SURVEY OF economics

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IRVIN B. TUCKER

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University of North Carolina at Charlotte

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***Survey of Economics*, Tenth Edition**
Irvin B. Tucker

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ABOUT THE AUTHOR

IRVIN B. TUCKER

IRVIN B. TUCKER was a longtime leader in economic education with 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. Dr. Tucker 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 Economics for Today, tenth edition, a text for the two-semester principles of economics courses, published by Cengage Learning.

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

PREFACE

TEXT WITH A MISSION

The purpose of *Survey of Economics*, tenth edition, is to teach, in an engaging style, the basic operations of the U.S. economy to students who will take a one-term economics course. Rather than taking an encyclopedic approach to economic concepts, *Survey of Economics* focuses on the most important tools in economics and applies these concepts to clearly explain real-world economic issues and events.

Every effort has been made to make *Survey of Economics* 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, *Survey of Economics* 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 10 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 markets versus monopolistic markets. Within these chapters, the book explores such issues as minimum wage laws, rent control, and pollution. The next 10 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 influences 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 implications are for a strong or a weak dollar on our nation's economy.

TEXT FLEXIBILITY

Survey of Economics 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 two chapters and then Parts 2, 3, and 4. Also, some instructors prefer to teach Chapter 22, Economies in Transition, after Chapter 1. Instructors should note the appendices on the self-correcting aggregate demand and supply model that follow Chapter 14, Aggregate Demand and Supply, and Chapter 20, Monetary Policy. This approach allows instructors to decide whether to cover this model. An alternative placement for Chapter 21, International Trade and Finance, is also possible. Some instructors say they prefer to emphasize international economics by placing it before the macroeconomic material in Parts 3 and 4. Other instructors believe that students should learn both the microeconomic and macroeconomic material before tackling Chapter 21. Also, a customized text might meet your needs. If so, contact your Cengage South-Western 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 in the Tucker MindTap product contains step-by-step features on how to construct and interpret graphs. Moreover, and new to this edition, Videos entitled "GuideMe Videos" (*A Graphing Tutorial for Students*) are found in the Tucker MindTap product that explain numerous key graphs throughout the textbook.

CHANGES TO THE TENTH EDITION

The basic layout of the tenth 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. In addition, the *You're the Economist* feature on the Minimum Wage has been updated with the positive and normative arguments both for and against the minimum wage.
- Chapter 2, Production Possibilities, Opportunity Cost, and Economic Growth, has an updated discussion on how public investment in infrastructure can promote economic growth and enhance the average absolute standard of living for a nation.
- Chapter 4, Markets in Action, has updated the *You're the Economist* feature entitled "Rigging the Market for Milk" to reflect the latest changes in government's attempts at supporting farm incomes.
- Chapter 8, Monopoly, has an example of the "sharing economy" that has been updated in the *You're the Economist* on New York Taxicabs. This feature now concludes with a discussion of the unregulated rideshares market with companies like Uber and Lyft.
- Chapter 10, Labor Markets and Income Distribution, has a new *Checkpoint* that asks students to consider a business' location decision based on union membership. This chapter has also been updated with the latest figures on family income distribution and poverty rates. In addition, the *You're the Economist* that addresses fair pay for females has been updated.
- Chapter 11, Gross Domestic Product, has updated data on all components of GDP.
- Chapter 12, Business Cycles and Unemployment, includes updated business cycles and unemployment data. This chapter also includes updated unemployment data by demographic groups with a section on the impacts of globalization on unemployment. This chapter also features a new *You're the Economist* examining the potential impact of artificial intelligence and other technological advancements on unemployment in the future.
- Chapter 13, Inflation, updates data on inflation including a global comparison of annual inflation rates. A new *You're the Economist* feature reports on the high inflation rates for health care in the United States and examines the impact on

households, businesses, and government. In addition, a couple of *Checkpoints* provide an application for adjusting the price of going to college and the price of gasoline for inflation over time. Here students can also enjoy learning how Babe Ruth's 1932 salary is converted into today's dollars.

- Chapter 16, 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 17, 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 18, Money and the Federal Reserve System, has updated money supply figures and an updated listing of the top 10 U.S. banks by asset size. This chapter also features a new *Checkpoint* that examines the role of bitcoins as money, and a new *You're the Economist* entitled "Should the Fed be Independent?"
- Chapter 19, Money Creation, has a new *Checkpoint* that asks students to determine how the Fed could utilize its tools to combat unemployment.
- Chapter 20, Monetary Policy, features a new *Checkpoint* that tests students' understanding of how the Fed could push interest rates down.
- Chapter 21, International Trade and Finance, has updated data for international balance of payments and trade.
- Chapter 22, Economies in Transition, has greater clarification on the differences between capitalism and socialism and why all real-world economies are mixed economies. This chapter also features a new *You're the Economist* entitled "The unrealistic path to communism." In addition, there is a new *Global Economics* section that points to a satellite photo of North Korea as perhaps a compelling testimony to the long-run failure of undemocratic command economies. Students should find this interesting.
- Chapter 23, 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. There is a new *You're the Economist* section entitled "India and China's Economic Growth: An Updated Version of Aesop's Tale" that probes the ingredients for sustained economic growth.

ALTERNATIVE VERSIONS OF THE BOOK

For instructors who want 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.* 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 accompanying table on page xiv shows precisely which chapters are included in each book.

Instructors who want more information about these alternative versions should contact their local Cengage Learning consultant.

MOTIVATIONAL PEDAGOGICAL FEATURES

Survey of Economics 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 students' "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. Several of these boxed features include quotes from newspaper articles over a period of years demonstrating that economic concepts remain relevant over time. Many of these boxed features have been updated or changed in the tenth edition to reflect the latest issues, developments, and relevant applications of economics for students today.

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. *Survey of Economics* 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 in 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. Many of these have been updated for the tenth edition to pique interest and to apply to the experiences of students today.

Exhibits

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. The MindTap course brings these exhibits to life:

- Students can interact with selected exhibits via GraphBuilder.
- Students can watch detailed explanations of selected exhibits via GuideMe Videos (*A graphing tutorial for students.*)

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 has a causation chain in the text, and a correlating in the animated causation chain game exercise in the Tucker MindTap product. 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 defined in the margins. Visit the Tucker MindTap to access for interactive flashcards.

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

These end-of-chapter questions and problems offer a variety of levels ranging from straightforward recall to deeply thought-provoking applications. The answers to odd-numbered questions and problems are found in Appendix A in the back of the text. This feature gives

students immediate feedback without requiring the instructor to check their work. The even-numbered answers are found in the Instructor's Manual.

End-of-Chapter Sample Quizzes

These particular assessments are 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 test bank. The answers are readily available to students to help them learn the material and are found in Appendix B at the end of the textbook. In addition to the end-of-chapter sample quizzes, each section quiz appears in 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. Finally, the Instructor's Manual also contains four to five multiple choice questions per chapter that can also be used to engage students with the material.

Road Maps

This feature concludes each sectioned part with review questions listed by chapter from the particular part. To reinforce the concepts, each set of questions relates to the interactive causation chain game that is available in the Tucker MindTap product. This makes learning fun. Answers to the questions are also found in Appendix C in the back of the text.

A SUPPLEMENTS PACKAGE DESIGNED FOR SUCCESS

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

INSTRUCTORS RESOURCES

Tucker Companion Site

The Tucker website at www.cengagebrain.com provides open access to PowerPoint chapter review slides; an instructor's manual prepared by Douglas Copeland of Johnson County Community College, available in various formats; updates to the text, describing key concepts relevant to the current states of economics and the world today; PowerPoint lecture tools elaborating on key concepts and exhibits, which can be used as supplies or can be customized for instructor intentions; and test banks in various downloadable formats.

STUDENT RESOURCES

MindTap for Tucker

MindTap engages students and aids them in consistently producing their best work. By seamlessly integrating course material with interactive media, step-by-step graphing, activities, apps, and much more, MindTap creates a unique learning path for courses that foster increased comprehension and efficiency of material.

- MindTap delivers real-world relevance with activities, assignments, homework, media, and study tools that help students build critical thinking and analytic skills that will carry over to their professional lives.
- MindTap helps students stay organized and efficient with a single destination that reflects what's important to the instructor and the tools to master that content. MindTap empowers students to get their "game face on" by motivating them with competitive benchmarks in performance.
- Relevant readings, multimedia, and activities are designed to take students up the levels of learning from basic knowledge to analysis and application.
- GraphBuilder exercises enable students to practice building their own graphs and honing the skills to do so for application both in the course and real-life situations.
- Students can watch detailed explanations of selected exhibits via GuideMe Videos (*A Graphing Tutorial for Students*) that explain numerous key graphs throughout the textbook.
- Analytics and reports provide a snapshot of class progress, time in course, engagement and completion rates.
- Homework and the Math & Graphing Tutorial, both powered by Aplia, as well as videos that explain key graphs round out the student learning experience within MindTap that enable students to master course content.

Acknowledgments

A deep debt of gratitude is owed to the reviewers of all ten editions for their expert assistance. All comments and suggestions were carefully evaluated and served to improve the final product.

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A Tribute to Irvin B. Tucker

The contributing authors and the entire Cengage team want to express our heartfelt gratitude for the opportunity and the privilege to have been able to work with Irvin Tucker and this textbook over all these years. Some of us have had the honor of working with Irvin from the beginning, when this book was just a manuscript. We know of few, if any, other authors who have consistently demonstrated such a firm commitment and tireless dedication to teaching and learning. Irvin has always believed that knowledge of economics can enhance people's lives and should therefore be made accessible to everyone. And Irvin has displayed the rare ability to translate complex concepts into easily understood principles that have enriched the lives of countless numbers of students across the globe. He has made economics not only accessible but fun to learn. For this, he has distinguished himself among the very best economists of our time! He is a true complement to the profession of economics and to the noble cause of education. Beyond having earned our respect as a superb economist and author, Irvin has also been such a joy to work with. He has always been kind to everyone, willing to listen to any new ideas or suggestions, and has consistently made everyone feel needed and appreciated.

We would be remiss if we did not also make a tribute to Irvin's wife, Nonie. Nonie also possesses the traits of those you feel blessed to work with. She has also made countless meaningful contributions to this title from the very beginning. Irvin and Nonie have always been known to be "quite the team!" Thank you Irvin, and thank you Nonie! You have made the world a better place!

This edition is dedicated to Irvin B. Tucker.

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

CHAPTER PREVIEW

You and I know that navigating the complex social environment in which we live as we strive to be successful and happy is not easy. However, understanding the important economic, social (cultural), and political (legal) elements at play and how they interact can certainly help. In fact, all headline-grabbing issues of our times can be viewed from these three perspectives. Perhaps all too often the economic perspective is the least understood. So, what is this *economic perspective*? What is the economic way of thinking?

In this text, you will learn what it means to think economically. You will discover that the world is full of economics problems requiring more powerful tools than just common sense. Just to give a sneak preview, in later chapters, you will discover the shortcomings 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 much 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 its price increases?
- How can the relationship between the Super Bowl winner and changes in the stock market be explained?

1–1 THE PROBLEM OF SCARCITY

At the heart of the economic way of thinking is the fact that we live in a world 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, we are unable to have as much as we would like. 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 education, highways, police, national defense, Social Security, and all the other programs it wants 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 "gruelling" 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. As a result of scarcity, every nation must decide what combination of products to produce, how much to produce, and who is going to get those goods and services. These economic choices have profound social and political implications.

CONCLUSION

The problems 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).

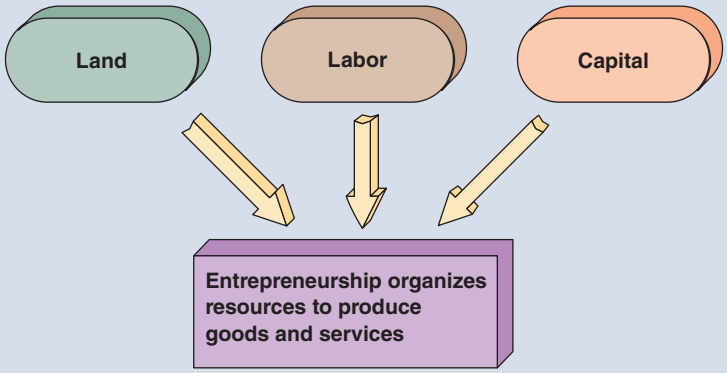
Resources
The basic categories of inputs used to produce goods and services. Resources are also called *factors of production*. Economists divide resources into three categories: land, labor, and capital.

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 or raw materials that are gifts of nature 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 crops, clean air, and the water and fish in lakes. 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.

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.

1–2b Labor

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

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

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 risky activities such as starting new businesses, creating new products, or inventing new ways of accomplishing tasks. Entrepreneurs are often successful when they embrace new or existing technologies (using their "know-how") in creative ways. For example, consider all of the amazing apps created for use with Androids and the iPhone. Entrepreneurship is a scarce human resource because relatively few people are willing or able to innovate and make decisions involving a high likelihood of 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 can be defined as a human-made good used to produce other goods and services; for example, capital includes the physical plants, machinery, and equipment used to produce other goods. Capital can be privately or publicly owned. Private capital is owned by private companies and consists of factories, office buildings, warehouses, robots, trucks, and distribution facilities. Public (or social) capital, also known as *infrastructure*, is provided by government through taxes and is collectively owned. It consists of roads, bridges, dams, airports, harbors, and public universities and other government buildings. 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, as well as many consumer goods and services.

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

Money by itself does not produce goods and services; instead, it is only a means to facilitate the purchase and sale of resources and consumer products.

CONCLUSION

1–3 ECONOMICS: THE STUDY OF SCARCITY AND CHOICE

The perpetual problem of scarcity, which forces 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 satisfy unlimited wants. You may be surprised by this definition. People often think economics means studying supply and demand, the stock market, money, and banking. Well, those are certainly parts, but economics is more all-encompassing. It is the study of the choices we make because we are faced with scarcity—because we are unable to have as much as we would like.

Society makes two broad levels 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*.

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

1–3a Macroeconomics

The old saying "Looking at the forest rather than the trees" describes **macroeconomics**, which 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, economic growth, the money supply, and the national incomes of different countries. Macroeconomic decision making considers such "big picture" policies as the effect that federal tax cuts will have on unemployment and the effect that a change in the money supply will have on inflation.

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

1–3b Microeconomics

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. It applies a microscope to study specific parts of an economy, as one would examine cells in

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

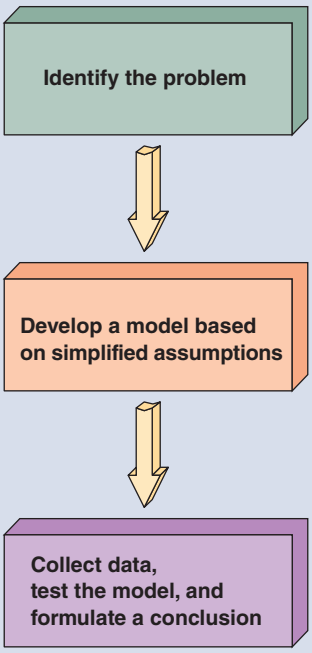
the body. The focus is on small economic units, such as economic decisions of particular groups of consumers and businesses. An example of microeconomic analysis would be to study economic units involved in the market for ostrich eggs. Will suppliers decide to supply more, less, or the same quantity 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, 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.

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

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 the price of gasoline, consumer incomes, 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 a theory, which states 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 X, then Y, all other things held constant." An economic model is useful only if it yields accurate predictions. When the evidence is consistent with the theory that X causes outcome Y, there is confidence in the theory's validity. When the evidence is inconsistent with the theory that X causes outcome Y, the researcher rejects this theory.

In this 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, therefore, appear to support 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 the fuel economy of cars does not change at the same time that gasoline prices rise.

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

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.*
2. confusing *association* and *causation.*

1–5a The Ceteris Paribus Assumption

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

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.

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 might declare that the theory is incorrect. Think again! Perhaps the reason the model appeared flawed is because another factor—for example a sharp rise in the temperature—*caused* people to buy more Coca-Cola in spite of its higher price. However, if the temperature and all other factors were held constant, and the ceteris paribus assumption is satisfied, we would find that as the price of Coca-Cola rises, 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 dance *caused* the event. Even though there is a statistical relationship between these two variables in a number of observations, eventually the voodoo dance will be performed, and stock prices will fall or remain unchanged. The reason is that there is no true systematic economic relationship between voodoo dances and stock prices.

Further investigation may reveal that stock prices actually responded to changes in interest rates during the months that the voodoo dances were performed. Changes in interest rates affect borrowing and spending, which in turn impacts corporate profits and stock prices. In contrast, there is no real economic relationship between voodoo dances and stock prices, and therefore, the voodoo model is not valid.

CONCLUSION

The fact that one event follows another does not necessarily mean that the first event caused the second event.

Should Nebraska State Join a Big-Time Athletic Conference?

Nebraska State (a mythical university) stood by while Penn State, Florida State, the University of Miami, and the University of South Carolina joined big-time athletic conferences. Now Nebraska State officials are pondering whether to remain independent or to pursue membership in a conference noted for high-quality football and basketball programs. An editorial in the newspaper advocates joining and cites a study showing that universities belonging to major athletic conferences have higher graduation rates than nonmembers. Because educating its students is the number one goal of Nebraska State, will this evidence persuade Nebraska State officials to join a big-time conference? Why or why not?

CHECKPOINT

Throughout this book, you will study economic models or theories that include variables linked by stable cause-and-effect relationships. For example, the theory that a change in the price of a good *causes* a change in the quantity purchased is a valid microeconomic model. The theory that a change in the money supply *causes* a change in interest rates is an example of a valid macroeconomic model. The *You're the Economist* gives some amusing examples of the "association means causation" reasoning pitfall.

1–6 WHY DO ECONOMISTS DISAGREE?

Why might one economist say a clean environment should be our most important priority and another economist say economic growth should be our most important goal? If economists share the economic way of thinking and carefully avoid reasoning pitfalls, then why do they disagree? Why are economists known for giving advice by saying, "On the one hand, if you do this, then *A* results, and, on the other hand, doing this causes result *B*?" In fact, President Harry Truman once jokingly exclaimed, "Find me an economist with only one hand." George Bernard Shaw offered another famous line in the same vein: "If you took all the economists in the world and laid them end to end, they would never reach a conclusion." These famous quotes imply that economists should agree, but the quotes ignore the fact that physicists, doctors, business executives, lawyers, and other professionals often disagree as well.

Economists may appear to disagree more than other professionals partly because it is more interesting to report disagreements than agreements. Actually, economists agree on a wide range of issues. Many economists, for example, agree that the benefits from free trade outweigh the costs, that a market-driven healthcare delivery system has many flaws, and that government deficit spending (which adds to the national debt) can be a good thing if we want to recover more quickly from a recession. When disagreements do exist, the reason can often be explained by the difference between *positive economics* and *normative economics*.