IRVIN B. TUCKER

9TH EDITION

MICROECONOMICS FOR TODAY

Dear Student,

My objective in writing this book is to provide you with everything you need for success in the course and to improve your ability to make better decisions in your everyday life—especially understanding economic issues in the news. My writing style is intended to be engaging, clear, and straightforward with an emphasis on real-world applications. As I was writing the text, I viewed myself explaining the concepts to a student in my office. As a result, there is a conversational tone to the text. To avoid boredom, the text uses a fast-paced, action-packed approach that explains all essential concepts without becoming an encyclopedia.

As a principles of economics instructor for over thirty years, I know from firsthand experience that many students are apprehensive about taking an economics course. In fact, I still recall vividly as a freshman about to take my first economics course that I had only the vaguest idea of what this subject was about. To my delight, my freshman principles of economics course opened my eyes to a new way of thinking. And my years of teaching this powerful reasoning process inspired me to try to write a text that conveyed my excitement about economics to students.

Please read through the preface, which takes you on a tour of the special pedagogical features and ancillary materials that have been created to help you maximize your learning experience with this textbook.

Regards,

Irvin B. Tucker

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IRVIN B. TUCKER

University of North Carolina Charlotte

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Microeconomics for Today, Ninth Edition

Irvin B. Tucker

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20 Channel Center Street
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ABOUT THE AUTHOR

IRVIN B. TUCKER

Irvin B. Tucker has over 30 years of experience teaching introductory economics at the University of North Carolina Charlotte. He earned his B.S. in economics at N.C. State University and his M.A. and Ph.D. in economics from the University of South Carolina. He has been a longtime leader in economic education. Dr. Tucker has served as executive director of the S.C. Council of Education and director of the Center for Economic Education at the University of North Carolina Charlotte. Dr. Tucker is recognized for his ability to relate basic principles to economic issues and public policy. His work has received national recognition by being awarded the Meritorious Levy Award for Excellence in Private Enterprise Education, the Federation of Independent Business Award for Postsecondary Educator of the Year in Entrepreneurship and Economic Education, and the Freedom Foundation's George Washington Medal for Excellence in Economic Education. In addition, his research has been published in numerous professional economics journals on a wide range of topics including industrial organization, entrepreneurship, and economics of education. Dr. Tucker is also the author of the highly successful *Survey of Economics*, ninth edition, a text for the one-semester principles of economics courses, and *Economics and Personal Finance* for high school coauthored with Joan S. Ryan. These texts are published by Cengage Learning.

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AVAILABLE VERSIONS

The Four Versions of This Book

Economics for Today	*Economics for Today*	*Microeconomics for Today*	*Macroeconomics for Today*	*Survey of Economics for Today*
1 Introducing the Economic Way of Thinking	X	X	X	X
2 Production Possibilities, Opportunity Cost, and Economic Growth	X	X	X	X
3 Market Demand and Supply	X	X	X	X
4 Markets in Action	X	X	X	X
5 Price Elasticity of Demand and Supply	X	X		X
6 Consumer Choice Theory	X	X		
7 Production Costs	X	X		X
8 Perfect Competition	X	X		X
9 Monopoly	X	X		X
10 Monopolistic Competition and Oligopoly	X	X		X
11 Labor Markets	X	X		X
12 Income Distribution, Poverty, and Discrimination	X	X		X
13 Antitrust and Regulation	X	X		
14 Environmental Economics	X	X		
15 Gross Domestic Product	X		X	X
16 Business Cycles and Unemployment	X		X	X
17 Inflation	X		X	X
18 The Keynesian Model	X		X	
19 The Keynesian Model in Action	X		X	
20 Aggregate Demand and Supply	X		X	X
21 Fiscal Policy	X		X	X
22 The Public Sector	X		X	X
23 Federal Deficits, Surpluses, and the National Debt	X		X	X
24 Money and the Federal Reserve System	X		X	X
25 Money Creation	X		X	X
26 Monetary Policy	X		X	X
27 The Phillips Curve and Expectations Theory	X		X	
28 International Trade and Finance	X	X	X	X
29 Economies in Transition	X	X	X	X
30 Growth and the Less-Developed Countries	X	X	X	X

Note: Chapter numbers refer to the complete book, *Economics for Today*.

PREFACE

TEXT WITH A MISSION

The purpose of *Economics for Today,* ninth edition, is to teach, in an engaging style, the basic operations of the U.S. economy to students who will take a two-term economics course. Rather than taking an encyclopedic approach to economic concepts, *Economics for Today* focuses on the most important tool in economics—supply and demand analysis—and applies it to clearly explain real-world economic issues.

Every effort has been made to make *Economics for Today* the most "student friendly" text on the market. This text was written because so many others expose students to a confusing array of economic analyses that force students to simply memorize in order to pass the course. Instead, *Economics for Today* presents a straightforward and unbiased approach that effectively teaches the application of basic economic principles. After reading this text, the student should be able to say "now that economics stuff in the news makes sense."

HOW IT FITS TOGETHER

This text presents the core principles of microeconomics, macroeconomics, and international economics. The first 14 chapters introduce the logic of economic analysis and develop the core of microeconomic analysis. Here students learn the role of demand and supply in determining prices in competitive versus monopolistic markets. This part of the book explores such issues as minimum wage laws, rent control, and pollution. The next 13 chapters develop the macroeconomics part of the text. Using the modern, yet simple, aggregate demand and aggregate supply model, the text explains measurement of and changes in the price level, national output, and employment in the economy. The study of macroeconomics also includes how the supply of and the demand for money influence the economy. Finally, this text concludes with three chapters devoted entirely to global issues. For example, students will learn how the supply of and demand for currencies determine exchange rates and what the complications of a strong or a weak dollar are.

TEXT FLEXIBILITY

The full version of *Economics for Today* is easily adapted to an instructor's preference for the sequencing of microeconomics and macroeconomics topics. This text can be used in a macroeconomic–microeconomic sequence by teaching the first four chapters and then Parts 5 through 7. Next, microeconomics is covered in Parts 2 through 4. Finally, the

course can be completed with Part 8, consisting of three chapters devoted to international economics.

An important design of this text is that it accommodates the two camps for teaching principles of macroeconomics: (1) those who cover both the Keynesian Cross and AD/AS models and (2) those who skip the Keynesian model and cover only the AD/AS model. For instructors who prefer the former model sequence, *Economics for Today* moves smoothly in Chapters 18–19 (8–9) from the Keynesian model (based on the Great Depression) to the AD/AS model in Chapter 20 (10). For instructors using the latter approach, this text is written so that instructors can skip the Keynesian model in Chapters 18–19 (8–9) and proceed from Chapter 17 (7) to Chapter 20 (10) without losing anything. For example, the spending multiplier is completely covered both in the Keynesian and AD/AS model chapters.

For instructors who wish to teach the self-correcting AD/AS model, emphasis can be placed on the appendixes to Chapters 20 (10) and 26 (16). Instructors who choose not to cover this model can simply skip these appendixes. In short, *Economics for Today* provides more comprehensive and flexible coverage of macroeconomics models than is available in other texts. Also, a customized text might meet your needs. If so, contact your Cengage Learning sales representative for information.

HOW NOT TO STUDY ECONOMICS

To some students, studying economics is a little frightening because many chapters are full of graphs. Students often make the mistake of preparing for tests by trying to memorize the lines of graphs. When their graded tests are returned, the students using this strategy will probably exclaim, "What happened?" The answer to this question is that the students should have learned the economic concepts *first;* then they would understand the graphs as *illustrations* of these underlying concepts. Stated simply, superficial cramming for economics quizzes does not work.

For students who are anxious about using graphs, the appendix to Chapter 1 provides a brief review of graphical analysis. In addition, Graph Builder progression graphs on the Tucker MindTap product (*coming soon!*) and the *Study Guide* posted on the Instructor Companion Site contain step-by-step features on how to interpret graphs.

CHANGES TO THE NINTH EDITION

The basic layout of the eighth edition remains the same. The following are changes:

- Chapter 1, Introducing the Economic Way of Thinking, recognizes that students taking introductory, college-level economics courses are considering their major. One reason to select economics is that the average starting salary for an undergraduate economics major is higher compared to many other majors. To aid their decision, current average starting salary figures for selected majors have been updated.

- Chapter 3, Market Demand and Supply, has an updated global economics feature on organ shortages that includes the liver transplant experience of former Apple CEO Steve Jobs.
- Chapter 9, Monopoly, has an example of the "sharing economy" that has been added to the You're the Economist on New York Taxicabs. This feature now concludes with a discussion of the unregulated rideshares market with companies like Lyft sporting distinctive thick pink mustaches on the front grill.
- Chapter 12, Income Distribution, Poverty, and Discrimination, has been updated with the latest figures on family income distribution and poverty rates. In addition, the feature article on fair pay for females has been updated. This feature generates great interest for students.
- Chapter 15 (5), Gross Domestic Product, has a new heading on GDP alternatives that has been added to introduce and briefly explain alternative measures for GDP.
- Chapter 16 (6), Business Cycles and Unemployment, includes updated business cycles and unemployment data. This chapter also includes updated unemployment data with a section on globalization.
- Chapter 17 (7), Inflation, updates data on inflation including a global comparison of annual inflation rates. In addition, the Checkpoint titled "What is the Real Price of Gasoline?" provides an application for adjusting the price of gasoline for inflation over time. And here students enjoy learning how Babe Ruth's 1932 salary is converted into today's dollars.
- Chapter 22 (12), The Public Sector, highlights the important current issue of the changing economic character of the United States with global comparisons to other countries. Here, for example, updated data and exhibits trace the growth of U.S. government expenditures and taxes since the Great Depression. And global comparison of spending and taxation exhibits have been revised.
- Chapter 23 (13), Federal Deficits, Surpluses, and the National Debt, focuses on the current "hot button" issue of federal deficits and the national debt using updated data and exhibits. This chapter includes global comparisons of the deficit and national debt as a percentage of GDP.
- Chapter 24 (14), Money and the Federal Reserve System, has updated money supply figures and a updated listing of the 10 top U.S. banks by asset size.
- Chapter 26 (16), Monetary Policy, now includes the Dodd–Frank legislation in the You're the Economist, "Did the Fed Cause the Great Recession."
- Chapter 30 (20), Growth and the Less-Developed Countries, presents updated data ranking countries by their GDP per capita. It also presents updated data comparing regions of the world by their average GDP per capita. Here updated data is used to explain the link between economic freedom and quality-of-life indicators.

NEW SUPPLEMENTS

- **Concept Clips**. These video clips explain key economic terms using animation.
- **Progression Graphs (*Coming Soon!*).** This technology decomposes complex graphs in step-by-step frames accompanied by a narrative that builds between steps.

- **Section Quizzes.** Multiple-choice questions written by the author are provided for each section of the text. This quiz is a tutorial that gives an explanation for why each possible answer is correct or incorrect.

ALTERNATE VERSIONS OF THE BOOK

For instructors who wish to spend various amounts of time for their courses and offer different topics of this text:

- *Economics for Today*. This complete version of the book contains all 30 chapters. It is designed for two-semester introductory courses that cover both microeconomics and macroeconomics.
- *Microeconomics for Today*. This version contains 17 chapters and is designed for one-semester courses in introductory microeconomics.
- *Macroeconomics for Today*. This version contains 20 chapters and is designed for one-semester courses in introductory macroeconomics.
- *Survey of Economics for Today*. This version of the book contains 23 chapters. It is designed for one-semester courses that cover the basics of both microeconomics and macroeconomics.

The Available Versions table on page xvii shows precisely which chapters are included in each book. Instructors who wish more information about these alternative versions should contact their local Cengage Learning representative.

MOTIVATIONAL PEDAGOGICAL FEATURES

Economics for Today strives to motivate and advance the boundaries of pedagogy with the following features:

PART OPENERS

Each part begins with a statement of the overall mission of the chapters in the part. In addition, there is a nutshell introduction of each chapter in relation to the part's learning objective.

CHAPTER PREVIEWS

Each chapter begins with a preview designed to pique the student's interest and reinforce how the chapter fits into the overall scheme of the book. Each preview appeals to the student's "Sherlock Holmes" impulses by posing several economics puzzles that can be solved by understanding the material presented in the chapter.

MARGIN DEFINITIONS AND FLASHCARDS

Key concepts introduced in the chapter are highlighted in bold type and then defined with the definitions again in the margins. This feature therefore serves as a quick reference. Key terms are also defined on the Tucker MindTap product with a flashcard feature that is great for learning terms.

YOU'RE THE ECONOMIST

Each chapter includes boxed inserts that provide the acid test of "relevance to everyday life." This feature gives the student an opportunity to encounter timely, real-world extensions of economic theory. For example, students read about Fred Smith as he writes an economics term paper explaining his plan to create FedEx. To ensure that the student wastes no time figuring out which concepts apply to the article, applicable concepts are listed after each title. Many of these boxed features include quotes from newspaper articles over a period of years demonstrating that economic concepts remain relevant over time.

CONCLUSION STATEMENTS

Throughout the chapters, highlighted conclusion statements of key concepts appear at the ends of sections and tie together the material just presented. Students will be able to see quickly if they have understood the main points of the section. A summary of these conclusion statements is provided at the end of each chapter.

GLOBAL ECONOMICS

Today's economic environment is global. *Economics for Today* carefully integrates international topics throughout the text and presents the material using a highly readable and accessible approach designed for students with no training in international economics. All sections of the text that present global economics are identified by a special global icon in the text margin and in the Global Economics boxes. In addition, the final three chapters of the book are devoted entirely to international economics.

ANALYZE THE ISSUE

This feature follows each *You're the Economist* and *Global Economics* feature and asks specific questions that require students to test their knowledge of how the material in the boxed insert is relevant to the applicable concept. To allow these questions to be used in classroom discussions or homework assignments, answers are provided in the Instructor's Manual rather than the text.

CHECKPOINT

Watch for these! Who said learning economics can't be fun? This feature is a unique approach to generating interest and critical thinking. These questions spark students to check their progress by asking challenging economics puzzles in game-like style. Students enjoy thinking through and answering the questions, and then checking the answers at the end of the chapter. Students who answer correctly earn the satisfaction of knowing they have mastered the concepts.

ILLUSTRATIONS

Attractive large graphical presentations with grid lines and real-world numbers are essential for any successful economics textbook. Each exhibit has been carefully analyzed to ensure that the key concepts being represented stand out clearly. Brief descriptions are included with graphs to provide guidance for students as they study the graph.

CAUSATION CHAIN GAME

This will be one of your favorites. The highly successful causation chains are included under many graphs throughout the text. This pedagogical device helps students visualize complex economic relationships in terms of simple box diagrams that illustrate how one change causes another change. Each exhibit having a causation chain in the text is included in the Animated Causation Chain game available on the Tucker MindTap product. This game makes it fun to learn. Arrange the blocks correctly to win the game.

KEY CONCEPTS

Key concepts introduced in the chapter are listed at the end of each chapter and on the Tucker MindTap product. As a study aid, you can use the key concepts as flashcards to test your knowledge. First state the definition and then click on the term to check for correctness.

VISUAL SUMMARIES

Each chapter ends with a brief point-by-point summary of the key concepts. Many of these summarized points include miniaturized versions of the important graphs and causation chains that illustrate many of the key concepts. These are intended to serve as visual reminders for students as they finish the chapters and are also useful in reviewing and studying for quizzes and exams.

STUDY QUESTIONS AND PROBLEMS

The end-of-chapter questions and problems offer a variety of levels ranging from straightforward recall to deeply thought-provoking applications. The answers to odd questions and problems are in the back of the text. This feature gives students immediate feedback without requiring the instructor to check their work.

END-OF-CHAPTER AND EXTRA SAMPLE QUIZZES

A great help before quizzes. Many instructors test students using multiple-choice questions. For this reason, the final section of each chapter provides the type of multiple-choice questions given in the instructor's Test Bank. The answers to all of these questions are given in the back of the text. In addition to the end-of-chapter sample quizzes, there are additional multiple-choice questions written by the author within the Tucker MindTap product. Each quiz contains multiple questions like those found on a typical exam. Feedback is included for each answer so that you may know instantly why you have answered correctly or incorrectly. Between this feature and the end-of-chapter sample quizzes, students are well prepared for tests.

PART ROAD MAP

This feature concludes each part with review questions listed by chapter from the previous part. To reinforce the concepts, each set of questions relates to the interactive causation chain game. Available on the Tucker MindTap product, you can make learning fun. Answers to the questions are also in the back of the text.

ONLINE EXERCISES

These exercises for each chapter are designed to spark students' excitement about researching on the Internet by asking them to access online economic data and then answer questions related to the content of the chapter. All Internet exercises are on the Tucker Instructor Companion Site with direct links to the addresses so that students will not have the tedious and error-prone task of entering long Web site addresses.

A SUPPLEMENTS PACKAGE DESIGNED FOR SUCCESS

Tucker is known for unequaled resources for instructors and students. To access additional course material for *Economics for Today,* visit www.cengagebrain.com. At the CengageBrain.com home page, search for the ISBN of your book using the search box at the top of the page. This will take you to the product page where these resources can be found. For additional information, contact your Cengage Learning sales representative.

INSTRUCTORS RESOURCES

TUCKER COMPANION SITE

The Tucker Web site at www.cengagebrain.com provides open access to PowerPoint chapter review slides, study guide, Instructor's manual, prepared by Douglas Copeland of Johnson County Community College, direct links to the Internet activities mentioned in the text, updates to the text, and other downloadable teaching and learning resources.

APLIA

When it comes to improving student outcomes, look no further than Aplia! More students are currently using an Aplia (www.aplia.com) product for principles of economics than those who are using all other Web-based learning programs combined. Because the homework in Aplia is automatically graded, you can assign homework more frequently to ensure your students are putting forth full effort and getting the most out of your class.

INSTRUCTOR'S MANUAL

This manual, prepared by Douglas Copeland of Johnson County Community College, provides valuable course assistance to instructors. It includes chapter outlines, instructional objectives, critical thinking/group discussion questions, hints for effective teaching, answers to the Analyze the Issue questions, answers to even-numbered questions and problems, summary quizzes with answers, and classroom games.

TEST BANK IN COGNERO

Too often, Test Banks are not written by the author and the questions do not really fit the text. Not so here. The Test Bank is prepared by the text author to match the text. The Test Bank includes over 7,000 multiple-choice, true/false, and short essay questions that are arranged by the order presented in the chapter and are grouped with concept headings that make it easy to select questions. Most questions have been thoroughly tested in the classroom by the author and are classified by topic and degree of difficulty.

Cengage Learning Testing Powered by Cognero is a flexible, online system that allows you to:

- Author, edit, and manage test bank content from multiple Cengage Learning solutions
- Create multiple test versions in an instant
- Deliver tests from your LMS, your classroom, or wherever you want

Start Right Away! Cengage Learning Testing Powered by Cognero works on any operating system or browser.

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- *Cross-compatible capability.* Import and export content into other systems.

POWERPOINT LECTURE SLIDES

This state-of-the-art slide presentation written and prepared by the text author provides instructors with visual support in the classroom for each chapter. Lecture slides contain vivid automated highlights of important concepts and exhibits. Instructors can edit the PowerPoint presentations or create their own exciting in-class presentations. These slides are available on the instructor companion site.

STUDENT RESOURCES

MINDTAP FOR TUCKER

MindTap engages and empowers students to produce their best work—consistently. By seamlessly integrating course material with videos, activities, apps, and much more, MindTap creates a unique learning path that fosters increased comprehension and efficiency.

- MindTap delivers real-world relevance with activities and assignments that help students build critical thinking and analytic skills that will transfer to other courses and their professional lives.
- MindTap helps students stay organized and efficient with a single destination that reflects what's important to the instructor, along with the tools students need to master the content.
- MindTap empowers and motivates students with information that shows where they stand at all times—both individually and compared to the highest performers in class.
- Relevant readings, multimedia, and activities are designed to take students up the levels of learning, from basic knowledge to analysis and application.

- Personalized teaching becomes yours through a Learning Path built with key student objectives and your syllabus in mind. Control what students see and when they see it.
- Analytics and reports provide a snapshot of class progress, time in course, engagement and completion rates.
- Aplia generic homework and math and graphing tutorials.
- End-of-chapter homework; Concept Clips videos with assessment; Causation Chain Game activities; Road Map Q&A; online exercises; Checkpoint Q&A; end-of-chapter questions and problems.

APLIA

Created by economist Paul Romer for his classroom, Aplia is the best-selling online economics product. In fact, Aplia is the most successful and widely used homework solution in economics marketing. Aplia provides automatically graded assignments that were written to make the most of the Web medium and contain detailed immediate explanations of every question.

TUCKER WEB SITE

The Tucker Web site at www.cengagebrain.com features a robust set of learning, study, and exam preparation tools that support the textbook. These include extra sample quizzes, flashcards, video clips, glossary, and more.…

- **Concept Clips**. These video clips explain key economic terms using animation.
- **Progression Graphs (*Coming Soon!*).** This technology decomposes complex graphs in step-by-step frames accompanied by a narrative that builds between steps.
- **Section Quizzes.** Multiple-choice questions written by the author are provided for each section of the text. This quiz is a tutorial that gives an explanation for why each possible answer is correct or incorrect.

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MICROECONOMICS

FOR TODAY

PART 1

INTRODUCTION TO ECONOMICS

The first two chapters introduce you to a foundation of economic knowledge vital to understanding the other chapters in the text. In these introductory chapters, you will begin to learn a valuable reasoning approach to solving economics puzzles that economists call "the economic way of thinking." Part 1 develops the cornerstone of this type of logical analysis by presenting basic economic models that explain such important topics as scarcity, opportunity cost, production possibilities, and economic growth.

CHAPTER 1

INTRODUCING THE ECONOMIC WAY OF THINKING

Welcome to an exciting and useful subject economists call "the economic way of thinking." As you learn this reasoning technique, it will become infectious. You will discover that the world is full of economics problems requiring more powerful tools than just common sense. As you master the methods explained in this text, you will appreciate economics as a valuable reasoning approach to solving economics puzzles. Stated differently, the economic way of thinking is important because it provides a logical framework for organizing your thoughts and understanding an economic issue or event. Just to give a sneak preview, in later chapters, you will study the perils of government price fixing for gasoline and health care. You will also find out why colleges and universities charge students different tuitions for the same education. You will investigate whether you should worry if the federal government fails to balance its budget. You will learn that the island of Yap uses large stones with holes in the center as money. In the final chapter, you will study why some countries grow rich while others remain poor and less developed. And the list of fascinating and relevant topics continues throughout each chapter. As you read these pages, your efforts will be rewarded by an understanding of just how economic theories and policies affect our daily lives-past, present, and future.

Chapter 1 acquaints you with the foundation of the economic way of thinking. The first building blocks joined are the concepts of scarcity and choice. The next building blocks are the steps in the model-building process that economists use to study the choices people make. Then we look at some pitfalls of economic reasoning and explain why economists might disagree with one another. The chapter concludes with a discussion of why you may want to be an economics major.

IN THIS CHAPTER, YOU WILL LEARN TO SOLVE THESE ECONOMICS PUZZLES:

- Can you prove there is no person worth a trillion dollars?
- Why would you purchase more Coca-Cola when the price increases?
- How can we explain the relationship between the Super Bowl winner and changes in the stock market?

1-1 THE PROBLEM OF SCARCITY

Our world is a finite place where people, both individually and collectively, face the problem of **scarcity**. Scarcity is the condition in which human wants are forever greater than the available supply of time, goods, and resources. Because of scarcity, it is impossible to satisfy every desire. Pause for a moment to list some of your unsatisfied wants. Perhaps you would like a big home, gourmet meals, designer clothes, clean air, better health care, shelter for the homeless, more leisure time, and so on. Unfortunately, nature does not offer the Garden of Eden, where every desire is fulfilled. Instead, there are always limits on the economy's ability to satisfy unlimited wants. Alas, scarcity is pervasive, so "you can't have it all."

Scarcity

The condition in which human wants are forever greater than the available supply of time, goods, and resources.

You may think your scarcity problem would disappear if you were rich, but wealth does not solve the problem. No matter how affluent an individual is, the wish list continues to grow. We are familiar with the "rich and famous" who never seem to have enough. Although they live well, they still desire finer homes, faster planes, and larger yachts. In short, the condition of scarcity means all individuals, whether rich or poor, are dissatisfied with their material well-being and would like more. What is true for individuals also applies to society. Even Uncle Sam can't escape the problem of scarcity because the federal government never has enough money to spend for the poor, education, highways, police, national defense, Social Security, and all the other programs it wishes to fund.

Scarcity is a fact of life throughout the world. In much of South America, Africa, and Asia, the problem of scarcity is often life-threatening. On the other hand, North America, Western Europe, and some parts of Asia have achieved substantial economic growth and development. Although life is much less grueling in the more developed countries, the problem of scarcity still exists because individuals and countries never have as much of all the goods and services as they would like to have.

CONCLUSION: The problem of scarcity and choice are basic economic problems faced by every society.

1-2 SCARCE RESOURCES AND PRODUCTION

Because of the economic problem of scarcity, no society has enough **resources** to produce all the goods and services necessary to satisfy all human wants. Resources are the basic categories of inputs used to produce goods and services. Resources are also called *factors of production*. Economists divide resources into three categories: *land*, *labor*, and *capital* (see Exhibit 1).

Resources

The basic categories of inputs used to produce goods and services. Resources are also called *factors of production*. Economists divide resources into three categories: land, labor, and capital.

1-2a LAND

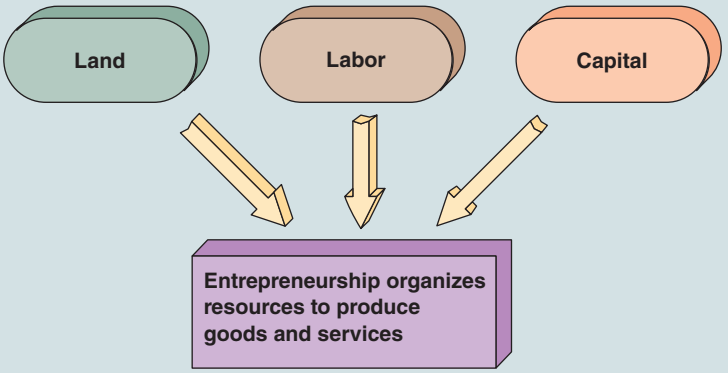
Land is a shorthand expression for any natural resource provided by nature that is used to produce a good or service. *Land* includes those resources that are gifts of nature

Land

Any natural resource provided by nature that is used to produce a good or service.

EXHIBIT 1 **Three Categories of Resources**

Resources are the basic categories of inputs organized by entrepreneurship (a special type of labor) to produce goods and services. Economists divide resources into the three categories of land, labor, and capital.



available for use in the production process. Farming, building factories, and constructing oil refineries would be impossible without land. Land includes anything natural above or below the ground, such as forests, gold, diamonds, oil, coal, wind, and the ocean. Two broad categories of natural resources are *renewable resources* and *nonrenewable resources*. Renewable resources are basic inputs that nature can automatically replace. Examples include lakes, crops, and clean air. Nonrenewable resources are basic inputs that nature cannot automatically replace. There is only so much coal, oil, and natural gas in the world. If these fossil fuels disappear, we must use substitutes.

1-2b LABOR

Labor
The mental and physical capacity of workers to produce goods and services.

Entrepreneurship
The creative ability of individuals to seek profits by taking risks and combining resources to produce innovative products.

Labor is the mental and physical capacity of workers to produce goods and services. The services of farmers, assembly-line workers, lawyers, professional football players, and economists are all *labor*. The labor resource is measured both by the number of people available for work and by the skills or quality of workers. One reason nations differ in their ability to produce is that human characteristics, such as the education, experience, health, and motivation of workers, differ among nations.

Entrepreneurship is a special type of labor. Entrepreneurship is the creative ability of individuals to seek profits by taking risks and combining resources to produce innovative products. An *entrepreneur* is a motivated person who seeks profits by undertaking such risky activities as starting new businesses, creating new products, or inventing new ways of accomplishing tasks. Entrepreneurship is a scarce human resource because relatively few people are willing or able to innovate and make decisions involving greater-than-normal chances for failure. An important benefit of entrepreneurship is that it creates a growing economy.

Entrepreneurs are the agents of change who bring material progress to society. The birth of the Levi Strauss Company is a classic entrepreneurial success story. In 1853, at the age of 24, Levi Strauss, who was born in Bavaria, sailed from New York to join the California Gold Rush. His intent was not to dig for gold but to sell cloth. By the time he arrived in San Francisco, he had sold most of his cloth to other people on the ship. The only cloth he had left was a roll of canvas for tents and covered wagons. On the dock, he met a miner who wanted sturdy pants that would last while digging for gold, so Levi made a pair from the canvas. Later, a customer gave Levi the idea of using little copper rivets to strengthen the seams. Presto! Strauss knew a good thing when he saw it, so he hired workers, built factories, and became one of the largest pants makers in the world. As a reward for taking business risks, organizing production, and introducing a product, the Levi Strauss Company earned profits, and Strauss became rich and famous.

1-2c CAPITAL

Capital is a human-made good used to produce other goods and services. Capital includes the physical plants, machinery, and equipment used to produce other goods. Capital goods are human-made goods that do not directly satisfy human wants. Before the Industrial Revolution, *capital* meant a tool, such as a hoe, an axe, or a bow and arrow. In those days, these items served as capital to build a house or provide food for the dinner table. Today, capital also consists of factories, office buildings, warehouses, robots, trucks, roads, and distribution facilities. College buildings and iPhones are also examples of capital. The term *capital* as it is used in the study of economics can be confusing. Economists know that capital in everyday conversations means money or the money value of paper assets, such as stocks, bonds, or a deed to a house. This is actually *financial* capital. In the study of economics, capital does not refer to money assets. Capital in economics means a factor of production, such as a factory or machinery. Stated simply, you must pay special attention to this point: Money is not capital and is therefore not a resource. Instead, money is used to purchase land, labor, or capital.

Capital
A human-made good used to produce other goods and services.

CONCLUSION: Money by itself does not produce goods and services; instead, it is only a means of buying capital.

1-3 ECONOMICS: THE STUDY OF SCARCITY AND CHOICE

The perpetual problem of scarcity forcing people to make choices is the basis for the definition of **economics**. Economics is the study of how society chooses to allocate its scarce resources to the production of goods and services to satisfy unlimited wants. You

Economics
The study of how society chooses to allocate its scarce resources to the production of goods and services to satisfy unlimited wants.

may be surprised by this definition. People often think economics means studying supply and demand, the stock market, money, and banking. In fact, there are many ways one could define *economics*, but economists accept the definition given here because it includes the link between *scarcity* and *choices*.

Society makes two kinds of choices: economy-wide, or macro choices, and individual, or micro choices. The prefixes *macro* and *micro* come from the Greek words meaning "large" and "small," respectively. Reflecting the macro and micro perspectives, economics consists of two main branches: *macroeconomics* and *microeconomics*.

1-3a MACROECONOMICS

Macroeconomics
The branch of economics that studies decision making for the economy as a whole.

The old saying "Looking at the forest rather than the trees" describes **macroeconomics**. Macroeconomics is the branch of economics that studies decision making for the economy as a whole. Macroeconomics applies an overview perspective to an economy by examining economy-wide variables, such as inflation, unemployment, growth of the economy, the money supply, and the national incomes of developing countries. Macroeconomic decision making considers such "big picture" policies as the effect that federal tax cuts will have on unemployment and the effect that changing the money supply will have on prices.

1-3b MICROECONOMICS

Microeconomics
The branch of economics that studies decision making by a single individual, household, firm, industry, or level of government.

Examining individual trees, leaves, and pieces of bark, rather than surveying the forest, illustrates **microeconomics**. Microeconomics is the branch of economics that studies decision making by a single individual, household, firm, industry, or level of government. Microeconomics applies a microscope to study specific parts of an economy, as one would examine cells in the body. The focus is on small economic units, such as economic decisions of particular groups of consumers and businesses. An example of microeconomic analysis would be to study economic units involved in the market for ostrich eggs. Will suppliers decide to supply more, less, or the same quantity of ostrich eggs to the market in response to price changes? Will individual consumers of these eggs decide to buy more, less, or the same quantity at a new price?

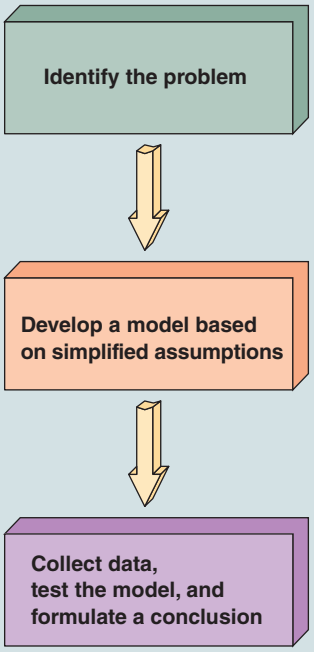
We have described macroeconomics and microeconomics as two separate branches, but they are related. Because the overall economy is the sum, or aggregation, of its parts, micro changes affect the macro economy, and macro changes produce micro changes.

1-4 THE METHODOLOGY OF ECONOMICS

As used by other disciplines, such as criminology, biology, chemistry, and physics, economists employ a step-by-step procedure for solving problems by identifying the problem, developing a model, gathering data, and testing whether the data are consistent with the theory. Based on this analysis, economists formulate a conclusion. Exhibit 2 summarizes the model-building process.

EXHIBIT 2 The Steps in the Model-Building Process

The first step in developing a model is to identify the problem. The second step is to select the critical variables necessary to formulate a model that explains the problem under study. Eliminating other variables that complicate the analysis requires simplifying assumptions. In the third step, the researcher collects data and tests the model. If the evidence supports the model, the conclusion is to accept the model. If the evidence doesn't support the model, the model is rejected.



1-4a PROBLEM IDENTIFICATION

The first step in applying the economic method is to define the issue. Suppose an economist wishes to investigate the microeconomic problem of why U.S. motorists cut back on gasoline consumption in a given year from, for example, 400 million gallons per day in May to 300 million gallons per day in December.

1-4b MODEL DEVELOPMENT

The second step in our hypothetical example toward finding an explanation is for the economist to build a **model**. A model is a simplified description of reality used to understand and predict the relationship between variables. The terms *model* and *theory* are interchangeable. A model emphasizes only those variables that are most important to explaining an event. As Albert Einstein said, "Theories should be as simple as possible,

Model
A simplified description of reality used to understand and predict the relationship between variables.

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A map is a model because it is an abstraction from reality.

but not more so." The purpose of a model is to construct an abstraction from real-world complexities and make events understandable. Consider a model airplane that is placed in a wind tunnel to test the aerodynamics of a new design. For this purpose, the model must represent only the shapes of the wings and fuselage, but it does not need to include tiny seats, electrical wiring, or other interior design details. A highway map is another example. To find the best route to drive between two distant cities, you do not want extraneous information on the location of all roads, streets, potholes, telephone lines, trees, stoplights, schools, hospitals, and firehouses. This would be too much detail, and the complexity would make it difficult to choose the best route.

To be useful, a model requires simplified assumptions. Someone must decide, for example, whether a map will include only symbols for the major highways or the details of hiking trails through mountains. In our gasoline consumption example, several variables might be related to the quantity of gasoline consumed, including consumer incomes, the prices of substitutes for gasoline, the price of gasoline, the fuel economy of cars, and weather conditions. Because a theory focuses only on the main or critical variables, the economist must be a "Sherlock Holmes" and use a keen sense of observation to form a model. Using his or her expertise, the economist must select the variables that are related to gasoline consumption and reject variables that have only a slight or no relationship to gasoline consumption. In this simple case, the economist removes the cloud of complexity by formulating the theory that increases in the price of gasoline *cause* the quantity of gasoline consumed to decrease during the time period.

1-4c TESTING A THEORY

An economic model can be stated as a verbal argument, numerical table, graph, or mathematical equation. You will soon discover that a major part of this book is devoted to building and using economic models. The purpose of an economic model is to *forecast* or *predict* the results of various changes in variables. Note that the appendix to this chapter provides a review of graphical analysis. An economic theory can be expressed in the form "If *A*, then *B*, other things held constant." An economic model is useful only if it yields accurate predictions. When the evidence is consistent with the theory that *A* causes outcome *B*, there is confidence in the theory's validity. When the evidence is inconsistent with the theory that *A* causes outcome *B*, the researcher rejects this theory.

In the third step, the economist gathers data to test the theory that if the price of gasoline rises, then gasoline purchases fall—all other relevant factors held constant. Suppose the investigation reveals that the price of gasoline rose sharply between May and December of the given year. The data are therefore consistent with the theory that the quantity of gasoline consumed per month falls when its price rises, assuming no other relevant factors change. Thus, the conclusion is that the theory is valid if, for example, consumer incomes or population size does not change at the same time that gasoline prices rise.

CHECKPOINT: Can You Prove There Is No Trillion-Dollar Person?

Suppose a theory says that no U.S. citizen is worth $1 trillion. You decide to test this theory and send researchers to all corners of the nation to check financial records to see whether someone qualifies by owning assets valued at $1 trillion or more. After years of checking, the researchers return and report that not a single person is worth at least $1 trillion. Do you conclude that the evidence proves the theory? Explain.

1-5 HAZARDS OF THE ECONOMIC WAY OF THINKING

Models help us understand and predict the impact of changes in economic variables. A model is an important tool in the economist's toolkit, but it must be handled with care. The economic way of thinking seeks to avoid reasoning mistakes. Two of the most common pitfalls to clear thinking are (1) failing to understand the *ceteris paribus assumption* and (2) confusing *association* and *causation*.

1-5a THE CETERIS PARIBUS ASSUMPTION

As you work through a model, try to think of a host of relevant variables assumed to be "standing still," or "held constant." **Ceteris paribus** is a Latin phrase that means while certain variables change, "all other things remain unchanged." In short, the ceteris paribus assumption allows us to isolate or focus attention on selected variables. In the gasoline example discussed earlier, a key simplifying assumption of the model is that changes in consumer incomes and certain other variables do not occur and complicate the analysis. The ceteris paribus assumption holds everything else constant, and therefore allows us to concentrate on the relationship between two key variables: changes in the price of gasoline and the quantity of gasoline purchased per month.

Ceteris paribus
A Latin phrase that means while certain variables change, "all other things remain unchanged."

Now suppose an economist examines a model explaining the relationship between the price and quantity purchased of Coca-Cola. The theory is "If the price increases, then the quantity of Coca-Cola purchased decreases, ceteris paribus." Now assume you observe that the price of Coca-Cola increased one summer and some people actually bought more, not less. Based on this real-world observation, you declare the theory is incorrect. Think again! The economist responds that this is a reasoning pitfall because the model is valid based on the assumption of ceteris paribus, and your observation gives us no reason to reject the model. The reason the model appeared flawed is because another factor, a sharp rise in the temperature, *caused* people to buy more Coca-Cola in spite of its higher price. If the temperature and all other factors are held constant as the price of Coca-Cola rises, then people will indeed buy less Coca-Cola, as the model predicts.

CONCLUSION: A theory cannot be tested legitimately unless its ceteris paribus assumption is satisfied.

1-5b ASSOCIATION VERSUS CAUSATION

Another common error in reasoning is confusing *association* (or correlation) and *causation* between variables. Stated differently, you err when you read more into a relationship between variables than is actually there. A model is valid only when a cause-and-effect relationship is stable or dependable over time, rather than being an association that occurs by chance and eventually disappears. Suppose a witch doctor performs a voodoo dance during three different months and stock market prices skyrocket during each of these months. The voodoo dance is *associated* with the increase in stock prices, but this does not mean the