

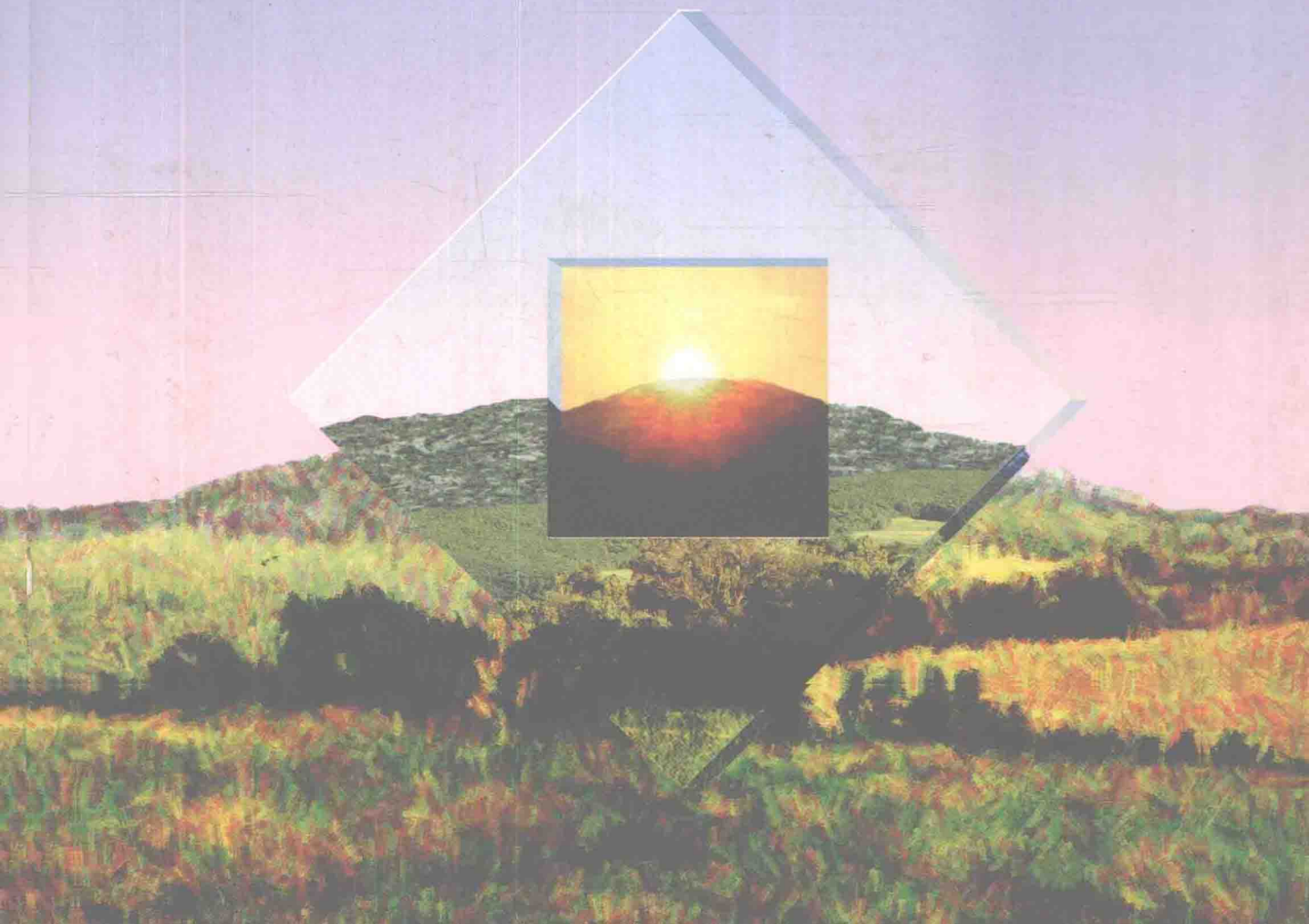
STUDY GUIDE

MARK RUSH

# MICROECONOMICS

THIRD EDITION

MICHAEL PARKIN



STUDY GUIDE

PARKIN

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THIRD EDITION

MARK RUSH

University of Florida



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## ■ Introduction

My experience has taught me that what students want most from a study guide is help in mastering course material in order to do well on examinations. I have developed this *Study Guide* to respond specifically to that demand. Using this *Study Guide* alone, however, is not enough to guarantee that you will do well in your course. In order to help you overcome the problems and difficulties that most students encounter, I have some general advice on how to study, as well as some specific advice on how best to use this *Study Guide*.

Economics requires a different style of thinking than what you may encounter in other courses. Economists make extensive use of assumptions to break down complex problems into simple, analytically manageable parts. This analytical style, while ultimately not more demanding than the styles of thinking in other disciplines, feels unfamiliar to most students and requires practice. As a result, it is not as easy to do well in economics on the basis of your raw intelligence and high-school knowledge as it is in many other courses. Many students who come to my office are frustrated and puzzled by the fact that they are getting A's and B's in their other courses but only a C or worse in economics. They have not recognized that economics is different and requires practice. In order to avoid a frustrating visit to your instructor after your first test, I suggest you do the following.

◆ ***Don't rely solely on your high-school economics.*** If you took high-school economics, you have seen the material on supply and demand which your instructor will lecture on in the first few weeks. Don't be lulled into feeling that the course will be easy. Your high-school knowledge of economic concepts will be very useful, but it will not be enough to guarantee high scores on exams. Your college or university instructors will demand much more detailed knowledge of concepts and ask you to apply them in new circumstances.

◆ ***Keep up with the course material on a weekly basis.*** Skim the appropriate chapter in the textbook

*before* your instructor lectures on it. In this initial reading, don't worry about details or arguments you can't quite follow — just try to get a general understanding of the basic concepts and issues. You may be amazed at how your instructor's ability to teach improves when you come to class prepared. As soon as your instructor has finished covering a chapter, complete the corresponding *Study Guide* chapter. Avoid cramming the day before or even just the week before an exam. Because economics requires practice, cramming is an almost certain recipe for failure.

◆ ***Keep a good set of lecture notes.*** Good lecture notes are vital for focusing your studying. Your instructor will only lecture on a subset of topics from the textbook. The topics your instructor covers in a lecture should usually be given priority when studying. Also give priority to studying the figures and graphs covered in the lecture.

Instructors do differ in their emphasis on lecture notes and the textbook, so ask early on in the course which is *more* important in reviewing for exams — lecture notes or the textbook. If your instructor answers that both are important, then ask the following, typical economic question: which will be more beneficial — spending an extra hour re-reading your lecture notes or an extra hour re-reading the textbook? This question assumes that you have read each textbook chapter twice (once before lecture for a general understanding, and then later for a thorough understanding); that you have prepared a good set of lecture notes; and that you have worked through all of the problems in the appropriate *Study Guide* chapters. By applying this style of analysis to the problem of efficiently allocating your study time, you are already beginning to think like an economist!

◆ ***Use your instructor and/or teaching assistants for help.*** When you have questions or problems with course material, come to the office to ask questions. Remember, you are paying for your education and instructors are there to help you learn. I am often amazed at how few students come to see me during

office hours. Don't be shy. The personal contact that comes from one-on-one tutoring is professionally gratifying for instructors as well as (hopefully) beneficial for you.

◆ **Form a study group.** A very useful way to motivate your studying and to learn economics is to discuss the course material and problems with other students. Explaining the answer to a question *out loud* is a very effective way of discovering how well you understand the question. When you answer a question only in your head, you often skip steps in the chain of reasoning without realizing it. When you are forced to explain your reasoning aloud, gaps and mistakes quickly appear, and you (with your fellow group members) can quickly correct your reasoning. The "You're the Teacher" questions in the *Study Guide* and the Review questions at the end of each textbook chapter are extremely good study group material. You might also get together *after* having worked the *Study Guide* problems, but *before* looking at the answers, and help each other solve unsolved problems. You may also find it useful to participate in the on-line, E-mail discussion located on the internet at [ParkinSt@AW.COM](mailto:ParkinSt@AW.COM).

◆ **Work old exams.** One of the most effective ways of studying is to work through exams your instructor has given in previous years. Old exams give you a feel for the style of question your instructor may ask, and give you the opportunity to get used to time pressure if you force yourself to do the exam in the allotted time. Studying from old exams is not cheating, as long as you have obtained a copy of the exam legally. Some institutions keep old exams in the library, others in the department. Students who have previously taken the course are usually a good source as well. Remember, though, that old exams are a useful study aid only if you use them to *understand* the reasoning behind each question. If you simply memorize answers in the hopes that your instructor will repeat the identical question, you are likely to fail. From year to year, instructors routinely change the questions or change the numerical values for similar questions.

◆ **Use Economics in Action.** This is state-of-the-art interactive software for IBM-compatible computers. It is an integrated tutorial, graphing, demonstration, and testing program that covers all the main themes in the textbook using three modes. The tutorial mode places you in an economics-related job situation and leads you through assignments that reveal and explore economic

concepts and principles. The free mode allows you to interact with economic models by changing parameters and observing the effects on graphs. The quiz mode gives you graphical or data-related multiple-choice questions. When you select an answer, you are given a detailed explanation (and graphical illustration) of why your answer is right or wrong. All software modes are closely integrated with the textbook.

## ■ Using Your Study Guide

You should only attempt to complete a chapter in the *Study Guide* after you have read the corresponding textbook chapter and listened to your instructor lecture on the material. Each *Study Guide* chapter contains the following sections.

**Key Concepts.** This first section is a short summary, in point form, of all key definitions, concepts and material from the textbook chapter. Key terms from the textbook appear in bold. This section is designed to focus you quickly and precisely on the core material that you *must* master. It is an excellent study aid for the night before an exam. Think of it as crib notes that will serve as a final check of the key concepts you have studied.

**Helpful Hints.** When you encounter difficulty in mastering concepts or techniques, you will not be alone. Many students find certain concepts difficult and often make the same kinds of mistakes. I have taught over 12,000 students the principles of economics and I have seen these common mistakes often enough to have learned how to help students avoid them. The hints point out these mistakes and offer tips to avoid them. The hints focus on the most important concepts, equations, and techniques for problem solving. They also review crucial graphs that appear on every instructor's exams. I hope that this section will be very useful, because instructors always ask exam questions designed to test these possible mistakes in your understanding.

**Self-Test.** This will be one of the most useful sections of the *Study Guide*. The questions are designed to give you practice and to test skills and techniques you must master to do well on exams.

There are plenty of multiple-choice type of questions and other types of questions in the Self-Test, each with a specific pedagogical purpose. Before I describe the four parts of the Self-Test section, here are some general tips that apply to all parts.



Use a pencil to write your answers in the *Study Guide* so you have neat, complete pages from which to study. Draw graphs wherever they are applicable. Some questions will ask explicitly for graphs; many others will not but will require a chain of reasoning that involves shifts of curves on a graph. *Always draw the graph.* Don't try to work through the reasoning in your head — you are much more likely to make mistakes that way. Whenever you draw a graph, even in the margins of the *Study Guide*, label the axes. You may think that you can keep the labels in your head, but you will be confronting many different graphs with many different variables on the axes. Avoid confusion and label. As an added incentive, remember that on exams where graphs are required, instructors will deduct points for unlabelled axes.

Do the Self-Test questions as if they were real exam questions, which means do them *without looking at the answers*. This is the single most important tip I can give you about effectively using the *Study Guide* to improve your exam performance. Struggling for the answers to questions that you find difficult is one of the most effective ways to learn. The adage — no pain, no gain — applies well to studying. You will learn the most from right answers you had to struggle for and from your wrong answers and mistakes. Only after you have attempted all the questions should you look at the answers. When you finally do check the answers, be sure to understand where you went wrong and why the right answer is correct.

There are many questions in each chapter, and it will take you somewhere between two and six hours to answer all of them. If you get tired (or bored), don't burn yourself out by trying to work through all of the questions in one sitting. Consider breaking up your Self-Test over two (or more) study sessions.

The four parts of the Self-Test section are:

**True/False/Uncertain and Explain.** These questions test basic knowledge of chapter concepts and your ability to apply the concepts. Some of the questions challenge your understanding, to see if you can identify mistakes in statements using basic concepts. These questions will quickly identify gaps in your knowledge and are useful to answer out loud in a study group.

When answering, identify each statement as *true*, *false*, or whether you are *uncertain* because the statement may be true or false depending on circumstances or assumptions. Explain your answer in one sentence. The

space underneath each question is sufficient for writing your answer.

**Multiple-Choice.** These more difficult questions test your analytical abilities by asking you to apply concepts to new situations, manipulate information and solve numerical and graphical problems.

This is the most frequently used type of exam question, and the Self-Test contains many of them in a scrambled order to reflect a real exam situation.

Read each question and all four choices carefully before you answer. Many of the choices will be plausible and will differ only slightly. You must choose the one *best* answer. A useful strategy in working these questions is first to eliminate any obviously wrong choices and then to focus on the remaining alternatives. Don't get frustrated or think that you are dim if you can't immediately see the correct answer. These questions are designed to make you work to find the correct choice.

**Short Answer.** Each chapter contains several Short Answer questions. Some are straightforward questions about basic concepts. They can generally be answered in a few sentences or, at most, in one paragraph. Others are problems. The best way to learn to do economics is to do problems. Problems are also the second-most popular type of exam question — practice them as much as possible!

**You're the Teacher.** Each chapter contains from one to three questions that either cover very broad issues or errors that are too common among students. These questions may be the most valuable you will encounter for use in your study group. Take turns by pretending that you are the teacher and answer the questions for the rest of your group. Who knows, you may like this process so much that you actually do become a professor at a university teaching economics!

**Answers.** The Self-Test is followed by answers to all questions. Unlike other study guides on the market, I have included complete answers because I believe that reading complete answers will help you master the material ... and that's what this *Study Guide* is all about! But do *not* look at an answer until you have attempted a question. When you do finally look, use the answers to understand where you went wrong and why the right answer is correct.

**Part Overview Problem.** Every few chapters, at the end of each of the parts of the textbook, you will find a special problem (and answer). These multi-part problems draw on material from the part you have just concluded and are similar to the "Reading Between the

Lines" sections in your textbook. There is also a self-test that contains four multiple choice questions drawn from each chapter in the section. The questions are in order, so that the first four come from the first chapter in the section, the second four from the second chapter, and so forth. This way, if you miss several questions from one chapter, you'll know to spend more time on that chapter when preparing for your next exam. These multiple choice questions are written in a different style than those in the chapter because I recognize that instructors have different ways of writing questions. By encountering these different styles, you will be better prepared for *your* test.

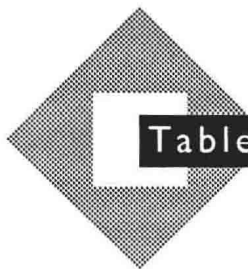
If you effectively combine the use of the textbook, the *Study Guide*, *Economics in Action*, and all other course resources, you will be well prepared for exams. Equally importantly, you will also have developed analytical skills and powers of reasoning that will benefit you throughout your life and in whatever career you choose. Indeed, the last chapter in this *Study Guide*, written by Robert Whaples, helps examine your future by discussing whether economics is the major for you.

## ■ Final Comments

I have tried to make the *Study Guide* as helpful and useful as possible. Undoubtedly I have made some mistakes; mistakes that you may see. If you find any, I, and succeeding generations of students, would be grateful if you could point them out to me. At the end of my class at the University of Florida, when I ask my students for their advice, I point out to them that this advice won't help them at all because they have just completed the class. But, comments they make will influence how future students are taught. Thus, just as they owe a debt of gratitude for the comments and suggestions that I received from students before them, so too will students after them owe them an (unpaid and unpayable) debt. You are in the same situation. If you have questions, suggestions, or simply comments, let me know. My address is to the right, or you can reach me via E-mail at either [ParkinEd@AW.COM](mailto:ParkinEd@AW.COM) or else directly at [RUSH@DALE.CBA.UFL.EDU](mailto:RUSH@DALE.CBA.UFL.EDU). Your input probably won't benefit you directly, but they will benefit following generations. And, if you give me permission, I will note your name and school in following editions so that any younger siblings (or, years down the road, maybe even your children!) will see your name and offer up thanks.

Even though this is the first edition of this *Study Guide* that I have written, I have already incurred many debts that must be acknowledged. First, I need to thank Avi J. Cohen and Harvey B. King of York University and University of Regina, respectively, for allowing me permission to use many of their chapter summaries, helpful hints, and questions. Much of what is good about this book is a direct reflection of their input. Second, Robert Whaples of Wake Forest University not only wrote the last section of the *Study Guide* but checked the entire manuscript for accuracy. The errors he caught were embarrassingly numerous and the suggestions he made invariably useful. Third, Marilyn Freedman at Addison Wesley played a key role coordinating my work; without her cheerfulness, this book would have been much different and much poorer. Fourth, I owe Cindy Johnson of Publishing Services an immense debt. She is a computer expert, a publishing expert, a technology expert, and an economic expert all in one package; she shaped this book from beginning to end. Fifth, Jerry Moore was the long-suffering copy editor of this project. It is thanks to Jerry that the English in the following chapters approaches conventional usage; any errors in this preface are mine because he ain't seen this section yet. Sixth, I need to thank Michael Parkin and Robin Bade. Michael has written such a superior book that it was easy to be enthusiastic about writing the *Study Guide* to accompany it and both Michael and Robin made suggestions that vastly improved the *Study Guide*. Finally, I want to thank my family: Susan, Tommy, Bobby, and Kathryn, who, respectively: allowed me to be late for dinner so I could work on this book; allowed me to type this book on his computer; kept me company in his brother's room while I worked; and allowed me to skip changing her diapers so that I could type. Thanks a lot!

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# Chapter 1

## WHAT IS ECONOMICS?

### Key Concepts

#### ■ Economics and Scarcity

Economics is a broad subject, addressing issues such as technological change, the proper role for the government, international trade, and income growth.

The fundamental economic problem is scarcity.

- ◆ Because the available resources are not enough to satisfy everyone's wants, choices are necessary.
- ◆ Economics studies how we use limited resources to try to satisfy unlimited wants.
- ◆ The *opportunity cost* of a choice is the value of the best forgone alternative; opportunity cost is different than money cost.

Marginal analysis and the principle of substitution play important roles in making choices.

- ◆ Marginal analysis compares the *additional* cost — the marginal cost — of an action to the *additional* benefit — the marginal benefit — of the action.
- ◆ The principle of substitution states that, when the opportunity cost of an action rises, people substitute other activities that now have lower relative opportunity costs. In other words, people respond to incentives. After a change in incentives, competition creates second round effects throughout the economy.

#### ■ What Economists Do

Economics is divided into microeconomics, the study of individual firms, individual consumers, or individual markets, and macroeconomics, the study of national and global economies and the factors that shape them.

Economic science strives to uncover how the world works; economic policy strives to make society better off.

All sciences distinguish between:

- ◆ **Positive statements** — statements about what is. These can be shown to be true or false through observation and measurement.
- ◆ **Normative statements** — statements about what ought to be. These are matters of opinion.

Economic science is a collection of positive statements that are consistent with the real world.

An economic theory is constructed by building and testing economic models, which are simplified descriptions of the world that include only the factors considered most important. When developing models and theories, economists use the idea of *ceteris paribus*, Latin for “other things being equal” to focus on the effect of one particular factor. In the development of theories and models, two pitfalls are possible:

- ◆ **Fallacy of composition** — the assertion that what is true for a part must be true for the whole or what is true for the whole must be true for each of the parts.
- ◆ **Post hoc fallacy** — the assertion that one event caused another because the first occurred before the other.

Economic policy is guided by four policy objectives:

- ◆ **Economic efficiency** — when production costs are as low as possible, everyone buys the bundle of goods and services that makes them as well off as possible, and people specialize in occupations that give them the maximum possible economic benefit.
- ◆ **Equity** — equity means “fairness.” What is equitable is an issue that lacks consensus.
- ◆ **Economic growth** — increases in income and output per person.
- ◆ **Economic stability** — when swings in the level of economic activity have been prevented.

## ■ The Economy: An Overview

The economy allocates resources among alternative uses and determines the answers to five questions:

- ◆ What goods and services are produced?
- ◆ How are the goods and services produced?
- ◆ When are the goods and services produced?
- ◆ Where are the goods and services produced?
- ◆ Who consumes the goods and services produced?

An economy is comprised of **decision makers** (households, firms, and governments) and **markets** (such as factor markets and goods markets). In factor markets households supply the factors of production (labor, land, capital, and entrepreneurial ability) and firms demand factors. In goods markets, firms supply goods and households (and governments) demand them.

In all markets, decisions must be coordinated. Price adjustments can be used to coordinate decisions and determine answers to the “what,” “how,” “when,” “where,” and “who” questions. Alternatively, decisions can be coordinated using a *command mechanism* whereby some group determines the answers to the questions and then gives instructions about how they are to be answered.

## Helpful Hints

1. The definition of economics (how people use limited resources to try to satisfy unlimited wants) leads directly to three important economic concepts — choice, opportunity cost, and competition. Because wants exceed resources, people cannot have everything they want and therefore must make choices among alternatives. In making choices, people forgo other alternatives. The opportunity cost of any choice is the value of the best forgone alternative. Finally, because wants exceed resources, an individual's wants, as well the wants from different individuals, must compete against each other for the scarce resources.
2. The basic assumption made by economists about human behavior is that people try to make themselves as well off as possible. As a result, people respond to changed incentives by changing their decisions. Marginal analysis is the key tool used by economists to determine how people's

behavior will change. The idea of marginal analysis is that an individual compares the additional (or “marginal”) benefits from taking an action to the additional (or “marginal”) costs of the action. If the additional benefits from the action exceed the additional costs, taking the action makes the person better off and so economists assume that the person takes the action. Conversely, if the marginal benefits fall short of the marginal costs, economists assume that the action is not taken. An important aspect of marginal analysis is that only the *additional* benefits and costs and not the *total* benefits and costs of the action are considered. Only the additional benefits and additional costs are relevant because they are the benefits and costs that the person will enjoy and pay only if the action is undertaken. Hence, when deciding on the desirability of an action, marginal analysis is the approach we take.

3. In attempting to understand how and why something works (for example, an airplane or an economy), we can use description or we can use theory. A description is a list of facts about something. But it does not tell us which facts are essential for understanding how an airplane works (the shape of the wings) and which facts are less important (the color of the paint). Scientists use theory to abstract from the complex descriptive facts of the real world and focus only on those elements essential for understanding. These essential elements are fashioned into models — highly simplified representations of the real world. Economic models focus on the essential forces (such as competition) operating in the economy, while abstracting from less important forces (such as whims or advertising). In a real sense, models are like maps, which are useful precisely because they abstract from real world detail. A map that reproduced all the details of the real world (street lights, traffic signs, electric wires) would be useless. A useful map offers a simplified view, which is carefully selected according to the purpose of the map. A useful theory is similar: It gives guidance and insight into how the immensely complicated real world functions and reacts to changes
4. This chapter of the text is designed to give you a broad introduction to economics. Because of its

introductory nature, it covers a lot of ground. The following chapters are more focused. They examine specific topics to help fill in the details that are sketched in this overview chapter. After you complete this course, you will find it enlightening and fun to return to this chapter and read quickly through it. You will be amazed at how much you have learned and at the insights and understanding that your course has given you into how the world functions!

## Questions

### ■ True/False/Uncertain and Explain

1. Scarcity is a problem only for economies that use prices to coordinate decisions.
2. Because resources are limited, people must learn how to limit their wants.
3. The principle of substitution suggests that, when the opportunity cost of an action increases, people want to take more of that action because it now must be higher quality.
4. The opportunity cost of buying a slice of pizza for \$2 rather than a burrito for \$2 is the burrito and not the two dollars that was spent on the pizza.
5. When economic activity is coordinated by a command mechanism, the decisions of what, how, and where are the result of price adjustment.
6. In economics, a closed economy is one in which there is very limited economic freedom.
7. The problem of allocating scarce resources is faced by every economy, regardless of whether it uses prices or a command mechanism to coordinate decisions.
8. Economics is not a science because it deals with the study of willful human beings and not inanimate objects in nature.
9. A positive economic statement is one that economists are "positive" is correct.
10. A positive statement is about what is; a normative statement is about what will be.
11. Detailed description alone is the key to understanding what makes things work.
12. An example of the "how" question is: "How does the nation decide who gets the goods and services that are produced?"
13. Macroeconomics studies the causes of inflation.
14. The idea of *ceteris paribus* is used whenever a *post hoc* fallacy is being discussed.
15. When the predictions of a model conflict with the relevant facts, the model must be discarded or modified.

### ■ Multiple Choice

1. The fact that human wants cannot be fully satisfied with available resources is called the problem of
  - a. opportunity cost.
  - b. scarcity.
  - c. what to produce.
  - d. for whom to produce.
2. From 9 to 10 A.M., Fred can sleep in, go to his economics lecture, or play tennis. Suppose that Fred decides to go to the lecture but thinks that, if he hadn't, he would otherwise have slept in. The opportunity cost of attending the lecture is
  - a. sleeping in *and* playing tennis.
  - b. playing tennis.
  - c. sleeping in.
  - d. one hour of time.
3. One student from a thirty-person class can easily walk through a door. Assuming that all thirty students simultaneously can therefore easily walk through the same door is an example of the
  - a. opportunity cost fallacy.
  - b. fallacy of composition
  - c. fallacy of substitution.
  - d. *post hoc* fallacy.

4. The problem of scarcity exists
  - a. only in the past but not anymore.
  - b. only in very poor economies.
  - c. in all economies.
  - d. now but will be eliminated with economic growth.
5. When the government chooses to use resources to build a dam, these resources are no longer available to build a highway. This choice illustrates the concept of
  - a. a market mechanism.
  - b. macroeconomics.
  - c. opportunity cost.
  - d. a closed economy.
6. A positive statement is
  - a. about what ought to be.
  - b. about what is.
  - c. always true.
  - d. one that does not use the *ceteris paribus* clause.
7. The opportunity cost to a customer of getting a \$10 haircut is the
  - a. customer's best alternative use of the \$10.
  - b. customer's best alternative use of the time it takes to get a haircut.
  - c. customer's best alternative use of both the \$10 and the time it takes to get a haircut.
  - d. value to the barber of \$10 and the time it takes to give a haircut.
8. The question "Should personal computers or mainframe computers be produced?" is an example of the
  - a. what question.
  - b. how question.
  - c. where question.
  - d. who question.
9. Suppose that Lea and Brent both must skip work for an hour to take an exam. If Lea's job pays \$12 per hour and Brent's pays \$9 an hour, the opportunity cost of taking the exam
  - a. is higher for Lea.
  - b. is higher for Brent.
  - c. is the same for Lea and Brent.
  - d. cannot be compared for Lea and Brent.
10. The *post hoc* fallacy is the
  - a. assertion that what is true for a part of the whole must be true for the whole.
  - b. claim that one event caused another because the first event came first.
  - c. use of *ceteris paribus* in order to study the impact of one factor.
  - d. claim that the timing of two events has nothing to do with which event caused the other.
11. Which of the following is a positive statement?
  - a. The government must lower the price of a pizza so that more students can afford to buy it.
  - b. The best level of taxation is zero percent because then people get to keep everything they earn.
  - c. My economics class should last for two terms because it is my favorite class.
  - d. An increase in college tuition will cause fewer students to apply to college.
12. Marginal analysis
  - a. states that an individual compares the total benefits and total costs before taking an action to decide if the action is worthwhile.
  - b. assumes that a person will not use his or her scarce resources unless there is a very large positive benefit from so doing.
  - c. suggests that someone undertakes an action only when the marginal costs of the action are less than the marginal benefits.
  - d. applies only in a nation that does not use a command mechanism to allocate resources.
13. The Latin term *ceteris paribus* means
  - a. "false unless proven true."
  - b. "other things the same."
  - c. "after this, then because of this."
  - d. "not correct, even though it is logical."
14. What coordinates economic activity in markets?
  - a. Firms.
  - b. Households.
  - c. Planners.
  - d. Prices.

15. Which of the following is NOT a factor of production?
  - a. The labor hired by a business.
  - b. The capital equipment used by a business.
  - c. The money a business has in the bank.
  - d. The land used by a business.
16. Scarcity can be eliminated through
  - a. competition.
  - b. market mechanisms.
  - c. command mechanisms.
  - d. none of the above because scarcity cannot be eliminated.
17. Economic efficiency is attained in part when
  - a. people's incomes are equal.
  - b. the economy grows as rapidly as possible.
  - c. there are no major fluctuations in economic activity.
  - d. the costs of producing the goods consumers want are as low as possible.
18. Second round effects are caused by
  - a. the fact that the first round effects are never sufficient to solve the "what" question.
  - b. the substitutions people make in response to changed incentives.
  - c. the impact of scarcity combined with positive analysis.
  - d. incomplete first round effects.
19. An economic model includes
  - a. only normative statements.
  - b. no use of *ceteris paribus*.
  - c. all known facts about a situation.
  - d. only details considered essential.
20. Which of the following is a positive statement?
  - ☒ a. Low rents will restrict the supply of housing.
  - b. Low rents are good because they make apartments more affordable.
  - c. Housing costs too much.
  - ☒ d. Owners of apartment buildings ought to be free to charge whatever rent they want.
20. In an economy in which markets are used to coordinate economic decisions, what solves the economic questions of "what," "how," "where," "when," and "who"?
  - a. Commands, issued by planners, pass through the chain of markets and answer the questions.
  - b. Prices in markets answer the economic questions.
  - c. Laws instruct individuals about the proper answers.
  - d. The principle of scarcity answers the questions by allocating scarce resources to where they are most needed.
22. An example of a "what" question is
  - a. "Will buses or subways be produced?"
  - b. "Will professional football players or video game programmers be paid more?"
  - c. "What hours is the local Taco Bell open?"
  - d. "Will rice be grown in Kansas or California?"
23. Opportunity cost does NOT include
  - a. external cost.
  - b. value of the best alternative forgone.
  - c. value of all alternatives forgone.
  - d. time cost.
24. Which of the following is a microeconomic topic?
  - a. The reasons why Kathy buys less orange juice.
  - b. The reasons for a decline in average prices.
  - c. The cause of recessions.
  - d. The effect of the government budget deficit on inflation.

### ■ Short Answer Problems

1. "In the future, as our technology advances even further, eventually we will whip scarcity. In the high-tech future, scarcity will be gone." Do you agree or disagree with this claim? Explain your answer and what scarcity is. Also, why does the existence of scarcity require choices?
2. In sciences such as chemistry, controlled experiments play a key role. How does that relate to economists' use of *ceteris paribus*?

3. What are the four objectives of economic policy? Is one of these either distinctly more or distinctly less important than the others? Explain your answer.
4. "Education is basic right. Just as kindergarten through 12th grade education is free, so, too, should a college education be free and guaranteed to every American." This statement can be analyzed by using the economic concepts discussed in this chapter to answer the following questions.
  - a. What would be the opportunity cost of providing a free college education for everyone?
  - b. Is providing this education free from the perspective of society as a whole?
5. Ashley, Doug, and Mei-Lin are planning to travel from New York to Boston. The trip takes one hour by airplane and five hours by train. The air fare is \$100 and train fare is \$60. They all have to take time off from work while traveling. Ashley earns \$5 per hour in her job, Doug \$10 per hour, and Mei-Lin \$12 per hour.

Calculate the opportunity cost of air and train travel for each person. If each wants to travel at the lowest possible cost, how will each of them travel to Boston?
6. Indicate whether each of the following statements is positive or normative. If it is normative, rewrite it so that it becomes positive. If it is positive, rewrite it so that it becomes normative.
  - a. The government ought to reduce the size of its budget deficit in order to lower interest rates.
  - b. Government imposition of a tax on tobacco products will reduce their consumption.
  - c. Health care costs should be lower so that poorer people can afford quality health care.
7. A student-athlete is contemplating whether to return to college for his senior year or enter the NFL draft. If he returns, tuition costs \$5,000, room and board \$7,000, and books \$800. His college has given him a scholarship that will cover his tuition, books, and \$6,500 of his room and board. If he enters the NFL draft, he will be a first-round draft choice and receive a contract worth \$2 million for his first year. If he is in the NFL, he will incur incidental expenses of \$100,000 a year. What is the student's opportunity cost of returning to college for his senior year?

### ■ You're the Teacher

1. "Economic theories are useless because the models on which they are based are totally unrealistic. They leave out so many descriptive details about the real world, they can't possibly be useful for understanding how the economy works." Defend the fact that economic theories are much simpler than reality.
2. "Does everything have an opportunity cost?" This student is asking a very good question; provide an equally good answer!



## Answers

### ■ True/False Answers

1. **F** Scarcity exists because people's wants exceed their ability to meet those wants, and this fact of life is true for *any* economy.
2. **F** Wants describe the amount that people would take if everything were free; wants are unlimited but the amount that people actually buy is limited.
3. **F** The principle of substitution points out that when the opportunity cost of an action increases, people undertake less of the action.
4. **T** The opportunity cost is the burrito that was sacrificed in order to buy the pizza.
5. **F** In an economy coordinated by a command mechanism, commands from some central planner provide answers to the economic questions.
6. **F** A closed economy is one that does not trade with any other country.
7. **T** Every economy faces scarcity, so every economy must (somehow) allocate its scarce resources among competing opportunities.
8. **F** Economics is a science because it generates predictions about the real world.
9. **F** Positive statements attempt to describe how the world works.
10. **F** A normative statement tells what policies should be followed.
11. **F** Detailed description is not a fruitful source for understanding how things work because too many details cause confusion. A theory that focuses only on key elements is more useful.
12. **F** The "how" question asks, "How are goods and services produced?"
13. **T** Inflation involves the prices of all goods and services and so is one of the major topics studied in macroeconomics.
14. **F** *Ceteris paribus* is used in order to focus on the effect from a change in one factor.
15. **T** A model's predictions must be consistent with the facts to become part of accepted theory.

### ■ Multiple Choice Answers

1. **b** Scarcity refers to the observation that human wants are unlimited but that the resources available to satisfy these wants are limited.
2. **c** The opportunity cost of any action is the (single) best alternative forgone by taking the action.
3. **b** In this case, the fallacy of composition is arguing that what is true for a part must necessarily be true for the whole.
4. **c** Scarcity — the fact that wants exceed the resources available to satisfy all the wants — will exist forever in all economies.
5. **c** Because the resources are used to build a dam, the opportunity of using them to build a highway is lost.
6. **b** Positive statements describe how the world is and how it works.
7. **c** The opportunity cost of purchasing a good includes the time spent buying it as well as the other goods that can no longer be purchased.
8. **a** The "what" question asks, "What goods and services will be produced?"
9. **a** The cost in terms of time spent taking the test is the same for Lea and Brent. However, Lea passes up buying \$12 worth of things, and Brent loses the ability to buy only \$9.
10. **b** The usual *post hoc* fallacy is to claim that one event caused another because the first event occurred before the second.
11. **d** This statement is the only one that tries to describe how the world actually works; all the others are normative statements that describe a policy that should be pursued.
12. **c** This is an example of marginal analysis, a very important concept in economics.
13. **b** *Ceteris paribus* is the economic equivalent of a controlled experiment: Its use allows us to determine the effect of changing only one factor at a time.
14. **d** Prices are used in a market economy to coordinate households' desires about what to buy and firms' plans about what to sell.
15. **c** Factors of production are the actual inputs used to produce goods and services, not money in a bank.

16. **d** Scarcity is the universal condition that human wants always exceed the resources available.
  17. **d** In part, economic efficiency requires that the goods being produced are those that consumers want; another part of economic efficiency requires that these goods be produced as inexpensively — as efficiently! — as possible.
  18. **b** As people respond to the price changes created by the first-round effect, second-, and then third-, fourth-, etc., round effects occur.
  19. **d** By including only essential details, economic models are vastly simpler than reality.
  20. **a** This statement is the only one that describes how the world works.
  21. **b** We begin exploring the role that prices play in answering these economic questions Chapter 4.
  22. **a** The “what” questions asks, “What is produced?” — in this case, busses or subways?
  23. **c** Opportunity cost includes only the *best* alternative forgone, not all alternatives forgone.
  24. **a** Kathy is an individual consumer, so the reasons why she reduces her purchases of orange juice is a microeconomic topic.
2. Chemists can check the predictions of a model by conducting controlled experiments and observing the outcomes. For instance, when determining the effect of temperature on a particular reaction, chemists can ensure that, between different experiments, *only* the temperature changes. Everything else is held constant. Economists usually cannot perform such controlled experiments and instead must change one variable at a time in a model and compare the results. This approach involves the use of *ceteris paribus*, wherein only one factor is allowed to change. Additionally, the differences in the model's outcomes can be tested only against variations in data that occur naturally in the economy. This constraint means economists face more difficult and less precise model building and testing than is possible for the controlled experiments of chemists and other scientists.
  3. The four objectives of economic policy are economic efficiency, equity, economic growth, and economic stability. The issue of whether one of these is more important than the others is a normative question. Some people may feel that efficiency is vital; others may opt for equity or growth. Thus we cannot unambiguously conclude that one of these objectives is more or less important than the others.

### ■ Answers to Short Answer Problems

1. This claim is incorrect. Scarcity will always exist. Scarcity occurs because people's wants are unlimited, but the resources available to satisfy these wants are finite. As a result, not all of everyone's wants can be satisfied; the goods and services that are needed to meet all the wants are simply unavailable. For instance, think about the number of people who want to spend all winter skiing on uncrowded slopes. Regardless of the level of technology, there simply are not enough ski slopes available to allow everyone who wants to spend all winter skiing in near isolation to do so. Uncrowded ski slopes are scarce and will remain so forever. Thus technology can never eliminate scarcity.

At its most basic level, scarcity is a problem of essentially infinite wants and limited resources. Because not all the goods and services wanted can be produced, choices must be made about which

wants will be satisfied and which wants will be disappointed.

4. a. Even though a college education may be offered without charge (“free”), opportunity costs still exist. The opportunity cost of providing such education is the best alternative use of the resources used to construct the necessary universities and the best alternative use of the resources (including human resources) used in the operation of the schools.
- b. Providing a “free” college education is hardly free from the perspective of society. The resources used in this endeavor would no longer be available for other activities. For instance, the resources used to construct a new college cannot be used to construct a hospital to provide better health care. Additionally, the time and effort spent by the faculty, staff, and students operating and attending colleges has a substantial opportunity cost, namely,

that these individuals cannot participate fully in other sectors of the economy. These examples show that providing a “free” college education to everyone is not free to society!

Table 1.1 Short Answer Problem 5

Traveler		Train	Plane
<b>Ashley</b>			
(a)	Fare	\$60	\$100
(b)	Opportunity cost of travel time at \$5/hr	25	5
	Total cost	85	105
<b>Doug</b>			
(a)	Fare	\$60	\$100
(b)	Opportunity cost of travel time at \$10/hr	50	10
	Total cost	110	110
<b>Mei-Lin</b>			
(a)	Fare	\$60	\$100
(b)	Opportunity cost of travel time at \$12/hr	60	12
	Total cost	120	112

5. The main point in this question is that the total opportunity cost of travel includes both the best alternative value of the travel time and the train or air fare. The total opportunity costs of train and air travel for Ashley, Doug, and Mei-Lin are calculated in Table 1.1. Based on the calculations in Table 1.1, Ashley will take the train, Mei-Lin will take the plane, and Doug might take either.
6.
  - a. This statement is normative. A positive statement is: “If the government reduced its budget deficit, interest rates would fall.”
  - b. This statement is positive. A normative statement is: “The government should tax tobacco products in order to reduce their consumption.”
  - c. This statement is normative. A positive statement is: “If health care costs were lower, more poor people would receive health care.”
7. If the student returns to college, the opportunity cost comprises the alternatives he has sacrificed. Because his scholarship covers tuition and books, they are not part of the opportunity cost; he does

not have to pay for them and so does not sacrifice anything. However, because only \$6,500 of the \$7,000 room and board expenses are paid by the scholarship, the remaining \$500 the student pays is part of the opportunity cost of returning to college. The major component of the opportunity cost, though, is the fact that the student must pass up being drafted by the NFL. If the student plays in the NFL, he will receive \$2,000,000, less his expenses of \$100,000. Thus by playing in the NFL, the student would net \$1,900,000. By returning to school, the student loses the opportunity to earn \$1,900,000. This, then is part of the opportunity cost of returning to college for his senior year. Hence the student's opportunity cost of returning to school is \$1,900,000 plus \$500, or \$1,900,500.

### ■ You're the Teacher

1. “Economic theories are like maps, which are useful precisely because they abstract from real world detail. A useful map offers a simplified view, which is carefully selected according to the purpose of the map. No map maker would claim that the world is as simple (or as flat) as the map, and economists do not claim that the real economy is as simple as their theories. What economists do claim is that their theories isolate the effects of real forces operating in the economy, yield predictions that can be tested against real-world data, and that these predictions often are correct. “As Milton Friedman (a Nobel Prize winner in Economics) said on this topic: ‘A theory or its ‘assumptions’ cannot possibly be thoroughly ‘realistic’ in the immediate descriptive sense.... A completely ‘realistic’ theory of the wheat market would have to include not only the conditions directly underlying the supply and demand for wheat but also the kind of coins or credit instruments used to make exchanges; the personal characteristics of wheat-traders such as the color of each trader's hair and eyes, ... the number of members of his family, their characteristics, ... the kind of soil on which the wheat was grown, ... the weather prevailing during the growing season; ... and so on indefinitely. Any attempt to move very far in achieving this kind of ‘realism’ is certain to render a theory utterly useless.”