ECONOMICS TODAY

17TH EDITION

The Micro View

ROGER LeROY MILLER

MICROECONOMIC PRINCIPLES

Opportunity Cost

In economics, cost is always a forgone opportunity.

Law of Demand

When the price of a good goes up, people buy less of it, *other things being equal.*

Movement along, versus Shift in, a Curve

If the relative price changes, we *move along* a curve—there is a change in quantity demanded and/or supplied. If something else changes, we *shift* a curve—there is a change in demand and/or supply.

Income Elasticity of Demand

$$\text{Income elasticity of demand} = \frac{\text{percentage change in amount of a good demanded}}{\text{percentage change in income}}$$

Law of Diminishing Marginal Product

As successive equal increases in a variable factor of production, such as labor, are added to other fixed factors of production, such as capital, there will be a point beyond which the extra, or marginal, product that can be attributed to each additional unit of the variable factor of production will decline.

Supply

At higher prices, a larger quantity will generally be supplied than at lower prices, *all other things held constant.*

Or stated otherwise:

At lower prices, a smaller quantity will generally be supplied than at higher prices, *all other things held constant.*

Profits

$$\text{Accounting profits} = \text{total revenues} - \text{total costs}$$

$$\text{Economic profits} = \text{total revenues} - \text{total opportunity cost of all inputs used}$$

Price Elasticity of Demand

$$E_p = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

Price Elasticity of Supply

$$E_s = \frac{\text{percentage change in quantity supplied}}{\text{percentage change in price}}$$

Monopsony and Monopoly

		Output Market Structure	
		Perfect Competition	**Monopoly**
Input Market Structure	**Perfect Competition**	$MC = MR = P$ $W = MFC = MRP_c$	$MC = MR (< P)$ $W = MFC = MRP_m (< MRP_c)$
	Monopsony	$MC = MR = P$ $W < MFC = MRP_c$	$MC = MR (< P)$ $W < MFC = MRP_m (< MRP_c)$

Economics Today

THE MICRO VIEW

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Economics Today

THE MICRO VIEW

Seventeenth Edition

Roger LeRoy Miller

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University of Texas–Arlington

PEARSON

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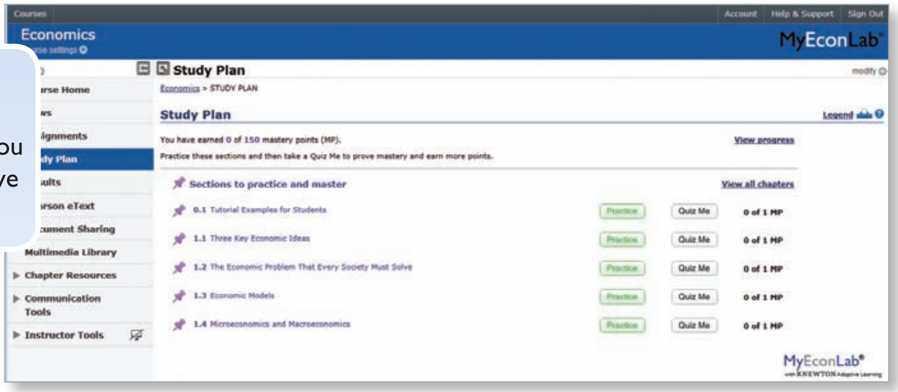
MyEconLab® Provides the Power of Practice

Optimize your study time with **MyEconLab**, the online assessment and tutorial system. When you take a sample test online, **MyEconLab** gives you targeted feedback and a personalized Study Plan to identify the topics you need to review.

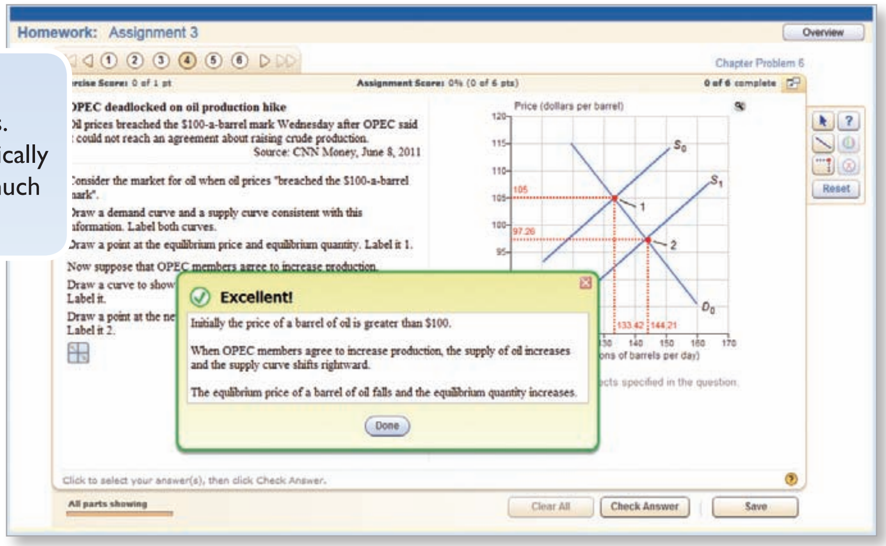
Study Plan

The Study Plan shows you the sections you should study next, gives easy access to practice problems, and provides you with an automatically generated quiz to prove mastery of the course material.



Unlimited Practice

As you work each exercise, instant feedback helps you understand and apply the concepts. Many Study Plan exercises contain algorithmically generated values to ensure that you get as much practice as you need.



Learning Resources

Study Plan problems link to learning resources that further reinforce concepts you need to master.

- **Help Me Solve This** learning aids help you break down a problem much the same way as an instructor would do during office hours. Help Me Solve This is available for select problems.
- **eText links** are specific to the problem at hand so that related concepts are easy to review just when they are needed.
- A **graphing tool** enables you to build and manipulate graphs to better understand how concepts, numbers, and graphs connect.

MyEconLab®

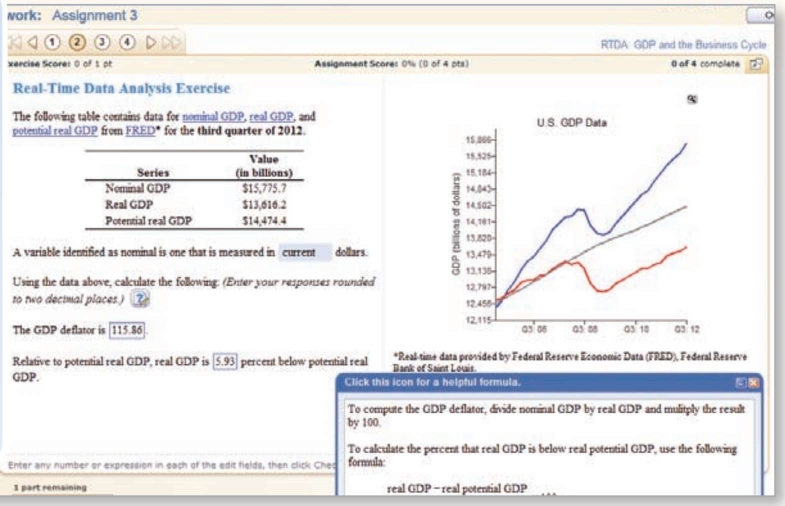
Find out more at www.myeconlab.com

Real-Time Data Analysis Exercises

Up-to-date macro data is a great way to engage in and understand the usefulness of macro variables and their impact on the economy. Real-Time Data Analysis exercises communicate directly with the Federal Reserve Bank of St. Louis's FRED site, so every time FRED posts new data, students see new data.

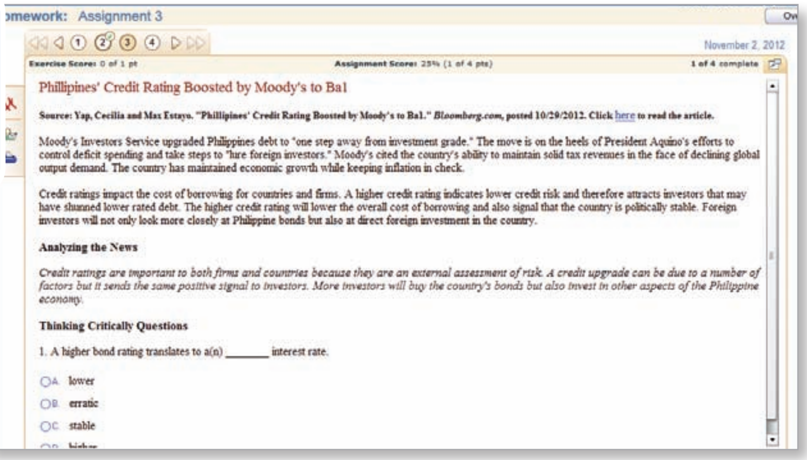
End-of-chapter exercises accompanied by the Real-Time Data Analysis icon include Real-Time Data versions in **MyEconLab**.

Select in-text figures labeled **MyEconLab** Real-Time Data update in the electronic version of the text using FRED data.



Current News Exercises

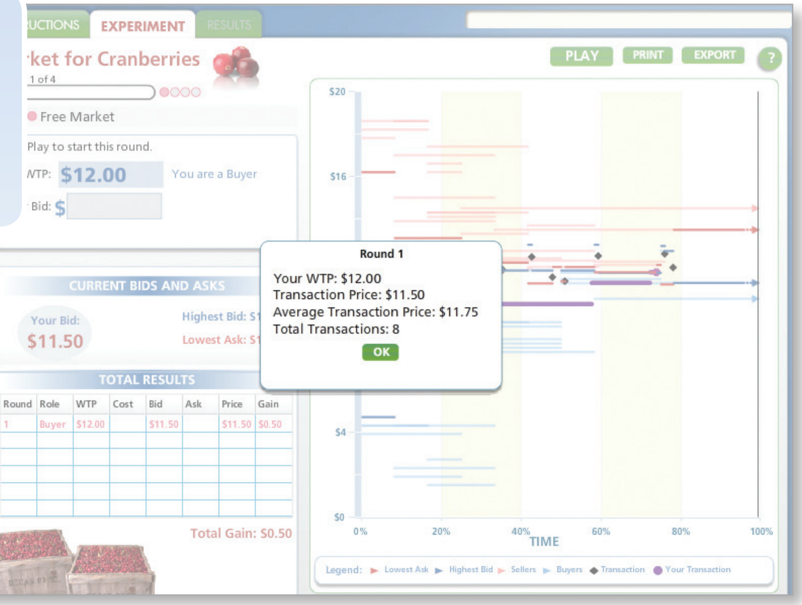
Posted weekly, we find the latest microeconomic and macroeconomic news stories, post them, and write auto-graded multi-part exercises that illustrate the economic way of thinking about the news.



Interactive Homework Exercises

Participate in a fun and engaging activity that helps promote active learning and mastery of important economic concepts.

Pearson's experiments program is flexible and easy for instructors and students to use. For a complete list of available experiments, visit *www.myeconlab.com*.



Dedication

To Pam and Joel,

Thanks for always being available
to keep me on top of the world.

—R.L.M.

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Microeconomic Emphasis The Micro View

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Balanced Micro-Macro

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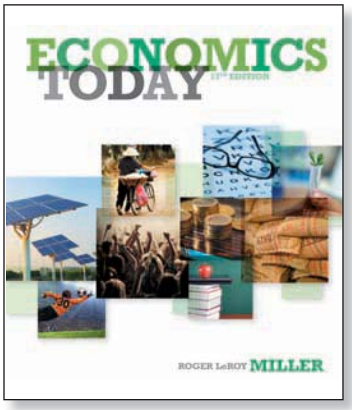
Preface



Economics Today—Bringing the Real World to Your Students

How do you compete for students' time and attention when their world is so fast paced? How do you get students to focus? How do you present the topics or principles of economics in a way that is both attention grabbing and meaningful? The best way to do so is through real-world examples. I believe in teaching by example. That is why *Economics Today* has always been a textbook filled with international, policy, and domestic examples. This edition is no exception—a total of 110 topics bring your students into the real world, including why it costs so much to go to college, why you should expect to pay more for what you buy on the Internet, why it will cost $700 million to be able to play 3D movies nationwide, and why e-books are upending the publishing business.

In keeping with this approach, I have changed almost every example as well as every Issues & Applications. This chapter-ending feature forms a "bookend" with the introduction presented on the first page of every chapter. Key Concepts are presented along with two Critical Thinking Questions and a Web Resources Project. The *You Are There* features remain student friendly and illustrate how people in the real world respond to changing economic conditions.

"I believe in teaching by example. That is why *Economics Today* has always been a textbook filled with international, policy, and domestic examples."

An engaging new feature called *What If . . . ?* can be found in every chapter. Students new to economics sometimes believe that complex problems can be solved by simple government policies or solutions that require instantaneous changes in human behavior. In the new *What If . . . ?* features I attempt to dispel some of the current notions about how to solve economic issues facing the nation and also encourage students to think like economists. *What If . . . the government were to limit or even ban excessive advertising? What If . . . the government saved U.S. jobs from foreign competition by prohibiting all exports? What If . . . the government required U.S. firms to hire only workers who reside in the United States?* These are just a few examples of this new feature.

"That is one of the underlying goals I have always set for myself when I revise *Economics Today*—to help students recognize the value of the concepts they are learning."

While this edition has been updated throughout, several topics have received special attention. For the macro policy chapters, issues relating to the growing U.S. federal deficit and public debt are covered in even more detail in Chapter 14. This chapter now discusses whether raising taxes on the highest earners can close the deficit gap and whether official measures of the current public debt underestimate promised future benefits. Chapter 16 now provides an analysis of various instruments of credit policy that the Fed appears to have adopted for the foreseeable future as a supplement to traditional monetary policy tools. Along the microeconomic dimension, Chapter 26 extends the coverage of network effects by examining two-sided markets in which intermediary platforms link groups of end users. Finally, Chapter 27 includes discussions of real changes in concentration measures and thresholds used in enforcement of U.S. antitrust policy.

Timely and relevant learning continues with MyEconLab, Pearson's online tutorial and assessment system. You can assign homework, quizzes, and tests that are automatically graded. Students have access to a suite of learning aids that help them at the very moment they might be struggling with the concepts. There are weekly news articles, many experiments, and questions that update in real time with data from the Federal Reserve Bank of St. Louis.

The trained economist sees economics everywhere—we observe people responding to changes in incentives all of the time. We economists would all like to have our students not only understand how powerful economics is but also use their newly acquired skills in their daily and professional lives. That is one of the underlying goals I have always set for myself when I revise *Economics Today*—to help students recognize the value of the concepts they are learning.

—Roger LeRoy Miller

New to This Edition

This new edition of *Economics Today* covers leading-edge issues while lowering barriers to student learning. The text relentlessly pursues the fundamental objective of showing students how economics is front and center in *their* own lives while providing them with many ways to evaluate their understanding of key concepts covered in each chapter.

Modern topics in economic theory and policy are spotlighted throughout the text. These include:

- An appraisal of key questions raised by continuing growth of the **U.S. government deficit and the public debt:** Chapter 14 considers whether the federal government can rely on raising taxes to eliminate its budget deficit and whether official measures of *today's* public debt understate total promises of benefits to be paid in the *future*.
- An evaluation of a new aspect of **Federal Reserve policymaking:** Chapter 16 provides an analysis of various tools of *credit policy* adopted by the Federal Reserve in recent years to supplement its traditional monetary policy instruments.
- Coverage of **two-sided markets:** The discussion of network effects in Chapter 26 now includes consideration of oligopoly pricing complications that arise in markets in which intermediary *platforms* link groups of *end users*.
- An updated exposition of **antitrust guidelines:** Chapter 27 has been revised in light of recent changes in concentration measures and thresholds applied by authorities charged with enforcing U.S. *antitrust policy*.

ISSUES & APPLICATIONS

Have Unemployment Benefits Boosted Unemployment?

CONCEPTS APPLIED

- Unemployment Rate
- Cyclical Unemployment
- Structural Unemployment

Between June 2008 and February 2009, the U.S. unemployment rate rose sharply, from 5.6 percent to more than 8 percent. Although the recession officially ended in June 2009, the unemployment rate ultimately reached a peak of 10.1 percent in October 2009. Since then, the unemployment rate has stayed near 8 percent. Thus, the unemployment rate remained above its prior level by at least 2 percentage points for more than three years. Many economists conclude that structural unemployment has risen. One element contributing to this rise, they suggest, was a substantial increase in the length of time the government paid benefits to unemployed workers.

Additional macro analyses include the following:

- Chapter 7 considers the extent to which lengthening the duration of **unemployment benefits** from 26 weeks to 99 weeks may have contributed to a higher U.S. unemployment rate.
- Chapter 11 explains why an index measure of **financial market fear** is often associated with short-term declines in total production of goods and services.
- Chapter 13 examines why most federal tax dollars recently transmitted to states to spend and thereby provide **stimulus to the U.S. economy** have failed to do so.
- Chapter 15 offers an explanation of why many banks no longer desire to expand **deposits** and indeed now actively discourage customers from depositing more funds.

The micro portion of the text now includes the following:

- Chapter 19 discusses how the concept of **price elasticity of demand** explains why many rock musicians have experienced declining revenues from sales of music recordings and concert tickets, even though the prices of recordings and tickets have increased.
- Chapter 24 examines the economic effects of a substantial expansion of **occupational licensing** requirements that many states impose on their citizens.
- Chapter 28 covers how groundbreaking new technology, such as **robotic apps,** might affect the labor market.
- Chapter 30 explains why the **income gap** between males and females has been shrinking and conceivably could eventually disappear.

Making the Connection—from the Classroom to the Real World

Economics Today provides current examples with critical analysis questions that show students how economic theory applies to their diverse interests and lives. For the Seventeenth Edition, **more than 90 percent** of the examples are new.

DOMESTIC TOPICS AND EVENTS are presented through thought-provoking discussions, such as:

- State University Tuition Rates Jump—Even at the Last Moment
- Price and Revenue Changes and Price Elasticity of Demand for Air Travel

EXAMPLE

Going Online for Credit When Bank Loans Dry Up

Today, a growing number of entrepreneurs who fail to receive loans from banks instead obtain credit from Internet-based companies such as Lending Club and Prosper Marketplace. These firms provide online forums for entrepreneurs to post detailed business plans along with the specific amounts of credit desired to try to achieve success. Individual savers can assess these plans and, if they wish, commit some of their own funds to help fund entrepreneurs' projects.

In exchange for service fees, the online firms pool these individual funding commitments into larger loan packages. For example, if an entrepreneur requests $15,000 in credit and 150 savers provide an average amount of $100 each, the online company collects the savers' funds and extends a loan to the entrepreneur. In this way, firms such as Lending Club and Prosper Marketplace act as financial intermediaries.

FOR CRITICAL THINKING

Why do you suppose that default rates on loans arranged by online firms tend to be substantially higher than default rates on bank loans?

IMPORTANT POLICY QUESTIONS help students understand public debates, such as:

- Federal Indebtedness Is Much Higher Than the Net Public Debt
- The Fed Becomes a Lender of Last Resort for Foreign Banks

POLICY EXAMPLE

A Proposed Wireless Merger Experiences a Dropped Connection

Recently, AT&T and T-Mobile sought to merge their wireless operations into a single firm providing cellular phone and broadband Internet services. The proposed merger would have increased the HHI value for the nationwide wireless market—which the Justice Department's Antitrust Division determined to be the relevant market—by nearly 600. The postmerger level of the HHI would have exceeded 2,800. These amounts were well above thresholds sufficient to raise U.S. antitrust authorities' concerns about potential monopoly capability generated by a horizontal merger. Thus, the Antitrust Division filed a lawsuit seeking to block the merger, based on a claim that if the merger occurred, consumers ultimately would face much higher prices for wireless services. A few weeks later, AT&T and T-Mobile abandoned their merger plans rather than combat the lawsuit in court.

FOR CRITICAL THINKING

By definition, any horizontal merger increases industry concentration. Why might some mergers lead to lower *prices for consumers? (Hint: Recall that mergers might enable firms to experience economies of scale that reduce long-run average cost.)*

INTERNATIONAL EXAMPLE

Why the Value of China's Consumer Price Index Is Rising

In China, food's weight in the CPI is slightly below 35 percent. Food prices have been rising so rapidly, though, that the overall rate of increase in food prices per year has been contributing to 75 percent of China's officially measured annual rate of CPI inflation. Consequently, during a recent 12-month period in which the nation's measured rate of CPI inflation was 6.4 percent, the rate of increase in food prices accounted for 4.8 percentage points

FOR CRITICAL THINKING

Food's weight in the U.S. CPI is about 16 percent. If U.S. food prices rose as rapidly as Chinese food prices, would the U.S. CPI increase as much as the CPI in China? Explain.

INTERNATIONAL POLICY EXAMPLE

African Nations Benefit from Lower U.S. Trade Barriers

In 2000, the U.S. Congress passed the African Growth and Opportunity Act, which reduced substantially the tariffs faced by African companies seeking to export goods and services to the United States. African-U.S. trade has risen considerably since. Earnings that African companies derive from exports are now 500 percent higher than in 2001. Furthermore, estimates indicate that export industries in African nations now employ 300,000 additional workers as a consequence of the increased volume of trade. Thus, slashing trade barriers has generated welfare gains for African residents.

FOR CRITICAL THINKING

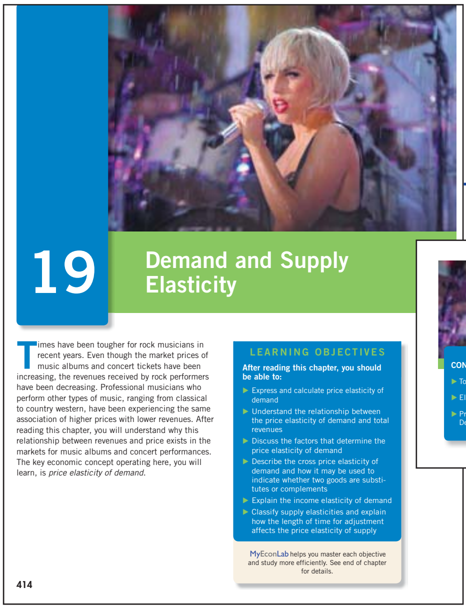
How might U.S. residents have benefited from the fact that African countries granted reciprocal reductions in tariffs on imports into their nations from the United States?

GLOBAL AND INTERNATIONAL POLICY EXAMPLES emphasize the continued importance of international perspectives and policy, such as:

- Ireland Experiences Yet Another Big "Brain Drain"
- Utilizing Artificial Intelligence to Try to Beat the Market
- Iran Removes Four Zeroes from Each Unit of Its Currency
- In Greece, "Free" Care Now Includes Substantial Implicit Costs

Helping Students Focus and Think Critically

New and revised pedagogical tools engage students and help them focus on the central ideas in economics today.



19 Demand and Supply Elasticity

Times have been tougher for rock musicians in recent years. Even though the market prices of music albums and concert tickets have been increasing, the revenues received by rock performers have been decreasing. Professional musicians who perform other types of music, ranging from classical to country western, have been experiencing the same association of higher prices with lower revenues. After reading this chapter, you will understand why this relationship between revenues and price exists in the markets for music albums and concert performances. The key economic concept operating here, you will learn, is *price elasticity of demand.*

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Express and calculate price elasticity of demand
- Understand the relationship between the price elasticity of demand and total revenues
- Discuss the factors that determine the price elasticity of demand
- Describe the cross price elasticity of demand and how it may be used to indicate whether two goods are substitutes or complements
- Explain the income elasticity of demand
- Classify supply elasticities and explain how the length of time for adjustment affects the price elasticity of supply

MyEconLab helps you master each objective and study more efficiently. See end of chapter for details.

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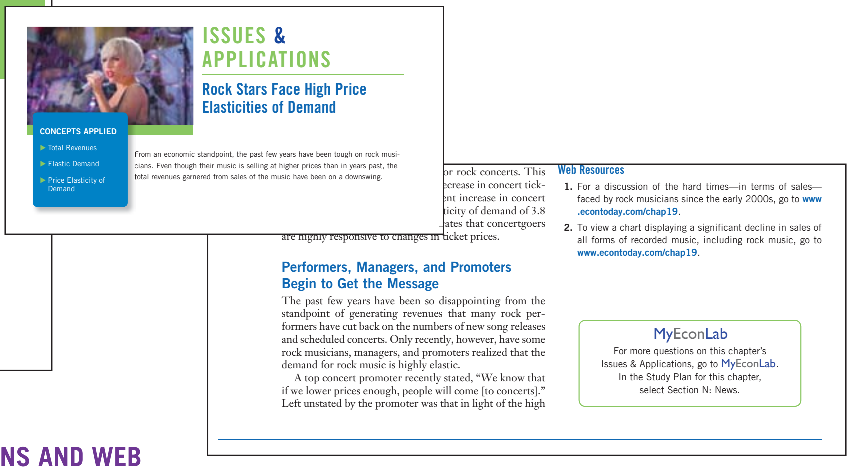
CHAPTER OPENERS tie to the **ISSUES & APPLICATIONS** feature at the end of each chapter. A current application captures students' attention at the beginning of the chapter and is revisited in more depth at the end using the concepts they have just learned.



ISSUES & APPLICATIONS

Rock Stars Face High Price Elasticities of Demand

CONCEPTS APPLIED

- Total Revenues
- Elastic Demand
- Price Elasticity of Demand

From an economic standpoint, the past few years have been tough on rock musicians. Even though their music is selling at higher prices than in years past, the total revenues garnered from sales of the music have been on a downswing.

Performers, Managers, and Promoters Begin to Get the Message

The past few years have been so disappointing from the standpoint of generating revenues that many rock performers have cut back on the numbers of new song releases and scheduled concerts. Only recently, however, have some rock musicians, managers, and promoters realized that the demand for rock music is highly elastic.

A top concert promoter recently stated, "We know that if we lower prices enough, people will come [to concerts]." Left unstated by the promoter was that in light of the high

Web Resources

1. For a discussion of the hard times—in terms of sales—faced by rock musicians since the early 2000s, go to www.econtoday.com/chap19.
2. To view a chart displaying a significant decline in sales of all forms of recorded music, including rock music, go to www.econtoday.com/chap19.

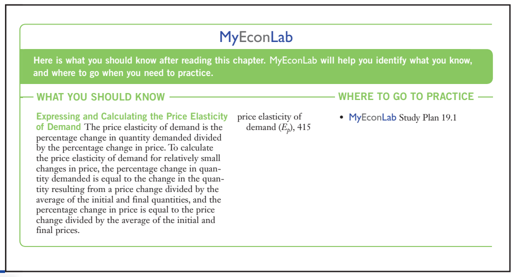
MyEconLab

For more questions on this chapter's Issues & Applications, go to MyEconLab. In the Study Plan for this chapter, select Section N: News.

CRITICAL ANALYSIS QUESTIONS AND WEB RESOURCES provide further opportunities for discussion and exploration. Suggested answers for Critical Analysis questions are in the **INSTRUCTOR'S MANUAL**. Visit MyEconLab for additional practice and assignable questions for each chapter topic.

The **END-OF-CHAPTER SUMMARY** shows students what they need to know and where to go in MyEconLab for more practice.

A VARIETY OF END-OF-CHAPTER PROBLEMS offer students opportunities to test their knowledge and review chapter concepts. Answers for odd-numbered questions are provided in the back of the text, and **ALL QUESTIONS** are assignable in MyEconLab.



MyEconLab

Here is what you should know after reading this chapter. MyEconLab will help you identify what you know, and where to go when you need to practice.

WHAT YOU SHOULD KNOW		WHERE TO GO TO PRACTICE
Expressing and Calculating the Price Elasticity of Demand The price elasticity of demand is the percentage change in quantity demanded divided by the percentage change in price. To calculate the price elasticity of demand for relatively small changes in price, the percentage change in quantity demanded is equal to the change in the quantity resulting from a price change divided by the average of the initial and final quantities, and the percentage change in price is equal to the price change divided by the average of the initial and final prices.	price elasticity of demand (E_p), 415	• MyEconLab Study Plan 19.1

QUICK QUIZZES encourage student interaction and provide an opportunity for them to check their understanding before moving on. Answers are at the end of the chapter, and more practice questions can be found in MyEconLab.

QUICK QUIZ See page 74 for the answers. Review concepts from this section in MyEconLab.

Demand curves are drawn with determinants other than the price of the good held constant. These other determinants, called ***ceteris paribus* conditions**, are (1) __________, (2) __________, (3) __________, (4) __________, and (5) __________ at any given price. If any one of these determinants changes, the demand curve will shift to the right or to the left.

A change in demand comes about only because of a change in the __________ __________ conditions of demand. This change in demand is a shift in the demand curve to the left or to the right.

A change in the quantity demanded comes about when there is a change in the price of the good (other things held constant). Such a change in quantity demanded involves a __________ __________ a given demand curve.

YOU ARE THERE discusses real people making real personal and business decisions. Topics include:

- Why a Federal Stimulus Project Took Time to Provide Stimulus
- Using a Smartphone to Attain a Consumer Optimum

YOU ARE THERE

Implementing a New Patent Framework to Promote Innovation

Senator Patrick Leahy looks on as President Barack Obama signs into law the America Invents Act, a law Leahy had authored with the aim of boosting the rate of U.S. innovation via an overhaul of the nation's patent system. Under the prior law governing patents, property rights to the returns from invention were determined on a "first-to-invent" basis. This meant that if two individuals or companies happened to invent similar products or processes at about the same time, they had to prove in court whose invention was first. Over the years, this requirement had touched off thousands of court fights among patent holders.

The legislation drawn up by Leahy and approved by Congress and the president has established a "first-to-file" rule for patents. Now the property rights associated with any invention are automatically assigned to the first individual or firm to apply for a patent for that invention. Leahy's expectation is that patent holders who once directed financial resources toward funding court battles now will use them to transform more inventions into market innovations. Speeding along the innovation process, Leahy anticipates, will help to fuel economic growth.

Critical Thinking Questions

1. Why are inventions alone insufficient to help boost economic growth?
2. What role do you think that markets perform in determining whether inventions of new products or processes translate into longer-lasting innovations?

NEW! WHAT IF...? boxes can be found in every chapter. This new feature aims to help students think critically about important real-world questions through the eyes of an economist.

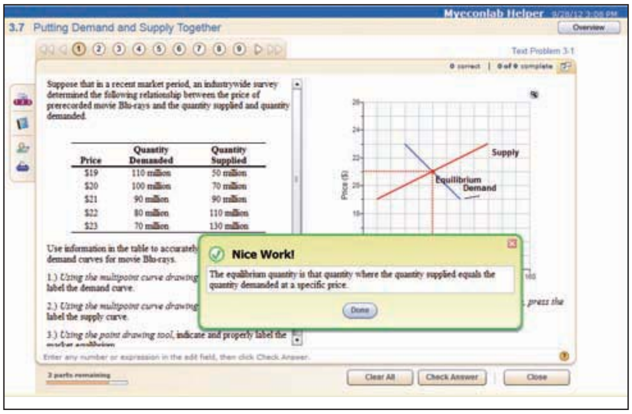
- What If... economists were to base their theories of human behavior on what people say they do, rather than on what people actually do?
- What if... a nation's government tries to head off a recession by pushing down the exchange value of the country's currency?

WHAT IF... **governments allowed people to own endangered animals as private property?**

If all animals of endangered species could be marked and cataloged as private property, some people undoubtedly would mishandle the animals they owned, just as they misuse other resources in their possession. Nevertheless, by definition, animals of endangered species are scarce resources that would have positive values—and sometimes relatively high dollar values—in private markets. This fact would give most self-interested people the incentive to preserve such animal life. Indeed, the most successful programs for preventing "too much" fishing, seal hunting, rhino poaching, and so on have been those that assign property rights. These programs motivate the rights holders to rein in such injurious activities and to preserve endangered species.

MyEconLab: The Power of Practice

MyEconLab is a powerful assessment and tutorial system that works hand-in-hand with *Economics Today*. MyEconLab includes comprehensive homework, quiz, test, and tutorial options, allowing instructors to manage all assessment needs in one program.



For the Instructor

- Instructors can now select a preloaded course option, which creates a ready-to-go course with homework, quizzes, and tests already set up. Instructors can also choose to create their own assignments and add them to the preloaded course. Or, instructors can start from a blank course
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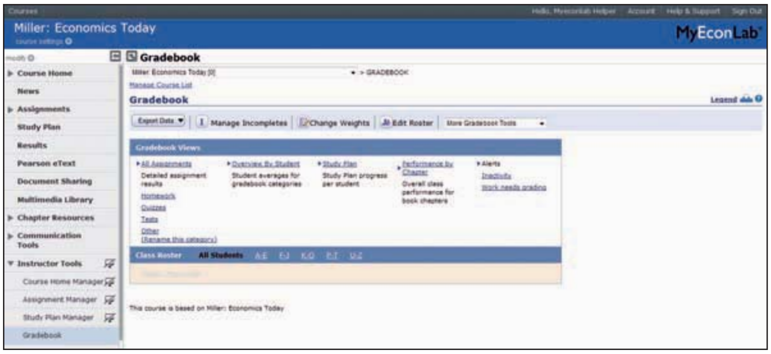

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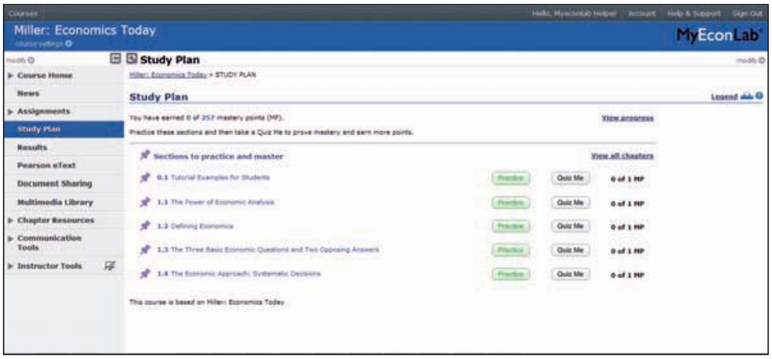

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Please visit **www.myeconlab.com** for more information.

Supplemental Resources

Student and instructor materials provide tools for success.

Test Banks 1, 2, and 3 offer more than 10,000 multiple choice and short answer questions, all of which are available in computerized format in the TestGen software. The significant revision process by author Jim Lee of Texas A&M University–Corpus Christi and accuracy reviewers Ercument Aksoy of Los Angeles Valley College and Fatma Antar of Manchester Community College ensures the accuracy of problems and solutions in these revised and updated Test Banks. The Test Bank author has connected the questions to the general knowledge and skill guidelines found in the Association to Advance Collegiate Schools of Business (AACSB) assurance of learning standards.

The Instructor's Manual, prepared by Jim Lee of Texas A&M University–Corpus Christi, includes lecture-ready examples; chapter overviews, objectives, and outlines; points to emphasize; answers to all critical analysis questions; answers to even-numbered end-of-chapter problems; suggested answers to "You Are There" questions; and selected references.

PowerPoint lecture presentations for each chapter, revised by Debbie Evercloud of University of Colorado–Denver, include graphs from the text and outline key terms, concepts, and figures from the text.

Clicker PowerPoint slides, prepared by Rick Pretzsch of Lonestar College–CyFair, allow professors to instantly quiz students in class and receive immediate feedback through Clicker Response System technology.

The Instructor's Resource Disk offers all instructor supplements conveniently packaged on a disk.

The Instructor Resource Center puts supplements right at instructors' fingertips. Visit **www.pearsonhighered.com/irc** to register.

The Study Guide offers the practice and review that students need to excel. Written by Roger LeRoy Miller and updated by David Van Hoose of Baylor University, the Study Guide has been thoroughly revised to take into account changes to the Seventeenth Edition.

The CourseSmart eTextbook for the text is available through **www.coursesmart.com**. CourseSmart goes beyond traditional expectations by providing instant, online access to the textbooks and course materials you need at a lower cost to students. And, even as students save money, you can save time and hassle with a digital textbook that allows you to search the most relevant content at the very moment you need it. Whether you're evaluating textbooks or creating lecture notes to help students with difficult concepts, CourseSmart can make life a little easier. See how when you visit **www.coursesmart.com/instructors**.

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R. L. M.

Credits

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Economics Today

THE MICRO VIEW

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The Nature of Economics

1

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

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

MyEconLab helps you master each objective and study more efficiently. See end of chapter for details.

Half of the babies delivered in 2011 in a typical Hong Kong hospital maternity ward were born to non–Hong Kong residents. This fact means that these babies were born to women classified as tourists visiting from the Chinese mainland. Why have nearly half of the babies born in Hong Kong hospitals had mothers who are not residents of Hong Kong? To formulate an answer, you must learn more about principles of economics. In particular, you must learn the key concepts discussed in this chapter, such as self-interest.

DID YOU KNOW THAT... the number of college students majoring in economics rose by more than 40 percent during the past decade? One reason that students opt for extensive study of economics is that they find the subject fascinating. Another reason, however, is self-interest. On average, students who major in economics earn 13 percent more than business management majors, 26 percent more than chemistry majors, and 50 percent more than psychology majors. Thus, students have a strong incentive to consider majoring in economics.

In this chapter, you will learn why contemplating the nature of self-interested responses to **incentives** is the starting point for analyzing choices people make in all walks of life. After all, how much time you devote to studying economics in this introductory course depends in part on the incentives established by your instructor's grading system. As you will see, self-interest and incentives are the underpinnings for all the decisions you and others around you make each day.

Incentives
Rewards or penalties for engaging in a particular activity.

The Power of Economic Analysis

Simply knowing that self-interest and incentives are central to any decision-making process is not sufficient for predicting the choices that people will actually make. You also have to develop a framework that will allow you to analyze solutions to each economic problem—whether you are trying to decide how much to study, which courses to take, whether to finish school, or whether the U.S. government should provide more grants to universities or raise taxes. The framework that you will learn in this text is the *economic way of thinking*.

This framework gives you power—the power to reach informed judgments about what is happening in the world. You can, of course, live your life without the power of economic analysis as part of your analytical framework. Indeed, most people do. But economists believe that economic analysis can help you make better decisions concerning your career, your education, financing your home, and other important matters. In the business world, the power of economic analysis can help you increase your competitive edge as an employee or as the owner of a business. As a voter, for the rest of your life you will be asked to make judgments about policies that are advocated by political parties. Many of these policies will deal with questions related to international economics, such as whether the U.S. government should encourage or discourage immigration, prevent foreign residents and firms from investing in port facilities or domestic banks, or restrict other countries from selling their goods here.

Finally, just as taking an art, music, or literature appreciation class increases the pleasure you receive when you view paintings, listen to concerts, or read novels, taking an economics course will increase your understanding and pleasure when watching the news on TV or reading articles on your iPad.

Defining Economics

Economics
The study of how people allocate their limited resources to satisfy their unlimited wants.

Economics is part of the social sciences and, as such, seeks explanations of real events. All social sciences analyze human behavior, as opposed to the physical sciences, which generally analyze the behavior of electrons, atoms, and other nonhuman phenomena.

> ***Economics is the study of how people allocate their limited resources in an attempt to satisfy their unlimited wants. As such, economics is the study of how people make choices.***

Resources
Things used to produce goods and services to satisfy people's wants.

Wants
What people would buy if their incomes were unlimited.

To understand this definition fully, two other words need explaining: *resources* and *wants*. **Resources** are things that have value and, more specifically, are used to produce goods and services that satisfy people's wants. **Wants** are all of the items that people would purchase if they had unlimited income.

Whenever an individual, a business, or a nation faces alternatives, a choice must be made, and economics helps us study how those choices are made. For example, you have to choose how to spend your limited income. You also have to choose how to spend your limited time. You may have to choose how many of your company's limited resources to allocate to advertising and how many to allocate to new-product research. In economics, we examine situations in which individuals choose how to do things, when to do things, and with whom to do them. Ultimately, the purpose of economics is to explain choices.

Microeconomics versus Macroeconomics

Economics is typically divided into two types of analysis: **microeconomics** and **macroeconomics.**

Microeconomics
The study of decision making undertaken by individuals (or households) and by firms.

Macroeconomics
The study of the behavior of the economy as a whole, including such economywide phenomena as changes in unemployment, the general price level, and national income.

> ***Microeconomics is the part of economic analysis that studies decision making undertaken by individuals (or households) and by firms. It is like looking through a microscope to focus on the small parts of our economy.***
>
> ***Macroeconomics is the part of economic analysis that studies the behavior of the economy as a whole. It deals with economywide phenomena such as changes in unemployment, in the general price level, and in national income.***

Microeconomic analysis, for example, is concerned with the effects of changes in the price of gasoline relative to that of other energy sources. It examines the effects of new taxes on a specific product or industry. If the government establishes new health care regulations, how individual firms and consumers would react to those regulations would be in the realm of microeconomics. The effects of higher wages brought about by an effective union strike would also be analyzed using the tools of microeconomics.

In contrast, issues such as the rate of inflation, the amount of economywide unemployment, and the yearly growth in the output of goods and services in the nation all fall into the realm of macroeconomic analysis. In other words, macroeconomics deals with **aggregates,** or totals—such as total output in an economy.

Aggregates
Total amounts or quantities. Aggregate demand, for example, is total planned expenditures throughout a nation.

Be aware, however, of the blending of microeconomics and macroeconomics in modern economic theory. Modern economists are increasingly using microeconomic analysis—the study of decision making by individuals and by firms—as the basis of macroeconomic analysis. They do this because even though macroeconomic analysis focuses on aggregates, those aggregates are the result of choices made by individuals and firms.

The Three Basic Economic Questions and Two Opposing Answers

In every nation, three fundamental questions must be addressed irrespective of the form of its government or who heads that government, how rich or how poor the nation may be, or what type of **economic system**—the institutional mechanism through which resources are utilized to satisfy human wants—has been chosen. The three questions concern the problem of how to allocate society's scarce resources:

Economic system
A society's institutional mechanism for determining the way in which scarce resources are used to satisfy human desires.

1. *What and how much will be produced?* Some mechanism must exist for determining which items will be produced while others remain inventors' pipe dreams or individuals' unfulfilled desires.

2. *How will items be produced?* There are many ways to produce a desired item. It is possible to use more labor and less capital, or vice versa. It is possible, for instance, to produce an item with an aim to maximize the number of people employed. Alternatively, an item may be produced with an aim to minimize the total expenses that members of society incur. Somehow, a decision must be made about the mix of resources used in production, the way in which they are organized, and how they are brought together at a particular location.

3. *For whom will items be produced?* Once an item is produced, who should be able to obtain it? People use scarce resources to produce any item, so typically people value access to that item. Thus, determining a mechanism for distributing produced items is a crucial issue for any society.

Now that you know the questions that an economic system must answer, how do current systems actually answer them?

Two Opposing Answers

At any point in time, every nation has its own economic system. How a nation goes about answering the three basic economic questions depends on that nation's economic system.

CENTRALIZED COMMAND AND CONTROL Throughout history, one common type of economic system has been *command and control* (also called *central planning*) by a centralized authority, such as a king or queen, a dictator, a central government, or some other type of authority that assumes responsibility for addressing fundamental economic issues. Under command and control, this authority decides what items to produce and how many, determines how the scarce resources will be organized in the items' production, and identifies who will be able to obtain the items.

For instance, in a command-and-control economic system, a government might decide that particular types of automobiles ought to be produced in certain numbers. The government might issue specific rules for how to marshal resources to produce these vehicles, or it might even establish ownership over those resources so that it can make all such resource allocation decisions directly. Finally, the government will then decide who will be authorized to purchase or otherwise utilize the vehicles.

How is centralized command and control affecting the net cost of constructing a high-speed rail project in California?

POLICY EXAMPLE

The Federal Government Directs New California Train Tracks

The U.S. Department of Transportation recently provided an initial $3 billion in federal tax funds for a 500-mile high-speed rail project stretching between the California cities of Anaheim and San Francisco. Local planners proposed construction of operating rail line segments in phases, starting at the highly populated ends of the route, at a projected total expense of about $18 billion. Planners suggested that opening operating segments at the more heavily populated ends of the line would generate revenues that could assist in financing the building of remaining segments of the multiyear rail construction project.

In reaction, Transportation Department officials mandated the rail line to start in California's less-populated Central Valley region. Of course, train passengers will be far fewer. Why did the U.S. government officials do this? They did so because they consider residents of the Central Valley to be "underserved" by rail transit services. The resulting completion delay will be at least two years and will add more than $1 billion to the project's ultimate net expense to taxpayers.

FOR CRITICAL THINKING

Would Transportation Department officials have made the same decision if they, rather than taxpayers, had to cover the added costs of starting construction in the Central Valley?

THE PRICE SYSTEM The alternative to command and control is the *price system* (also called a *market system*), which is a shorthand term describing an economic system that answers the three basic economic questions via decentralized decision making. Under a pure price system, individuals and families own all of the scarce resources used in production. Consequently, choices about what and how many items to produce are left to private parties to determine on their own initiative, as are decisions about how to go about producing those items. Furthermore, individuals and families choose how to allocate their own incomes to obtain the produced items at prices established via privately organized mechanisms.

In the price system, which you will learn about in considerable detail in Chapters 3 and 4, prices define the terms under which people agree to make exchanges. Prices signal to everyone within a price system which resources are relatively scarce and which resources are relatively abundant. This *signaling* aspect of the price system provides information to individual buyers and sellers about what and how many items should be produced, how production of items should be organized, and who will choose to buy the produced items.

Thus, in a price system, individuals and families own the facilities used to produce automobiles. They decide which types of automobiles to produce, how many of them to produce, and how to bring scarce resources together within their facilities to generate the desired production. Other individuals and families decide how much of their earnings they wish to spend on automobiles.

MIXED ECONOMIC SYSTEMS By and large, the economic systems of the world's nations are mixed economic systems that incorporate aspects of both centralized command and control and a decentralized price system. At any given time, some nations lean toward centralized mechanisms of command and control and allow relatively little scope for decentralized decision making. At the same time, other nations limit the extent to which a central authority dictates answers to the three basic economic questions, leaving people mostly free to utilize a decentralized price system to generate their own answers.

A given country may reach different decisions at different times about how much to rely on command and control versus a price system to answer its three basic economic questions. Until 2008, for instance, the people of the United States preferred to rely mainly on a decentralized price system to decide which and how many automobiles to produce, how to marshal scarce resources to produce those vehicles, and how to decide who should obtain them. Today, the U.S. government owns a substantial fraction of the facilities used to manufacture automobiles and hence has considerable command-and-control authority over U.S. vehicle production.

How has Cuba altered the extent to which it relies on command and control compared with the price system?

INTERNATIONAL POLICY EXAMPLE

Cuba Experiments with Mixing It Up

For more than half of a century, Cuba has been the Western Hemisphere's only Communist nation. The Cuban government sets the prices of most goods and services. For many years, the government also set the wages of about 85 percent of the country's 5.5 million workers who are government-employed. The government permitted the remaining 15 percent of employed individuals to work in 124 "authorized" private occupations, which include farming, teaching music, selling piñatas, and repairing existing items such as furniture and toys.

Today, the government is in the midst of letting go nearly 600,000 public employees, who will have to seek employment at privately determined wages. Although the nation will maintain its heavy reliance on command and control, a larger share of its workers will have their wages determined in the price system. Thus, Cuba's economy is becoming more mixed.

FOR CRITICAL THINKING

When there are fewer public workers and more private workers, will changes in wages be better or worse signals?

The Economic Approach: Systematic Decisions

Economists assume that individuals act *as if* they systematically pursue self-motivated interests and respond predictably to perceived opportunities to attain those interests. This central insight of economics was first clearly articulated by Adam Smith in 1776. Smith wrote in his most famous book, *An Inquiry into the Nature and Causes of the Wealth of Nations*, that "it is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest." Thus, the typical person about whom economists make behavioral predictions is assumed to act *as though* he or she systematically pursues self-motivated interest.

The Rationality Assumption

The **rationality assumption** of economics, simply stated, is as follows:

We assume that individuals do not intentionally make decisions that would leave themselves worse off.

Rationality assumption
The assumption that people do not intentionally make decisions that would leave them worse off.

The distinction here is between what people may think—the realm of psychology and psychiatry and perhaps sociology—and what they do. Economics does *not* involve itself in analyzing individual or group thought processes. Economics looks at what people actually do in life with their limited resources. It does little good to criticize the rationality assumption by stating, "Nobody thinks that way" or "I never think that way" or "How unrealistic! That's as irrational as anyone can get!" In a world in which people can be atypical in countless ways, economists find it useful to concentrate on discovering the baseline. Knowing what happens on average is a good place to start. In this way, we avoid building our thinking on exceptions rather than on reality.

Take the example of driving. When you consider passing another car on a two-lane highway with oncoming traffic, you have to make very quick decisions: You must estimate the speed of the car that you are going to pass, the speed of the oncoming cars, the distance between your car and the oncoming cars, and your car's potential rate of acceleration. If we were to apply a model to your behavior, we would use the rules of calculus. In actual fact, you and most other drivers in such a situation do not actually think of using the rules of calculus, but to predict your behavior, we could make the prediction *as if* you understood those rules.

How are bankers reducing robbery rates by counting on the rationality of would-be thieves?

EXAMPLE

Hello, Bank Robber, I'll Remember You

Until recently, each year since 1979, on average 11 of every 100 U.S. bank branches experienced a robbery. Bankers have worked to bring down this robbery rate by treating prospective robbers as rational people. A would-be bank robber knows that the likelihood of being caught and sentenced to prison increases significantly when someone in the bank gets a good enough look at the robber's face to provide a positive identification.

Consequently, many banks now make a point of having a teller, guard, or branch manager greet each entering customer, look the customer directly in the eye, and say hello. Since banks around the nation have instituted a policy of greeting customers at the doors, the robbery rate has dropped to only 6 of every 100 bank branches.

FOR CRITICAL THINKING

What types of costs and benefits must a prospective criminal rationally weigh before deciding whether to attempt a bank robbery?

YOU ARE THERE

To contemplate how a higher corporate tax rate in the United States relative to other nations is affecting the incentive for U.S. firms to form corporate structures within U.S. borders, take a look at **Why So Many Firms Are Incorporating Outside the United States** on page 11.

Responding to Incentives

If it can be assumed that individuals never intentionally make decisions that would leave them worse off, then almost by definition they will respond to changes in incentives. Indeed, much of human behavior can be explained in terms of how individuals respond to changing incentives over time.

Schoolchildren are motivated to do better by a variety of incentive systems, ranging from gold stars and certificates of achievement when they are young, to better grades with accompanying promises of a "better life" as they get older. Of course, negative incentives affect our behavior, too. Penalties, punishments, and other forms of negative incentives can raise the cost of engaging in various activities.

Defining Self-Interest

Self-interest does not always mean increasing one's wealth measured in dollars and cents. We assume that individuals seek many goals, not just increased wealth measured in monetary terms. Thus, the self-interest part of our economic-person assumption includes goals relating to prestige, friendship, love, power, helping others, creating works of art, and many other matters. We can also think in terms of enlightened self-interest, whereby individuals, in the pursuit of what makes them better off, also achieve the betterment of others around them. In brief, individuals are assumed to want the ability to further their goals by making decisions about how things around them are used. The head of a charitable organization usually will not turn down an additional contribution, because accepting the funds yields control over how they are used, even though it is for other people's benefit.

Thus, self-interest does not rule out doing charitable acts. Giving gifts to relatives can be considered a form of charity that is nonetheless in the self-interest of the giver. But how efficient is such gift giving?

EXAMPLE

The Perceived Value of Gifts

Every holiday season, aunts, uncles, grandparents, mothers, and fathers give gifts to their college-aged loved ones. Joel Waldfogel, an economist at the University of Minnesota, has surveyed several thousand college students after Christmas to find out the value of holiday gifts. He finds that recorded music and outerwear (coats and jackets) have a perceived intrinsic value about equal to their actual cash equivalent. By the time he gets down the list to socks, underwear, and cosmetics, the students' valuation is only about 82 percent of the cash value of the gift. He find that aunts, uncles, and grandparents give the "worst" gifts and friends, siblings, and parents give the "best."

FOR CRITICAL ANALYSIS

What argument could you use against the idea of substituting cash or gift cards for physical gifts?

QUICK QUIZ

See page 16 for the answers. Review concepts from this section in MyEconLab.

Economics is a social science that involves the study of how individuals choose among alternatives to satisfy their__________, which are what people would buy if their incomes were__________.

__________, the study of the decision-making processes of individuals (or households) and firms, and __________, the study of the performance of the economy as a whole, are the two main branches into which the study of economics is divided.

The three basic economic questions ask what and how much will be produced, how will items be produced, and for whom will items be produced. The two opposing answers are provided by the type of economic system: either__________ __________ __________ __________ or the__________ __________.

In economics, we assume that people do not intentionally make decisions that will leave them worse off. This is known as the __________ assumption.

Economics as a Science

Economics is a social science that employs the same kinds of methods used in other sciences, such as biology, physics, and chemistry. Like these other sciences, economics uses models, or theories. Economic **models,** or **theories,** are simplified representations of the real world that we use to help us understand, explain, and predict economic phenomena in the real world. There are, of course, differences between sciences. The social sciences—especially economics—make little use of laboratory experiments in which changes in variables are studied under controlled conditions. Rather, social scientists, and especially economists, usually have to test their models, or theories, by examining what has already happened in the real world.

Models, or **theories**
Simplified representations of the real world used as the basis for predictions or explanations.

Models and Realism

At the outset it must be emphasized that no model in *any* science, and therefore no economic model, is complete in the sense that it captures *every* detail or interrelationship that exists. Indeed, a model, by definition, is an abstraction from reality. It is conceptually impossible to construct a perfectly complete realistic model. For example, in physics we cannot account for every molecule and its position and certainly not for every atom and subatomic particle. Not only is such a model unreasonably expensive to build, but working with it would be impossibly complex.

The nature of scientific model building is that the model should capture only the *essential* relationships that are sufficient to analyze the particular problem or answer the particular question with which we are concerned. *An economic model cannot be faulted as unrealistic simply because it does not represent every detail of the real world.* A map of a city that shows only major streets is not faulty if, in fact, all you need to know is how to pass through the city using major streets. As long as a model is able to shed light on the *central* issue at hand or forces at work, it may be useful.

A map is the quintessential model. It is always a simplified representation. It is always unrealistic. But it is also useful in making predictions about the world. If the model—the map—predicts that when you take Campus Avenue to the north, you always run into the campus, that is a prediction. If a simple model can explain observed behavior in repeated settings just as well as a complex model, the simple model has some value and is probably easier to use.

Assumptions

Every model, or theory, must be based on a set of assumptions. Assumptions define the array of circumstances in which our model is most likely to be applicable. When some people predicted that sailing ships would fall off the edge of the earth, they used the *assumption* that the earth was flat. Columbus did not accept the implications of such a model because he did not accept its assumptions. He assumed that the world was round. The real-world test of his own model refuted the flat-earth model. Indirectly, then, it was a test of the assumption of the flat-earth model.

Is it possible to use our knowledge about assumptions to understand why driving directions sometimes contain very few details?

EXAMPLE

Getting Directions

Assumptions are a shorthand for reality. Imagine that you have decided to drive from your home in San Diego to downtown San Francisco. Because you have never driven this route, you decide to use a travel-planner device such as global-positioning-system equipment.

When you ask for directions, the electronic travel planner could give you a set of detailed maps that shows each city through which you will travel—Oceanside, San Clemente, Irvine, Anaheim, Los Angeles, Bakersfield, Modesto, and so on—with the individual maps showing you exactly how the freeway threads through each of these cities. You would get a nearly complete description of reality because the GPS travel planner will not have used many simplifying assumptions. It is more likely, however, that the travel planner will simply say, "Get on Interstate 5 going north. Stay on it for about 500 miles. Follow the signs for San Francisco. After crossing the toll bridge, take any exit marked 'Downtown.'" By omitting all of the trivial details, the travel planner has told you all that you really need and want to know. The models you will be using in this text are similar to the simplified directions on how to drive from San Diego to San Francisco—they focus on what is relevant to the problem at hand and omit what is not.

FOR CRITICAL ANALYSIS

In what way do small talk and gossip represent the use of simplifying assumptions?

THE *CETERIS PARIBUS* ASSUMPTION: ALL OTHER THINGS BEING EQUAL Everything in the world seems to relate in some way to everything else in the world. It would be impossible to isolate the effects of changes in one variable on another variable if we always had to worry about the many other variables that might also enter the analysis. Similar to other sciences, economics uses the **ceteris paribus assumption.** *Ceteris paribus* means "other things constant" or "other things equal."

***Ceteris paribus* [KAY-ter-us PEAR-uh-bus] assumption**
The assumption that nothing changes except the factor or factors being studied.

Consider an example taken from economics. One of the most important determinants of how much of a particular product a family buys is how expensive that product is relative to other products. We know that in addition to relative prices, other factors influence decisions about making purchases. Some of them have to do with income, others with tastes, and yet others with custom and religious beliefs. Whatever these other factors are, we hold them constant when we look at the relationship between changes in prices and changes in how much of a given product people will purchase.

Deciding on the Usefulness of a Model

We generally do not attempt to determine the usefulness, or "goodness," of a model merely by evaluating how realistic its assumptions are. Rather, we consider a model "good" if it yields usable predictions that are supported by real-world observations. In other words, can we use the model to predict what will happen in the world around us? Does the model provide useful implications about how things happen in our world?

Once we have determined that the model may be useful in predicting real-world phenomena, the scientific approach to the analysis of the world around us requires that we consider evidence. Evidence is used to test the usefulness of a model. This is why we call economics an **empirical** science. *Empirical* means that evidence (data) is looked at to see whether we are right. Economists are often engaged in empirically testing their models.

Empirical
Relying on real-world data in evaluating the usefulness of a model.

Models of Behavior, Not Thought Processes

Take special note of the fact that economists' models do not relate to the way people *think*. Economic models relate to the way people *act*, to what they do in life with their limited resources. Normally, the economist does not attempt to predict how people will think about a particular topic, such as a higher price of oil products, accelerated inflation, or higher taxes. Rather, the task at hand is to predict how people will behave, which may be quite different from what they *say* they will do (much to the consternation of poll takers and market researchers). Thus, people's *declared* preferences are generally of little use in testing economic theories, which aim to explain and predict people's *revealed* preferences. The people involved in examining thought processes are psychologists and psychiatrists, not typically economists.

WHAT IF... economists were to base their theories of human behavior on what people *say* they do, rather than on what people *actually* do?

The task of economists is to try to predict decisions that people will make given the incentives that they face. Consider how people respond when asked by pollsters about whether they will cut back on charitable giving if the government eliminates tax breaks for such donations. Most people state that they will continue to give as much as before, because they suspect this answer will please those who have posed the question. In fact, studies of actual responses to smaller tax breaks for charitable giving reveal that people pursue their own interest. Whether or not their true action might have pleased a pollster, they reduce donations. Thus, if economists were to rely on polls indicating how people claim that they respond to incentives such as diminished tax breaks, economists would persistently make erroneous predictions about the decisions that people actually make.

Behavioral Economics and Bounded Rationality

In recent years, some economists have proposed paying more attention to psychologists and psychiatrists. They have suggested an alternative approach to economic analysis. Their approach, which is known as **behavioral economics,** examines consumer behavior in the face of psychological limitations and complications that may interfere with rational decision making.

Behavioral economics
An approach to the study of consumer behavior that emphasizes psychological limitations and complications that potentially interfere with rational decision making.

BOUNDED RATIONALITY Proponents of behavioral economics suggest that traditional economic models assume that people exhibit three "unrealistic" characteristics:

1. *Unbounded selfishness*. People are interested only in their own satisfaction.
2. *Unbounded willpower*. Their choices are always consistent with their long-term goals.
3. *Unbounded rationality*. They are able to consider every relevant choice.