INSTRUCTOR'S REVIEW COPY — NOT FOR SALE

Economics Today

THE MICRO VIEW

18th Edition

Roger LeRoy Miller

MICROECONOMIC PRINCIPLES

Opportunity Cost

In economics, cost is always a forgone opportunity.

Law of Demand

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

Movement along, versus Shift in, a Curve

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

Income Elasticity of Demand

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

Law of Diminishing Marginal Product

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

Supply

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

Or stated otherwise:

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

Profits

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

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

Price Elasticity of Demand

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

Price Elasticity of Supply

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

Monopsony and Monopoly

Output Market Structure

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

EIGHTEENTH EDITION

Economics Today

The Micro View

The Pearson Series in Economics

Abel/Bernanke/Croushore
*Macroeconomics**

Acemoglu/Laibson/List
*Economics**

Bade/Parkin
*Foundations of Economics**

Berck/Helfand
The Economics of the Environment

Bierman/Fernandez
Game Theory with Economic Applications

Blanchard
*Macroeconomics**

Blau/Ferber/Winkler
The Economics of Women, Men, and Work

Boardman/Greenberg/Vining/Weimer
Cost-Benefit Analysis

Boyer
Principles of Transportation Economics

Branson
Macroeconomic Theory and Policy

Bruce
Public Finance and the American Economy

Carlton/Perloff
Modern Industrial Organization

Case/Fair/Oster
*Principles of Economics**

Chapman
Environmental Economics: Theory, Application, and Policy

Cooter/Ulen
Law & Economics

Daniels/VanHoose
International Monetary & Financial Economics

Downs
An Economic Theory of Democracy

Ehrenberg/Smith
Modern Labor Economics

Farnham
Economics for Managers

Folland/Goodman/Stano
The Economics of Health and Health Care

Fort
Sports Economics

Froyen
Macroeconomics

Fusfeld
The Age of the Economist

Gerber
*International Economics**

González-Rivera
Forecasting for Economics and Business

Gordon
*Macroeconomics**

Greene
Econometric Analysis

Gregory
Essentials of Economics

Gregory/Stuart
Russian and Soviet Economic Performance and Structure

Hartwick/Olewiler
The Economics of Natural Resource Use

Heilbroner/Milberg
The Making of the Economic Society

Heyne/Boettke/Prychitko
The Economic Way of Thinking

Holt
Markets, Games, and Strategic Behavior

Hubbard/O'Brien
*Economics**
*Money, Banking, and the Financial System**

Hubbard/O'Brien/Rafferty
*Macroeconomics**

Hughes/Cain
American Economic History

Husted/Melvin
International Economics

Jehle/Reny
Advanced Microeconomic Theory

Johnson-Lans
A Health Economics Primer

Keat/Young/Erfle
Managerial Economics

Klein
Mathematical Methods for Economics

Krugman/Obstfeld/Melitz
*International Economics: Theory & Policy**

Laidler
The Demand for Money

Leeds/von Allmen
The Economics of Sports

Leeds/von Allmen/Schiming
*Economics**

Lynn
Economic Development: Theory and Practice for a Divided World

Miller
*Economics Today**
Understanding Modern Economics

Miller/Benjamin
The Economics of Macro Issues

Miller/Benjamin/North
The Economics of Public Issues

Mills/Hamilton
Urban Economics

Mishkin
*The Economics of Money, Banking, and Financial Markets**
*The Economics of Money, Banking, and Financial Markets, Business School Edition**
*Macroeconomics: Policy and Practice**

Murray
Econometrics: A Modern Introduction

O'Sullivan/Sheffrin/Perez
*Economics: Principles, Applications and Tools**

Parkin
*Economics**

Perloff
*Microeconomics**
*Microeconomics: Theory and Applications with Calculus**

Perloff/Brander
*Managerial Economics and Strategy**

Phelps
Health Economics

Pindyck/Rubinfeld
*Microeconomics**

Riddell/Shackelford/Stamos/Schneider
Economics: A Tool for Critically Understanding Society

Roberts
The Choice: A Fable of Free Trade and Protection

Rohlf
Introduction to Economic Reasoning

Roland
Development Economics

Scherer
Industry Structure, Strategy, and Public Policy

Schiller
The Economics of Poverty and Discrimination

Sherman
Market Regulation

Stock/Watson
Introduction to Econometrics

Studenmund
Using Econometrics: A Practical Guide

Tietenberg/Lewis
Environmental and Natural Resource Economics
Environmental Economics and Policy

Todaro/Smith
Economic Development

Waldman/Jensen
Industrial Organization: Theory and Practice

Walters/Walters/Appel/Callahan/Centanni/Maex/O'Neill
Econversations: Today's Students Discuss Today's Issues

Weil
Economic Growth

Williamson
Macroeconomics

*denotes MyEconLab titles   Visit www.myeconlab.com to learn more.

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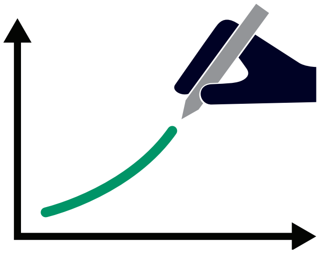
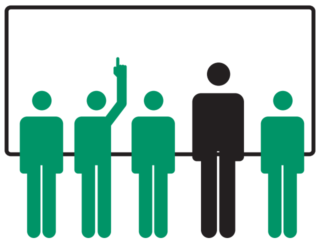


- **Practice**—Algorithmically generated homework and study plan exercises with instant feedback ensure varied and productive practice, helping students improve their understanding and prepare for quizzes and tests. Draw-graph exercises encourage students to practice the language of economics.

- **Learning Resources**—Personalized learning aids such as Help Me Solve This problem walkthroughs, Teach Me explanations of the underlying concept, and figure Animations provide on-demand help when students need it most.



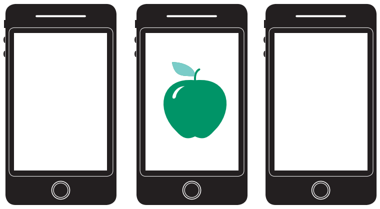
- **Adaptive Study Plan**—Monitors each student's progress and offers a continuously personalized study plan based on his or her own homework, quiz, and test results. Includes unlimited practice exercises and the opportunity to prove mastery through quizzes based on recommended learning objectives.

- **Dynamic Study Modules**—With a focus on key topics, these modules work by continuously assessing student performance and activity in real time and, using data and analytics, provide personalized content to reinforce concepts that target each student's particular strengths and weaknesses.

- **Digital Interactives**—Focused on a single core topic and organized in progressive levels, each interactive immerses students in an assignable and auto-graded activity. Digital Interactives are also engaging lecture tools for traditional, online, and hybrid courses, many incorporating real-time data, data displays, and analysis tools for rich classroom discussions.

with MyEconLab®

- **Learning Catalytics**—Generates classroom discussion, guides lectures, and promotes peer-to-peer learning with real-time analytics. Students can use any device to interact in the classroom, engage with content, and even draw and share graphs.

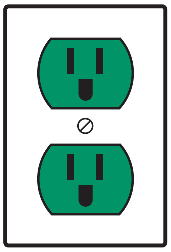


- **Real-Time Data Analysis Exercises**—Using current macro data to help students understand the impact of changes in economic variables, Real-Time Data Analysis Exercises communicate directly with the Federal Reserve Bank of St. Louis's FRED® site and update as new data are available.

- **Current News Exercises**—Every week, current microeconomic and macroeconomic news stories, with accompanying exercises, are posted to MyEconLab. Assignable and auto-graded, these multi-part exercises ask students to recognize and apply economic concepts to real-world events.

- **Experiments**—Flexible, easy-to-assign, auto-graded, and available in Single and Multiplayer versions, Experiments in MyEconLab make learning fun and engaging.

- **Reporting Dashboard**—View, analyze, and report learning outcomes clearly and easily. Available via the Gradebook and fully mobile-ready, the Reporting Dashboard presents student performance data at the class, section, and program levels in an accessible, visual manner.



- **LMS Integration**—Link from any LMS platform to access assignments, rosters, and resources, and synchronize MyLab grades with your LMS gradebook. For students, new direct, single sign-on provides access to all the personalized learning MyLab resources that make studying more efficient and effective.

- **Mobile Ready**—Students and instructors can access multimedia resources and complete assessments right at their fingertips, on any mobile device.

PEARSON

EIGHTEENTH EDITION

Economics Today

The Micro View

Roger LeRoy Miller

Research Professor of Economics
University of Texas–Arlington

PEARSON

Boston Columbus Indianapolis New York San Francisco Hoboken
Amsterdam Cape Town Dubai London Madrid Milan Munich Paris Montréal Toronto
Delhi Mexico City São Paulo Sydney Hong Kong Seoul Singapore Taipei Tokyo

Dedication

To Vickie,

Your attention to detail is just one part of your total professionalism. Thanks for all that you contribute to my work

—R.L.M.

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PART 8 Global Economics

ONE-SEMESTER COURSE OUTLINE

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4. Extensions of Demand and Supply Analysis
5. Public Spending and Public Choice
6. Funding the Public Sector
7. The Macroeconomy: Unemployment, Inflation, and Deflation
8. Measuring the Economy's Performance
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10. Real GDP and the Price Level in the Long Run
11. Classical and Keynesian Macro Analyses
12. Consumption, Real GDP, and the Multiplier
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18. Policies and Prospects for Global Economic Growth
32. Comparative Advantage and the Open Economy
33. Exchange Rates and the Balance of Payments

Microeconomic Emphasis The Micro View

1. The Nature of Economics
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3. Demand and Supply
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32. Comparative Advantage and the Open Economy
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Balanced Micro-Macro

1. The Nature of Economics
2. Scarcity and the World of Trade-Offs
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PREFACE

This latest edition of *Economics Today—The Micro View* addresses cutting-edge issues while facilitating student learning. The text consistently focuses on demonstrating to students the relevance of economics to *their* own daily lives and on providing them with a variety of ways to evaluate their understanding of fundamental concepts covered in each chapter.

New to This Edition

- **Learning Objectives:** Learning Objectives have been further integrated into every chapter. Each major chapter section is accompanied with a learning objective, which helps to focus student reading comprehension and allows for self-assessment to ensure that students have grasped key concepts.

  All assessment in MyEconLab has also been aligned with Learning Objectives. This integration and alignment makes it simple to include or exclude portions of chapters in both the text and in MyEconLab.
- **Self Checks:** Self Checks appear at the end of every Learning Objective section. Self Checks consist of several fill-in-the-blank questions that allow students to check their understanding of the key concepts they just read before moving on. All answers are available in MyEconLab.
- **Fundamental Points**: At the end of every chapter, new numbered feature, *Fundamental Points*, provides students with a quick rundown of the most salient concepts they must understand for each chapter.
- **References:** Chapter endnotes now provide references and citations for all in-text examples for further exploration by instructors and students.

And New to MyEconLab

- **Videos:** Each chapter contains an Issues & Applications feature, which ties key chapter concepts to a real world example. Each Issues & Applications feature is now accompanied by a brief video that expands on the key point and real world applications of the feature. The videos contain visuals such as photos and graphs, which help to crystallize the key take-aways for the student.
- **Figure Animations:** Figure animations provide a step-by-step walk-through of select figures. Seventy percent of all figures are animated. Figure animations have been updated to reflect changes to the 18th edition.
- **Dynamic Study Modules:** Dynamic Study Modules, available from within MyEconLab, continuously assess student performance on key topics in real time, and provide additional and personalized practice content. Dynamic Study Modules exist for every chapter and are available on all mobile devices for on-the-go studying.
- **Digital Interactives:** *Digital Interactives* help to facilitate experiential learning through a set of interactives focused on core economic concepts. Fueled by data, decision-making, and personal relevance, each interactive progresses through a series of levels that build on foundational concepts, enabling a new immersive learning experience. The flexible and modular set-up of each interactive makes digital interactives suitable for classroom presentation, auto-graded homework, or both.
- **Learning Catalytics®:** Learning Catalytics® generate classroom discussion, guides lectures, and promotes peer-to-peer learning with real-time analytics. Now students can use any device to interact in the classroom, engage with content and even draw and share graphs.

Increased Emphasis on Public Policy

Many modern public policy issues in economics that are highlighted throughout the text are particularly relevant to today's students. These include:

- An evaluation of the **incentive effects** of student loans confronted by recent college graduates: Chapter 1 considers whether the substantial run-up of student loan debts has been rational for self-interested individuals who have pursued college and university degrees.
- An assessment of the soaring taxpayer cost of **Medicare subsidies**: Chapter 5 provides an analysis of likely expenses of the Medicare program to be faced by current students who will have to foot the bill as future taxpayers.
- An analysis of how colleges and universities engage in **product differentiation**: Chapter 25 explains why, during their search for a college in which to enroll, students likely were offered a variety of amenities, such as new housing complexes with spas and swimming pools.

ISSUES & APPLICATIONS MyEconLab Video

Medicare's Soaring Bill for U.S. Taxpayers


WavebreakMediaMicro/Fotolia

CONCEPTS APPLIED

- Public Spending and Transfers
- Medicare
- Subsidies

One of the largest public spending and transfer programs in the United States is the Medicare program that provides government subsidies to elderly and other legally qualified recipients of assistance with health care expenses. Indeed, as the U.S. population continues to age and larger numbers of people qualify for subsidies, the amounts that current and future taxpayers can anticipate paying to fund the program continue to increase.

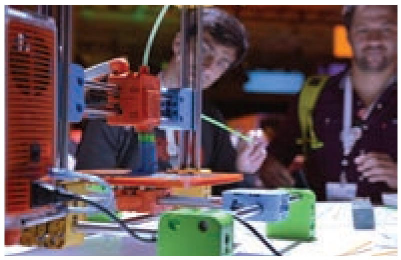
What's New in *The Micro View*

The micro portion of the text now includes the following:

- Chapter 20 considers how findings of **behavioral economics** have induced the U.S. government to form a Behavioral Insights Team that helps agencies implement programs to aid individuals in identifying choices they otherwise might have overlooked.
- Chapter 22 examines how developments in **additive manufacturing (3-D printing)** are affecting the scales of production at which many of today's firms are choosing to operate.
- Chapter 23 clarifies why the theory of perfect competition explains the low observed long-term **survival rate** of U.S. businesses, in which at least three-fourths of U.S. businesses no longer exist two decades after they first begin operations.
- Chapter 30 discusses how economists use the **Gini coefficent** to assess a nation's distribution of income across its residents.

ISSUES & APPLICATIONS MyEconLab Video

Additive Manufacturing Rescales Production and Costs


Amc/Alamy

CONCEPTS APPLIED

- Economies of Scale
- Long-Run Average Cost Curve
- Minimum Efficient Scale

The latest major technological development in manufacturing industries is called *additive manufacturing*. In previous years, additive manufacturing was known as "3D printing," because the principle of the technique is similar to the operation of an inkjet printer. Computer apps that utilize three-dimensional design instructions communicate with an additive-manufacturing device, which successively spreads thin layers of material until a solid object appears. The growing utilization of additive manufacturing is altering firms' decisions regarding their long-run scale of production and hence changing the shapes of their long-run average cost curves.

MAKING THE CONNECTION— FROM THE CLASSROOM TO THE REAL WORLD

Economics Today provides current examples with critical analysis questions that show students how economic theory applies to their diverse interests and lives. For the Eighteenth Edition, **more than 95 percent** of the examples are new.

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

- Using a Virus to Produce Lithium Batteries with Fewer Inputs
- Keep Your Competing Psychology Advice Out of Our State!
- How a Union Dispute Almost Consumed All of the Twinkies

EXAMPLE

Using a Virus to Produce Lithium Batteries with Fewer Inputs

Lithium batteries power a wide range of electronic products, including digital devices and electric vehicles. Firms that manufacture these batteries have developed a *lithium-air* design. This technique for lithium battery construction enables an electric current to be generated by combining oxygen with lithium and other battery components. The fundamental technological innovation that makes this possible is the utilization of a genetically modified virus that naturally captures oxygen from the surrounding air.

This design for lithium batteries reduces the amount of lithium and other materials required to produce each battery. As a consequence, more batteries now can be produced with a given amount of inputs.

FOR CRITICAL THINKING

After the lithium-air design was implemented, what happened to the rate of production of batteries at any given quantity of lithium?

Sources are listed at the end of this chapter.

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

- Why Online Sales Taxes Would Entail More Than Just Taxes
- Why “Gluten-Free” Label Regulations Can Be Unhealthful
- Does Requiring Production and Sale of Electric Cars Wipe Out Auto Pollution?

POLICY EXAMPLE

Why Online Sales Taxes Would Entail More Than Just Taxes

Over the past few years, Congress has considered allowing the 45 states with sales taxes to require companies to collect such taxes when residents of those states purchase their products on the Internet. Proponents of the proposed legal change argue that it would establish a level playing field between sellers on the Web and sellers who predominantly utilize physical facilities.

A complication is that there would not really be “only” 45 different state sales tax rates to assess. Many states permit counties and cities to assess their own sales tax rates, too. Furthermore, each of these local jurisdictions within the 45 states has its own rules for defining how the rates apply to the values of purchases of many different goods and services. As a consequence, an online seller could confront different sales tax regulations for as many as 9,646 state, county, and city jurisdictions.

Current estimates indicate that for large online retailers, such as Amazon, the cost of complying with these many tax rules would amount to just over 2 percent of the dollar value of all sales. For small retailers, the compliance cost likely would exceed 13 percent of the total value of customers' purchases. Thus, compliance costs for small Web sellers could exceed the taxes they would transmit to the government.

FOR CRITICAL THINKING

Why might some small online retailers contemplate halting sales in some states, counties, and cities if required to collect sales taxes throughout the United States?

Sources are listed at the end of this chapter.

MyEconLab Concept Check

INTERNATIONAL EXAMPLE

The Global Black Market in Human Organs

Recent estimates indicate that at least 10,000 black market transactions in human organs occur around the world every year. Legal bans on the sale of organs effectively impose a ceiling price of $0 per unit. The consequences of these bans are global shortages of transplantable organs numbering in the hundreds of thousands. Many people have become desperate for replacement organs. People in low-income nations in Eastern Europe and Asia often receive black market payments to donate “extra” kidneys. Some residents of China facing a waiting list of nearly 300,000 for organ transplants have resorted to buying organs of executed prisoners from their surviving

steal organs such as hearts or lungs intended for sale to people frantic enough to pay high prices to remain alive.

Black market prices of organs vary considerably. For kidneys, the prices range from $40,000 to $150,000, depending on the nation and location in which a black market kidney is purchased. The price of a heart in the global black market for human organs can reach nearly $1.5 million.

FOR CRITICAL THINKING

Why can prices in the black market for organs often vary within a wide range?

INTERNATIONAL POLICY EXAMPLE

Beijing Battles Pollution with a Car Congestion Fee

In the city of Beijing, China, the concentration of dangerous airborne pollution particles has climbed as high as 900 micrograms per cubic meter of air, or 36 times greater than the World Health Organization's recommended maximum. Among the sources of particulate air pollution are emissions from a number of coal-fueled power plants and several oil refineries. Another key source is the exhaust pipes of more than 5.3 million gasoline-powered vehicles, which together account for about a third of the particulate pollutants in Beijing's atmosphere.

In an effort to reduce the vehicles' contribution to the city's pollution problem, the Beijing government is in the process of implementing a “car congestion fee.” This fee effectively constitutes a charge that each vehicle owner pays for the right to discharge particulates into the air—that is, an effluent fee. The intent of the fee is to raise the price of auto utilization for consumers and thereby push this price closer to the full cost—including the external cost added by air-pollution spillovers—to society.

FOR CRITICAL THINKING

Why do you suppose that Beijing's government also has banned private cars and trucks from the city's roadways one day each week based on the last digits on the vehicles' license plates?

Sources are listed at the end of this chapter.

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

- The Global Black Market in Human Organs
- Beijing Battles Pollution with a Car Congestion Fee
- French Soccer Teams Confront Dynamic Tax Analysis

HELPING STUDENTS FOCUS AND THINK CRITICALLY

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

19

Demand and Supply Elasticity

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

19.1 Calculate price elasticity of demand and explain its relationship with total revenues

19.2 Describe the factors that determine the price elasticity of demand and discuss the cross price elasticity of demand and the income elasticity of demand

19.3 Classify supply elasticities and explain how the length of time for adjustment affects the price elasticity of supply

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

Since 2002, the volume of first cla delivered by the U.S. Postal Servi declined by more than 60 percent the price of a first class stamp has increa than 17 percent, the amount of first clas vices demanded is not very responsive to stamp prices. Instead, economists have that a substantial drop in the price of dig nications is the main element contributi decline in the amount of USPS first class demanded. After reading this chapter, yo stand how economists measure the respo quantity demanded of an item, such as f mail, to a change in its own price. In add understand how economists measure the ness of the amount demanded to a chang of another item.

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

ISSUES & APPLICATIONS

MyEconLab Video

First Class Mail, Postal Revenues, and Elasticities

Jenner/Fotolia

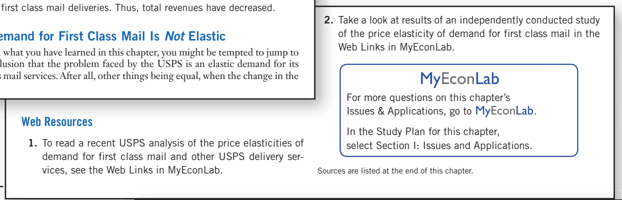
CONCEPTS APPLIED

- Total Revenues
- Price Elasticity of Demand
- Cross Price Elasticity of Demand

In recent years, the U.S. Postal Service (USPS) has experienced declining revenues, particularly in sales of first class mail services. As shown in Figure 19-6, relatively small proportionate increases in the prices of stamps for first class mail have been associated with proportionately large reductions in the volumes of first class mail deliveries. Thus, total revenues have decreased.

The Demand for First Class Mail Is *Not* Elastic

Based on what you have learned in this chapter, you might be tempted to jump to the conclusion that the problem faced by the USPS is an elastic demand for its first class mail services. After all, other things being equal, when the change in the



2. Take a look at results of an independently conducted study of the price elasticity of demand for first class mail in the Web Links in MyEconLab.

Web Resources

1. To read a recent USPS analysis of the price elasticities of demand for first class mail and other USPS delivery services, see the Web Links in MyEconLab.

MyEconLab

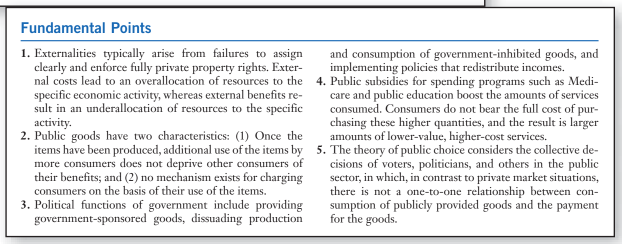
For more questions on this chapter's Issues & Applications, go to MyEconLab.

In the Study Plan for this chapter, select Section I: Issues and Applications.

Sources are listed at the end of this chapter.

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

FUNDAMENTAL POINTS are placed at the beginning of chapter summaries to emphasize the key concepts within the chapter.

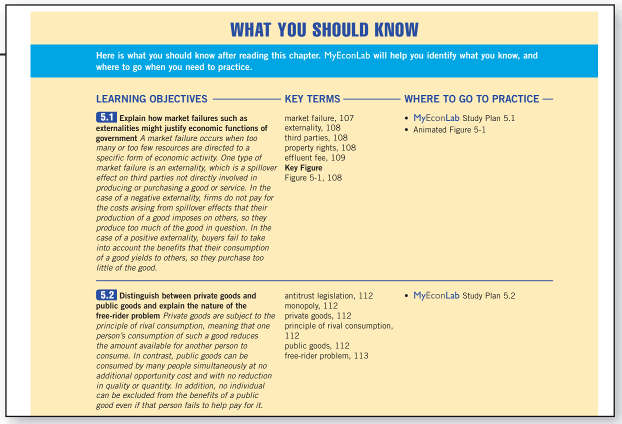


Fundamental Points

1. Externalities typically arise from failures to assign clearly and enforce fully private property rights. External costs lead to an overallocation of resources to the specific economic activity, whereas external benefits result in an underallocation of resources to the specific activity.
2. Public goods have two characteristics: (1) Once the items have been produced, additional use of the items by more consumers does not deprive other consumers of their benefits; and (2) no mechanism exists for charging consumers on the basis of their use of the items.
3. Political functions of government include providing government-sponsored goods, dissuading production and consumption of government-inhibited goods, and implementing policies that redistribute incomes.
4. Public subsidies for spending programs such as Medicare and public education boost the amounts of services consumed. Consumers do not bear the full cost of purchasing these higher quantities, and the result is larger amounts of lower-value, higher-cost services.
5. The theory of public choice considers the collective decisions of voters, politicians, and others in the public sector, in which, in contrast to private market situations, there is not a one-to-one relationship between consumption of publicly provided goods and the payment for the goods.

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

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



WHAT YOU SHOULD KNOW

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

LEARNING OBJECTIVES	KEY TERMS	WHERE TO GO TO PRACTICE
5.1 Explain how market failures such as externalities might justify economic functions of government *A market failure occurs when too many or too few resources are directed to a specific form of economic activity. One type of market failure is an externality, which is a spillover effect on third parties not directly involved in producing or purchasing a good or service. In the case of a negative externality, firms do not pay for the costs arising from spillover effects that their production of a good imposes on others, so they produce too much of the good in question. In the case of a positive externality, buyers fail to take into account the benefits that their consumption of a good yields to others, so they purchase too little of the good.*	market failure, 107 externality, 108 third parties, 108 property rights, 108 effluent fee, 109 **Key Figure** Figure 5-1, 108	• MyEconLab Study Plan 5.1 • Animated Figure 5-1
5.2 Distinguish between private goods and public goods and explain the nature of the free-rider problem *Private goods are subject to the principle of rival consumption, meaning that one person's consumption of such a good reduces the amount available for another person to consume. In contrast, public goods can be consumed by many people simultaneously at no additional opportunity cost and with no reduction in quality or quantity. In addition, no individual can be excluded from the benefits of a public good even if that person fails to help pay for it.*	antitrust legislation, 112 monopoly, 112 private goods, 112 principle of rival consumption, 112 public goods, 112 free-rider problem, 113	• MyEconLab Study Plan 5.2

SELF CHECKS encourage student interaction and provide an opportunity for them to check their understanding before moving on. Answers are in MyEconLab, and more practice questions can be found there as well.

SELF CHECK Visit MyEconLab to practice these and other problems and to get instant feedback in your Study Plan.

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

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

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

YOU ARE THERE

In Finland, the Taxman Screams, "Less Ice Cream!"

Five-year-old Ciara Hartikainen, of Espoo, Finland, is trying to be brave and hold back her tears as her mother tells her that the light blue truck that has always brought ice cream treats to her neighborhood is making its final stop. Her mother explains to Ciara and her three-year-old brother that the company, which has long operated a fleet of dozens of ice cream trucks across the Scandinavian nation, has decided to park them, probably forever. Indeed, all ice cream producers throughout Finland have been reducing their production. Spaces in grocery freezers allocated to ice cream are shrinking across the land.

Finnish ice cream producers have been reducing the amount of ice cream supplied at all prevailing prices since the government began assessing special taxes on candies, ice cream, and soft drinks in 2010. Initially, the government had intended its tax on sugary delights to serve as a temporary fund-raising measure. Beginning in 2013, however, the government decided to make the tax permanent.

Ciara's mother does not try to explain these details to her young children. All she can say is that perhaps every year for the rest of their lives, companies will be offering less ice cream—an estimated 20 percent less—for sale at any given price. The government's tax on sweets has reduced the supply of ice cream.

CRITICAL THINKING QUESTIONS

1. In which direction has Finland's market ice cream supply curve shifted?
2. The amount of the tax on ice cream is 0.75 euro per kilogram sold. What is the vertical amount of the shift in the market supply curve? Explain briefly.

Sources are listed at the end of this chapter.

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

- In Finland, the Taxman Screams, "Less Ice Cream!"
- Reducing the Fixed Costs of Space Exploration
- Stop, Kid! No Competing Farm Produce Allowed!

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

- What If... the government "nudges" people to influence their decision making?
- What if... the government prevents people from buying health insurance that the government decides is "substandard"?
- What if... all U.S. states were to adopt right-to-work laws?

WHAT IF...

the government "nudges" people to influence their decision making?

Various economic studies have found evidence consistent with the idea that people sometimes put off making decisions that outside observers judge would make those individuals unambiguously better off. Researchers have found some evidence that people do not have unbounded willpower, meaning that their choices are not always consistent with their long-term goals. For instance, left to their own devices, some people never get around to contributing some of their earnings to a pension plan when given the opportunity by their employers. In the United Kingdom, a law now requires people to contribute to an available pension plan unless they make a conscious decision not to do so. The British government thereby "nudges" people toward a choice that it perceives to be in their own best interest while giving them the ability to make a different decision if that is their preference. The result has been that more people have opted to contribute to pension plans than was true in previous years.

MYECONLAB: PRACTICE, ENGAGE, AND ASSESS

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

For the Instructor

- Instructors can select a prebuilt course option, which creates a ready-to-go course with homework and quizzes already set up. Instructors can also choose to create their own assignments and add them to the preloaded course. Or, instructors can start from a blank course.
- All end-of-chapter problems are assignable and automatically graded in MyEconLab and, for most chapters, additional algorithmic, draw-graph, and numerical exercises are available to choose among.
- Instructors can also choose questions from the Test Bank and use the Custom Exercise Builder to create their own problems for assignment.
- The powerful Gradebook records each student's performance and time spent on the Tests and Study Plan, and generates reports by student or by chapter.

MyEconLab Real-Time Data Analysis
We offer real-time data exercises that students can complete in MyEconLab.

- **Real-Time Data Analysis Exercises** are marked with and allow instructors to assign problems that use up-to-the-minute data. Each RTDA exercise loads the appropriate and most currently available data from FRED, a comprehensive and up-to-date data set maintained by the Federal Reserve Bank of St. Louis. Exercises are graded based on that instance of data, and feedback is provided.
- In the eText available in MyEconLab, select figures labeled Real-Time Data now include a pop-up graph updated with real-time data from FRED.

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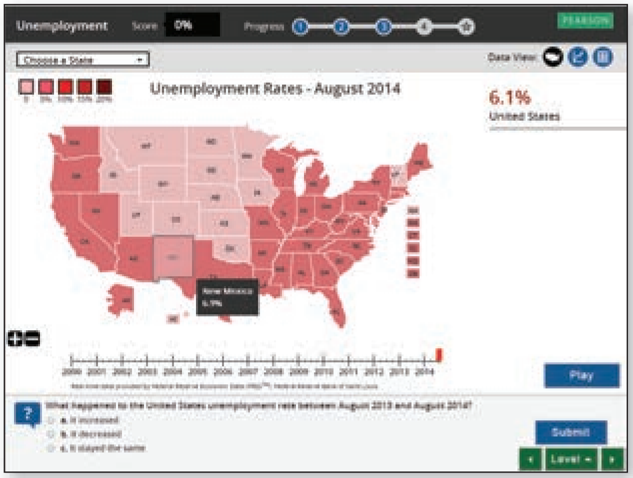
- Current News Exercises provide a turn-key way to assign gradable news-based exercises in MyEconLab. Every week, Pearson scours the news and finds micro- and macroeconomic news stories (articles and videos), creates an accompanying exercise, and then posts it all to MyEconLab courses for possible assignment. Assigning and grading current news-based exercises that deal with the latest micro and macro events and policy issues has never been more convenient.
- Economics in the News is a turn-key solution to bringing current news into the classroom. Updated weekly during the academic year, this feature posts news articles with questions for further discussion.
- Experiments in MyEconLab are a fun and engaging way to promote active learning and mastery of important economic concepts. Pearson's experiments program is flexible and easy for instructors and students to use.
  - Single-player experiments allow your students to play an experiment against virtual players from anywhere at any time with an Internet connection.
  - Multiplayer experiments allow you to assign and manage a real-time experiment with your class.

  In both cases, pre- and post-questions for each experiment are available for assignment in MyEconLab.



Digital Interactives help to facilitate experiential learning through a set of interactives focused on core economic concepts. Fueled by data, decision-making, and personal relevance, each interactive progresses through a series of levels that build on foundational concepts, enabling a new immersive learning experience. The flexible and modular set-up of each interactive makes digital interactives suitable for classroom presentation, auto-graded homework, or both.

Learning Catalytics™ is a technology that has grown out of twenty years of cutting-edge research, innovation, and implementation of interactive teaching and peer instruction. Learning Catalytics is a "bring your own device" student engagement and classroom intelligence system. With Learning Catalytics you can:

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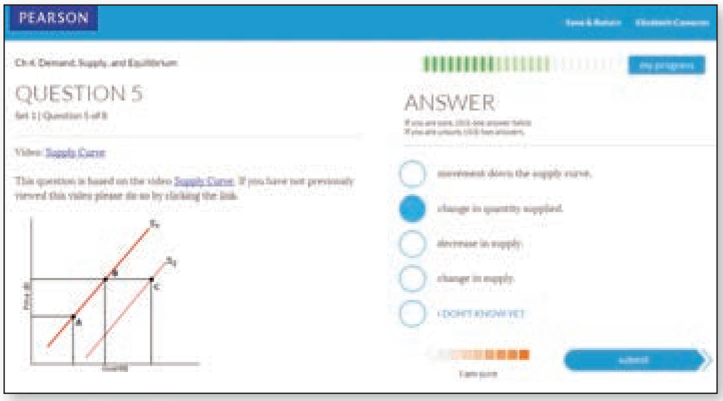
- Engage with and record the participation of every student in your classroom.
- Learning Catalytics gives you the flexibility to create your own questions to fit your course exactly or choose from a library of Pearson-created questions.

For more information, visit **learningcatalytics.com**.



Dynamic Study Modules: Dynamic Study Modules continuously assess student performance on key topics in real time. Dynamic Study Modules exist for every chapter to provide additional practice for students around key concepts.

For the Student

Students are in control of their own learning through a collection of tests, practice, and study tools. Highlights include:

- Two Sample Tests per chapter are preloaded in MyEconLab, enabling students to practice what they have learned, to test their understanding, and to identify areas for further work.
- Based on each student's performance on homework, quizzes, and tests, MyEconLab generates a Study Plan that shows where the student needs further study.
- Learning Aids, such as step-by-step guided solutions, a graphing tool, content-specific links to the eText, animated graphs, and glossary flashcards, help students master the material.

To learn more, and for a complete list of digital interactives, visit **www.myeconlab.com**.

SUPPLEMENTAL RESOURCES

Student and instructor materials provide tools for success.

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

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

PowerPoint lecture presentations for each chapter, revised by Jim Lee of Texas A&M University—Corpus Christi, include figures, key terms, and concepts from the text.

Clicker PowerPoint slides allow professors to instantly quiz students in class and receive immediate feedback through Clicker Response System technology.

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

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

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I am the most fortunate of economics textbook writers, for I receive the benefit of literally hundreds of suggestions from those of you who use *Economics Today.* Some professors have been asked by my publisher to participate in a more detailed reviewing process of this edition. I list them below. I hope that each one of you so listed accepts my sincere appreciation for the fine work that you have done.

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I am greatly pleased with the design revision created by Cenveo Publisher Services. It is always a challenge to keep the traditional feel of this book, yet make it more exciting for today's students. I think that we succeeded. I appreciate the hard work of my copy editor, Joanne Boehme. And, of course, the proofreader *par excellence*, Robert Safranek, made sure that everything was perfect. As for the supplements for this edition, I wish to thank Andra Skaalrud for managing their production. On the marketing side, I appreciate the fine work performed by Alison Haskins and her team.

The online media materials, particularly great improvements in *MyEconLab*, were accomplished by Melissa Honig and Courtney Kamauf.

Jim Lee of Texas A&M University–Corpus Christi and Conor Molloy of Suffolk County Community College undertook the vast job of revising and improving the three test banks. The *Instructor's Manual* was masterfully revised by Jim Lee of Texas A&M University–Corpus Christi. Jim Lee also updated and improved PowerPoint presentations.

As always, my "super reviewer," Professor Dan Benjamin of Clemson University, really kept me honest, and my long-time assistant, Sue Jasin, did enough typing and retyping to fill a room with paper. I welcome comments and ideas from professors and students alike and hope that you enjoy this latest edition of *Economics Today*.

R. L. M.

The Nature of Economics

1

Mark Humphrey/AP Images

Nearly 39 million U.S. residents are borrowers of student loans who still owe on these debts. The current aggregate volume of student loan debt is about $1.2 trillion. Thus, the average indebtedness of a college graduate or current enrollee with student loan debt exceeds $30,000. This is a substantial sum for a typical young person who is starting out in the world of work following graduation. In recent years, however, the wages of young people with student loans have stagnated even as average student loan debts have increased. In addition, an increasing number of borrowers who do graduate experience difficulties finding jobs that generate sufficient earnings to enable them to repay their debts. When people have borrowed to finance their college educations, have they failed to act in their own self-interest? In this chapter, you will contemplate the answer to this question.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1.1 Define economics and discuss the difference between microeconomics and macroeconomics

1.2 Identify the three basic economic questions and the two opposing sets of answers

1.3 Evaluate the role that rational self-interest plays in economic analysis

1.4 Explain why economics is a science

1.5 Distinguish between positive and normative economics

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

DID YOU KNOW THAT... the number of college students majoring in economics rose by more than 50 percent during the past decade? One reason that students opt for extensive study of economics is that they find the subject fascinating. Another reason, however, is self-interest. On average, students who major in economics earn about 15 percent more than business management majors, 25 percent more than chemistry majors, and 50 percent more than psychology majors. Thus, students have a strong incentive to consider majoring in economics.

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

Incentives
Rewards or penalties for engaging in a particular activity.

1.1 Define economics and discuss the difference between microeconomics and macroeconomics

The Power of Economic Analysis

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

This framework gives you power—the power to reach informed judgments about what is happening in the world. You can, of course, live your life without the power of economic analysis as part of your analytical framework. Indeed, most people do. Economists believe, though, that economic analysis can help you make better decisions concerning your career, your education, financing your home, and other important matters.

In the business world, the power of economic analysis can help increase your competitive edge as an employee or as the owner of a business. As a voter, for the rest of your life you will be asked to make judgments about policies that are advocated by political parties. Many of these policies will deal with questions related to international economics, such as whether the U.S. government should encourage or discourage immigration or restrict other countries from selling their goods here.

Defining Economics

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

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

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

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

Wants
What people would buy if their incomes were unlimited.

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

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

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Microeconomics versus Macroeconomics

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

> **Microeconomics** ***is the part of economic analysis that studies decision making undertaken by individuals (or households) and by firms. It is like looking through a microscope to focus on the small parts of our economy.***

> **Macroeconomics** ***is the part of economic analysis that studies the behavior of the economy as a whole. It deals with economywide phenomena such as changes in unemployment, in the general price level, and in national income.***

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

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

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

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

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

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

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Economics is a social science that involves the study of how individuals choose among alternatives to satisfy their __________, which are what people would buy if their incomes were __________.	__________, the study of the decision-making processes of individuals (or households) and firms, and __________, the study of the performance of the economy as a whole, are the two main branches into which the study of economics is divided.

The Three Basic Economic Questions and Two Opposing Sets of Answers

1.2 Identify the three basic economic questions and the two opposing sets of answers

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

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

The Three Basic Questions

The three fundamental questions of economics concern the problem of how to allocate society's scarce resources:

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

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

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

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

Two Opposing Sets of Answers

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

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

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

Have the U.S. federal government's efforts to direct resources to specific green energy companies always fueled financial success for the recipient firms?

POLICY EXAMPLE

Government Green Energy Financing Flops

Since the end of the last decade, the federal government has considerably boosted its efforts to funnel resources toward so-called green energy technologies aimed at producing electrical power using nontraditional sources of energy. The U.S. Department of Energy typically commits itself to providing to specific green energy firms a certain amount of funds that the government has raised from federal taxes. Within certain prescribed limits, the green energy companies can then draw down these funds to help pay for their operations.

Within only a few years' time, a number of recipients of federal funding have already failed as on-going businesses. Table 1-1 at the top of the next page lists some of the companies to which the Department of Energy has offered funds and the amounts of dollar resources that it initially committed to these companies. In addition to the six failed recipients listed in Table 1-1, more than two dozen other energy firms have recently been faltering and may have halted operations by the time you read these words. Thus, the government's command-and-control efforts to apply taxpayers' dollars to the harnessing of resources have failed to generate as much electricity production as anticipated.

FOR CRITICAL THINKING

Ultimately, who pays for such green energy projects that fail?

Sources are listed at the end of this chapter.

TABLE 1-1

Failed Green Energy Recipients of Federal Government Funding Offers

	Initial Federal Government Commitment ($ millions)
Solyndra	535.0
Abound Solar	400.0
A123 Systems	279.0
Ener1	118.5
ECOtality	115.0
Range Fuels	80.0

Source: U.S. Department of Energy.

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

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

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

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

A given country may reach different decisions at different times about how much to rely on command and control versus a price system to answer its three basic economic questions. Until 2008, for instance, the people of the United States preferred to rely mainly on a decentralized price system to decide which and how many automobiles to produce and how to produce them. Since then, the U.S. government has owned substantial fractions of auto companies and hence has exerted considerable command-and-control authority over U.S. vehicle production.

How is China confronting the issue of what economic system to adopt?

INTERNATIONAL POLICY EXAMPLE

In China, *Chongqing* Plus *Guangdon* Equals a Mixed Economy

During the past decade, residents of China have debated the relative merits of two different economic systems. The first of these systems—the *Chongqing* system, named for a city in that nation's southwest—relies on government-owned enterprises to determine what, how, and for whom goods and services should be produced. Application of the Chongqing system to the steel industry has resulted in China's becoming the world's foremost steel producer. State-supported firms operate most of the nation's 2,700 steel mills, many of which produce more ribbed steel bars intended for reinforcing concrete than people desire to use.

The second system—the *Guangdon* system, named for a coastal province of China—places greater emphasis on allowing individuals who own and operate private businesses to decide what, how, and for whom production should take place. Under the Guangdon system, instead of the government directing resources to produce more steel than people wish to consume, China's people would be free to shift scarce resources to production and distribution of a different item. For example, instead of making more underutilized steel, private firms could manufacture digital devices that many consumers would like to purchase.

FOR CRITICAL THINKING

Why might government-owned companies and private firms that produce steel respond differently if steel buyers purchase less?

Sources are listed at the end of this chapter.

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SELF CHECK

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The three basic economic questions are __________ and how __________ will be produced, __________ will items be produced, and for __________ will items be produced?	The two opposing sets of answers are offered by alternative economy systems: (1) centralized __________ and (2) the __________ system.

1.3 Evaluate the role that rational self-interest plays in economic analysis

The Economic Approach: Systematic Decisions

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

The Rationality Assumption

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

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

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

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

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

How did a number of U.S. companies respond rationally to a significant increase in the federal tax rate on dividend payments to their shareholders?

EXAMPLE

Why Did Costco Borrow $3.5 Billion to Distribute to Its Shareholders?

In late 2012, owners of the wholesale-club operator Costco decided that the firm would borrow $3.5 billion, which the company then transmitted in the form of dividend payments to owners of the company's shares of stock. This dividend income received by Costco shareholders was subject to a federal tax rate of 15 percent that applied throughout 2012 instead of a 39.6 percent tax rate that went into effect at the beginning of 2013. After taking into account borrowing costs, this arrangement generated tens of millions of dollars of income tax savings for its shareholders.

More than 170 other U.S. companies seeking income tax savings for their shareholders also substantially boosted their dividends in 2012. In a response that many tax experts called "completely rational," these U.S. firms paid out about four times more dividends than they had in previous years. The companies sharply reduced dividend payments afterward. In effect, the companies shifted most of their dividend payments forward in time to reduce their owners' tax bills.

FOR CRITICAL THINKING

How do you think that individual taxpayers responded to the increase in dividend tax rates?

Sources are listed at the end of this chapter.

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Responding to Incentives

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

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

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Defining Self-Interest

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

Thus, self-interest does not rule out doing charitable acts. Is it possible, nevertheless, that people are likely to be more charitable when their own self-interest clearly is involved?

EXAMPLE

Taking Care of Others—and Self

U.S. residents give more than $300 billion in annual charitable donations, or about 2 percent of the total income that their economic activities generate each year. Consequently, many people seem to incorporate into their self-interested motives some concerns for the well-being of other individuals. People tend to donate more to charity when their own personal interests also are involved. Charitable organizations have long recognized that people are likely to give more to charities that provide them with some form of entertainment in the process, perhaps by participating in raffles or auctions. Recently, these organizations have also begun operating charitable fund-raising programs through social networking sites that promote enjoyable interactions among participating donors.

In the United States, another self-interested incentive to donate to charities is that assessed dollar valuations of many charitable donations are tax deductible. Under this policy, people simultaneously can enjoy giving to others and reducing their own federal tax bills.

FOR CRITICAL THINKING

Why do you suppose economists have found evidence that people tend to give more to charities when they are currently in good health but reduce their giving when they anticipate they will shortly die?

Sources are listed at the end of this chapter.

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In economics, we assume that people do not __________ make decisions that will leave them __________ off.	The statement immediately preceding is known as the __________ assumption.

1.4 Explain why economics is a science

Economics as a Science

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

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

Models and Realism

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

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

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

Assumptions

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

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

EXAMPLE

Getting Directions

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

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

FOR CRITICAL THINKING

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

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

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

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

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Deciding on the Usefulness of a Model

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

Once we have determined that the model may be useful in predicting real-world phenomena, the scientific approach to the analysis of the world around us requires that