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Essentials of Economics

Sixth Edition

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Columbia University

Anthony Patrick O'Brien
Lehigh University

Pearson

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For Constance, Raph, and Will
—R. Glenn Hubbard

For Cindy, Matthew, Andrew, and Daniel
—Anthony Patrick O'Brien

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BRIEF **CONTENTS**

CONTENTS

* These end-of-chapter resource materials repeat in all chapters. Select chapters also include Real-Time Data Exercises.
Students can complete all questions, problems, and exercises in MyLab Economics.

PREFACE

Our approach in this new edition remains what it was in the first edition, published nearly 15 years ago: to provide students and instructors an economics text that delivers complete economics coverage in a "widget-free" way by using real-world business and policy examples. We are gratified by the enthusiastic response from students and instructors who have used the first five editions of this book and who have made it a best-selling economics textbook.

Much has happened in the U.S. and world economies since we prepared the previous edition, including the election of a U.S. president with a distinctive approach to economic policy. We have incorporated many of these developments in the new real-world examples and policy discussions in this edition and also in the digital resources.

New to This Edition

We are grateful to the many instructors and students who made suggestions for improvements in the previous edition. We have done our best to incorporate as many of those suggestions as possible. Here is an overview of the revisions, followed by a more detailed description.

Overview of Changes

- All the chapter openers feature either new companies or have updated information. Students can visit MyLab Economics to watch a brief video that summarizes the key points of each chapter opener.
- Chapters 1–4, include new *An Inside Look* features to help students apply economic thinking to current events and policy debates as they are presented in news articles. Additional news articles and analyses appear weekly on MyLab Economics.
- There are 15 new *Apply the Concept* features (formerly titled *Making the Connection*) to help students tie economic concepts to current events and policy issues. The *Apply the Concept* features that were retained from the previous edition are updated. Students can visit MyLab Economics to watch 65 videos in which we summarize the key points in each feature. Related assessment accompanies each video, so students can test their understanding before moving on to a new section of the chapter.
- There are 5 new *Solved Problems* and 11 heavily revised *Solved Problems*. This feature helps students break down and answer economic problems step by step. There are additional Interactive *Solved Problems* on MyLab Economics, where students can receive feedback and tutorial help.
- There is a new category of end-of-chapter material titled *Critical Thinking Exercises*. We were motivated to add this new category of exercises because many instructors have told us that students need help building skills in the following areas: (1) analyzing and interpreting information; (2) applying reasoning and logic to new or unfamiliar ideas and situations; (3) examining ideas and concepts from multiple perspectives; and (4) clearly communicating their findings in a brief paper or class presentation. Students can complete these exercises on MyLab Economics and receive feedback and tutorial help.
- All the figures and tables are updated with the latest data available. Video animations of all the numbered figures and select tables are located on MyLab Economics. Graded practice exercises are included with these animations.

- We have replaced or updated many of the end-of-chapter *Problems and Applications*. In most chapters, one or two problems include graphs or tables for students to analyze. Select chapters have a category titled *Real-Time Data Exercises*, and we updated some of these exercises. Students can complete these exercises on MyLab Economics and receive feedback and tutorial help.

New Content and Features by Chapter

Here is a description of key changes by chapter.

Chapter 1, "Economics: Foundations and Models," opens with a new discussion of why Ford Motor Company manufactures cars in both the United States and Mexico. *An Inside Look* at the end of the chapter presents a news article and analysis of how likely it is that significant numbers of manufacturing jobs will return to the United States from overseas. New *Solved Problem 1.1* analyzes the marginal benefit and marginal cost of speed limits on highways. A new *Apply the Concept* examines why countries trade with each other and how economic concepts can help us evaluate policy debates about tariffs on imports. Taking a principles of economics class requires students to learn different terms, models, and a new way of analyzing real-world events. It can be challenging for students, especially non-majors, to appreciate how this course can help them in a career in business or government or in a nonprofit organization. We therefore added to Chapter 1 a new section that describes economics as a career and highlights the key skills students of any major can gain from studying economics.

Chapter 2, "Trade-offs, Comparative Advantage, and the Market System," opens with an updated discussion of the resource allocation decisions managers at Tesla Motors face. *An Inside Look* at the end of the chapter discusses Tesla's decision to build a factory in Nevada to mass produce lithium-ion batteries for its electric cars. A new *Apply the Concept* illustrates how managers at the nonprofit organization Feeding America use the market mechanism to more efficiently allocate food based on the needs of food programs around the country.

Chapter 3, "Where Prices Come From: The Interaction of Demand and Supply," opens with a new discussion of how Coca-Cola and Pepsi-Cola responded to a fall in demand for sodas by introducing premium bottled water, sometimes called smart water. We use the market for premium bottled water to develop the demand and supply model. *An Inside Look* at the end of the chapter examines how McDonald's responded to shifts in consumer demand by serving breakfast all day and offering online ordering and home delivery. There are three new *Apply the Concepts*: "Virtual Reality Headsets: Will a Substitute Fail for a Lack of Complements?"; "Millennials Shake Up the Markets for Soda, Groceries, Big Macs, and Running Shoes"; and "Forecasting the Demand for Premium Bottled Water."

Chapter 4, "Market Efficiency and Market Failure," opens with a new discussion about the economic link between food riots in Venezuela and the rise in popularity of Uber in the United States. At the end of the chapter, *An Inside Look* examines problems Uber has encountered in attempting to expand its services in the United Kingdom. There are two new *Apply the Concepts*: "The Consumer Surplus from Uber" and "Price Controls Lead to Economic Decline in Venezuela." Two other *Apply the Concepts* now incorporate the latest information about government policies toward air pollution and global warming.

Chapter 5, "The Economics of Health Care," opens with a new discussion of how insurance companies are dealing with the effects of the Patient Protection and Affordable Care Act of 2010. There is also a discussion of the 2017 debate in Congress over whether that act should be extensively revised.

Chapter 6, "Firms, the Stock Market, and Corporate Governance," opens with a new comparison of the initial public offerings of Snapchat, Twitter, and Facebook. A new *Apply the Concept* explores why investors are concerned about potential corporate governance issues at Snap and other social media firms.

Chapter 7, "Consumer Choice and Elasticity," opens with an updated discussion of the problems plaguing the J.C. Penney department store chain. A new *Apply the Concept* discusses why ticket scalpers have made a larger profit from the hit Broadway musical *Hamilton* than have the show's producers or stars. New *Solved Problem 7.3* analyzes why Tesla doesn't charge workers to park in the lot at its California factory even though the lot has a severe shortage of spaces.

Chapter 8, "Technology, Production, and Costs," opens with an updated discussion of the effects of massive open online courses (MOOCs) on the costs of higher education. A new *Apply the Concept* examines how software company Segment.com rearranged work areas to increase employee output.

Chapter 9, "Firms in Perfectly Competitive Markets," opens with an updated discussion of the difficulty farmers have making an economic profit selling cage-free eggs. New *Solved Problem 9.6* analyzes why a wheat farmer decided to take 170 acres out of production and plant grass, and a new *Apply the Concept* discusses competition in the Asian restaurant market in New York City.

Chapter 10, "Monopoly and Antitrust Policy," includes a new *Apply the Concept* discussing the reasons for the high prices of some generic drugs.

Chapter 11, "Monopolistic Competition and Oligopoly," opens with a new discussion of Panera Bread's strategy of differentiating its restaurants by serving only "clean food." There are three new *Apply the Concepts*: "Is 'Clean Food' a Sustainable Market Niche for Panera?"; "One Way to Differentiate Your Restaurant? Become a Ghost!"; and "Got a Great Recipe for Cookies? Don't Try Selling Them in Wisconsin or New Jersey." New *Solved Problem 11.3* analyzes why Red Robin abandoned its experiment in fast-casual restaurants. New *Solved Problem 11.6* uses game theory to analyze why Spotify and Apple Music offer student discounts.

Chapter 12, "GDP: Measuring Total Production and Income," opens with an updated discussion of how Ford and other car companies deal with the business cycle. A new *Apply the Concept* discusses an innovative Web site created by Steve Ballmer, former CEO of Microsoft, that uses the preamble to the U.S. Constitution as a framework for reorganizing macroeconomic data.

Chapter 13, "Unemployment and Inflation," opens with a new discussion of Boeing's decision in 2017 to lay off workers, despite a growing U.S. economy. The chapter includes an updated analysis of the reasons for the decline in labor force participation among prime-aged males. A new *Apply the Concept* discusses how to characterize the unemployment resulting from Boeing's layoffs.

Chapter 14, "Economic Growth, the Financial System, and Business Cycles," opens with a new discussion of whether peak oil demand threatens the long-run growth of Chevron Corporation.

Chapter 15, "Aggregate Demand and Aggregate Supply Analysis," opens with a new discussion of the effect of the business cycle on KB Home and other home builders.

Chapter 16, "Money, Banks, and the Federal Reserve System," opens with a new discussion of why many people in India are using Paytm, an app that allows users to

make payments at retail stores or online. A new *Apply the Concept* continues the analysis of this topic by discussing why some businesses in the United States and Europe no longer accept cash.

Chapter 17, "Monetary Policy," opens with an updated account of why interest rates on some mortgages in Europe are negative. An important new section describes the policy tools the Federal Reserve uses to manage its target for the federal funds rate, now that banks hold $2 trillion in excess reserves.

Chapter 18, "Fiscal Policy," opens with a new discussion of the effects of federal government infrastructure spending on Vulcan Materials and other construction firms, as well as on the wider economy. A centerpiece of President Trump's economic plan is using changes to the federal tax code, as well as other policies, to increase the annual growth rate of real GDP to 3 percent. We discuss what would be required to achieve this goal in a new section, "Explaining Long-Run Increases in Real GDP," and in a new *Apply the Concept*. New Table 18.4 summarizes how the Congressional Budget Office forecast real GDP growth for 2017–2027.

Chapter 19, "Comparative Advantage, International Trade, and Exchange Rates," opens with the decision by Mondelez International, Inc., to move production of Oreo cookies to Mexico to provide context for a new discussion of recent debates about the North American Free Trade Agreement (NAFTA) and the Trans-Pacific Partnership (TPP). A new *Apply the Concept* analyzes who gains and who loses from U.S. trade with China.

To make room for the new content described earlier, we have cut approximately 17 *Apply the Concept*s and 5 *Solved Problem*s from the previous edition and transferred some of them to the book's *Instructor's Manual*, where they are available for instructors who wish to continue using them.

Solving Teaching and Learning Challenges

Many students who take a principles of economics course have difficulty seeing the relevance of the key concepts of opportunity cost, trade-offs, scarcity, and demand and supply to their lives and their careers. This reduces the willingness of some students to prepare for class and to be engaged during class. We address this challenge with contextual learning, a modern organization of content, and an extensive selection of digital assets available on MyLab Economics.

The Foundation:
Contextual Learning and Modern Organization

We believe a course is successful if students can apply what they have learned to both their personal lives and their careers, and if they have developed the analytical skills to understand what they read in the media. That's why we explain economic concepts by using many real-world business examples and applications in the chapter openers, graphs, *Apply the Concept* features, *An Inside Look* features, and end-of-chapter problems. This approach helps majors from all disciplines become educated consumers, voters, and citizens. In addition to our widget-free approach, we have a modern organization and place interesting policy topics early in the book to pique student interest.

Microeconomics

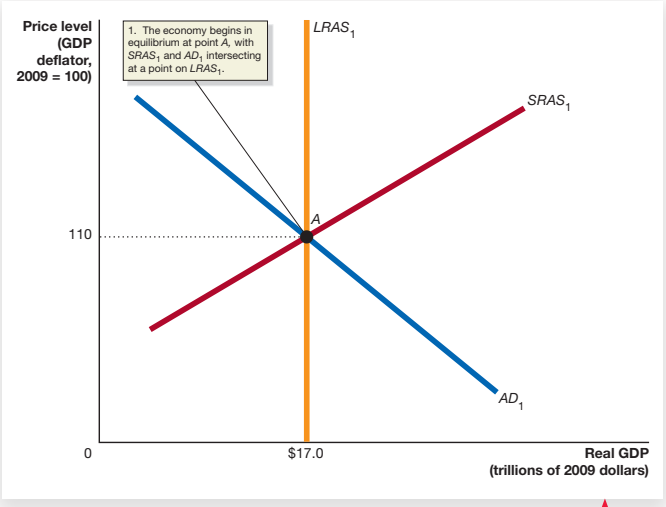
We are convinced that students learn to apply economic principles best if they are taught in a familiar context. Whether they become artists, social workers, engineers, bankers, or government employees, students benefit from understanding economics. We therefore use many diverse real-world business and policy examples to illustrate economic concepts. Here are a few highlights of our approach to microeconomics:

- **A strong set of introductory chapters.** The introductory chapters provide students with a solid foundation in the basics. We emphasize the key ideas of marginal analysis and economic efficiency. In Chapter 4, "Market Efficiency and Market Failure," we use the concepts of consumer and producer surplus to measure the economic effects of price ceilings and price floors as they relate to the familiar examples of rental properties and the minimum wage. (We revisit consumer and producer surplus in Chapter 15, "Monopoly and Antitrust Policy," where we examine the effect of market power on economic efficiency and in Chapter 19, "Comparative Advantage, International Trade, and Exchange Rates," where we analyze government policies that affect trade.) In Chapter 6, "Firms, the Stock Market, and Corporate Governance," we provide students with a basic understanding of how firms are organized, raise funds, and provide information to investors. We also illustrate how in a market system entrepreneurs meet consumer wants and efficiently organize production.
- **Early coverage of policy issues.** To expose students to policy issues early in the course, we discuss trade policy in Chapter 1, "Economics: Foundations and Models"; rent control, the minimum wage; global warming; and government policy toward soda and other sweetened beverages in Chapter 4, "Market Efficiency and Market Failure,"; and health care policy in Chapter 5, "The Economics of Health Care."
- **Complete coverage of trade.** We devote a full chapter to international trade and the debate over trade policy in Chapter 19, "Comparative Advantage, International Trade, and Exchange Rates."

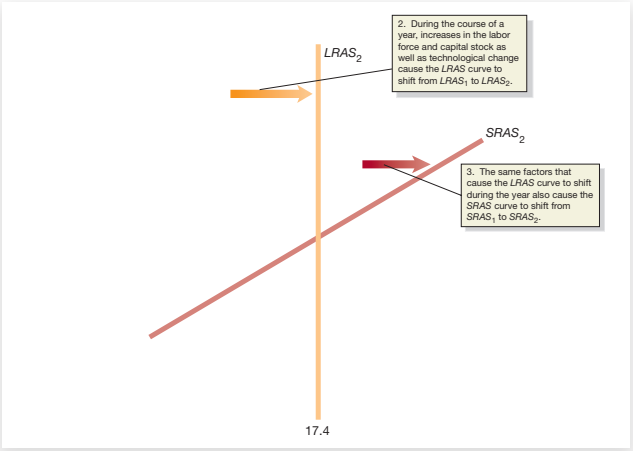
Macroeconomics

Students come to study macroeconomics with a strong interest in understanding events and developments in the economy. We capture that interest and develop students' economic intuition and understanding by presenting macroeconomics in a way that is modern and based in the real world of business and economic policy. And we believe we achieve this presentation without making the analysis more difficult. We avoid the recent trend of using simplified versions of intermediate models, which are often more detailed and complex than what students need to understand the basic macroeconomic issues. Instead, we use a more realistic version of the familiar aggregate demand and aggregate supply model to analyze short-run fluctuations and monetary and fiscal policy. We also avoid the "dueling schools of thought" approach often used to teach macroeconomics at the principles level. We emphasize the many areas of macroeconomics where most economists agree. And we present throughout real business and policy situations to develop students' intuition. Here are a few highlights of our approach to macroeconomics:

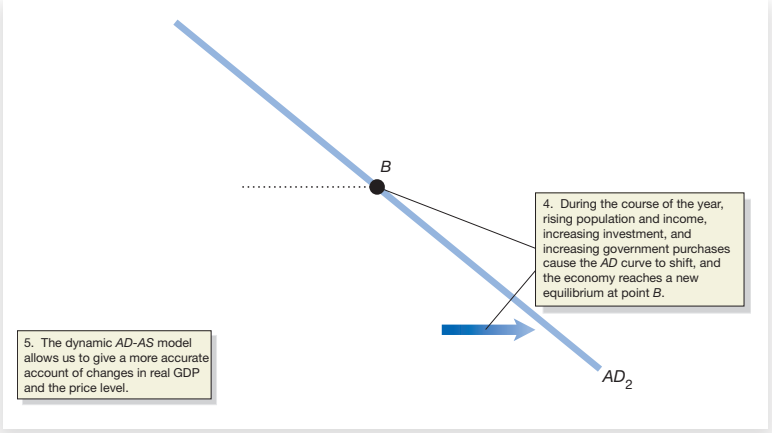
- **A careful discussion of macro statistics.** Many students pay some attention to the financial news and know that the release of statistics by federal agencies can cause movements in stock and bond prices. A background in macroeconomic statistics helps clarify some of the policy issues encountered in later chapters. In Chapter 12, "GDP: Measuring Total Production and Income," and Chapter 13, "Unemployment and Inflation," we provide students with an understanding of the uses and potential shortcomings of the key macroeconomic statistics, without getting bogged down in the minutiae of how the statistics are constructed. So, for instance, we discuss the important differences between the payroll survey and the household survey for understanding conditions in the labor market. We explain why financial markets react more strongly to news from the payroll



The first acetate overlay adds the shifts in the long- and short-run aggregate supply curves.



The second acetate overlay adds the shifts in the aggregate demand curve to complete the dynamic model.



survey. We provide a discussion of the employment–population ratio, which is not covered in some other texts but which many economists regard as a key measure of labor market performance.

- **Early coverage of long-run topics.** We place key macroeconomic issues in their long-run context in Chapter 14, "Economic Growth, the Financial System, and Business Cycles." This chapter puts the business cycle in the context of underlying long-run growth and discusses what actually happens during the phases of the business cycle. We believe this material is important if students are to have the understanding of business cycles they will need to interpret economic events; this material is often discussed only briefly or omitted entirely in other books.
- **A dynamic model of aggregate demand and aggregate supply.** In Chapter 15, "Aggregate Demand and Aggregate Supply Analysis," take a fresh approach to the standard aggregate demand and aggregate supply (*AD–AS*) model. We realize there is no good, simple alternative to using the *AD–AS* model when explaining movements in the price level and in real GDP. But we know that more instructors are dissatisfied with the *AD–AS* model than with any other aspect of the macro principles course. The key problem, of course, is that *AD–AS* is a static model that attempts to account for dynamic changes in real GDP and the price level. Our approach retains the basics of the *AD–AS* model but makes it more accurate and useful by making it more dynamic. We emphasize two points: (1) Changes in the position of the short-run (upward-sloping) aggregate supply curve depend mainly on the state of expectations of the inflation rate; and (2) the existence of growth in the economy means that the long-run (vertical) aggregate supply curve shifts to the right every year. This "dynamic" *AD–AS* model provides students with a more accurate understanding of the causes and consequences of fluctuations in real GDP and the price level. Chapter 15 includes a three-layer, full-color acetate for the key introductory dynamic *AD–AS* graph (Figure 15.8, "A Dynamic Aggregate Demand and Aggregate Supply Model," on page 524 and reproduced on the left). We created this acetate to help students see how the graph builds step by step and to help make the graph easier for instructors to present. The acetate will help instructors who want to use dynamic *AD–AS* in class but believe the model needs to be developed carefully. We introduce this model in Chapter 15 and use it to discuss monetary policy in Chapter 17, "Monetary Policy," and fiscal policy in Chapter 18, "Fiscal Policy." The material

on dynamic *AD–AS* is presented in self-contained sections in Chapters 15, 17, and 18, so instructors may safely omit the sections on that model without any loss in continuity to the discussion of macroeconomic theory and policy.

- **Coverage of both the demand-side and supply-side effects of fiscal policy.** Our discussion of fiscal policy in Chapter 18, "Fiscal Policy," carefully distinguishes between automatic stabilizers and discretionary fiscal policy. We also provide significant coverage of the supply-side effects of fiscal policy. A new section discusses the requirements for the Trump administration to hit its goal of restoring the long-run annual growth rate of real GDP to 3 percent.

MyLab Economics

OVERVIEW

Reach every student by pairing this text with MyLab Economics

MyLab is the teaching and learning platform that empowers you to reach *every* student. By combining trusted author content with digital tools and a flexible platform, MyLab personalizes the learning experience and improves results for each student. Learn more about MyLab Economics at www.pearson.com/mylab/economics.

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FEATURES IN THE BOOK AND SUPPORTING RESOURCES ON MYLAB ECONOMICS

Students and instructors will find the following features in the sixth edition and supporting online resources on MyLab Economics.

Business Cases and An Inside Look *News Articles*

Each chapter-opening case provides a real-world context for learning, sparks students' interest in economics, and helps unify the chapter. The case describes an actual company facing a real situation. The company is integrated in the narrative, graphs, and pedagogical features of the chapter. Some of the chapter openers focus on the role of entrepreneurs in developing new products and bringing them to market. For example, Chapter 2 features Elon Musk of Tesla Motors; Chapter 15 features KB Home founders Donald Kaufman and Eli Broad; and Chapter 17 features Paytm founder Vijay Shekhar Sharma.

Students can visit MyLab Economics to watch a brief video we developed and filmed to summarize the key points of each chapter opener.


3

Where Prices Come From: The Interaction of Demand and Supply

How Smart Is Your Water?

What does a firm do when its primary product starts to fall out of fashion? The Coca-Cola Company and PepsiCo, Inc., have faced that question in recent years. Between 2004 and 2016, measured by volume, sales in the United States of carbonated beverages like Coke and Pepsi declined by more than 25 percent, while sales of bottled water increased by more than 50 percent. In 2016, sales of bottled water were greater than sales of carbonated beverages for the first time. This change resulted from a shift in consumer tastes as many people, particularly millennials, increased their demand for healthier beverages that don't contain sugar or artificial sweeteners.

In 1994, Pepsi responded to increased consumer demand for bottled water by introducing Aquafina water, and in 1999, Coke responded by introducing Dasani water. Neither company, though, had found selling bottled water to be as profitable as selling soda. As a result of decades of advertising, Coke and Pepsi are two of the most recognizable brand names in the world. The companies also have networks of bottling plants and commitments from supermarkets to provide them with extensive shelf space. Other companies have had trouble competing with Coke and Pepsi, which together account for nearly 75 percent of the market for carbonated beverages. The Aquafina and Dasani brands are not nearly as well known, however, so other companies have been better able to compete in the bottled water market, limiting Coke and Pepsi to less than 20 percent of that market.

By 2017, Coke and Pepsi were attempting to increase their profits in the bottled water market by introducing premium water or smart water brands. With regular bottled water, firms filter tap water or spring water to remove impurities. With premium water, like Pepsi's LIFEWTR and Coke's smartwater, firms also add ingredients, typically electrolytes. Although many nutritionists are skeptical that premium water is any better for you than regular bottled water, demand for premium bottled water has been increasing rapidly. Both Coke and Pepsi have been able to charge higher prices for their premium water brands than they do for their carbonated beverages. But the firms were facing determined competition from Nestlé's Perrier brand and Danone's Evian brand, among many others.

Although premium water was a hot product in 2017, there are no guarantees in a market system. Will Coke and Pepsi and their competitors be able to continue charging higher prices for premium water than for regular bottled water, or will competition force down prices and make selling premium bottled water no more profitable than selling regular bottled water? Although competition is not always good news for firms trying to sell products, it is great news for consumers because it increases the choice of available products and lowers the prices consumers pay for those products.

AN INSIDE LOOK on **page 98** discusses how McDonald's has responded to shifts in consumer demand by serving breakfast all day, allowing customers to order food online, and offering home delivery.

Andrew Holt/Image Source/Getty Images

Sources: Jennifer Maloney, "Coca-Cola Needs to Be More Than Just Coke, Its Next Chief Says," *Wall Street Journal*, February 23, 2017; Jennifer Maloney, "PepsiCo Gives Its 'Premium' Water a Super Bowl Push," *Wall Street Journal*, January 24, 2017; and Feliz Solomon, "Coca-Cola and Pepsi Now Have Something Else in Common," fortune.com, December 7, 2016.

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Chapter Outline & Learning Objectives

3.1 The Demand Side of the Market, page 74
List and describe the variables that influence demand.

3.2 The Supply Side of the Market, page 82
List and describe the variables that influence supply.

3.3 Market Equilibrium: Putting Demand and Supply Together, page 86
Use a graph to illustrate market equilibrium.

3.4 The Effect of Demand and Supply Shifts on Equilibrium, page 90
Use demand and supply graphs to predict changes in prices and quantities.

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

Firms face many challenges in responding to changes in consumer demand. Firms selling premium bottled water need to forecast future demand in order to determine how much production capacity they will need. If you were a manager for Coca-Cola, PepsiCo, Nestlé, Bai, or another firm selling premium bottled water, what factors would you take into account in forecasting future demand? As you read this chapter, try to answer this question. You can check your answers against those we provide on **page 97** at the end of this chapter.

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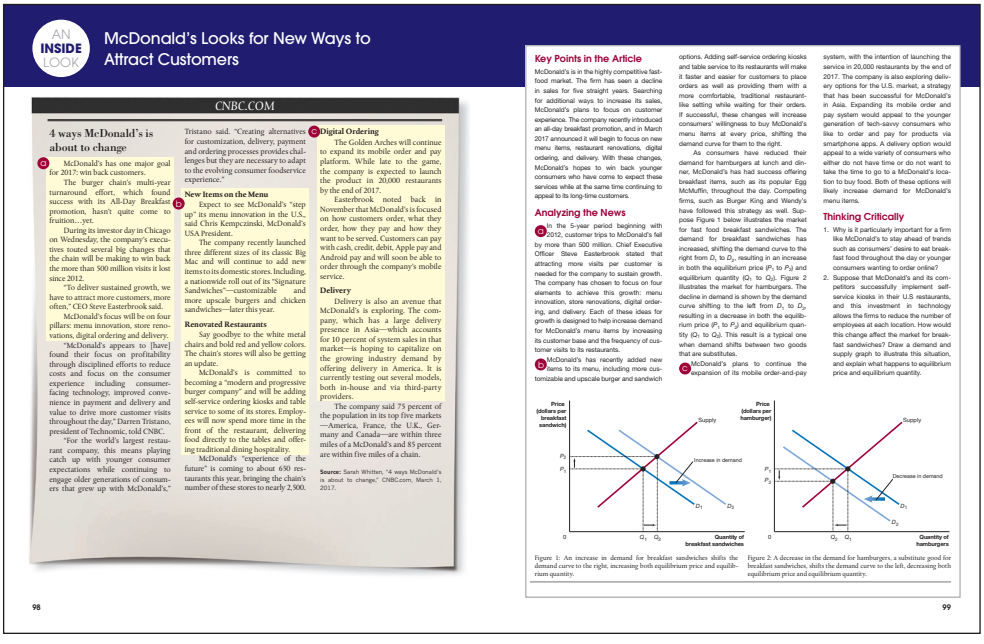
An Inside Look is a two-page feature that shows students how to apply the concepts from the chapter to the analysis of a news article. The feature appears at the end of Chapters 1–4. *An Inside Look* presents an excerpt from an article, analysis of the article, a graph(s), and critical thinking questions. Additional articles that are continuously updated are located on MyLab Economics.


AN INSIDE LOOK

McDonald's Looks for New Ways to Attract Customers

CNBC.COM

4 ways McDonald's is about to change

McDonald's has one major goal for 2017: win back customers.

The burger chain's multi-year turnaround effort, which found success with its All-Day Breakfast promotion, hasn't quite come to fruition…yet.

During its investor day in Chicago on Wednesday, the company's executives touted several big changes that the chain will be making to win back the more than 500 million visits it lost since 2012.

"To deliver sustained growth, we have to attract more customers, more often," CEO Steve Easterbrook said.

McDonald's focus will be on four pillars: menu innovation, store renovations, digital ordering and delivery.

"McDonald's appears to [have] found their focus on profitability through disciplined efforts to reduce costs and focus on the consumer experience including consumer-facing technology, improved convenience in payment and delivery and value to drive more customer visits throughout the day," Darren Tristano, president of Technomic, told CNBC.

"For the world's largest restaurant company, this means playing catch up with younger consumer expectations while continuing to engage older generations of consumers that grew up with McDonald's," Tristano said. "Creating alternatives for customization, delivery, payment and ordering processes provides challenges but they are necessary to adapt to the evolving consumer foodservice experience."

New Items on the Menu

Expect to see McDonald's "step up" its menu innovation in the U.S., said Chris Kempczinski, McDonald's USA President.

The company recently launched three different sizes of its classic Big Mac and will continue to add new items to its domestic stores. Including, a nationwide roll out of its "Signature Sandwiches"—customizable and more upscale burgers and chicken sandwiches—later this year.

Renovated Restaurants

Say goodbye to the white metal chairs and bold red and yellow colors. The chain's stores will also be getting an update.

McDonald's is committed to becoming a "modern and progressive burger company" and will be adding self-service ordering kiosks and table service to some of its stores. Employees will now spend more time in the front of the restaurant, delivering food directly to the tables and offering traditional dining hospitality.

McDonald's "experience of the future" is coming to about 650 restaurants this year, bringing the chain's number of these stores to nearly 2,500.

Digital Ordering

The Golden Arches will continue to expand its mobile order and pay platform. While late to the game, the company is expected to launch the product in 20,000 restaurants by the end of 2017.

Easterbrook noted back in November that McDonald's is focused on how customers order, what they order, how they pay and how they want to be served. Customers can pay with cash, credit, debit, Apple pay and Android pay and will soon be able to order through the company's mobile service.

Delivery

Delivery is also an avenue that McDonald's is exploring. The company, which has a large delivery presence in Asia—which accounts for 10 percent of system sales in that market—is hoping to capitalize on the growing industry demand by offering delivery in America. It is currently testing out several models, both in-house and via third-party providers.

The company said 75 percent of the population in its top five markets —America, France, the U.K., Germany and Canada—are within three miles of a McDonald's and 85 percent are within five miles of a chain.

Source: Sarah Whitten, "4 ways McDonald's is about to change," CNBC.com, March 1, 2017.

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Key Points in the Article

McDonald's is in the highly competitive fast-food market. The firm has seen a decline in sales for five straight years. Searching for additional ways to increase its sales, McDonald's plans to focus on customer experience. The company recently introduced an all-day breakfast promotion, and in March 2017 announced it will begin to focus on new menu items, restaurant renovations, digital ordering, and delivery. With these changes, McDonald's hopes to win back younger consumers who have come to expect these services while at the same time continuing to appeal to its long-time customers.

Analyzing the News

In the 5-year period beginning with 2012, customer trips to McDonald's fell by more than 500 million. Chief Executive Officer Steve Easterbrook stated that attracting more visits per customer is needed for the company to sustain growth. The company has chosen to focus on four elements to achieve this growth: menu innovation, store renovations, digital ordering, and delivery. Each of these ideas for growth is designed to help increase demand for McDonald's menu items by increasing its customer base and the frequency of customer visits to its restaurants.

McDonald's has recently added new items to its menu, including more customizable and upscale burger and sandwich options. Adding self-service ordering kiosks and table service to its restaurants will make it faster and easier for customers to place orders as well as providing them with a more comfortable, traditional restaurant-like setting while waiting for their orders. If successful, these changes will increase consumers' willingness to buy McDonald's menu items at every price, shifting the demand curve for them to the right.

As consumers have reduced their demand for hamburgers at lunch and dinner, McDonald's has had success offering breakfast items, such as its popular Egg McMuffin, throughout the day. Competing firms, such as Burger King and Wendy's have followed this strategy as well. Suppose Figure 1 below illustrates the market for fast food breakfast sandwiches. The demand for breakfast sandwiches has increased, shifting the demand curve to the right from D_1 to D_2, resulting in an increase in both the equilibrium price (P_1 to P_2) and equilibrium quantity (Q_1 to Q_2). Figure 2 illustrates the market for hamburgers. The decline in demand is shown by the demand curve shifting to the left from D_1 to D_2, resulting in a decrease in both the equilibrium price (P_1 to P_2) and equilibrium quantity (Q_1 to Q_2). This result is a typical one when demand shifts between two goods that are substitutes.

McDonald's plans to continue the expansion of its mobile order-and-pay system, with the intention of launching the service in 20,000 restaurants by the end of 2017. The company is also exploring delivery options for the U.S. market, a strategy that has been successful for McDonald's in Asia. Expanding its mobile order and pay system would appeal to the younger generation of tech-savvy consumers who like to order and pay for products via smartphone apps. A delivery option would appeal to a wide variety of consumers who either do not have time or do not want to take the time to go to a McDonald's location to buy food. Both of these options will likely increase demand for McDonald's menu items.

Thinking Critically

1. Why is it particularly important for a firm like McDonald's to stay ahead of trends such as consumers' desire to eat breakfast food throughout the day or younger consumers wanting to order online?
2. Suppose that McDonald's and its competitors successfully implement self-service kiosks in their U.S restaurants, and this investment in technology allows the firms to reduce the number of employees at each location. How would this change affect the market for breakfast sandwiches? Draw a demand and supply graph to illustrate this situation, and explain what happens to equilibrium price and equilibrium quantity.

Figure 1: An increase in demand for breakfast sandwiches shifts the demand curve to the right, increasing both equilibrium price and equilibrium quantity.

Figure 2: A decrease in the demand for hamburgers, a substitute good for breakfast sandwiches, shifts the demand curve to the left, decreasing both equilibrium price and equilibrium quantity.

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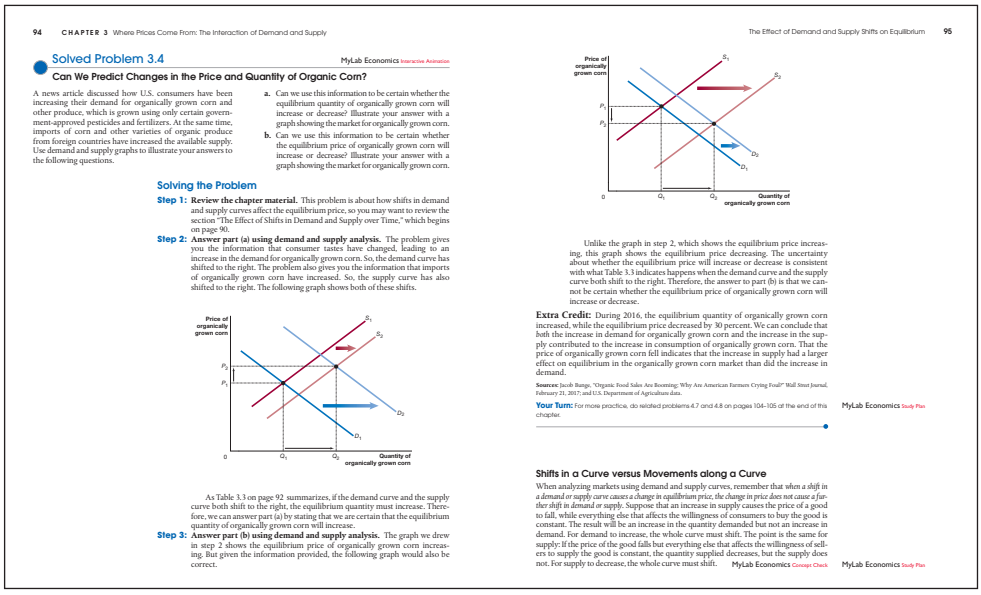
Solved Problems

Many students have great difficulty handling applied economics problems. We help students overcome this hurdle by including in each chapter two or three worked-out problems that analyze real-world economic issues they hear and read about in the news. Our goals are to keep students focused on the main ideas of each chapter and give them a model of how to solve an economic problem by breaking it down step by step. We tie additional exercises in the end-of-chapter *Problems and Applications* section to every *Solved Problem*. Additional *Solved Problems* appear in the *Instructor's Manuals*. In addition, the Test Banks include problems tied to the *Solved Problems* in the main book. Each of the 39 *Solved Problems* in the printed text is accompanied by a similar Interactive *Solved Problem* on MyLab Economics, so students can have more practice and build their problem-solving skills. These interactive tutorials help students learn to think like economists and apply basic problem-solving skills to homework, quizzes, and exams. Each *Solved Problem* on MyLab Economics and in the digital eText also includes at least one additional graded practice exercise for students.



94 CHAPTER 3 Where Prices Come From: The Interaction of Demand and Supply

Solved Problem 3.4 MyLab Economics Interactive Animation

Can We Predict Changes in the Price and Quantity of Organic Corn?

A news article discussed how U.S. consumers have been increasing their demand for organically grown corn and other produce, which is grown using only certain government-approved pesticides and fertilizers. At the same time, imports of corn and other varieties of organic produce from foreign countries have increased the available supply. Use demand and supply graphs to illustrate your answers to the following questions.

a. Can we use this information to be certain whether the equilibrium quantity of organically grown corn will increase or decrease? Illustrate your answer with a graph showing the market for organically grown corn.

b. Can we use this information to be certain whether the equilibrium price of organically grown corn will increase or decrease? Illustrate your answer with a graph showing the market for organically grown corn.

Solving the Problem

Step 1: Review the chapter material. This problem is about how shifts in demand and supply curves affect the equilibrium price, so you may want to review the section "The Effect of Shifts in Demand and Supply over Time," which begins on page 90.

Step 2: Answer part (a) using demand and supply analysis. The problem gives you the information that consumer tastes have changed, leading to an increase in the demand for organically grown corn. So, the demand curve has shifted to the right. The problem also gives you the information that imports of organically grown corn have increased. So, the supply curve has also shifted to the right. The following graph shows both of these shifts.

As Table 3.3 on page 92 summarizes, if the demand curve and the supply curve both shift to the right, the equilibrium quantity must increase. Therefore, we can answer part (a) by stating that we are certain that the equilibrium quantity of organically grown corn will increase.

Step 3: Answer part (b) using demand and supply analysis. The graph we drew in step 2 shows the equilibrium price of organically grown corn increasing. But given the information provided, the following graph would also be correct.

The Effect of Demand and Supply Shifts on Equilibrium 95

Unlike the graph in step 2, which shows the equilibrium price increasing, this graph shows the equilibrium price decreasing. The uncertainty about whether the equilibrium price will increase or decrease is consistent with what Table 3.3 indicates happens when the demand curve and the supply curve both shift to the right. Therefore, the answer to part (b) is that we cannot be certain whether the equilibrium price of organically grown corn will increase or decrease.

Extra Credit: During 2016, the equilibrium quantity of organically grown corn increased, while the equilibrium price decreased by 30 percent. We can conclude that both the increase in demand for organically grown corn and the increase in the supply contributed to the increase in consumption of organically grown corn. That the price of organically grown corn fell indicates that the increase in supply had a larger effect on equilibrium in the organically grown corn market than did the increase in demand.

Sources: Jacob Bunge, "Organic Food Sales Are Booming: Why Are American Farmers Crying Foul?" *Wall Street Journal*, February 21, 2017; and U.S. Department of Agriculture data.

Your Turn: For more practice, do related problems 4.7 and 4.8 on pages 104–105 at the end of this chapter. MyLab Economics Study Plan

Shifts in a Curve versus Movements along a Curve

When analyzing markets using demand and supply curves, remember that *when a shift in a demand or supply curve causes a change in equilibrium price, the change in price does not cause a further shift in demand or supply.* Suppose that an increase in supply causes the price of a good to fall, while everything else that affects the willingness of consumers to buy the good is constant. The result will be an increase in the quantity demanded but not an increase in demand. For demand to increase, the whole curve must shift. The point is the same for supply: If the price of the good falls but everything else that affects the willingness of sellers to supply the good is constant, the quantity supplied decreases, but the supply does not. For supply to decrease, the whole curve must shift. MyLab Economics Concept Check

MyLab Economics Study Plan

Apply the Concept

Each chapter includes two to four *Apply the Concept* features that provide real-world reinforcement of key concepts and help students learn how to interpret what they read on the Web and in newspapers. Most of the 65 *Apply the Concept* features use relevant, stimulating, and provocative news stories focused on businesses and policy issues. One-third of them are new to this edition, and most others have been updated. Several discuss health care and trade, which have been at the forefront of recent policy discussions. Each *Apply the Concept* has at least one supporting end-of-chapter problem to allow students to test their understanding of the topic discussed. We prepared and filmed a two- or three-minute video to explain the key point of each *Apply the Concept*. These videos are located on MyLab Economics. We include related assessment with each video, so students can test their understanding. The goal of these videos is to summarize key content and bring the applications to life. In our experience, many students benefit from this type of online learning and assessment.

Apply the Concept

MyLab Economics Video

Forecasting the Demand for Premium Bottled Water

Sara Stathas/Alamy Stock Photo

How will changes in demographics, income, and tastes shape the market for premium bottled water?

It's important for managers to forecast the demand for their products accurately because doing so helps them determine how much of a good to produce. Firms typically set manufacturing schedules at least a month ahead of time. Premium bottled water is a rapidly growing market, and firms need to carefully plan increases in productive capacity. Firms that fail to produce a large enough quantity to keep pace with increasing demand can lose out to competitors. But will the demand for premium bottled water continue to grow at such a rapid pace?

Richard Tedlow of the Harvard Business School has developed a theory of the "three phases of marketing" that can provide some insight into how the markets for many consumer products develop over time. The first phase often has a very large number of firms, each producing a relatively small volume of goods and charging high prices. This phase corresponds to the carbonated soft drink industry in the late nineteenth century, the automobile industry in the early twentieth century, and the personal computer industry in the late 1970s. In the second phase, the market consolidates, with one or a few brands attaining high market shares by selling a large number of units at lower prices. This phase corresponds to the soft drink industry during the middle of the twentieth century, the automobile industry during the 1920s, and the personal computer industry during the 1980s.

Managers at beverage firms will have to take into account a number of factors when estimating the future demand for premium bottled water. Factors that will tend to lead to higher demand for premium bottled water include the popularity of the product with millennials, the trend toward healthier eating habits that has led to declining consumption of carbonated beverages, the taxes on soda that cities have been imposing to both fight obesity and raise tax revenue, and the possibility of attracting consumers who now prefer energy drinks such as Red Bull and sports drinks such as Gatorade. But an obstacle to the rapid growth of demand for premium bottled water comes from doubts raised by some analysts about the benefits from the electrolytes and other ingredients it contains that are not in regular bottled water. If consumers come to believe that these ingredients serve no useful purpose, they may prefer to buy regular bottled water, which typically has a lower price.

As we saw in Chapter 1, economists can use formal models to forecast future values of economic variables. In this case, an economist forecasting the demand for premium bottled water would want to include the factors mentioned in the previous paragraphs as well as other data, including changes over time in demographics and projected income growth.

Sources: Jennifer Maloney, "PepsiCo Gives Its 'Premium' Water a Super Bowl Push," *Wall Street Journal*, January 24, 2017; Quentin Fottrell, "Bottled Water Overtakes Soda as America's No. 1 Drink—Why You Should Avoid Both," marketwatch.com, March 12, 2017; and Richard Tedlow, *New and Improved: The Story of Mass Marketing in America*, Cambridge, MA: Harvard Business School Press, 1996.

Your Turn: Test your understanding by doing related problem 1.17 on page 102 at the end of this chapter.

Don't Let This Happen to You

We know from many years of teaching which concepts students find most difficult. We include in each chapter a box feature called *Don't Let This Happen to You* that alerts students to the most common pitfalls in that chapter's material. We follow up with a related question in the end-of-chapter *Problems and Applications* section. The questions are also available on MyLab Economics, where students can receive instant feedback and tutorial help.

Concept Checks

Each section of each learning objective concludes with a Concept Check on MyLab Economics that contains one or two multiple-choice, true/false, or fill-in questions. These checks act as "speed bumps" that encourage students to stop and check their understanding of fundamental terms and concepts before moving on to the next section. The goal of this digital resource is to help students assess their progress on a section-by-section basis so they can be better prepared for homework, quizzes, and exams.

Don't Let This Happen to You

Remember: A Change in a Good's Price Does *Not* Cause the Demand or Supply Curve to Shift

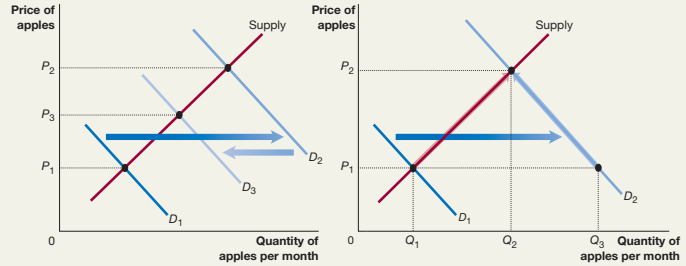
Suppose a student is asked to draw a demand and supply graph to illustrate how an increase in the price of oranges would affect the market for apples, with other variables being constant. He draws the graph on the left and explains it as follows: "Because apples and oranges are substitutes, an increase in the price of oranges will cause an initial shift to the right in the demand curve for apples, from D_1 to D_2. However, because this initial shift in the demand curve for apples results in a higher price for apples, P_2, consumers will find apples less desirable, and the demand curve will shift to the left, from D_2 to D_3, resulting in a final equilibrium price of P_3." Do you agree or disagree with the student's analysis?

You should disagree. The student has correctly understood that an increase in the price of oranges will cause the demand curve for apples to shift to the right. But, the second demand curve shift the student describes, from D_2 to D_3, will not take place. Changes in the price of a product do not result in shifts in the product's demand curve. Changes in the price of a product result only in movements along a demand curve.

The graph on the right shows the correct analysis. The increase in the price of oranges causes the demand curve for apples to increase from D_1 to D_2. At the original price, P_1, the increase in demand initially results in a shortage of apples equal to $Q_3 - Q_1$. But, as we have seen, a shortage causes the price to increase until the shortage is eliminated. In this case, the price will rise to P_2, where both the quantity demanded and the quantity supplied are equal to Q_2. Notice that the increase in price causes a decrease in the *quantity demanded*, from Q_3 to Q_2, but does *not* cause a decrease in demand.

MyLab Economics Study Plan

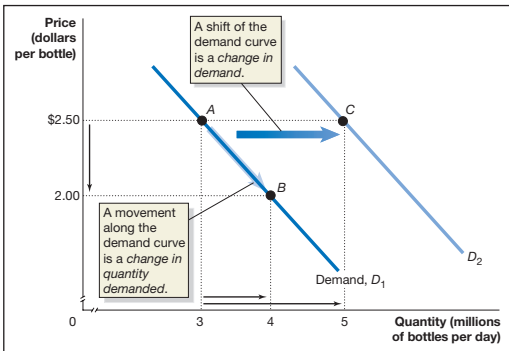
Your Turn: Test your understanding by doing related problems 4.13 and 4.14 on page 105 at the end of this chapter.



Graphs and Summary Tables

Graphs are an indispensable part of a principles of economics course but are a major stumbling block for many students. Every chapter except Chapter 1 includes end-of-chapter problems that require students to draw, read, and interpret graphs. Interactive graphing exercises appear on MyLab Economics. We use four devices to help students read and interpret graphs:

1. Detailed captions
2. Boxed notes
3. Color-coded curves
4. Summary tables with graphs (see pages 80, 85, and 508 for examples)



MyLab Economics Animation

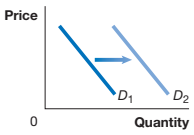
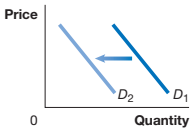
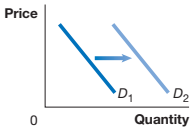
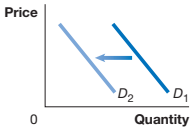
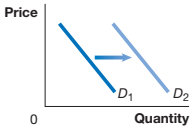
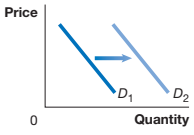
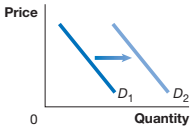
Figure 3.3

A Change in Demand versus a Change in Quantity Demanded

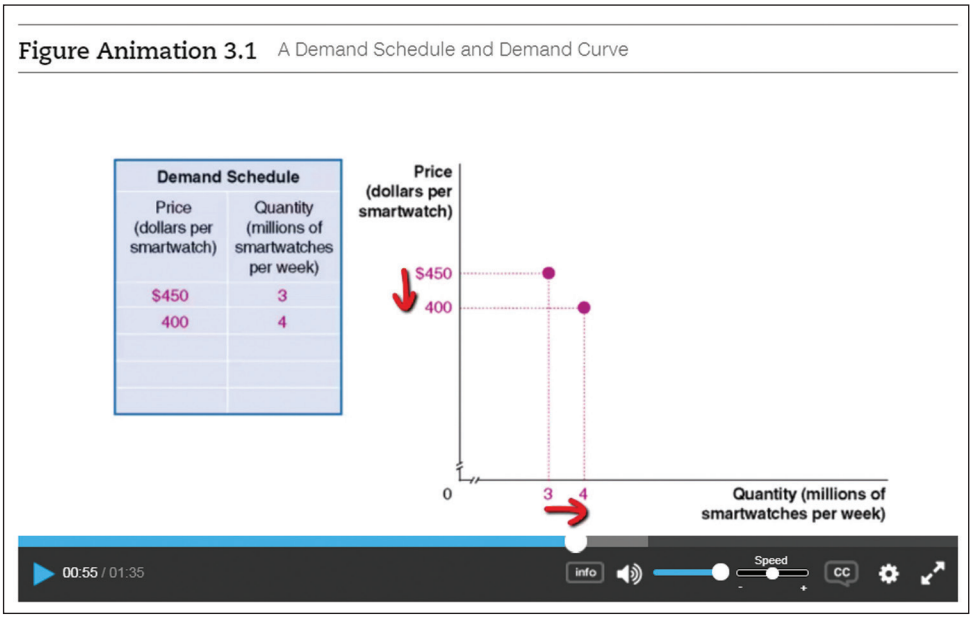
If the price of premium bottled water falls from $2.50 to $2.00, the result will be a movement along the demand curve from point *A* to point *B*—an increase in quantity demanded from 3 million bottles to 4 million. If consumers' incomes increase, or if another factor changes that makes consumers want more of the product at every price, the demand curve will shift to the right—an increase in demand. In this case, the increase in demand from D_1 to D_2 causes the quantity of premium bottled water demanded at a price of $2.50 to increase from 3 million bottles at point *A* to 5 million at point *C*.

Table 3.1

Variables That Shift Market Demand Curves

An increase in ...	shifts the demand curve ...	because ...
income (and the good is normal)		consumers spend more of their higher incomes on the good.
income (and the good is inferior)		consumers spend less of their higher incomes on the good.
the price of a substitute good		consumers buy less of the substitute good and more of this good.
the price of a complementary good		consumers buy less of the complementary good and less of this good.
taste for the good		consumers are willing to buy a larger quantity of the good at every price.
population		additional consumers result in a greater quantity demanded at every price.
the expected price of the good in the future		consumers buy more of the good today to avoid the higher price in the future.

Each of the 168 numbered figures in the text has a supporting animated version on MyLab Economics. The goal of this digital resource is to help students understand shifts in curves, movements along curves, and changes in equilibrium values. Having an animated version of a graph helps students who have difficulty interpreting the static version in the printed text. We include graded practice exercises with the animations. In our experience, many students benefit from this type of online learning.



Thirty-one graphs and one table are continuously updated online with the latest available data from FRED (Federal Reserve Economic Data), which is a comprehensive, up-to-date data set maintained by the Federal Reserve Bank of St. Louis. Students can display a pop-up graph that shows new data. The goal of this digital feature is to help students understand how to work with data and understand how including new data affects graphs.

Review Questions and *Problems and Applications*—Grouped by Learning Objective to Improve Assessment

We group the main end-of-chapter material—*Summary*, *Review Questions*, and *Problems and Applications*—under learning objectives. The goals of this organization are to make it easier for instructors to assign problems based on learning objectives, both in the book and on MyLab Economics, and to help students efficiently review material that they find difficult. If students have difficulty with a particular learning objective, an instructor can easily identify which end-of-chapter questions and problems support that objective and assign them as homework or discuss them in class. Every exercise in a chapter's *Problems and Applications* section is available on MyLab Economics. Using MyLab Economics, students can complete these and many other exercises online, get tutorial help, and receive instant feedback and assistance on exercises they answer incorrectly. Also, student learning will be enhanced by having the summary material and problems grouped together by learning objective, which allows them to focus on the parts of the chapter they find most challenging. Each major section of the chapter, paired with a learning objective, has at least two review questions and three problems.

As in the previous editions, we include one or more end-of-chapter problems that test students' understanding of the content presented in the *Solved Problem*, *Apply the Concept*, and *Don't Let This Happen to You* special features in the chapter. Instructors can cover a feature in class and assign the corresponding problem(s) for homework. The Test Bank also include test questions that pertain to these special features.

Real-Time Data Exercises

We end select chapters with at least two *Real-Time Data Exercises* that help students become familiar with a key data source, learn how to locate data, and develop skills in interpreting data. *Real-Time Data Analysis (RTDA) Exercises,* marked with  , allow students and instructors to use the very latest data from FRED, the Federal Reserve Bank of St. Louis.

Developing Career Skills

Learning key economic terms, concepts, and models are all important. For a course to be successful, students need to develop the skills and confidence to apply what they've learned outside the classroom. Chapter 1, "Economics: Foundations and Models," now includes a new section that describes economics as a career and the key skills students of any major can gain from studying economics. As described earlier, features such as chapter-opening business cases, *Apply the Concept*s, *Solved Problem*s, and end-of-chapter problems provide a real-world context for learning that exposes students to economics as applied in a variety of large and small businesses, government agencies, and nonprofit organizations. *Critical Thinking Exercises,* a new end-of-chapter category in this edition, help build student skills to analyze and interpret information and apply reasoning and logic to new or unfamiliar ideas and situations.

Economics in Your Life & Career

After the chapter-opening real-world business case, we have a feature titled *Economics in Your Life & Career* that adds a personal dimension to the chapter opener by asking students to consider how economics affects their lives and careers. The feature piques the interest of students and emphasizes the connection between the material they are learning and their personal and career decisions

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

Firms face many challenges in responding to changes in consumer demand. Firms selling premium bottled water need to forecast future demand in order to determine how much production capacity they will need. If you were a manager for Coca-Cola, PepsiCo, Nestlé, Bai, or another firm selling premium bottled water, what factors would you take into account in forecasting future demand? As you read this chapter, try to answer this question. You can check your answers against those we provide on **page 97** at the end of this chapter.

At the end of the chapter, we use the chapter concepts to answer the questions asked at the beginning of the chapter.

Economics in Your Life & Career

Can You Forecast the Future Demand for Premium Bottled Water?

At the beginning of this chapter, we asked what variables you would take into account in forecasting future demand if you were a manager for a firm selling premium bottled water. In Section 3.1, we discussed the factors that affect the demand for a product and provided a list of the most important variables. In the *Apply the Concept* on page 81, we discussed how economists often use formal models to forecast future demand for a product.

In forecasting demand for premium bottled water, you should take into account factors such as changing demographics, as millennials become a larger fraction of prime-age consumers, and the likelihood that the demand for competing goods, such as carbonated sodas, will decline as consumers turn toward buying healthier products and as more cities impose soda taxes. You may also need to consider whether increased advertising of premium bottled water by large firms such as Coca-Cola and PepsiCo will raise consumer awareness of the product and increase demand for the premium bottled water being sold by other firms as well.

The factors discussed in this chapter provide you with the basic information needed to forecast demand for premium bottled water, although arriving at numerical forecasts requires using statistical analysis that you can learn in more advanced courses.

Instructor Teaching Resources

The authors and Pearson Education have worked together to integrate the text, print, and media resources to make teaching and learning easier.

Supplements Available to Instructors for Download at www.pearsonhighered.com	Features of the Supplement
Instructor's Manual Authored by Edward Scahill of the University of Scranton	• Chapter-by-chapter summaries organized by learning objectives • Extended examples and class exercises • Teaching outlines incorporating key terms and definitions, teaching tips, topics for class discussion • New *Solved Problem*s • New *Apply the Concept* features • Solutions to all review questions, problems, and real-time data exercises in the book
Test Bank Authored by Randy Methenitis of Richland College	• Over 6,000 multiple-choice, true/false, short-answer, and graphing questions. • Test questions are annotated with the following categories: **Difficulty**—1 for straight recall; 2 for some analysis; and 3 for complex analysis **Type**—multiple-choice, true/false, short-answer, essay **Topic**—the term or concept the question supports **Learning outcome** **Page number** in the main book **Special feature** in the main book **The Association to Advance Collegiate Schools of Business** (AACSB) **Guidelines**
Computerized TestGen	• Allows instructors to customize, save, and generate classroom tests. • Instructors can edit, add, or delete questions from the Test Banks; analyze test results; and organize a database of tests and student results. • Many options are available for organizing and displaying tests, along with search and sort features. • The software and the Test Banks can be downloaded from www.pearsonhighered.com.
Three Sets of PowerPoint Lecture Presentations Authored by Paul Holmes of Ashland University	• A comprehensive set of PowerPoint slides can be used by instructors for class presentations or by students for lecture preview or review. These slides include all the graphs, tables, and equations in the textbook. Two versions are available—step-by-step mode, in which you can build graphs as you would on a blackboard, and automated mode, in which you use a single click per slide. • A comprehensive set of PowerPoint slides have Classroom Response Systems (CRS) questions built in so that instructors can incorporate CRS "clickers" into their classroom lectures. • Student versions of the PowerPoint slides are available as .pdf files. This version allows students to print the slides and bring them to class for note taking.

What Is the AACSB?

The Association to Advance Collegiate Schools of Business (AACSB) is a not-for-profit corporation of educational institutions, corporations, and other organizations devoted to the promotion and improvement of higher education in business administration and accounting. The AACSB expects a curriculum to include learning experiences in the following categories of Assurance of Learning Standards: Written and Oral Communication; Ethical Understanding and Reasoning; Analytical Thinking; Information Technology; Interpersonal Relations and Teamwork, Diverse and Multicultural Work; Reflective Thinking; and Application of Knowledge.

Acknowledgements

The guidance and recommendations of the following instructors helped us develop the revision plans for the sixth edition and the supplements package. While we could not incorporate every suggestion from every consultant board member, reviewer, or accuracy checker, we do thank each and every one of you and acknowledge that your feedback was indispensable in developing this text. We greatly appreciate your assistance in making this the best text it could be; you have helped a whole new generation of students learn about the exciting world of economics.

Accuracy Review Board

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1 Economics: Foundations and Models

Why Does Ford Assemble Cars in Both the United States and Mexico?

Until recently, did most U.S. firms operate only within the United States? Although some people believe so, in fact, many U.S. firms have been producing goods abroad for decades. For example, Henry Ford founded the Ford Motor Company in Dearborn, Michigan, in 1903. By the next year, Ford was assembling cars in Ontario, Canada. Ford began assembling cars in Manchester, England, in 1911, and in Mexico in 1925. Clearly, for many decades, Ford has been a multinational corporation, manufacturing and selling its cars around the world. In 2017, though, Ford's non-U.S. operations, particularly those in Mexico, were the subject of political controversy.

Some of the cars Ford assembles in Mexico are sold there, but Ford also exports cars from Mexico to the United States and other countries. In 2017, in an attempt to increase manufacturing employment in the United States, President Donald Trump considered imposing a 35 percent tariff—in effect, a tax—on cars that Ford and other U.S. companies assembled in Mexico for sale in the United States. If the tariff were enacted, U.S. car companies would have to pay the U.S. government an amount equal to 35 percent of the price of these cars at the border. The tariff would increase the prices consumers would pay for these cars and, therefore, reduce their sales. President Trump argued that the tariffs would give U.S. car companies an *economic incentive* to assemble more cars in the United States, which would increase employment in U.S. manufacturing.

U.S. car companies were assembling some cars in Mexico because in a *market system*, firms respond to economic incentives. In this case, the lower wages the companies can pay Mexican workers and the lower prices for auto parts in Mexico reduced Ford's costs by more than $1,000 per car. Typically, technological progress creates economic incentives for firms to change how they produce goods and services. For example, robotics can lead automobile manufacturers to automate some jobs, reducing

Jonathan Ernst/Reuters/Alamy Stock Photo

employment in the industry. Firms also respond to changes in consumer tastes, as when more people become interested in buying electric cars. But sometimes firms respond to incentives from changes in government policy. For instance, in 1994, the governments of Canada, Mexico, and the United States agreed to the North American Free Trade Agreement (NAFTA), which made it easier for U.S. firms like Ford to ship products from Mexico to the United States. In 2017, some policymakers in Washington believed that a tariff on imports to the United States from Mexico was needed to reverse the economic incentives in NAFTA.

In this chapter and the remainder of this book, we will see how economics provides us with the tools to analyze how firms, consumers, and workers respond to economic incentives and how government policymakers can attempt to reach their objectives by changing those incentives.

AN INSIDE LOOK on **page 20** discusses how likely it is that significant numbers of manufacturing jobs will return to the United States from overseas.

Sources: Dee-Ann Durbin, "Made in Mexico, Popular on U.S. Highways," Associated Press, February 8, 2017; David Welch and David Merrill, "Why Trump Tariffs on Mexican Cars Probably Won't Stop Job Flight," bloomberg.com, January 4, 2017; and Allan Nevins and Frank Ernest Hill, *Ford: Expansion and Challenge, 1915–1933*, New York: Charles Scribner's Sons, 1957, Ch. 14.

Chapter Outline & Learning Objectives

Economics in Your Life & Career

Should You Consider a Career in Manufacturing?

In the late 1940s and early 1950s, a third of workers in the United States were employed in manufacturing. Traditionally, many high school graduates viewed working on a manufacturing assembly line as a way to earn a middle-class income. Many college graduates in engineering, accounting, management, and other fields have also found employment in manufacturing. But will manufacturing be a good source of careers in the future? In December 2016, total employment in U.S. manufacturing was 12.3 million. But the U.S. Bureau of Labor Statistics forecasts that by 2024, this number will decline to 11.4 million. What is the basis for this forecast, and how reliable is it? As you read this chapter, try to answer this question. You can check your answer against the one we provide on **page 19** at the end of this chapter.

In this book, we use economics to answer questions such as the following:

- What determines the prices of goods and services from bottled water to smartphones to automobiles?
- Why have health care costs risen so rapidly?
- Why do firms engage in international trade, and how do government policies, such as tariffs, affect international trade?
- Why does the government control the prices of some goods and services, and what are the effects of those controls?

Economists do not always agree on the answer to every question, and there are lively debates on some issues. Because new economic questions are constantly arising, economists are always developing new methods to analyze them.

Scarcity A situation in which unlimited wants exceed the limited resources available to fulfill those wants.

All the topics we discuss in this book illustrate a basic fact of life: To attain our goals, we must make choices. We must make choices because we live in a world of **scarcity**, which means that although our wants are *unlimited*, the resources available to fulfill those wants are *limited*. You might want to own a BMW and spend each summer vacationing at five-star European hotels, but unless Bill Gates is a close and generous relative, you probably lack the funds to fulfill these wants. Every day, you make choices as you spend your limited income on the many goods and services available. The finite amount of time you have also limits your ability to attain your goals. If you spend an hour studying for your economics midterm, you have one hour less to study for your history midterm. Firms and the government are in the same situation as you: They must also attain their goals with limited resources.

Economics The study of the choices people make to attain their goals, given their scarce resources.

Economics is the study of the choices consumers, business managers, and government officials make to attain their goals, given their scarce resources.

We begin this chapter by discussing three important economic ideas that we will return to many times in the following chapters: *People are rational, people respond to economic incentives,* and *optimal decisions are made at the margin*. Then, we consider the three fundamental questions that any economy must answer: *What* goods and services will be produced? *How* will the goods and services be produced? and *Who* will receive the goods and services produced? Next, we consider the role of *economic models* in analyzing economic issues. **Economic models** are simplified versions of reality used to analyze real-world economic situations. We will explore why economists use models and how they construct them. Finally, we will discuss the difference between microeconomics and macroeconomics, and we will preview some important economic terms.

Economic model A simplified version of reality used to analyze real-world economic situations.

1.1 Three Key Economic Ideas

LEARNING OBJECTIVE: Explain these three key economic ideas: People are rational, people respond to economic incentives, and optimal decisions are made at the margin.

Whether your goal is to buy a smartphone or find a part-time job, you will interact with other people in *markets*. A **market** is a group of buyers and sellers of a good or service and the institution or arrangement by which they come together to trade. Examples of markets are the markets for smartphones, houses, haircuts, stocks and bonds, and labor. Most of economics involves analyzing how people make choices and interact in markets. Here are the three important ideas about markets that we'll return to frequently:

Market A group of buyers and sellers of a good or service and the institution or arrangement by which they come together to trade.

1. People are rational.
2. People respond to economic incentives.
3. Optimal decisions are made at the margin.

People Are Rational

Economists generally assume that people are rational. This assumption does *not* mean that economists believe everyone knows everything or always makes the "best" decision. It means that economists assume that consumers and firms use all available information as they act to achieve their goals. Rational individuals weigh the benefits and costs of each action, and they choose an action only if the benefits outweigh the costs. For example, if Apple charges a price of $649 for its new iPhone, economists assume that the managers at Apple have estimated that this price will earn the company the most profit. Even though the managers may be wrong—maybe a price of $625 or $675 would be more profitable—economists assume that the managers at Apple have acted rationally, on the basis of the information available to them, in choosing the price of $649. Although not everyone behaves rationally all the time, the assumption of rational behavior is very useful in explaining most of the choices that people make.

MyLab Economics Concept Check

People Respond to Economic Incentives

People act from a variety of motives, including envy, compassion, and religious belief. While not ignoring other motives, economists emphasize that consumers and firms consistently respond to *economic incentives*. This point may seem obvious, but it is often overlooked. For example, according to an article in the *Wall Street Journal*, the FBI couldn't understand why banks were not taking steps to improve security in the face of an increase in robberies: "FBI officials suggest that banks place uniformed, armed guards outside their doors and install bullet-resistant plastic, known as a 'bandit barrier,' in front of teller windows." FBI officials were surprised that few banks took their advice. But the article also reported that installing bullet-resistant plastic costs $10,000 to $20,000, and a well-trained security guard receives $50,000 per year in salary and benefits. The average loss in a bank robbery is only about $1,200. The economic incentive to banks is clear: It is less costly to put up with bank robberies than to take additional security measures. FBI agents may be surprised by how banks respond to the threat of robberies—but economists are not.

In each chapter, the *Apply the Concept* feature discusses a news story or another application related to the chapter material. Read this *Apply the Concept* for a discussion of whether people respond to economic incentives even when deciding how much to eat and how much to exercise.

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Apply the Concept

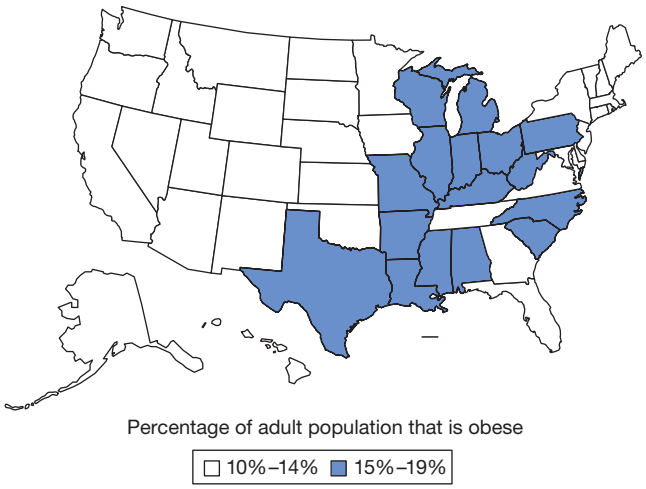
MyLab Economics Video

Does Health Insurance Give People an Incentive to Become Obese?

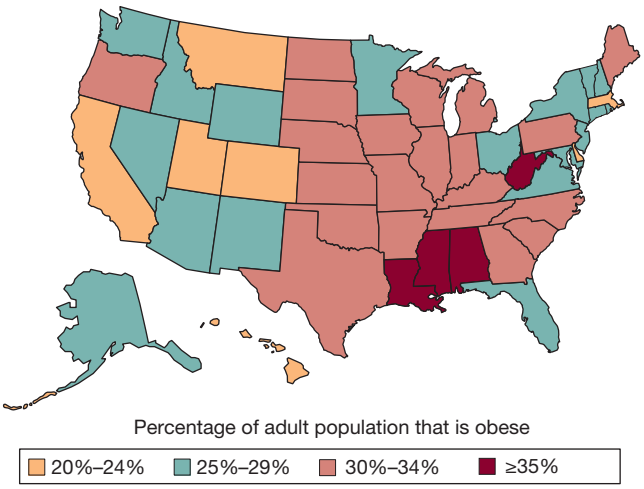
Obesity is a factor in a variety of diseases, including heart disease, stroke, diabetes, and hypertension, making it a significant health problem in the United States. Body mass index (BMI) is a measurement of a person's weight relative to the person's height. According to the U.S. Centers for Disease Control and Prevention (CDC), an adult with a body mass index (BMI) of 30 or greater is considered *obese*. For example, a 5'6" adult with a BMI of 30 is 40 pounds overweight.

The following two maps show the dramatic increase in obesity between 1994 and 2015. In 1994, in a majority of states, only between 10 percent and 14 percent of the adult population was obese, and in no state was more than 20 percent of the adult population obese. By 2015, in every state, at least 20 percent of the adult population was obese, and in 44 states, at least 25 percent of the adult population was obese.

Many people who suffer from obesity have underlying medical conditions. For these people, obesity is a medical problem that they cannot control. The fact that obesity has increased, though, indicates that for some people, obesity is the result of diet and lifestyle choices. Potential explanations for the increase in obesity include greater intake of high-calorie fast foods, insufficient exercise, and a decline in the physical



(a) Obesity rates in 1994



(b) Obesity rates in 2015

Source: Centers for Disease Control and Prevention, "Prevalence of Self-Reported Obesity among U.S. Adults."

activity associated with many jobs. The CDC recommends that teenagers get a minimum of 60 minutes of aerobic exercise per day, a standard that only 15 percent of high school students meet. In 1960, 50 percent of jobs in the United States required at least moderate physical activity. Today, only 20 percent of jobs do. As a result, a typical worker today who may work at a computer is burning off about 130 *fewer* calories per workday than a worker in the 1960s who was more likely to have worked in a manufacturing plant.

In addition to eating too much and not exercising enough, could having health insurance be a cause of obesity? Obese people tend to suffer more medical problems and so incur higher medical costs. Obese people with health insurance that will reimburse them for only part of their medical bills, or who have no health insurance, must pay some or all of these higher medical bills themselves. People with health insurance that covers most of their medical bills will not suffer as large a monetary cost from being obese. In other words, by reducing some of the costs of obesity, health insurance may give people an economic incentive to gain weight.

At first glance, this argument may seem implausible. Some people suffer from medical conditions that can make physical activity difficult or that can cause weight gain even with moderate eating, so they may become obese, regardless of which type of health insurance they have. The people who are obese because of poor eating habits or lack of exercise probably don't consider health insurance when deciding whether to have a slice of chocolate cake or to watch Netflix instead of going to the gym. But if economists are correct about the importance of economic incentives, then we would expect that if we hold all other personal characteristics—such as age, gender, and income—constant, people with health insurance will be more likely to be overweight than people without health insurance.

Jay Bhattacharya and Kate Bundorf of Stanford University, Noemi Pace of the University of Venice, and Neeraj Sood of the University of Southern California, have analyzed the effects of health insurance on weight. Using a sample that followed nearly 80,000 people from 1989 to 2004, they found that after controlling for factors including age, gender, income, education, and race, people with health insurance were significantly more likely to be overweight than people without health insurance. Having private health insurance increased BMI by 1.3 points. Having public health insurance, such as Medicaid, which is a program under which the government provides health care to low-income people, increased BMI by 2.3 points. These findings suggest that people respond to economic incentives even when making decisions about what they eat and how much they exercise.

Note: The exact formula for the body mass index is BMI $=$ (Weight in pounds/Height in inches^2) $\times$ 703.

Sources: Centers for Disease Control and Prevention, "Prevalence of Self-Reported Obesity among U.S. Adults," www.cdc.gov; Katherine M. Flegal, Margaret D. Carroll, Cynthia L. Ogden, and Lester R. Curtin, "Prevalence and Trends in Obesity among U.S. Adults, 1999–2008," *Journal of the American Medical Association*, Vol. 303, No. 3, January 20, 2010, pp. 235–241; Jay Bhattacharya, Kate Bundorf, Noemi Pace, and Neeraj Sood, "Does Health Insurance Make You Fat?" in Michael Grossman and Naci H. Mocan, eds., *Economic Aspects of Obesity*, Chicago: University of Chicago Press, 2011; and Tara Parker-Pope, "Less Active at Work, Americans Have Packed on Pounds," *New York Times*, May 25, 2011.

Your Turn: Test your understanding by doing related problems 1.7 and 1.8 on page 23 at the end of this chapter.

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Optimal Decisions Are Made at the Margin

Some decisions are "all or nothing." For instance, when an entrepreneur decides whether to open a new restaurant, she starts the new restaurant or she doesn't. When you decide whether to attend graduate school, you either enroll in graduate school or you don't. But rather than being all or nothing, most decisions in life involve doing a little more or a little less. If you are trying to decrease your spending and increase your saving, the decision is not really between saving all the money you earn or spending it all. Rather, many small choices are involved, such as whether to buy a caffè mocha at Starbucks every day or just once a week.

Economists use the word *marginal* to mean "extra" or "additional." Should you watch another hour of television or spend that hour studying? The *marginal benefit* (*MB*) of watching more television is the additional enjoyment you receive. The *marginal cost* (*MC*) is the reduction in your test score from having studied a little less. Should Apple produce an additional 300,000 iPhones? Firms receive *revenue* from selling goods. Apple's marginal benefit is the additional revenue it receives from selling 300,000 more iPhones. Apple's marginal cost is the additional cost—for wages, parts, and so forth—of producing 300,000 more iPhones. *Economists reason that the optimal decision is to continue any activity up to the point where the marginal benefit equals the marginal cost—that is, to the point where* MB = MC. Often we apply this rule without consciously thinking about it. Usually you will know whether the additional enjoyment from watching a television program is worth the additional cost you pay by not spending that hour studying without giving the decision a lot of thought. In business situations, however, firms often have to make careful calculations to determine, for example, whether the additional revenue received from increasing production is greater or less than the additional cost of the production. Economists refer to analysis that involves comparing marginal benefits and marginal costs as **marginal analysis**.

Marginal analysis Analysis that involves comparing marginal benefits and marginal costs.

In each chapter, you will see the feature *Solved Problem*. This feature will increase your understanding of the material by leading you through the steps of solving an applied economic problem. After reading the problem, test your understanding by doing the related problems that appear at the end of the chapter. You can also complete Solved Problems on www.pearson.com/mylab/economics and receive tutorial help.

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Solved Problem 1.1

MyLab Economics Interactive Animation

The Marginal Benefit and Marginal Cost of Speed Limits

In an opinion column in the *New York Times*, economists Sendhil Mullainathan of Harvard University and Richard Thaler of the University of Chicago noted, "We do not post 10-mile-per-hour speed limits on all highways, even though that would be safer." Why is a 10-mile-per-hour speed limit unlikely to be optimal? How could a state highway department use marginal analysis to decide whether to increase the speed limit on a highway from 55 to 65 miles per hour?

Solving the Problem

Step 1: **Review the chapter material.** This problem is about making decisions, so you may want to review the section "Optimal Decisions Are Made at the Margin," which appears on this page.

Step 2: **Discuss how we can decide what the optimal speed limit is and why it is unlikely to be 10 miles per hour.** The faster people drive, the more likely they are to have accidents because the less time they have to react to problems on the highway. In addition, the faster a car or truck is traveling, the more likely it is that an accident will cause damage to the vehicles involved and injuries to the vehicles' occupants. These are the main costs of increasing the speed limit. These costs will increase with each additional mile per hour the speed limit is increased. In other words, the marginal cost from increasing the speed limit is positive.

Increasing the speed limit has benefits as well. The higher the speed limit, the faster people and freight will reach their destinations. These benefits will increase with each additional mile per hour the speed limit is increased, so the marginal benefit from increasing the speed limit is positive. The optimal speed limit will be the one where the marginal cost of decreased safety equals the marginal benefit of faster travel. We know that we have reached the optimal speed limit when increasing the limit further would result in marginal cost being greater than marginal benefit.

A 10-mile-per-hour speed limit would result in very long travel times. So, we can reasonably conclude that a 10-mile-per-hour speed limit isn't optimal because the marginal benefit from increasing it is likely to be much greater than the marginal cost.

Step 3: **Explain how a state highway department could use marginal analysis to decide whether to increase the speed limit on a highway from 55 to 65 miles per hour.** Increasing the speed limit by 10 miles per hour will reduce travel times for people and freight—so there will be a marginal benefit—but will likely also increase the number of accidents and the damage from those accidents. The state highway department should try to estimate the dollar values of the marginal cost and marginal benefit of making the change. If the marginal benefit is greater than the marginal cost, the speed limit should be increased. Although it can be difficult to assign dollar values to the marginal benefit and marginal cost of an action, marginal analysis captures the steps you can follow to make optimal decisions in many situations.

Extra Credit: Suppose that the highway department calculates that increasing the speed limit will result in reduced travel time valued at $100 million. This information would not be enough to decide that the speed limit should be raised because it represents only the marginal benefit from the higher speed limit. If the dollar value of more severe accidents from greater speed turns out to be $125 million, then the marginal cost of increasing the speed limit would be greater than the marginal benefit, and the speed limit should not be raised. Marginal benefit and marginal cost both have to be considered in arriving at an optimal decision.

Source: Sendhil Mullainathan and Richard Thaler, "Waiting in Line for the Illusion of Security," *New York Times*, May 27, 2016.

MyLab Economics Study Plan

Your Turn: For more practice, do related problems 1.9 and 1.10 on page 23 at the end of this chapter.

1.2 The Economic Problem That Every Society Must Solve

LEARNING OBJECTIVE: Discuss how an economy answers these questions: What goods and services will be produced? How will the goods and services be produced? Who will receive the goods and services produced?

Because we live in a world of scarcity, any society faces the *economic problem* that it has only a limited amount of economic resources—such as workers, machines, and raw materials—and so can produce only a limited amount of goods and services. Therefore,

every society faces **trade-offs**: Producing more of one good or service means producing less of another good or service. The best measure of the cost of producing a good or service is the value of what has to be given up to produce it. The **opportunity cost** of any activity—such as producing a good or service—is the highest-valued alternative that must be given up to engage in that activity. The concept of opportunity cost is very important in economics and applies to individuals, firms, and society as a whole. For instance, suppose that you earn a salary of $100,000 per year working as a manager for Ford. You decide to leave your job and open your own management consulting firm. In this case, the opportunity cost of the labor you supply to your own firm is the $100,000 you give up by not working for Ford, *even if you do not explicitly pay yourself a salary*. As in this example, opportunity costs often do not involve actual payments of money.

Trade-off The idea that, because of scarcity, producing more of one good or service means producing less of another good or service.

Opportunity cost The highest-valued alternative that must be given up to engage in an activity.

Trade-offs force society to make choices when answering three fundamental questions:

1. *What* goods and services will be produced?
2. *How* will the goods and services be produced?
3. *Who* will receive the goods and services produced?

Throughout this book, we will return to these questions many times. For now, we briefly introduce each question.

What Goods and Services Will Be Produced?

How will society decide whether to produce more economics textbooks or more smartphones? More daycare facilities or more football stadiums? Of course, "society" doesn't make decisions; only individuals make decisions. The answer to the question of what will be produced is determined by the choices that consumers and people working for firms or the government make. Every day, you help decide which goods and services firms will produce when you choose to buy an iPhone instead of a Samsung Galaxy or a caffè mocha rather than a chai tea. Similarly, managers at Apple must choose whether to devote the company's scarce resources to making more iPhones or more smartwatches. Members of Congress and the president must choose whether to spend more of the federal government's limited budget on breast cancer research or on repairing highways. In each case, consumers, managers of firms, and government policymakers face the problem of scarcity by trading off one good or service for another. And each choice made comes with an opportunity cost, measured by the value of the best alternative given up.

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How Will the Goods and Services Be Produced?

Firms choose how to produce the goods and services they sell. In many cases, firms face a trade-off between using more workers and using more machines. For example, a local service station has to choose whether to provide car repair services using more diagnostic computers and fewer auto mechanics or fewer diagnostic computers and more auto mechanics. Similarly, movie studios have to choose whether to produce animated films using highly skilled animators to draw them by hand or fewer animators and more computers. In deciding whether to move production offshore to China, firms may need to choose between a production method in the United States that uses fewer workers and more machines and a production method in China that uses more workers and fewer machines.

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Who Will Receive the Goods and Services Produced?

In the United States, who receives the goods and services produced depends largely on how income is distributed. The higher a person's income, the more goods and services he or she can buy. Often, people are willing to give up some of their income—and, therefore, some of their ability to purchase goods and services—by donating to charities to increase the incomes of poorer people. Americans donate more than $370 billion per year to charity, or an average donation of about $2,900 for each household in the country. An important policy question, however, is whether the