ask your students the difference between these statements. Obviously, the first is a positive statement. Generally, a political disturbance actually leads to reduced supplies or to fears of reduced supplies, or both. Price then rises. Whether or not oil prices should rise is a normative statement. Nothing scientific can be said about it because it is based on a value judgment.
2. It is worth examining the idea that changes in incentives cause people to change their behavior. For example, any decrease in costs tends to encourage an activity, *ceteris paribus*. In recent years, cell phone texting as a part of many plan service contracts has become unlimited at the fixed monthly service contract price, while the number of “free” minutes spent talking on the phone is limited under

most plans. What has happened to the use of texting versus calling as a method of communicating? Students report that texting has become the primary means of communication using cell phones with the number of text messages sent per month reaching into the thousands. In one university, a coed reported that the largest number of text messages that she sent in one month was over 13,000.

3. An important issue that has been raised after the financial meltdown in 2008, and the resulting recession has been how to deal with the recession. The economic stimulus policies of cutting taxes and increasing government spending contributed to a very large increase in the federal government's deficit. As a result, the recession moderated and economic growth replaced the falling gross domestic product (GDP). During this period, a debate began in the United States that the size of government had gotten too large and therefore that spending should be cut. Discuss the positive and normative economic issues presented. **Positive:** These are that the increases in government spending that have contributed to a large increase in the federal deficit and that the result was also that economic growth resumed. These are positive issues because they are testable statements about the economic effect of increases in federal spending and reduced taxes on the size of the federal deficit as well as the effect of increased spending and tax cuts on the level of economic activity. **Normative:** The statements that "the size of government had gotten too large and that spending should be cut" are not testable—they are based on value judgments about what "ought to be."
4. Some widely reported and watched polls that are viewed as economic indicators of future levels of economic activity are various measures of "consumer confidence." The Conference Board, the University of Michigan, and *ABC News/Money Magazine* all use polls of consumers to measure their confidence in the economy. Polls ask people what they think about the economy and what their spending plans are but do not actually measure what people do. Why are polls such as these not likely to provide a model that predicts reliably? The answer is that polls look at what people believe that they are planning to do rather than what they actually do.
5. Scarcity forces society to come up with a mechanism to determine how output is to be distributed. Students can be asked if price is not to be used as an allocative mechanism, then what do they suggest? Suggest that the university allocate seats in courses on the basis of price. Let students bid for available seats in classes, rather than using a first-come, first-served system based on some sort of administrative procedure. An objection to this allocation method is almost certainly that the wealthier students would get the most desirable courses with the best professors, and poorer students would get the less desirable ones with less talented professors. Suppose that the university responds by providing more sections of the high-demand courses by paying the best professors more to teach an overload? The availability of seats will thus increase, and more students can take the course. Under administrative methods, there is little or no incentive to make more sections available (e.g., by paying qualified professors more to teach an overload in the short run and in the long run by hiring more faculty in those areas).

■ Answers to Questions for Critical Analysis

The Federal Government Directs New California Train Tracks (p. 4)

The U.S. government officials decided to build the rail line to start in California's less-populated Central Valley because they place a higher priority to serving residents in the less-populated region than the cost saving from other alternatives. The additional cost will be spread among a lot of U.S. taxpayers and thus less noticeable, but the benefit will be concentrated on a relatively small number of residents in the Central Valley.

Cuba Experiments with Mixing It Up (p. 5)

Wages for private workers are determined by the labor market, which provides signals about whom and how many workers should be hired. Therefore, when Cuba has fewer public workers and more private workers, wages will become better signals about the relative scarcity or abundance of resources.

Hello, Bank Robber, I'll Remember You (p. 6)

In attempting a bank robbery, a prospective criminal must, of course, consider the amount of money he or she will gain from robbing the bank. The prospective bank robber must also weigh this potential benefit against the cost of being in prison, which is affected by the likelihood of being caught.

The Perceived Value of Gifts (p. 7)

Physical gifts show that the giver has gone to the trouble to try to find a gift that will please the recipient. Such an effort can be viewed as caring, whereas a gift of cash or a gift certificate may not send such a message.

Getting Directions (p. 8)

Gossip and small talk usually deal with other persons or situations of interest to the persons engaged in conversation. Often the person who is talking chooses to leave out details which they consider unimportant or which do not support their position. The interpretation of the situation or the behavior of the person being talked about will be affected by which details are omitted.

■ You Are There**Why So Many Firms Are Incorporating Outside the United States (p. 11)**

1. Other things being equal, a lower tax rate means a higher after-tax income for a corporation. As such, lower foreign corporate tax rates provide companies positive incentives to incorporate abroad.
2. Many companies would respond to the incentive of lower foreign tax rates by incorporating abroad instead of in the United States. As a result, the U.S. federal government has most likely collected fewer corporate taxes.

■ Issues and Applications**Why So Many Tourists Have Been Giving Birth in Hong Kong (p. 12)**

1. One of the incentives for many mothers in mainland China to give birth in Hong Kong is the better maternity care of hospitals in Hong Kong. As such, improvements in maternity care in mainland China have reduced the incentives for those people to become “tourist” mothers in Hong Kong.
2. If Hong Kong begins to pay benefits to older residents from taxes paid by younger residents, then there is more incentive for the “tourist” mothers to send their children to Hong Kong when they are older instead of when they are younger. This policy partially offsets the incentive from enjoying the tuition-free public education for children in Hong Kong.

■ Answers to Even-Numbered Problems

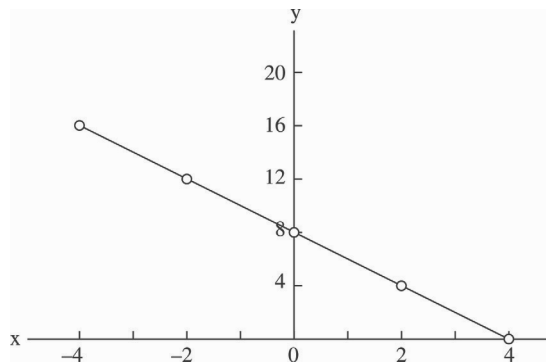
- 1-2. This issue involves choice and, therefore, can be approached using the economic way of thinking. In the case of health care, an individual typically has an unlimited desire for good health. The individual has a limited budget and limited time, however. She must allocate her budget across other desirable goods, such as housing and food, and must allocate her time across waiting in a physician's office, work, leisure, and sleep. Hence, choices must be made in light of limited resources.
- 1-4. Microeconomics is the study of individual decision making, whereas macroeconomics examines the aggregate behavior of the entire economy.
- a. macroeconomics
 - b. microeconomics
 - c. microeconomics
 - d. macroeconomics
 - e. macroeconomics
 - f. microeconomics
- 1-6. This example illustrates that what people *say* they will do does not actually correspond to what matters in the economy, which is what they actually *do*.
- 1-8. The bounded rationality hypothesis indicates that because people cannot study every possible alternative available to them, they consider only the most obvious apparent choices. They find easy ways of deciding which of these obvious choices to select, and according to the hypothesis, these methods are simple rules of thumb.
- 1-10. a. Bounded rationality
b. Rationality assumption
c. Bounded rationality
- 1-12. a. Yes, because Myrna is acting in her own self-interest by establishing this allocation of her time to studying economics.
b. No, because Leonardo is leaving an important decision affecting his self-interest to random chance, potentially leaving him worse off if he fails to obtain employment.
c. Yes, because Celeste is basing her choice on a self-interest assessment of expenditures in light of available resources.
- 1-14. Positive economic analysis deals with economics models with predictions that are statements of fact, which can be objectively proved or disproved. Normative analysis takes into account subjective personal or social values concerning the way things ought to be.
- 1-16. a. An increase in the supply of laptop computers, perhaps because of the entry of new computer manufacturers into the market, pushes their price back down.
b. Another factor, such as higher hotel taxes at popular vacation destinations, makes vacation travel more expensive.
c. Some other factor, such as a fall in market wages that workers can earn, discourages people from working additional hours.

Appendix A

- A-2. a. direct
b. inverse
c. direct
- A-4. a. direct (or positive); each 1-unit rise in x induces a 5-unit increase in y .
b. inverse (or negative); each 1-unit rise in x induces a 2-unit decrease in y .
c. direct (or positive); each 1-unit rise in x induces a 1-unit increase in y .
d. inverse (or negative); each 1-unit rise in x induces a 3-unit decline in y .

A-6.

y	x
16	-4
12	-2
8	0
4	2
0	4



- A-8. Each 1-unit increase in x yields a 2-unit decrease in y , so the slope given by the change in y corresponding to the change in x is equal to -2 .

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Chapter 2

Scarcity and the World of Trade-Offs

■ Overview

This chapter introduces the central concept of economics, scarcity. It is the existence of scarcity that requires people to make choices both individually and collectively. Along with the concept of scarcity, the chapter introduces the tools that economists use to analyze choice. These are the concepts of opportunity costs, trade-offs, and the production possibilities model. The production possibilities model is used not only to analyze trade-offs but also to illustrate economic growth and the implications of an inefficient use of resources. Specialization is introduced along with a discussion of the basis for trade, comparative advantage.

■ Learning Objectives

After studying this chapter students should be able to

- Evaluate whether even affluent people face the problem of scarcity.
- Understand why economics considers individuals' "wants" but not their "needs."
- Explain why the scarcity problem induces people to consider opportunity costs.
- Discuss why obtaining increasing increments of any particular good typically entails giving up more and more units of other goods.
- Explain why society faces a trade-off between consumption goods and capital goods.
- Distinguish between absolute and comparative advantage.

■ Outline

- I. Scarcity:** Scarcity is a situation in which the ingredients for producing the things that people desire are insufficient to satisfy all wants at a zero price. It exists in all societies and at all income levels because human wants exceed what can be produced with the limited resources and time that nature makes available.
 - A. What Scarcity Is Not:** Scarcity is not a shortage. It is also not poverty. High incomes do not reduce scarcity.
 - B. Scarcity and Resources:** Resources or factors of production are inputs used in the production of things that people want. Production is any activity that results in the conversion of resources into products that can be used in consumption.
 - 1. Land:** Land is often called the natural resource, and consists of all the gifts of nature.
 - 2. Labor:** Labor is the human resource that includes all productive contributions made by individuals who work, involving both mental and physical activities.
 - 3. Physical Capital:** Capital is all manufactured resources that are used for production. It also includes improvements to natural resources, such as irrigation ditches.

4. **Human Capital:** The accumulated training and education workers receive that increases their productivity.
 5. **Entrepreneurship:** Human resources that perform the functions of organizing, managing, and assembling the other factors of production to create and operate business ventures, and takes the risks associated with introducing new methods and other types of new thinking that could lead to more monetary income.
- C. **Goods versus Economic Goods:** All things from which individuals derive satisfaction or happiness.
1. **Economic Goods:** Goods that are scarce. The quantity of such goods desired exceeds the quantity that is available at a zero price.
 2. **Services:** Mental or physical labor or help purchased by consumers. They can be viewed as intangible goods.
- II. **Wants and Needs:** Needs are not objectively definable. Perhaps the best way to view a need is as an absolute necessity to stay alive. Wants refer to desired goods and are unlimited.
- III. **Scarcity, Choice, and Opportunity Cost:** Scarcity requires choices be made. When one choice is made, then another is given up.
- A. **Valuing Forgone Alternatives:** Only the individual can determine the value of each choice that is available.
 - B. **Opportunity Cost:** The highest valued, next-best alternative that must be sacrificed for the choice that was made. *In economics, cost is always a forgone opportunity.*
- IV. **The World of Trade-Offs:** Whenever you engage in any activity using any resource you are trading off the use of that resource for one or more alternative uses. For example, the more time devoted to studying economics, the less time that can be devoted to studying mathematics. Thus, a higher grade in economics has a “cost” of a lower history grade. **(See Figure 2-1.)**
- A. **Graphical Analysis:** How **Figure 2-1** is set up is explained.
 - B. **The Production Possibilities Curve (PPC):** A curve representing the maximum possible combinations of total output that could be produced assuming a fixed amount of resources of a given quality. A movement from one point to another on the PPC shows that some of one good must be given up to have more of another. **(See Figure 2-1.)**
- V. **The Choices Society Faces:** The production possibilities curve does not in practice have constant trade-offs of one good for another and is typically a curve that is bowed outward. **(See Figure 2-2.)**
- A. **A Two-Good Example**
 - B. **Production Trade-Offs (See Figure 2-2.)**
 - C. **Assumptions Underlying the Production Possibilities Curve:**
 1. Resources are fully employed.
 2. Production takes place over a specific time period—for example, one year.
 3. Resources are fixed in both quantity and quality.
 4. Technology does not change over this period of time.
 - a. Technology is defined as society’s pool of applied knowledge concerning how goods and services can be produced.
 - D. **Being Off the Production Possibilities Curve:** Any point outside the PPC cannot be reached for the time period assumed. Any point inside the PPC is attainable, but resources are not being fully utilized. **(See Figure 2-2.)**

- E. Efficiency:** The case in which a given level of inputs is used to produce the maximum output possible. It is also a situation in which a given output is produced at a minimum cost. An economy is efficient when it is on its PPC. An inefficient point is any point below the production possibilities curve.
- F. The Law of Increasing Additional Cost:** The fact that the opportunity cost of additional units of a good generally increases as society attempts to produce more of that good. This accounts for the bowed-out shape of the production possibilities curve. **(See Figure 2-3.)**
 - 1. Increasing Additional Costs:** As society takes more and more resources and applies them to the production of any one item, the opportunity cost increases for each additional unit produced. This law is illustrated by the PPC being bowed outward.
 - 2. Explaining the Law of Increasing Additional Cost:** The more highly specialized resources are, the more bowed outward the PPC will be.

VI. Economic Growth and the Production Possibilities Curve: Economic growth is illustrated by an outward shift of the production possibilities curve. **(See Figure 2-4.)**

VII. The Trade-Off Between the Present and the Future

- A. Why We Make Capital Goods:** Capital goods are one of society's resources. Producing more of them allows a society to produce more of all types of goods.
- B. Forgoing Current Consumption:** When existing resources are used to produce capital goods, we are forgoing current consumption. When we forgo consumption to invest in capital goods, we are waiting to consume what will be produced from the use of those capital goods then.
- C. The Trade-Off Between Consumption Goods and Capital Goods:** To have more consumer goods in the future, we must produce capital goods today. The more capital goods that are produced today, the less consumer goods that are produced today. In the future there will be more consumption goods as the economy grows. **(See Figure 2-5.)**

VIII. Specialization and Greater Productivity: Specialization means working at a relatively well-defined, limited activity. It means the organization of economic activity so that what each person or region consumes is not identical to what each person or region produces.

- A. Comparative Advantage:** The ability to produce a good or service at a lower opportunity cost compared to other producers. This is the basis for specialization.
- B. Absolute Advantage:** The ability to produce more units of a good or service using a given quantity of labor or resource inputs. This is the ability to produce the same quantity of a good or service using fewer units of labor or resource inputs. This is not the basis for specialization.
- C. Scarcity, Self-Interest, and Specialization:** Persons who are making decisions that further their self-interest will make choices that maximize the benefits net of opportunity cost. The result is that they choose their comparative advantage and end up specializing.
- D. The Division of Labor:** The segregation of a resource into different specific tasks.

IX. Comparative Advantage and Trade Among Nations: The analysis of absolute advantage, comparative advantage, and specialization applies equally to nations.

- A. Trade Among Regions:** Specialization along lines of comparative advantage in agricultural products in the plains states and industrial products in the northeastern states and resulting trade between them allows each region to have higher incomes and living standards. The result would be the same if the plains states and the northeastern states were separate countries.
- B. International Aspects of Trade:** A producer in one part of the United States must adapt to improvements in production along lines of comparative advantage by those in another part. Producers in the United States will try to raise political barriers to trade with foreign producers by arguing about "unfair" competition and loss of U.S. jobs.

■ Points to Emphasize

Graphing

Graphs are usually difficult for students to grasp. It is worthwhile spending some time going over basic graphing techniques and terminology from the Appendix to Chapter 1 before getting into this chapter. These pictures of relationships between variables may simply create confusion rather than clarify the issue being presented. This confusion results when students are trying to figure out where the graph comes from and what it means to refer to an inverse or positive relationship, while at the same time trying to make sense of the actual economic analysis.

Scarcity

This is the central concept in economics. All economic analysis derives from this condition. Stress that scarcity arises because at any given time people want more than their resources will allow them to consume. The classic way to define scarcity is that wants are unlimited while resources are limited. Resources or inputs are anything that can be used to produce things people want. It is important to stress that scarcity is a relative concept. Even though not everyone has “unlimited” wants, they usually want more than they can have at the moment. As income rises, so do wants. Studies by Simon Kuznets and Milton Friedman provide evidence of this fact. Kuznets found that between 1869–1929, real national income rose by a factor of 4, but the APC remained constant. Friedman reported in *The Theory of the Consumption Function* that the APC remains constant even cross-sectionally as income goes from lower levels to higher levels out of permanent income. Also, poverty in the United States is defined at levels that would be considered affluent by people in most countries.

Resources

Resources or inputs are things that produce goods and services. At any given time, resources are fixed. Generally, students will agree that this is so. Thus, at any given time, the amount of goods and services that can be produced is limited. Over time, resources have increased. Indeed, 150 years ago petroleum was not even a resource. Today, it is one of the most important resources. Advances in technology allow society to use things that were previously not resources. Over time, an increase in resources does not allow society to eliminate scarcity because, at any given time, resources are fixed while wants are not.

Choice

After the scarcity problem is analyzed, the problem of choice should be presented. Because of scarcity, that is wants are greater than the means to satisfy these wants (resources), people are forced to choose means of satisfying these wants. The concepts of opportunity cost, trade-offs, and the production possibilities curve are introduced. These concepts are often difficult for students to grasp. The production possibilities curve can be especially troublesome if actual numbers are not presented along with the graph. A successful method of presenting this model is to use a table of combinations of two goods and fully develop the model before introducing the graph.

Specialization and Comparative Advantage

After the tools for analyzing choice are developed, the chapter discusses specialization based on comparative advantage. The relationship between these two is essential to develop because it is the basis for exchange. A convincing case can be made on an intuitive level that if each person, region, and country specializes in producing those things that they can produce relatively most efficiently, then it is possible to increase output without increasing the total amount of resources. Then a more formal demonstration can be given. A result of specialization is that trade occurs because each economic unit ends up producing more of something than they want. In some cases, they produce something that they do not consume at all. Higher incomes and living standards result from specialization and trade based on comparative advantage.