

R. GLENN

HUBBARD

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MACROECONOMICS



macroeconomics

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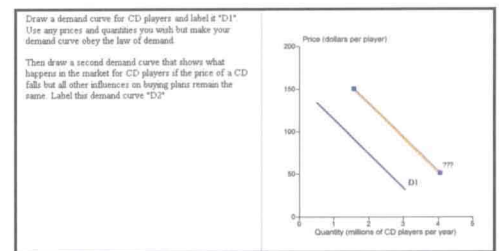
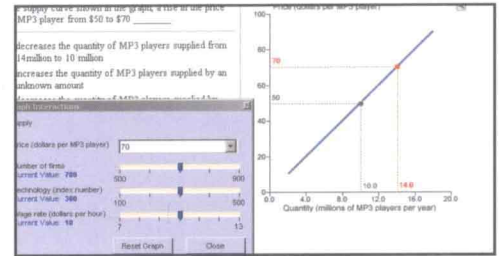
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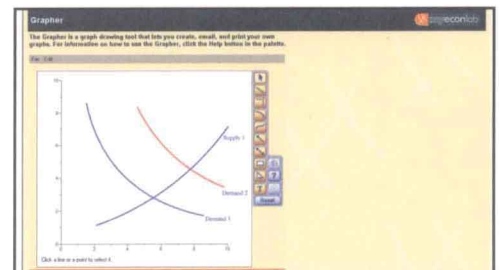
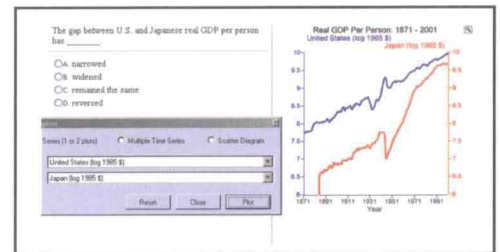
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For Constance, Raph, and Will

—*R. Glenn Hubbard*

To my mother and the memory of my father

—*Anthony Patrick O'Brien*

AUTHORSHIP



Glenn Hubbard policymaker, professor, and researcher.

R. Glenn Hubbard is the Dean and Russell L. Carson Professor of Finance and Economics in the Graduate School of Business at Columbia University and Professor of Economics in Columbia's Faculty of Arts and Sciences. He is also a research associate of the National Bureau of Economic Research and a director of Automatic Data Processing, Black Rock Closed-End Funds, R.H. Donnelly, Inc., Duke Realty, KKR Financial Corporation, and Ripplewood Holdings. He received his Ph.D. in economics from Harvard University in 1983. From 2001–2003, he served as Chairman of the White House Council of Economic Advisers, and from 1991–1993, he was Deputy Assistant

Secretary of the U.S. Treasury Department. Glenn Hubbard's fields of specialization are public economics, financial markets and institutions, corporate finance, macroeconomics, industrial organization, and public policy. He is the author of more than 90 articles in leading journals, including the *American Economic Review*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Political Economy*, *Journal of Public Economics*, *Quarterly Journal of Economics*, *RAND Journal of Economics*, and *Review of Economics and Statistics*. His research has been supported by grants from the National Science Foundation, the National Bureau of Economic Research, and numerous private foundations.



Tony O'Brien award-winning professor and researcher.

Anthony Patrick O'Brien is a professor of economics at Lehigh University. He received his Ph.D. from the University of California, Berkeley, in 1987. He has taught principles of economics for more than 15 years, in both large sections and small honors classes. He received the Lehigh University Award for Distinguished Teaching. He was formerly the director of the Diamond Center for Economic Education and was named a Dana Foundation Faculty Fellow and Lehigh Class of 1961 Professor of Economics. He has been a visiting professor at the University of California, Santa Barbara, and the Graduate School of Industrial Administration at Carnegie Mellon University.

Anthony O'Brien's research has dealt with such issues as the evolution of the U.S. automobile industry, the sources of U.S. economic competitiveness, the development of U.S. trade policy, the causes of the Great Depression, and the causes of black–white income differences. His research has been published in leading journals, including the *American Economic Review*, the *Quarterly Journal of Economics*, the *Journal of Money, Credit, and Banking*, *Industrial Relations*, and the *Journal of Economic History*. His research has been supported by grants from government agencies and private foundations. In addition to teaching and writing, Anthony O'Brien also serves on the editorial board of the *Journal of Socio-economics*.

CONTEXTUAL LEARNING

Students come to study macroeconomics with a strong interest in understanding events and developments in the economy. We try to capture that interest and develop students' economic intuition and understanding in this text. We present macroeconomics in a way that is modern and based in the real world of business and economic policy. And we believe we achieved 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 more complex than is necessary to allow students to understand the basic macroeconomic issues. Instead, we use a more realistic version of the familiar aggregate demand-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, which gives students a better context for understanding those issues where disagreements have not yet been resolved. And we present throughout real business and policy situations to develop students' intuition.

A few highlights of our approach:

- *A strong set of introductory chapters.* Our six introductory chapters provide students with a solid foundation in the basics before we move on to explore macroeconomics. We emphasize the key ideas of marginal analysis and economic efficiency. In Chapter 4, "Economic Efficiency, Government Price Setting, and Taxes," we use the concepts of consumer surplus 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 surplus and producer surplus in Chapter 6, "Comparative Advantage and the Gains from International Trade," where we analyze government policies that affect trade. In Chapter 5, "Firms, the Stock Market, and Corporate Governance" we provide students with a basic understanding of how firms are organized, how they raise funds, and how they provide information to investors. We also illustrate how in a market system entrepreneurs meet consumer wants and efficiently organize production. To explore how government policy affects business, we cover the WorldCom and Enron business scandals and the objectives of the 2002 Sarbanes-Oxley Act. Although the material in Chapter 5 can be skipped without a loss of continuity in the discussion, we believe the chapter provides an important background to macroeconomic issues affecting the financial system.
- *A broader discussion of macro statistics.* Many students pay at least 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 7, "GDP: Measuring Total Production and Income," and Chapter 8, "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 the financial markets react more strongly to news from the payroll survey.
- *Early coverage of long-run topics.* We place key macroeconomic issues in their long-run context in Chapter 9, "Economic Growth, the Financial System, and Business Cycles," and Chapter 10, "Long-Run Economic Growth: Sources and Policies." Chapter 9 puts the business cycle in the context of underlying long-run growth. In this chapter, we discuss 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, yet this material is

MODERN ORGANIZATION

often discussed only briefly or omitted entirely in other books. We know that many instructors prefer to have a short-run orientation to their macro courses, with a strong emphasis on policy. Accordingly, we have structured Chapter 9 so that its discussion of long-run growth would be sufficient for instructors who want to move quickly to short-run analysis. Chapter 10 uses a simple neo-classical growth model to understand important growth issues. We apply the model to topics such as the decline of the Soviet economy, the surprisingly strong growth performance of Botswana, and the failure of many developing countries to sustain high growth rates. And we challenge students with a discussion of “Why Isn’t the Whole World Rich?”

- *A dynamic model of aggregate demand and aggregate supply.* We take a fresh approach to the standard aggregate demand-aggregate supply 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: First, changes in the position of the short-run (upward-sloping) aggregate supply curve depend mainly on the state of expectations of the inflation rate. Second, 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. We introduce this model in Chapter 12, “Aggregate Demand and Aggregate Supply Analysis,” and use it to discuss monetary policy in Chapter 14, “Monetary Policy,” and Chapter 16, “Inflation, Unemployment, and Federal Reserve Policy,” as well as fiscal policy in Chapter 15.
- *Extensive coverage of monetary policy.* Because of the central role monetary policy plays in the economy and in students’ curiosity about business and financial news, we devote Chapters 14 and 16 to the topic. We emphasize the issues involved in the Fed’s choice of monetary policy targets, and we include coverage of the Taylor rule. Our discussion of inflation targeting is particularly pertinent as Ben Bernanke succeeds Alan Greenspan as Fed chair.
- *Coverage of both the demand side and supply side effects of fiscal policy.* Our discussion of fiscal policy carefully distinguishes between automatic stabilizers and discretionary fiscal policy. We also have significant coverage of the supply-side effects of fiscal policy.
- *A self-contained—but thorough—discussion of the Keynesian income-expenditure approach.* The Keynesian income-expenditure approach (the “45°-line diagram” or “Keynesian cross”) is a useful way of introducing students to the short-run relationship between spending and production. Many instructors, however, prefer to omit this material. Therefore, we use the income-expenditure approach in only Chapter 11, “Output and Expenditure in the Short Run.” The discussion of monetary and fiscal policy in later chapters uses only the AD-AS model, making it possible to omit Chapter 11.
- *Extensive international coverage.* We include three chapters devoted to international topics: Chapters 6, 17, and 18. A good understanding of the international trading and financial systems is essential to an understanding of the macroeconomy and to satisfying students’ curiosity about the economic world around them. In addition to the material in our three international chapters, we weave international comparisons into the narrative of several chapters, including our discussion of labor market policies and central banking.

BUSINESS APPLICATIONS

When George Lucas was asked why he made *Star Wars*, he replied, “It’s the kind of movie I like to see, but no one seemed to be making them. So, I decided to make one.” We realized that no one seemed to be writing the kind of textbook we wanted to use in our classes. So, after years of supplementing texts with fresh, lively, real-world examples from newspapers, magazines, and professional journals, we decided to write an economics text that delivered complete economics coverage with many real-world business examples. Our goal was to keep our classes “widget free.”

We believe the course is a success if students can apply what they have learned in both personal and business settings, 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. Here are a few examples:

Which category of unemployment applies to optical engineers at Lucent? (Chapter 8)

How has globalization helped Bangladesh’s economy? (Chapter 10)

How do exchange rates affect Caterpillar, Inc.’s sales? (Chapter 12)

Each CHAPTER-OPENING CASE sets a real-world context for learning, sparks students’ interest in economics, and gives the chapter a unifying theme.

Each chapter opener covers a real-world situation faced by companies such as Cisco, Ford Motor Company, and the homebuilder Toll Brothers, Inc. The company is integrated in the narrative, graphs, and pedagogical features of the chapter. Many of the chapter openers focus on the role of the entrepreneur in developing new products and bringing them to the market. Here are a few examples of topics we explore:

Why was the Google IPO so successful, and how can we track the stock? (Chapter 5)

How did a tariff on sugar affect candy manufacturers? (Chapter 6)

How did fluctuations in GDP affect hiring at Freightliner, a commercial truck manufacturer based in Portland, Oregon? (Chapter 7)

What role have entrepreneurs played in China’s rapid growth? (Chapter 10)

How Hewlett-Packard Manages the Demand for Printers

➤ In early 2005 the board of directors at Hewlett-Packard (HP) ousted chief executive officer Carly Fiorina and replaced her with Mark Hurd, then the chief executive officer of NCR Corporation. What happened?

Carly Fiorina had been a business celebrity for many years. In July 1999 she became HP’s chief executive officer, which made her the first woman to head one of the 100 largest firms in the United States. In 2002, she brought about the largest merger of two technology firms in U.S. history when HP purchased Compaq Computer Corporation. By

with Compaq had failed to improve HP’s performance in the personal computer market.

Printers, and not personal computers, are HP’s most successful product. Although printers account for only about 30 percent of the firm’s sales, they account for 70 percent of its profits. In fact, as *An Inside Look* at the end of this chapter discusses, to increase the demand for printers the firm is willing to sell its personal computers at low prices.

Hewlett-Packard’s success, like that of any firm, depends on its ability

example, Carly Fiorina announced that sales of HP printers had declined sharply in the first half of that year compared to the first half of 2000. Two events caused this decline: First, many individuals and small businesses unexpectedly decided not to upgrade their existing computers to faster and more powerful machines. Printers are a key part of computers. Second, the economy moved into recession, reducing incomes of many consumers. Fiorina



POLICY EXAMPLES

AN INSIDE LOOK shows students how to apply the concepts of a chapter to the analysis of a newspaper article.

Reading the newspaper and other periodicals is an important part of understanding the current business climate. At the end of each chapter, a two-page periodical feature consists of an excerpt of an article, analysis of the article, graph(s), and critical thinking questions.

An Inside Look India Achieves Growth through Efficiency and Globalization

WALL STREET JOURNAL, JUNE 6, 2005

India Comes of Age, As Focus on Returns Lures Foreign Capital

INDIA—When New York investment firm Blackstone Group LP announced last month that its first foray in Asia would be a \$1 billion fund targeted at India, the move seemed to rally the country's dim-and-dimensions growth approach to economic development. Unlike China, where transformations have been captured by daily headlines of rapid growth on the macroeconomic level, India's economic success is quiet on the corporate level.

Now after decades of relative isolation, corporate India has become a showcase for the benefits of globalization, the free flow of capital across borders and competition.

India hasn't managed to replicate China's astounding record of sustained annual economic growth. But there, corporate India has had many of the advantages of China: steady cheap capital and supportive government policies. Even that India would be recognized by China is not a bad thing.

India's economic growth has been a catalyst for India's private-sector awakening. The enthusiasm for India reflects the country's strong management culture. Indian companies are very cost conscious, says Tom Walker, chief economist for Credit Lyonnais Securities Asia in Hong Kong. "In contrast, China is just making their dream."

What the world is discovering is that India has become a rising star in the global economy. India's growth is being fueled by a combination of factors: a large pool of low-cost labor, a strong management culture, and a focus on efficiency and globalization.

The case of India's modernization is captured by daily headlines of rapid growth on the macroeconomic level. India's economic success is quiet on the corporate level.

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Key Points in the Article

This article discusses foreign investment in India, which has increased significantly in the past decade. The Indian government has moved to improve the business environment and attract foreign investment. The article also discusses the impact of globalization on India's economy and the role of foreign capital in India's growth.

Analyzing the News

The cost of capital in India is relatively high. To make the most of its capital, India must improve its infrastructure and management practices. This requires investment in infrastructure and management practices. The article also discusses the impact of globalization on India's economy and the role of foreign capital in India's growth.

Thinking Critically

Suppose that the Indian government, in an effort to attract investment, reduces its corporate tax rate. How would this affect the Indian economy? Would it lead to increased investment and growth? Or would it lead to increased competition from other countries? Consider the impact of globalization on India's economy and the role of foreign capital in India's growth.

Figure 1 The increase in output per worker in India has improved their management techniques. Chinese firms have increased their use of capital.

MAKING THE CONNECTION between concepts and the real world.

In each chapter, between two and four "Making the Connection" features present relevant, stimulating, and provocative news stories, primarily about business.

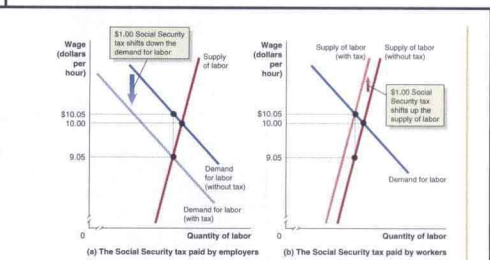
4-4 Making the Connection

Is the Burden of the Social Security Tax Really Shared Equally between Workers and Firms?

Everyone who receives a paycheck has several different taxes withheld from it by their employers, who forward these taxes directly to the government. In fact, many people are shocked after getting their first job when they discover the gap between their gross pay and their net pay after taxes have been deducted. The largest tax many people of low or moderate income pay is the FICA, which stands for the Federal Insurance Contributions Act. The FICA funds the Social Security and Medicare programs, which provide income and health care to the elderly and disabled. The FICA is sometimes referred to as the payroll tax. When Congress passed the FICA, it wanted the burden of the tax to be shared equally by employers and workers. Currently, the FICA is 15.3 percent of wages, with 7.65 percent paid by workers by being withheld from their paychecks and the other 7.65 percent paid by employers.

But does requiring workers and employers to each pay half the tax mean that the burden of the tax is also shared equally? Our discussion in this chapter shows us that the answer is "No." In the labor market, employers are buyers and workers are sellers. As we saw in the example of federal taxes on gasoline, whether the tax is collected from buyers or from sellers does not affect the incidence of the tax. Most economists believe, in fact, that the burden of FICA falls almost entirely on workers. The figure on the next page, which shows the market for labor, illustrates why.

In the market for labor, the demand curve reflects the quantity of labor demanded by employers at various wages, and the supply curve reflects the quantity of labor supplied by workers at various wages. The intersection of the demand curve and the supply curve determines the equilibrium wage. In both panels the equilibrium wage without a Social Security



SOLVED PROBLEMS

SOLVED PROBLEMS offer a hands-on approach to learning.

As we all know, many students have great difficulty handling applied economics problems. We help students overcome this hurdle by including two or three worked-out problems tied to select chapter-opening learning objectives and the associated quantitative information. Our goals are to keep students focused on the main ideas of each chapter and to give students a model of how to solve an economic problem by breaking it down step by step. There are additional exercises in the end-of-chapter materials tied to every Solved Problem.

SOLVED PROBLEM 3-1

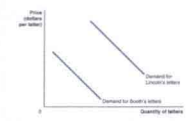
Demand and Supply Both Count: A Tale of Two Letters

Which letter is likely to be worth more on average to Abraham Lincoln or one written by his assassin, John Wilkes Booth? Lincoln is one of the greatest presidents and many people collect anything written by him. The demand for letters written by Lincoln would seem to be much greater than the demand for letters written by Booth. Yet when R. M. Swartz and his associates offered some letters by Lincoln and other letters written by Booth, the Booth letter sold for \$11,000 and the Lincoln letter sold for only \$12,000. Use a demand and supply graph to explain how the Booth letter has a higher market price than the Lincoln letter, even though the demand for letters written by Lincoln is greater than the demand for letters written by Booth.

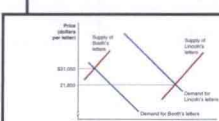
Solving the Problem

Step 1 Reread the chapter material. This problem is about prices being determined at market equilibrium, so this step refers to review the section "Market Equilibrium: Bringing Demand and Supply Together" which begins on page 27.

Step 2 Draw demand curves that illustrate the greater demand for Lincoln's letters. Begin by drawing one demand curve, label one "Demand for Lincoln's letters" and the other "Demand for Booth's letters." Make sure that the Lincoln demand curve is much flatter to the right than the Booth demand curve.



Step 3 Draw supply curves that illustrate the equilibrium price of Booth's letters higher than the equilibrium price of Lincoln's letters. Based on the demand and supply curves, which demand curve is steeper for the market price of Lincoln's letters to be lower than the market price of Booth's letters. The only way this can be for the supply of Lincoln's letters is much greater than the supply of Booth's letters. Draw a supply curve for Lincoln's letters and a supply curve for Booth's letters. The equilibrium price of Booth's letters of \$11,000 and an equilibrium price of Lincoln's letters of \$12,000. You have now solved the problem.



Take Care! The explanation for this puzzle is that both demand and supply count when determining market price. The demand for Lincoln's letters is much greater than the demand for Booth's letters, but the supply of Booth's letters is very small. Remember before that only eight letters written by Booth exist today. Thus, the supply curve for letters written by Booth and by Lincoln slope up even though only a fixed number of each of those types of letters is available and, obviously, no more can be produced. The upward slope of the supply curve occurs because the higher the price, the larger the quantity of letters that will be offered for sale by people who currently own them.

YOUR TURN For more practice, do problem 8 on page 37 at the end of this chapter. Visit www.psebook.com/turnkey for an interactive exercise related to this Solved Problem.

Don't Let This Happen To You!

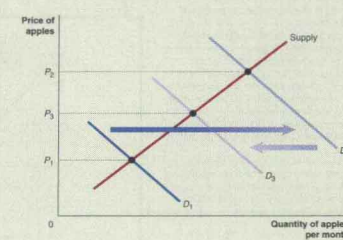
We know from many years of teaching which concepts students find most difficult. Each chapter contains a box feature alerting students to the most common pitfalls in that chapter's material. We test the students' understanding by following up with a related question in the end-of-chapter "Problems and Applications" section.

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, other things being constant. He draws the graph below 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.

YOUR TURN: Test your understanding by doing related problems 6 and 23 on pages 91 and 94 at the end of this chapter.

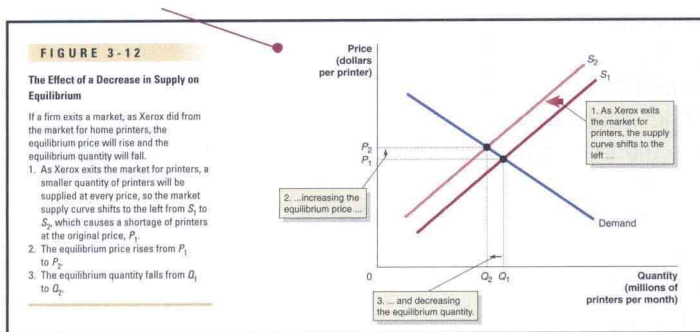


GRAPHS AND SUMMARY TABLES

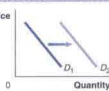
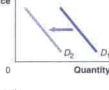
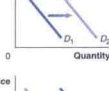
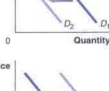
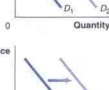
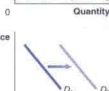

Graphs

Graphs are an indispensable part of the 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 can be found on the book's supporting Web site. We use four devices to help students read and interpret graphs:

1. Captions
2. Boxed Notes
3. Color-Coded Curves



4. Summary Tables with Graphs

An increase in ...	Shifts the demand curve ...	Because ...	Variables That Shift Market Demand Curves
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.	
income (and the good is normal)		consumers spend more of their higher income on the good.	
income (and the good is inferior)		consumers spend less of their higher income on the 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.	

INTEGRATED RESOURCES

Integrated Resources

The authors and Prentice Hall have worked together to integrate all text, print, and media resources to make teaching and learning easier.

Integration Benefits Students and Instructors

All textbooks have supporting resources, but not all textbooks have supporting resources that are seamlessly integrated with each other and the text. One of the driving forces behind the development of this resource package is our belief that concepts are grasped more easily in a familiar setting. That's why we decided to integrate the features of the text with the print and media resources for both students and instructors. And we did more than "integrate." We also enhanced the lecture materials by including additional examples in the Instructor's Manual.

Everything works together for a unified, efficient teaching and learning experience. Here's one example:

On this page is a "Solved Problem" that appears in the text. The facing page shows you how we integrate that Solved Problem—as well as the "Don't Let This Happen To You!" feature—in the end-of-chapter problems. Additional Solved Problems appear in the Instructor's Manual and Study Guide. See the pages that follow for more about supplements.

SOLVED PROBLEM 3-2

High Demand and Low Prices in the Lobster Market?


During the spring, when demand for lobster is relatively low, Maine lobster fishermen are able to sell their lobster catches for about \$4.50 per pound. During the summer when demand for lobster is much higher, Maine lobster fishermen are able to sell their lobster catches for only about \$3.00 per pound. It may seem strange that the market price is higher when demand is low than when demand is high. Can you resolve this paradox with the help of a demand and supply graph?

LEARNING OBJECTIVE
④ Use demand and supply graphs to predict changes in prices and quantities.

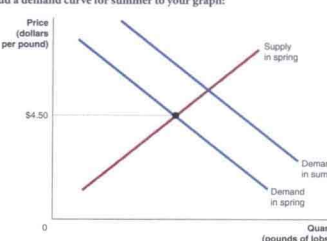
Solving the Problem

Step 1: Review the chapter material. This problem is about how the shifts in demand and supply curves affect the equilibrium price, so you may want to review "The Effect of Demand and Supply Shifts on Equilibrium," which begins on p. 21.

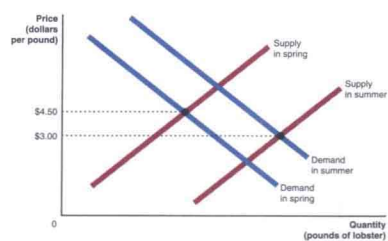
Step 2: Draw the demand and supply graph. Draw a demand and supply graph, showing the market equilibrium in the spring. Label the equilibrium price \$4.50. Label both the demand and supply curves "spring."



Step 3: Add a demand curve for summer to your graph:



Step 3: Explain the graph. After studying the graph, it is possible to see how the equilibrium price can fall from \$4.50 to \$3.00 despite the increase in demand: The supply curve must have shifted to the right by enough so that the new equilibrium price is \$3.00. Draw in this new supply curve, label it "Summer," and label the new equilibrium price \$3.00.



Solved Problems appear in the chapters. Additional Solved Problems appear in following areas:

- end-of-chapter Problems and Applications section
- instructor's manual
- PowerPoint slides
- print study guide
- test item file

PROBLEMS AND APPLICATIONS

Please visit www.prenhall.com/hubbard for solutions to the even-numbered problems as well as multiple-choice and true or false self-assessment quizzes.

1. Suppose the market for ice cream cones is made up of three consumers: Pedro, Curt, and Tim. Use the information in the following table to construct the market demand curve for ice cream cones. Show the information in a table and in a graph.

	PEDRO	CURT	TIM
QUANTITY DEMANDED (CONES PER WEEK)	QUANTITY DEMANDED (CONES PER WEEK)	QUANTITY DEMANDED (CONES PER WEEK)	QUANTITY DEMANDED (CONES PER WEEK)
PRICE			
\$1.75	2	1	0
1.50	4	3	2
1.25	6	4	3
1.00	7	6	4
0.75	9	7	5

2. For each completed, a. Pedro b. Curt c. Tim d. Her

3. For each completed, a. D b. S

4. Is it possible for a good to be an inferior good for one person and a normal good for another person? If it is possible, can you cite some examples?

5. Suppose the data in the following table present the price of a base model Ford Explorer sports utility vehicle and the number of Explorers sold. Do these data indicate that the demand curve for Explorers is upward sloping? Explain.

YEAR	PRICE	QUANTITY
2003	\$27,865	325,265
2004	28,325	330,648
2005	28,765	352,666

6. [Related to *Don't Let This Happen To You!*] A student writes the following: "Increased production leads to a lower price, which in turn increases demand." Do you agree with his reasoning? Briefly explain.

7. Following are four graphs and four market scenarios, each of which would cause either a movement along the supply

price of DVD players. On both graphs, make sure to indicate the equilibrium price and quantity before and after the decline in the price of DVD players.
Source: Rick Lyman, "Revolt in the Dem: DVD Sends the VCR Packing to the Attic," *New York Times*, August 26, 2002.

12. A recent study indicated that "Stricter college alcohol policies, such as raising the price of alcohol, or banning alcohol on campus, decrease the number of students who use marijuana."
a. On the basis of this information, are alcohol and marijuana substitutes or complements?
b. Suppose that campus authorities reduce the supply of alcohol on campus. Use demand and supply graphs to illustrate the impact on the campus alcohol and marijuana markets.
Source: Jenny Williams, Rosalie Pacula, Frank Chaloupka, and Henry Wechsler, "Alcohol and Marijuana Use Among College Students: Economic Complements or Substitutes?" *Health Economics*, Volume 13, Issue 9, September 2005, pages 825-843.

13. [Related to *Solved Problem 3-2*] The demand for watermelons is highest during summer and lowest during winter. Yet watermelon prices are normally lower in summer than in winter. Use a demand and supply graph to demonstrate how this is possible. Be sure to carefully label the curves in your graph and to clearly indicate the equilibrium summer price and the equilibrium winter price.

14. The following appeared in the *Wall Street Journal*: "U.S. farmers are headed for the lowest corn harvest since 1997, but the soybean crop is expected to reach an all-time high. Prices for both crops are expected to rise." Draw demand and supply graphs illustrating the market for corn and the market for soybeans. Show the impact of a larger soybean crop on the equilibrium price in each market. Holding

8. Suppose the pizza industry is made up of three firms: The Mark Company, Mike, Inc., and Bill Enterprises. Use the information in the following table to construct the market supply curve for pizzas. Show the information in a table and in a graph.

	MARK	MIKE	BILL
QUANTITY SUPPLIED (PIZZAS PER WEEK)	QUANTITY SUPPLIED (PIZZAS PER WEEK)	QUANTITY SUPPLIED (PIZZAS PER WEEK)	QUANTITY SUPPLIED (PIZZAS PER WEEK)
PRICE			
\$5.00	25	30	20
5.50	30	40	25
5.75	35	50	30
6.00	40	60	35
6.25	45	70	40

9. [Related to *Solved Problem 3-1*] In *The Wealth of Nations*, Adam Smith discussed what has come to be known as the "diamond and water paradox":

Please visit www.prenhall.com/hubbard

SUPPLEMENTS

Resources for the Instructor **Instructor's Manual**

Prepared by Iordanis Petsas of the University of Scranton and Robert Gillette of the University of Kentucky, the Instructor's Manual includes chapter-by-chapter summaries, learning objectives, extended examples and class exercises, teaching outlines incorporating key terms and definitions, teaching tips, topics for class discussion, *new* Solved Problems, and solutions to all review questions and problems in the book. The Instructor's Manual is available in print and for download from the Instructor's Resource Center.

Test Banks

Cathleen Leue of the University of Oregon, Robert Gillette of the University of Kentucky, and Kelly Blanchard of Purdue University prepared two test banks to accompany the text. *Each* test bank includes 1,500 multiple-choice questions, true/false, short answer, and graphing questions.

TestGen

This computerized package allows instructors to customize, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test banks; edit existing graphics and create new graphics; analyze test results; and organize a database of tests and student results. This software allows for extensive flexibility and ease of use. It provides many options for organizing and displaying tests, along with search and sort features. The software and the test banks can be downloaded from the Instructor's Resource Center (www.prenhall.com/hubbard).

Acetates

All figures and tables from the text are reproduced and provided as full-page, four-color acetates.

PowerPoint Lecture Presentation

There are two sets of PowerPoint® slides for professors to use prepared by Fernando and Yvonn Quijano:

1. A comprehensive set of PowerPoint® slides that can be used by instructors for class presentations or by students for lecture preview or review. The presentation includes all the graphs, tables, and equations in the textbook. It displays figures in step-by-step, automated mode, using a single click per slide.
2. A comprehensive set of PowerPoint® slides with CRS (Classroom Response Systems) questions built in so instructors can incorporate CRS "clickers" into their classroom lectures. For more information on Prentice Hall's partnership with CRS systems, see the facing page.

Instructors may download these PowerPoint® presentations from the Instructor's Resource Center (www.prenhall.com/hubbard).

Instructor's Resource CD-ROM

The Instructor's Resource CD-ROM contains all faculty and student resources that support this text. Instructors have the ability to access and edit the Instructor's Manual, Test Banks, and PowerPoint® presentations. By simply clicking on a chapter or searching for a keyword, faculty can access an interactive library of resources. Faculty can pick and choose from the various supplements and export them to their hard drive.

Classroom Response Systems

Classroom Response Systems (CRS) is an exciting new wireless polling technology that makes large and small classrooms even more interactive because it enables instructors to pose questions to their students, record results, and display those results instantly. Students can answer questions easily using compact remote-control transmitters. Prentice Hall has partnerships with leading classroom response systems providers and can show you everything you need to know about setting up and using a CRS system. We'll provide the classroom hardware, text-specific PowerPoint® slides, software, and support, and we'll also show you how your students can benefit! Learn more at www.prenhall.com/crs.

Blackboard and WebCT Course Content.

Prentice Hall offers fully customizable course content for the Bb and WebCT Course Management Systems.

Resources for the Student Study Guide

Prepared by Nicholas Noble of Miami University, the comprehensive study guide reinforces the textbook and provides students with the following:

- Chapter summary
- Discussion of each Learning Objective
- Section-by-section review of the concepts presented
- Helpful study hints
- Additional Solved Problems to supplement those in the text
- Key Terms with definitions
- Self-Test including 40 multiple choice questions, plus a number of Short Answer and True/False questions, with accompanying answers and explanations

Companion Web Site.

This free Web site, www.prenhall.com/hubbard, gives students access to select solutions to end-of-chapter problems, an interactive study guide with instant feedback, economics updates, student PowerPoint® slides, and many other resources to promote success in the principles of economics course.

PowerPoint® Slides

For student use as a study aide or note-taking guide, these PowerPoint® slides, prepared by Fernando and Yvonn Quijano, may be downloaded from the companion Web site at www.prenhall.com/hubbard. The slides include:

- All graphs, tables, and equations in the text
- Figures in step-by-step, automated mode, using a single click per slide
- End-of-chapter key terms with hyperlinks to relevant slides



SafariX WebBooks

SafariX WebBooks (online versions of the printed texts) will be available for students to purchase in lieu of a standard print text, without any modifications needed to how the instructor or professor teaches the course.

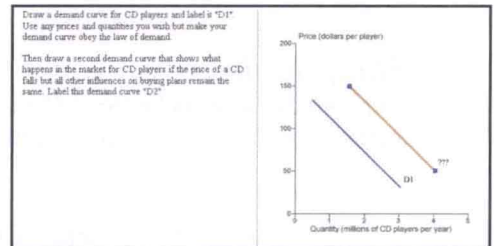
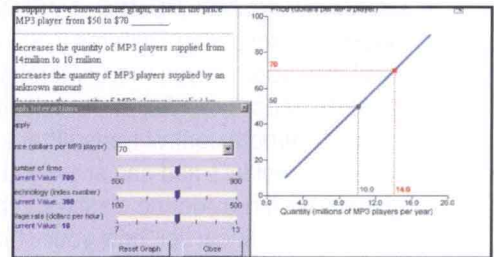
Learn more at www.prenhall.com/safariX.

Problem Solving for Students.

Automatically graded assignments (and the ability to get the highest possible grade by reworking the same assignments with new problems) motivate students to solve a lot more problems.

Instant feedback, including detailed tutorial instruction (complete solutions, step-by-step explanations, links to book material, etc.), provides instant gratification and immediate learning.

Graphing tools and questions integrated into assignments enable students to manipulate and even draw graphs that are automatically graded.



Solving Problems for Professors.

Easily create, assign, and automatically grade homework, quizzes, and tests.

Assign problems and exercises based on the actual end-of-chapter materials in the text book. Many have algorithmic versions for variety and extra practice.

Track students' progress through one easy-to-view, automatically populated grade book.

Get supplementary problems and teaching resources (like test banks and lecture slides) all in one place.

These features, plus personalized study plans for students, full e-text options, practice tests, eStudy guides, and more, are all available in MyEconLab.

