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# Economics

## PRINCIPLES, PROBLEMS, AND POLICIES

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| Chapter* | *Economics* | *Microeconomics* | *Macroeconomics* | *Essentials of Economics* |
|---|---|---|---|---|
| 1. Limits, Alternatives, and Choices | x | x | x | x |
| 2. The Market System and the Circular Flow | x | x | x | x |
| 3. Demand, Supply, and Market Equilibrium | x | x | x | x |
| 4. Market Failures: Public Goods and Externalities | x | x | x | x |
| 5. Government's Role and Government Failure | x | x | x | x |
| 6. Elasticity | x | x | | x |
| 7. Utility Maximization | x | x | | |
| 8. Behavioral Economics | x | x | | |
| 9. Businesses and the Costs of Production | x | x | | x |
| 10. Pure Competition in the Short Run | x | x | | x |
| 11. Pure Competition in the Long Run | x | x | | x |
| 12. Pure Monopoly | x | x | | x |
| 13. Monopolistic Competition | x | x | | x |
| 14. Oligopoly and Strategic Behavior | x | x | | x |
| 15. Technology, R&D, and Efficiency (Web Chapter) | x | x | | |
| 16. The Demand for Resources | x | x | | |
| 17. Wage Determination | x | x | | x |
| 18. Rent, Interest, and Profit | x | x | | |
| 19. Natural Resource and Energy Economics | x | x | | |
| 20. Public Finance: Expenditures and Taxes | x | x | | |
| 21. Antitrust Policy and Regulation | x | x | | |
| 22. Agriculture: Economics and Policy | x | x | | |
| 23. Income Inequality, Poverty, and Discrimination | x | x | | x |
| 24. Health Care | x | x | | |
| 25. Immigration | x | x | | |
| 26. An Introduction to Macroeconomics | x | | x | |
| 27. Measuring Domestic Output and National Income | x | | x | x |
| 28. Economic Growth | x | | x | x |
| 29. Business Cycles, Unemployment, and Inflation | x | | x | x |
| 30. Basic Macroeconomic Relationships | x | | x | |
| 31. The Aggregate Expenditures Model | x | | x | |
| 32. Aggregate Demand and Aggregate Supply | x | | x | x |
| 33. Fiscal Policy, Deficits, and Debt | x | | x | x |
| 34. Money, Banking, and Financial Institutions | x | | x | x |
| 35. Money Creation | x | | x | |
| 36. Interest Rates and Monetary Policy | x | | x | x |
| 37. Financial Economics | x | | x | |
| 38. Extending the Analysis of Aggregate Supply | x | | x | |
| 39. Current Issues in Macro Theory and Policy | x | | x | |
| 40. International Trade | x | x | x | x |
| 41. The Balance of Payments, Exchange Rates, and Trade Deficits | x | x | x | x |
| 42. The Economics of Developing Countries | x | x | x | |

*Chapter numbers refer to *Economics: Principles, Problems, and Policies.*
A red "X" indicates chapters that combine or consolidate content from two or more *Economics* chapters.

# Economics

**PRINCIPLES, PROBLEMS, AND POLICIES**

Twenty-First Edition

Campbell R. McConnell
*University of Nebraska*

Stanley L. Brue
*Pacific Lutheran University*

Sean M. Flynn
*Scripps College*

McGraw Hill Education

ECONOMICS: PRINCIPLES, PROBLEMS, AND POLICIES, TWENTY-FIRST EDITION



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To Mem and to Terri and Craig, and to past instructors

# ABOUT THE AUTHORS

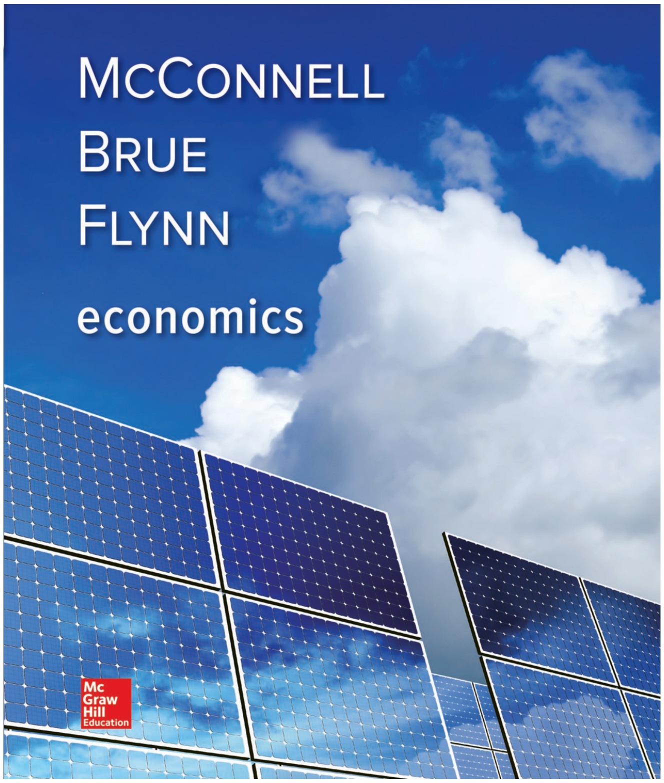
**CAMPBELL R. MCCONNELL** earned his Ph.D. from the University of Iowa after receiving degrees from Cornell College and the University of Illinois. He taught at the University of Nebraska–Lincoln from 1953 until his retirement in 1990. He is also coauthor of *Contemporary Labor Economics,* eleventh edition, and *Essentials of Economics,* third edition, and has edited readers for the principles and labor economics courses. He is a recipient of both the University of Nebraska Distinguished Teaching Award and the James A. Lake Academic Freedom Award and is past president of the Midwest Economics Association. Professor McConnell was awarded an honorary Doctor of Laws degree from Cornell College in 1973 and received its Distinguished Achievement Award in 1994. His primary areas of interest are labor economics and economic education. He has an extensive collection of jazz recordings and enjoys reading jazz history.

**STANLEY L. BRUE** did his undergraduate work at Augustana College (South Dakota) and received its Distinguished Achievement Award in 1991. He received his Ph.D. from the University of Nebraska–Lincoln. He is retired from a long career at Pacific Lutheran University, where he was honored as a recipient of the Burlington Northern Faculty Achievement Award. Professor Brue has also received the national Leavey Award for excellence in economic education. He has served as national president and chair of the Board of Trustees of Omicron Delta Epsilon International Economics Honorary. He is coauthor of *Economic Scenes,* fifth edition (Prentice-Hall); *Contemporary Labor Economics,* eleventh edition; *Essentials of Economics,* third edition; and *The Evolution of Economic Thought,* eighth edition (Cengage Learning). For relaxation, he enjoys international travel, attending sporting events, and going on fishing trips.

**SEAN M. FLYNN** did his undergraduate work at the University of Southern California before completing his Ph.D. at U.C. Berkeley, where he served as the Head Graduate Student Instructor for the Department of Economics after receiving the Outstanding Graduate Student Instructor Award. He teaches at Scripps College (of the Claremont Colleges) and is the author of *Economics for Dummies,* second edition (Wiley), and coauthor of *Essentials of Economics,* third edition. His research interests include finance, behavioral economics, and health economics. An accomplished martial artist, he has represented the United States in international aikido tournaments and is the author of *Understanding Shodokan Aikido* (Shodokan Press). Other hobbies include running, traveling, and enjoying ethnic food.

# KEY GRAPHS

# PREFACE




Welcome to the 21st edition of *Economics,* the best-selling economics textbook in the world. An estimated 15 million students have used *Economics* or its companion editions, *Macroeconomics* and *Microeconomics*. *Economics* has been adapted into Australian and Canadian editions and translated into Italian, Russian, Chinese, French, Spanish, Portuguese, and other languages. We are pleased that *Economics* continues to meet the market test: nearly one out of five U.S. students in principles courses used the 20th edition.

## Fundamental Objectives

We have three main goals for *Economics:*

- Help the beginning student master the principles essential for understanding the economizing problem, specific economic issues, and policy alternatives.
- Help the student understand and apply the economic perspective and reason accurately and objectively about economic matters.
- Promote a lasting student interest in economics and the economy.

## What's New and Improved?

One of the benefits of writing a successful text is the opportunity to revise—to delete the outdated and install the new, to rewrite misleading or ambiguous statements, to introduce more relevant illustrations, to improve the organizational structure, and to enhance the learning aids.

We trust that you will agree that we have used this opportunity wisely and fully. Some of the more significant changes include the following.

## Separate Presentations of Monopolistic Competition and Oligopoly

In response to instructor feedback, we have split the material on monopolistic competition and oligopoly that had together comprised a single chapter in previous editions into two separate chapters. The separated chapters have been made modular so that skipping either or covering both will be equally viable options for instructors. This should be particularly helpful to instructors who want to spend more time on oligopoly.

### Onboarding of Web Chapters and COI Material

Economics is everywhere, so the 21st edition continues our commitment to providing instructors with accessible and intuitive coverage of a wide variety of economic subject areas. To that end, we are happy to report that we have been able to pull material that appeared only online in previous editions into the printed book. That includes what were previously two full-length Web Chapters as well as a large fraction of the material that had been posted online as Content Options for Instructors (COIs).

"Technology, R&D, and Efficiency," which had previously been a Web Chapter, is now Chapter 15, while "The Economics of Developing Countries," also previously a Web Chapter, is now Chapter 42. Those chapters as well as the material on "Previous Exchange Rate Systems" that had been posted online as Content Options for Instructors 2 (COI2) are now integrated directly into the printed book, the latter becoming an appendix to Chapter 41 (The Balance of Payments, Exchange Rates, and Trade Deficits). The only online material that was not brought into the book was COI1, "The United States in the Global Economy." That content largely duplicated material that appeared in other chapters and was not much used, so it will no longer be supported either online or in print.

## Modernized Presentation of Fixed Exchange Rates and Currency Interventions

For this new edition, we have reorganized and rewritten large parts of Chapter 41 (The Balance of Payments, Exchange Rates, and Trade Deficits). The key revision has to do with our presentation of fixed exchange rates. We now show with greater clarity that under a fixed exchange rate regime, changes in the balance of payments generate automatic changes in both foreign exchange reserves and the domestic money supply that then have to be dealt with by a nation's central bank. Our new presentation uses China as an example of these forces and how they often lead to "sterilization" actions on the part of the central banks that are engaged in currency pegs. Our new presentation also clarifies the relationship between trade deficits and foreign exchange reserves under a currency peg.

We have also inserted additional examples into our presentation of flexible exchange rates and have introduced a new Last Word on optimal currency areas to give students insight into some of the European Monetary Union's current problems and how they relate to the fact that a monetary union is equivalent to simultaneous multilateral currency pegs. For instructors who wish to give a larger historical perspective, we have created a brief appendix that covers the gold standard era as well as the Bretton Woods period. This material was previously available in Content Options for Instructors 1 (COI2).

## New "Consider This" and "Last Word" Pieces

Our "Consider This" boxes are used to provide analogies, examples, or stories that help drive home central economic ideas in a student-oriented, real-world manner. For instance, a "Consider This" box titled "McHits and McMisses" illustrates consumer sovereignty through a listing of successful and unsuccessful products. How businesses exploit price discrimination is driven home in a "Consider This" box that explains why ballparks charge different admission prices for adults and children but only one set of prices at their concession stands. These brief vignettes, each accompanied by a photo, illustrate key points in a lively, colorful, and easy-to-remember way. We have added 9 new "Consider This" boxes in this edition.

**CONSIDER THIS . . .**

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**A Bright Idea**

In sunny areas, a solar panel can make up for the cost of its installation in just a few years by greatly reducing or even eliminating a household's electricity bill. After those years of payback are finished, there will be almost nothing but benefits because the solar panel will continue to provide free electricity at only modest maintenance costs. Consequently, nearly every household in sunny areas could rationally profit from installing solar panels.

Unfortunately, myopia discourages most people from wanting to reap the net benefits. Because people are myopic, they focus too strongly on the upfront costs of installing solar panels while at the same time discounting the long-run benefits from being able to generate their own electricity. The result is major inefficiency as most homeowners end up foregoing solar panels.

A company called Solar City has figured out a way to work with rather than against people's myopia. It does so by offering leasing and financing options that eliminate the need for consumers to pay for the upfront costs of installing a solar system. Instead, Solar City pays for the upfront costs and then makes its money by splitting the resulting savings on monthly electricity bills with consumers.

This arrangement actually benefits from myopia because consumers get to focus on instant savings rather than initial costs. The same strategy can also be used to promote other investments that would normally be discouraged by myopia, such as installing energy-efficient furnaces, air conditioners, and appliances.

**LAST WORD**

**Antitrust Online**

**The Internet Has Presented Antitrust Authorities with Both Old and New Causes for Concern.**

The Airline Tariff Publishing case was the first important example of how digital communication platforms could be used by businesses to engage in price-fixing. In the late 1980s, U.S. airlines began to post both current and future prices for airline tickets on a centralized computer system known as the Airline Tariff Publishing Company. The system was set up so that travel agents could comparison shop for their clients. But the airlines used the system's ability to list start dates and end dates for ticket purchases as a way of colluding.

As an example, suppose that American Airlines and Delta Airlines had both been charging $200 for a one-way ticket between New York and Chicago. American could then post a higher price of $250 for the route with the stipulation that nobody could start buying tickets at that price until the next month. Delta could then respond by also saying that it would start selling tickets at the higher price next month. In that way, the two airlines could tacitly coordinate their price setting ahead of time so as to collude on a major price increase.

The antitrust authorities at the U.S. Department of Justice stopped this practice in 1994 by getting the airlines to agree to the behavioral


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The most recent threat to competition spawned by the Internet is the rise of collusion via pieces of software that use pricing algorithms (automatically applied rules for setting prices) to constantly adjust a company's the online prices in response to seeing what rival firms are charging for similar products. The problem for regulators

Our "Last Word" pieces are lengthier applications or case studies that are placed near the end of each chapter. For example, the "Last Word" section for Chapter 1 (Limits, Alternatives, and Choices) examines pitfalls to sound economic reasoning, while the "Last Word" section for Chapter 4 (Market Failures: Public Goods and Externalities) examines cap-and-trade versus carbon taxes as policy responses to excessive carbon dioxide emissions. There are 11 new "Last Word" sections in this edition.

If you are unfamiliar with *Economics,* we encourage you to thumb through the chapters to take a quick look at these highly visible features.

## Enhanced Coverage of Game Theory and Strategic Behavior

The online economy and the tech sector present students with many high-profile examples of oligopolistic firms and industries. A grasp of strategic behavior is consequently more important than ever for principles students. To that end, the 21st edition features extended coverage of game theory and strategic behavior. The new material covers topics related to sequential games, including backward induction, the game-tree (extensive form) representation of strategic games, and subgame perfect Nash equilibrium.

In previous editions, a substantial portion of our game theory coverage appeared in an appendix to a chapter that covered both monopolistic competition and oligopoly. With the material on monopolistic competition now located in a separate chapter, we have been able to eliminate the appendix and fully integrate the game theory material that had appeared there with the treatment of oligopoly that had appeared in the main body of text. The result is our new Chapter 14, which is titled, "Oligopoly and Strategic Behavior."

This integrated presentation facilitates student comprehension of both game theory and oligopoly because strategic interactions are always presented in an accessible, intuitive context. Students already understand that Google's actions affect those of rivals like Facebook, and vice versa. So integrating oligopoly with game theory illuminates both sets of material.

## New Discussions of Unconventional Monetary Policy and Interest-Rate Normalization

Our macroeconomics chapters on monetary policy have been rewritten in many places to reflect the historically unprecedented monetary policy regimes that have been instituted by central banks since the Financial Crisis. Thus, for instance, we have included material that will allow students to comprehend the negative interest rates that are now common in Europe. Also necessary was a revised treatment of the federal funds rate to reflect the fact that monetary policy has been implemented in recent years in the United States by means of open-market interventions aimed at quantitative easing rather than open-market interventions aimed at lowering the federal funds rate, which has been stuck near the zero lower bound since the Great Recession.

We have also been sure to include intuitive coverage of the monetary policy tools that the Federal Reserve says it will be using in coming years to "normalize" monetary policy and raise short-term interest rates in the context of massive excess bank reserves. To that end, we have truncated our coverage of the federal funds market because the Fed has stated that it intends to normalize via the repo market and the interest rate that it pays banks on excess reserves (IOER). We cover those mechanisms in detail and explain how the Fed intends to use them in coming years.

## Tested Content for Peer Instruction

*Economics* has been at the forefront of pedagogical innovation since our first edition, when we debuted the first separate student study guide and the first explanations next to each figure so that students could understand what was going on without having to hunt around in the main text for an explanation. Successive editions have brought additional firsts, from being the first with prepared overhead slides to being the first with SmartBook and adaptive-learning technology.

While technology has made learning with *Economics* more efficient for the individual student, we wanted to offer new methods to enhance the effectiveness of the classroom experience as well. We are consequently proud that we are now going to be the first textbook to offer Peer Instruction materials that are highly effective, comprehensive, and classroom-tested.

Peer Instruction was pioneered by Eric Mazur of Harvard University's Physics Department. It is a student-focused, interactive teaching method that has been shown to massively increase the depth of student understanding across a wide variety of disciplines. It works by having students, in groups, ponder and discuss questions about challenging scenarios before their instructor steps in to clear up any lingering misconceptions. Along the way, students first answer each question individually before voting as a team after a discussion. Those two answers—individual, then group—provided the evidence for the effectiveness of Peer Instruction.

As explained by Harvard psychologist Stephen Pinker, the group discussions lead to a deeper and more intuitive understanding of concepts and theories than can usually be achieved with lecture-based instruction. That is the case because beginners are often better than experts at explaining challenging ideas to other beginners. The problem with experts—that is, instructors like you and me—is that the process of becoming an expert rewires the brain so that the expert can no longer think like a beginner. Our own expertise makes it difficult to see where students are getting confused and it is consequently very useful to unleash the power of Peer Instruction to help beginners tackle new material.

The effectiveness of Peer Instruction depends, however, on the quality of the questions and scenarios that students are asked to ponder. Developing good questions and effective scenarios is highly time intensive and often a matter of experimentation; you just don't know how well a question or scenario will work until you try it. It is not a surprise, then, that today's busy instructors often shy away from Peer Instruction because of the high start-up costs and the time required to develop truly effective questions and scenarios.

Fortunately for you, we did all the work. Author Sean Flynn and Todd Fitch of the University of San Francisco have field-tested hundreds of questions and scenarios for effectiveness. So with this 21st edition of McConnell, we are ready to offer a fully supported set of Peer Instruction material tied directly to each of the learning objectives in *Economics*. The questions and scenarios, as well as resources to help organize a Peer Instruction classroom can be found in Connect.

If you have ever been in a situation in which more experienced students helped to teach newer students, you have seen the power of Peer Instruction. Our new materials bring us back to that paradigm. So while we are first once again with Peer Instruction in economics, credit belongs to the pioneering work of dedicated teachers like Eric Mazur and Stephen Pinker for making this method available across disciplines.

## Full Support for Flipped Classroom Teaching Strategies

We have also designed our new Peer Instruction materials to facilitate flipped-classroom teaching strategies, wherein students learn basic material at home, before lecture, before being challenged in class to reach higher levels of understanding. In K–12 math programs, for example, students study short videos on new content at home before coming to class to work problems. That sequence of learning activities assures that an instructor is present at the stage where students encounter the most difficulties, namely, when they attempt to apply the material. By contrast, the traditional (non-flipped) method for teaching elementary math presents new content in class before sending students home to work problems by themselves. That sequence leaves students without expert help when they are most vulnerable to misunderstandings and errors.

We have designed our new Peer Instruction materials to facilitate the flipped-classroom method by leveraging the adaptive learning materials that are already available in our Connect online learning platform. In particular, students can be assigned new material before lecture via SmartBook, which is an adaptive-learning technology that tutors students through the basic concepts and skills presented in each section of the book. We also recommend that students work before class on end-of-chapter problems and LearnSmart (which also come with adaptive feedback thanks to Connect).

Those pre-class activities will allow students to master the lower levels of Bloom's Taxonomy of learning objectives—things like remembering and understanding—*before* they come to class. They will then be ready to attack the higher levels of Bloom's Taxonomy—things like applying, analyzing, and evaluating. That's where our new Peer Instruction material comes in. Students who have each already worked their way through the lower levels of Bloom's Taxonomy come together in class under the instruction of an expert—their teacher—to work in unison on the higher levels of understanding that are the ultimate goal of economics instruction.

We are consequently happy to be offering students and instructors yet another first, namely, the first high-quality, proven, flipped-classroom package available for principles of economics classes. Not every instructor will choose to use this material, but we are confident that those who do will wish that it had arrived much sooner. For those instructors who are new to either Peer Instruction or the flipped-classroom method, we will be offering extensive complimentary training and support via online seminars and message boards. If you are eager to try these new methods, we will be happy to help you get going and keep going.

## Current Discussions and Examples

The 21st edition of *Economics* refers to and discusses many current topics. Examples include surpluses and shortages of tickets at the Olympics; the myriad impacts of ethanol subsidies; creative destruction; applications of behavioral economics; applications of game theory; the most rapidly expanding and disappearing U.S. jobs; oil and gasoline prices; cap-and-trade systems and carbon taxes; occupational licensing; state lotteries; consumption versus income inequality; the impact of electronic medical records on health care costs; the surprising fall in illegal immigration after the 2007–2009 recession; conditional and unconditional cash transfers; the difficulty of targeting fiscal stimulus; the rapid rise in college tuition; the slow recovery from the Great Recession; ballooning federal budget deficits and public debt; the long-run funding shortfalls in Social Security and Medicare; the effect of rising dependency ratios on economic growth; innovative Federal Reserve policies, including quantitative easing, the zero interest rate policy, and explicit inflation targets; the massive excess reserves in the banking system; the jump in the size of the Fed's balance sheet; the effect of the zero interest rate policy on savers; regulation of "too big to fail" banks; trade adjustment assistance; the European Union and the Eurozone; changes in exchange rates; and many other current topics.

## Chapter-by-Chapter Changes

Each chapter of *Economics,* 21st edition, contains updated data reflecting the current economy, revised Learning Objectives, and reorganized and expanded end-of-chapter content. Every chapter also contains one or more Quick Review boxes to help students review and solidify content as they are reading along.

Chapter-specific updates include:

***Chapter 1: Limits, Alternatives, and Choices*** features two refreshed Consider This pieces as well as revised new examples and working improvements to clarify the main concepts.

***Chapter 2: The Market System and the Circular Flow*** contains updated examples and a brief new introduction to the concept of residual claimant.

***Chapter 3: Demand, Supply, and Market Equilibrium*** includes a new Last Word on how student lending raises college tuition as well as data updates and updated examples.

***Chapter 4: Market Failures: Public Goods and Externalities*** features updated examples and a new Key Word on Pigovian taxes.

***Chapter 5: Government's Role and Government Failure*** has a new Consider This on government agencies violating government laws, several new examples, and wording revisions for increased clarity.

***Chapter 6: Elasticity*** contains several updated examples.

***Chapter 7: Utility Maximization*** incorporates updated examples and a new Consider This vignette on consumers applying maximizing behavior to the calorie data that are now printed on restaurant menus.

***Chapter 8: Behavioral Economics*** contains a new Consider This piece on the myopia-busting business model employed by Solar City as well as a new Last Word describing the activities of the Behavioral Insights Team.

***Chapter 9: Businesses and the Costs of Production*** incorporates a few wording updates to facilitate rapid comprehension.

***Chapter 10: Pure Competition in the Short Run*** features several wording changes to improve student understanding of the end-of-chapter questions and problems.

***Chapter 11: Pure Competition in the Long Run*** contains several updated examples to keep the content relevant for today's students.

***Chapter 12: Pure Monopoly*** has a new Last Word about individualized online price discrimination as well as updated examples.

***Chapter 13: Monopolistic Competition*** was previously part of a chapter that covered both monopolistic competition and oligopoly. We have split that chapter into two parts for the 21st edition so that instructors who wish to skip either set of material may easily do so.

***Chapter 14: Oligopoly and Strategic Behavior*** was previously part of a chapter that covered both monopolistic competition and oligopoly. The material on oligopoly constitutes the basis for this stand-alone chapter, which also extends the game theory material found in the previous edition. Our extended coverage of game theory and strategic behavior includes extensive-form (game-tree) representations of sequential games and the concept of subgame-perfect Nash equilibrium. As with prior editions, all game theory material is kept concrete by presenting it in the context of strategic behavior among oligopoly firms.

***Chapter 15: Technology, R&D, and Efficiency*** was previously a Web Chapter available only online. It has been brought into the main body of the book and contains extensive data updates as well as several new examples.

***Chapter 16: The Demand for Resources*** incorporates light data updates as well as an entirely new Last Word on capital-labor substitution. This discussion uses ATM machines as its main example, just as the Last Word in the previous edition did. But an update was required because recent research indicates that the main premise of the old Last Word no longer holds true: ATMs did not in fact replace human tellers in the aggregate, at least not after managers adjusted to the new technology. The new Last Word updates the story.

***Chapter 17: Wage Determination*** features extensive data updates, improved wording for clarity, and a new Last Word on how unnecessary occupational licensing requirements are reducing employment opportunities.

***Chapter 18: Rent, Interest, and Profit*** incorporates wording improvements, data updates, and a new Consider This on the subject of profits.

***Chapter 19: Natural Resource and Energy Economics*** has extensive data updates and a new Consider This boxed piece on how the current limitations of electricity-storage technology stymie the wider adoption of renewable energy sources such as solar and wind power.

***Chapter 20: Public Finance: Expenditures and Taxes*** contains extensive data updates and several new examples.

***Chapter 21: Antitrust Policy and Regulation*** has a new Last Word that covers both antitrust prosecutions against human managers who intentionally engage in anticompetitive practices as well as the newly evolving area of price-fixing by artificial intelligence algorithms that unintentionally collude to fix prices when they interact with each other.

***Chapter 22: Agriculture: Economics and Policy*** features extensive data updates as well as a new section on the Agricultural Act of 2014.

***Chapter 23: Income Inequality, Poverty, and Discrimination*** contains a new Consider This about welfare cliffs as well as extensive data updates and several new examples.

***Chapter 24: Health Care*** contains many data updates as well as a completely revised Consider This on the problems that have been encountered during the implementation of the Patient Protection and Affordable Care Act.

***Chapter 25: Immigration*** contains several new examples about the economic contributions of immigrants as well as comprehensive data updates.

***Chapter 26: An Introduction to Macroeconomics*** incorporates data updates, wording improvements, and several new examples.

***Chapter 27: Measuring Domestic Output and National Income*** features extensive data updates and a short new section discussing the importance of paying attention to intermediate economic activity as measured by gross output.

***Chapter 28: Economic Growth*** contains data updates, new examples, and a new discussion of the slowdown in productivity growth that has occurred since the Great Recession.

***Chapter 29: Business Cycles, Unemployment, and Inflation*** features both a new Consider This on deflationary spirals as well as an extended discussion of negative interest rates.

***Chapter 30: Basic Macroeconomic Relationships*** features data updates and a new Last Word that humorously illustrates the multiplier concept in the same parody style that was used in the Last Word piece that this all-new story replaces.

***Chapter 31: The Aggregate Expenditures Model*** contains data updates and minor wording improvements.

***Chapter 32: Aggregate Demand and Aggregate Supply*** incorporates updates to both data and examples.

***Chapter 33: Fiscal Policy, Deficits, and Debt*** uses extensive data updates to reflect the current U.S. fiscal situation and place it in an international context.

***Chapter 34: Money, Banking, and Financial Institutions*** features a new Last Word on central bank bailouts for insolvent as well as illiquid financial institutions, a policy derided by some as “extend and pretend.”

***Chapter 35: Money Creation*** incorporates a few data updates as well as a new section explaining the demise of the federal funds market after the Financial Crisis of 2007–2008.

***Chapter 36: Interest Rates and Monetary Policy*** features new material on the unorthodox monetary policy of the last 10 years. Coverage of the federal funds market has been slashed, reflecting the fact that the massive excess reserves in the banking system mean that the Fed now uses open-market operations for quantitative easing rather than adjustments to the federal funds rate (which is constantly forced toward zero by those massive excess bank reserves). We also give an in-depth explanation of the Federal Reserve's plan to normalize monetary policy by using reverse repos and the rate of interest on excess reserves (IOER) to raise short-term interest rates in the coming years. To aid comprehension of how repos and reverse repos work, we have also added a new Consider This piece.

***Chapter 37: Financial Economics*** has extensive data updates and a new Consider This on how increased institutional stock ownership may have exacerbated the principal-agent problem and thereby engendered a greater amount of self-serving behavior on the part of corporate managers.

***Chapter 38: Extending the Analysis of Aggregate Supply*** incorporates data updates and new material that updates our discussion of the empirical validity of the Phillips Curve by including the most recent data on inflation and unemployment.

***Chapter 39: Current Issues in Macro Theory and Policy*** contains a new section explaining the Federal Reserve's 2-percent inflation target as well as a new Last Word describing Market Monetarism.

***Chapter 40: International Trade*** contains new examples and data updates.

***Chapter 41: The Balance of Payments, Exchange Rates, and Trade Deficits*** is heavily revised for this edition. There is an entirely new presentation of fixed exchange rates and how the balance of payments under a fixed exchange rate determines the direction of change of both foreign exchange reserves as well as the domestic money supply. This presentation is illustrated with a new Consider This on China's currency peg as well as a new Last Word on whether common currencies (which are implicit pegs) are a good idea. This chapter also has a new appendix that includes the material on previous (pre-Bretton Woods) exchange rate systems that was previously presented in Content Options for Instructors 2 (COI2).

***Chapter 42: The Economics of Developing Countries*** has an updated discussion on China's recently terminated one-child policy as well as a new Last Word that reviews the poverty-fighting effectiveness of microcredit, conditional cash transfers, and unconditional cash transfers.

## Distinguishing Features

**Comprehensive Explanations at an Appropriate Level** *Economics* is comprehensive, analytical, and challenging yet fully accessible to a wide range of students. The thoroughness and accessibility enable instructors to select topics for special classroom emphasis with confidence that students can read and comprehend other independently assigned material in the book. Where needed, an extra sentence of explanation is provided. Brevity at the expense of clarity is false economy.

**Fundamentals of the Market System** Many economies throughout the world are still making difficult transitions from planning to markets while a handful of other countries such as Venezuela seem to be trying to reestablish government-controlled, centrally planned economies. Our detailed description of the institutions and operation of the market system in Chapter 2 (The Market System and the Circular Flow) is therefore even more relevant than before. We pay particular attention to property rights, entrepreneurship, freedom of enterprise and choice, competition, and the role of profits because these concepts are often misunderstood by beginning students worldwide.

**Extensive Treatment of International Economics** We give the principles and institutions of the global economy extensive treatment. The appendix to Chapter 3 (Demand, Supply, and Market Equilibrium) has an application on exchange rates. Chapter 40 (International Trade) examines key facts of international trade, specialization and comparative advantage, arguments for protectionism, impacts of tariffs and subsidies, and various trade agreements. Chapter 41 (The Balance of Payments, Exchange Rates, and Trade Deficits) discusses the balance of payments, fixed and floating exchange rates, and U.S. trade deficits. Chapter 42 (The Economics of Developing Countries) takes a look at the special problems faced by developing countries and how developed countries try to help them.

Chapter 40 (International Trade) is constructed such that instructors who want to cover international trade early in the course can assign it immediately after Chapter 3. Chapter 40 requires only a good understanding of production possibilities analysis and supply and demand analysis to comprehend.

International competition, trade flows, and financial flows are integrated throughout the micro and macro sections. "Global Perspective" boxes add to the international flavor of the book.

**Early and Extensive Treatment of Government** The public sector is an integral component of modern capitalism. This book introduces the role of government early. Chapter 4 (Market Failures: Public Goods and Externalities) systematically discusses public goods and government policies toward externalities. Chapter 5 (Government's Role and Government Failure) details the factors that cause government failure. And Chapter 20 (Public Finance: Expenditures and Taxes) examines taxation and government expenditures in detail. Both the micro and the macro sections of the text include issue- and policy-oriented chapters.

**Stress on the Theory of the Firm** We have given much attention to microeconomics in general and to the theory of the firm in particular, for two reasons. First, the concepts of microeconomics are difficult for most beginning students; abbreviated expositions usually compound these difficulties by raising more questions than they answer. Second, we wanted to couple analysis of the various market structures with a discussion of the impact of each market arrangement on price, output levels, resource allocation, and the rate of technological advance.

**Step-by-Step, Two-Path Macro** As in the previous edition, our macro continues to be distinguished by a systematic step-by-step approach to developing ideas and building models. Explicit assumptions about price and wage stickiness are posited and then systematically peeled away, yielding new models and extensions, all in the broader context of growth, expectations, shocks, and degrees of price and wage stickiness over time.

In crafting this step-by-step macro approach, we took care to preserve the "two-path macro" that many instructors appreciated. Instructors who want to bypass the immediate short-run model (Chapter 31: The Aggregate Expenditures Model) can proceed without loss of continuity directly to the short-run AD-AS model (Chapter 32: Aggregate Demand and Aggregate Supply), fiscal policy, money and banking, monetary policy, and the long-run AD-AS analysis.

**Emphasis on Technological Change and Economic Growth** This edition continues to emphasize economic growth. Chapter 1 (Limits, Alternatives, and Choices) uses the production possibilities curve to show the basic ingredients of growth. Chapter 28 (Economic Growth) explains how growth is measured and presents the facts of growth. It also discusses the causes of growth, looks at productivity growth, and addresses some controversies surrounding economic growth. Chapter 28's "Last Word" examines whether economic growth can survive demographic decline. Chapter 42 focuses on developing countries and the growth obstacles they confront. Chapter 15 (Technology, R&D, and Efficiency) provides an explicit and cohesive discussion of the microeconomics of technological advance, including topics such as invention, innovation, and diffusion; start-up firms; R&D decision making; market structure and R&D effort; and creative destruction.

**Focus on Economic Policy and Issues** For many students, the micro chapters on antitrust, agriculture, income inequality, health care, and immigration, along with the macro chapters on fiscal policy and monetary policy, are where the action is centered. We guide that action along logical lines through the application of appropriate analytical tools. In the micro, we favor inclusiveness; instructors can effectively choose two or three chapters from Part 6.

# Organizational Alternatives

Although instructors generally agree on the content of principles of economics courses, they sometimes differ on how to arrange the material. *Economics* includes 11 parts, and thus provides considerable organizational flexibility. We place microeconomics before macroeconomics because this ordering is consistent with how contemporary economists view the direction of linkage between the two components. The introductory material of Parts 1 and 2, however, can be followed immediately by the macro analysis of Parts 7 and 8. Similarly, the two-path macro enables covering the full aggregate expenditures model or advancing directly from the basic macro relationships chapter to the AD-AS model.

Some instructors will prefer to intersperse the microeconomics of Parts 4 and 5 with the issues chapters of Part 6. Chapter 22 on agriculture may follow Chapters 10 and 11 on pure competition; Chapter 21 on antitrust and regulation may follow Chapters 12, 13, 14, and 15 on imperfect competition models and technological advance. Chapter 25 on immigration may follow Chapter 17 on wages; and Chapter 23 on income inequality may follow Chapters 17 and 18 on distributive shares of national income.

Instructors who teach the typical two-semester course and feel comfortable with the book's organization will find that, by putting Parts 1 to 6 in the first semester and Parts 7 to 11 in the second, the material is divided logically between the two semesters.

Finally, Chapter 40 on international trade can easily be moved up to immediately after Chapter 3 on supply and demand for instructors who want an early discussion of international trade.

# Pedagogical Aids

*Economics* is highly student-oriented. The 21st edition is also accompanied by a variety of high-quality supplements that help students master the subject and help instructors implement customized courses.

## Digital Tools

**Adaptive Reading Experience.** SmartBook contains the same content as the print book, but actively tailors that content to the needs of the individual through adaptive probing. Instructors can assign SmartBook reading assignments for points to create incentives for students to come to class prepared.

**Extensive Algorithmic and Graphing Assessment.** Robust, auto-gradable question banks for each chapter now include even more questions that make use of the Connect graphing tool. More questions featuring algorithmic variations have also been added.

**Interactive Graphs.** This new assignable resource within Connect helps students see the relevance of subject matter by providing visual displays of real data for students to manipulate. All graphs are accompanied by assignable assessment questions and feedback to guide students through the experience of learning to read and interpret graphs and data.

**Videos** New to this edition are videos that provide support for key economics topics. These short, engaging explanations are presented at the moment students may be struggling to help them connect the dots and grasp challenging concepts.

**Math Preparedness Tutorials.** Our math preparedness assignments have been reworked to help students refresh on important prerequisite topics necessary to be successful in economics.

**Digital Image Library** Every graph and table in the text is available in the Instructor's Resource section in Connect.

**Three Reorganized Test Banks** The *Economics* test banks contain around 14,000 multiple-choice and true-false questions, many of which were written by the text authors. While previous editions grouped these questions into two separate test banks, this edition uses a consolidated test bank with advanced tagging features that will allow instructors to choose familiar questions from Test Banks I and II or create new assignments from the full variety of questions in each chapter. Each test bank question for *Economics* also maps to a specific learning objective. Randy Grant revised Test Bank I for the 21st edition. Felix Kwan of Maryville University updated Test Bank II. All Test Bank questions are organized by learning objective, topic, AACSB Assurance of Learning, and Bloom's Taxonomy guidelines.

Test Bank III, written by William Walstad, contains more than 600 pages of short-answer questions and problems created in the style of the book's end-of-chapter questions. Test Bank III can be used to construct student assignments or design essay and problem exams. Suggested answers to the essay and problem questions are included. In all, nearly 15,000 questions give instructors maximum testing flexibility while ensuring the fullest possible text correlation.

**Computerized Test Bank Online** TestGen is a complete, state-of-the-art test generator and editing application software that allows instructors to quickly and easily select test items from McGraw Hill's test bank content. The instructors can then organize, edit, and customize questions and answers to rapidly generate tests for paper or online administration. Questions can include stylized text, symbols, graphics, and equations that are inserted directly into questions using built-in mathematical templates. TestGen's random generator provides the option to display different text or calculated number values each time questions are used. With both quick-and-simple test creation and flexible and robust editing tools, TestGen is a complete test generator system for today's educators.

You can use our test bank software, TestGen, or *Connect Economics* to easily query for learning outcomes and objectives that directly relate to the learning objectives for your course. You can then use the reporting features to aggregate student results in a similar fashion, making the collection and presentation of assurance-of-learning data simple and easy.

**AACSB Statement** The McGraw-Hill Companies is a proud corporate member of the Association to Advance Collegiate Schools of Business (AACSB) International. Understanding the importance and value of AACSB accreditation, *Economics* has sought to recognize the curricula guidelines detailed in the AACSB standards for business accreditation by connecting end-of-chapter questions in *Economics* and the accompanying test banks to the general knowledge and skill guidelines found in the AACSB standards.

This AACSB Statement for *Economics* is provided only as a guide for the users of this text. The AACSB leaves content coverage and assessment within the purview of individual schools, their respective missions, and their respective faculty. While *Economics* and its teaching package make no claim of any specific AACSB qualification or evaluation, we have, within *Economics* labeled selected questions according to the eight general knowledge and skills areas emphasized by AACSB.

## Supplements for Students and Instructors

**Study Guide** One of the world's leading experts on economic education, William Walstad of the University of Nebraska–Lincoln, prepared the *Study Guide*. Many students find either the printed or digital version indispensable. Each chapter contains an introductory statement, a checklist of behavioral objectives, an outline, a list of important terms, fill-in questions, problems and projects, objective questions, and discussion questions.

The *Guide* comprises a superb "portable tutor" for the principles student. Separate *Study Guides* are available for the macro and micro editions of the text.

**Instructor's Manual** Shawn Knabb of Western Washington University revised and updated the *Instructor's Manual* to accompany the 21st edition of the text. The revised *Instructor's Manual* includes:

- Chapter summaries.
- Listings of "what's new" in each chapter.
- Teaching tips and suggestions.
- Learning objectives.
- Chapter outlines.
- Extra questions and problems.
- Answers to the end-of-chapter questions and problems, plus correlation guides mapping content to learning objectives.

The *Instructor's Manual* is available in the Instructor's Resource section, accessible through the Library tab in Connect.

**PowerPoint Presentations** A dedicated team of instructors updated the PowerPoint presentations for the 21st edition: Stephanie Campbell of Mineral Area College and Amy Chataginer of Mississippi Gulf Coast Community College. Each chapter is accompanied by a concise yet thorough tour of the key concepts. Instructors can use these presentations in the classroom, and students can use them on their computers.

# Digital Solutions

## McGraw-Hill *Connect® Economics*

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## McGraw-Hill Customer Care Contact Information

Getting the most from new technology can be challenging. So McGraw-Hill offers a large suite of complementary support services for faculty using *Economics*. You can contact our Product Specialists 24 hours a day to set up online technology instruction. Or you can contact customer support at any time by either calling **800-331-5094** or by visiting the Customer Experience Group (CXG) Support Center at **www.mhhe.com/support.** They will put you in touch with a Technical Support Analyst familiar with *Economics* and its technology offerings. And, of course, our online knowledge bank of Frequently Asked Questions is always available at the just-mentioned website for instant answers to the most common technology questions.

# Acknowledgments

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We are greatly indebted to an all-star group of professionals at McGraw-Hill—in particular James Heine, Virgil Lloyd, Trina Maurer, Harvey Yep, Bruce Gin, Tara McDermott, Adam Huenecke, and Katie Hoenicke—for their publishing and marketing expertise.

The 21st edition has benefited from a number of perceptive formal reviews. The reviewers, listed at the end of the preface, were a rich source of suggestions for this revision. To each of you, and others we may have inadvertently overlooked, thank you for your considerable help in improving *Economics*.

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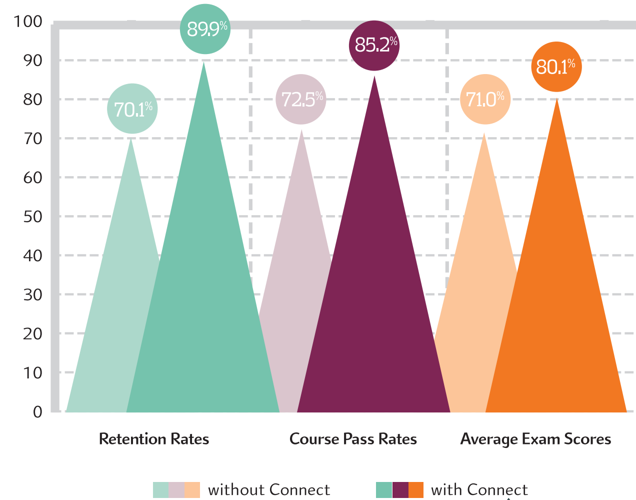


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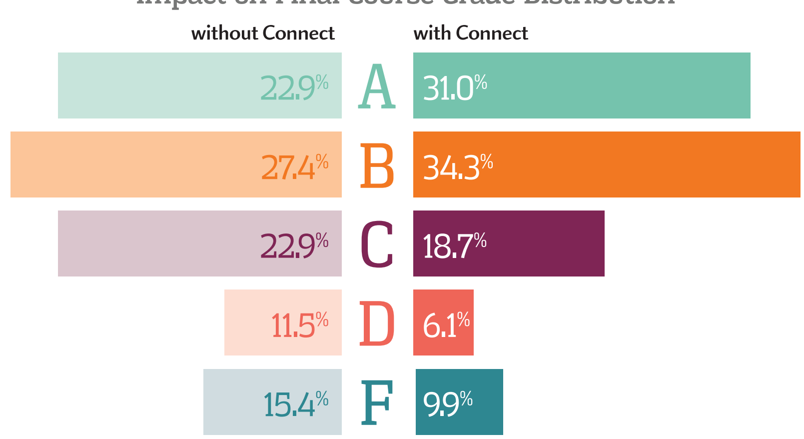

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# BRIEF CONTENTS

# CONTENTS

Part ONE

# Introduction to Economics and the Economy

1 Chapter

# Limits, Alternatives, and Choices

## Learning Objectives

**LO1.1** Define economics and the features of the economic perspective.

**LO1.2** Describe the role of economic theory in economics.

**LO1.3** Distinguish microeconomics from macroeconomics and positive economics from normative economics.

**LO1.4** Explain the individual's economizing problem and how trade-offs, opportunity costs, and attainable combinations can be illustrated with budget lines.

**LO1.5** List the categories of scarce resources and delineate the nature of society's economizing problem.

**LO1.6** Apply production possibilities analysis, increasing opportunity costs, and economic growth.

**LO1.7** Explain how economic growth and international trade increase consumption possibilities.

**LO1.8** (Appendix) Understand graphs, curves, and slopes as they relate to economics.

*(At the end of this chapter is an appendix is on understanding graphs. If you need a quick review of this mathematical tool, you might benefit by reading the appendix first.)* People's wants are numerous and varied. Biologically, people need only air, water, food, clothing, and shelter. But in modern societies people also desire goods and services that provide a more comfortable or affluent standard of living. We want bottled water, soft drinks, and fruit juices, not just water from the creek. We want salads, burgers, and pizzas, not just berries and nuts. We want jeans, suits, and coats, not just woven reeds. We want apartments, condominiums, or houses, not just mud huts. And, as the saying goes, "That is not the half of it." We also want flat-panel TVs, Internet service, education, national defense, cell phones, health care, and much more.

Fortunately, society possesses productive resources, such as labor and managerial talent, tools and machinery, and land and mineral deposits. These resources, employed in the economic system (or simply the economy), help us produce goods and services that satisfy many of our economic wants. But the blunt reality is that our economic wants far exceed the productive capacity of our scarce (limited) resources. We are forced to make choices. This unyielding truth underlies the definition of **economics,** which is the social science concerned with how individuals, institutions, and society make optimal (best) choices under conditions of scarcity.

## The Economic Perspective

LO1.1 Define economics and the features of the economic perspective.

Economists view things from a unique perspective. This **economic perspective,** or economic way of thinking, has several critical and closely interrelated features.

### Scarcity and Choice

The economic resources needed to make goods and services are in limited supply. This **scarcity** restricts options and demands choices. Because we "can't have it all," we must decide what we will have and what we must forgo.

At the core of economics is the idea that "there is no free lunch." You may be treated to lunch, making it "free" from your perspective, but someone bears a cost. Because all resources are either privately or collectively owned by members of society, ultimately society bears the cost. Scarce inputs of land, equipment, farm labor, the labor of cooks and waiters, and managerial talent are required. Because society could have used these resources to produce other things, it sacrifices those other goods and services in making the lunch available. Economists call such sacrifices **opportunity costs:** To obtain more of one thing, society forgoes the opportunity of getting the next best thing that could have been created with those resources. That sacrifice is the opportunity cost of the choice.

### Purposeful Behavior

Economics assumes that human behavior reflects "rational self-interest." Individuals look for and pursue opportunities to increase their **utility**—the pleasure, happiness, or satisfaction obtained from consuming a good or service. They allocate their time, energy, and money to maximize their satisfaction. Because they weigh costs and benefits, their economic decisions are "purposeful" or "rational," not "random" or "chaotic."

Consumers are purposeful in deciding what goods and services to buy. Business firms are purposeful in deciding what products to produce and how to produce them. Government entities are purposeful in deciding what public services to provide and how to finance them.

"Purposeful behavior" does not assume that people and institutions are immune from faulty logic and therefore are perfect decision makers. They sometimes make mistakes. Nor does it mean that people's decisions are unaffected by emotion or the decisions of those around them. Indeed, economists acknowledge that people are sometimes impulsive or emulative. "Purposeful behavior" simply means that people make decisions with some desired outcome in mind.

Rational self-interest is not the same as selfishness. In the economy, increasing one's own wage, rent, interest, or profit normally requires identifying and satisfying *somebody else's* wants! Also, people make personal sacrifices for others. They contribute time and money to charities because they derive pleasure from doing so. Parents help pay for their children's education for the same reason. These self-interested, but unselfish, acts help maximize the givers' satisfaction as much as any personal purchase of goods or services. Self-interested behavior is simply behavior designed to increase personal satisfaction, however it may be derived.

**CONSIDER THIS . . .**


Source: © Mar Photographics/Alamy Stock Photo

### Free for All?

Free products are seemingly everywhere. Sellers offer free apps, free cell phones, and free checking accounts. Dentists give out free toothbrushes. At state visitor centers, there are free brochures and maps.

Does the presence of so many free products contradict the economist's assertion that "There is no free lunch"? No! Resources are used to produce each of these products, and because those resources have alternative uses, society gives up something else to get the "free" good. Because alternatives must be forsaken, there is no such thing as a free lunch.

So why are these goods offered for free? In a word: marketing! Firms sometimes offer free products to entice people to try them, hoping they will then purchase those goods later. Getting to try out the free version of an app may eventually entice you to buy the pay version that has more features. In other cases, a product is free only in conjunction with a larger purchase. To get the free bottle of soda, you must buy the large pizza. To get the free cell phone, you need to sign up for a year's worth of cell phone service.

But while "free" products may come at no cost to the individuals receiving them, they are never free to society because their manufacture requires the use of resources that could have been put to alternative uses.

## Marginal Analysis: Comparing Benefits and Costs

The economic perspective focuses largely on **marginal analysis**—comparisons of marginal benefits and marginal costs, usually for decision making. To economists, "marginal" means "extra," "additional," or "a change in." Most choices or decisions involve changes in the status quo, meaning the existing state of affairs.

Should you attend school for another year? Should you study an extra hour for an exam? Should you supersize your fries? Similarly, should a business expand or reduce its output? Should government increase or decrease its funding for a missile defense system?

Each option involves marginal benefits and, because of scarce resources, marginal costs. In making choices rationally, the decision maker must compare those two amounts. Example: You and your fiancée are shopping for an engagement ring. Should you buy a $\frac{1}{2}$-carat diamond, a $\frac{3}{4}$-carat diamond, a 1-carat diamond, or something even larger? The marginal cost of a larger-size diamond is the added expense beyond the cost of the smaller-size diamond. The marginal benefit is the perceived lifetime pleasure (utility) from the larger-size stone. If the marginal benefit of the larger diamond exceeds its marginal cost (and you can afford it), buy the larger stone. But if the marginal cost is more than the marginal benefit, you should buy the smaller diamond instead—even if you can afford the larger stone!

In a world of scarcity, the decision to obtain the marginal benefit associated with some specific option always includes the marginal cost of forgoing something else. The money spent on the larger-size diamond means forgoing some other product. An opportunity cost—the value of the next best thing forgone—is always present whenever a choice is made.

### CONSIDER THIS . . .

Source: © Syracuse Newspapers/The Image Works

#### Fast-Food Lines

The economic perspective is useful in analyzing all sorts of behaviors. Consider an everyday example: the behavior of fast-food customers. When customers enter the restaurant, they go to the shortest line, believing that line will minimize their time cost of obtaining food. They are acting purposefully; time is limited, and people prefer using it in some way other than standing in line.

If one fast-food line is temporarily shorter than other lines, some people will move to that line. These movers apparently view the time saving from the shorter line (marginal benefit) as exceeding the cost of moving from their present line (marginal cost). The line switching tends to equalize line lengths. No further movement of customers between lines occurs once all lines are about equal.

Fast-food customers face another cost-benefit decision when a clerk opens a new station at the counter. Should they move to the new station or stay put? Those who shift to the new line decide that the time saving from the move exceeds the extra cost of physically moving. In so deciding, customers must also consider just how quickly they can get to the new station compared with others who may be contemplating the same move. (Those who hesitate are lost!)

Customers at the fast-food establishment do not have perfect information when they select lines. Thus, not all decisions turn out as expected. For example, you might enter a short line only to find that someone in front of you is ordering hamburgers and fries for 40 people in the Greyhound bus parked out back (and also that the guy taking orders in your new line is a trainee)! Nevertheless, at the time you made your decision, you thought it was optimal.

Finally, customers must decide what food to order when they arrive at the counter. In making their choices, they again compare marginal costs and marginal benefits in attempting to obtain the greatest personal satisfaction for their expenditure.

Economists believe that what is true for the behavior of customers at fast-food restaurants is true for economic behavior in general. Faced with an array of choices, consumers, workers, and businesses rationally compare marginal costs and marginal benefits when making decisions.

## Theories, Principles, and Models

**LO1.2** Describe the role of economic theory in economics.

Like the physical and life sciences, as well as other social sciences, economics relies on the **scientific method.** That procedure consists of several elements:

- Observing real-world behavior and outcomes.
- Based on those observations, formulating a possible explanation of cause and effect (hypothesis).
- Testing this explanation by comparing the outcomes of specific events to the outcome predicted by the hypothesis.
- Accepting, rejecting, and modifying the hypothesis, based on these comparisons.
- Continuing to test the hypothesis against the facts. If favorable results accumulate, the hypothesis evolves into a theory. A very well-tested and widely accepted theory is referred to as an economic law or an **economic principle**—a statement about economic behavior or the economy that enables prediction of the probable effects of certain actions. Combinations of such laws or principles are incorporated into models, which are simplified representations of how something works, such as a market or segment of the economy.

Economists develop theories of the behavior of individuals (consumers, workers) and institutions (businesses, governments) engaged in the production, exchange, and consumption of goods and services. Theories, principles, and models are "purposeful simplifications." The full scope of economic reality itself is too complex and bewildering to be understood as a whole. In developing theories, principles, and models economists remove the clutter and simplify.

Economic principles and models are highly useful in analyzing economic behavior and understanding how the economy operates. They are the tools for ascertaining cause and effect (or action and outcome) within the economic system. Good theories do a good job of explaining and predicting. They are supported by facts concerning how individuals and institutions actually behave in producing, exchanging, and consuming goods and services.

There are some other things you should know about economic principles.

- ***Generalizations*** Economic principles are generalizations relating to economic behavior or to the economy itself. Economic principles are expressed as the tendencies of typical or average consumers, workers, or business firms. For example, economists say that consumers buy more of a particular product when its price falls. Economists recognize that some consumers may increase their purchases by a large amount, others by a small amount, and a few not at all. This "price-quantity" principle, however, holds for the typical consumer and for consumers as a group.
- ***Other-things-equal assumption*** In constructing their theories, economists use the *ceteris paribus* or **other-things-equal assumption**—the assumption that factors other than those being considered do not change. They assume that all variables except those under immediate consideration are held constant for a particular analysis. For example, consider the relationship between the price of Pepsi and the amount of Pepsi that is purchased. Assume that of all the factors that might influence the amount of Pepsi purchased (for example, the price of Pepsi, the price of Coca-Cola, and consumer incomes and preferences), only the price of Pepsi varies. This is helpful because the economist can then focus on the relationship between the price of Pepsi and purchases of Pepsi in isolation without being confused by changes in other variables.
- ***Graphical expression*** Many economic models are expressed graphically. Be sure to read the special appendix at the end of this chapter as a review of graphs.

# Microeconomics and Macroeconomics

**LO1.3** Distinguish microeconomics from macroeconomics and positive economics from normative economics.

Economists develop economic principles and models at two levels.

## Microeconomics

**Microeconomics** is the part of economics concerned with decision making by individual customers, workers, households, and business firms. At this level of analysis, we observe the details of their behavior under a figurative microscope. We measure the price of a specific product, the number of workers employed by a single firm, the revenue or income of a particular firm or household, or the expenditures of a specific firm, government entity, or family. In microeconomics, we examine the sand, rocks, and shells, not the beach.

## Macroeconomics

**Macroeconomics** examines the performance and behavior of the economy as a whole. It focuses its attention on economic growth, the business cycle, interest rates, inflation, and the behavior of major economic aggregates such as the government, household, and business sectors. An **aggregate** is a collection of specific economic units treated as if they were one unit. Therefore, we might lump together the millions of consumers in the U.S. economy and treat them as if they were one huge unit called "consumers."

In using aggregates, macroeconomics seeks to obtain an overview, or general outline, of the structure of the economy and the relationships of its major aggregates. Macroeconomics speaks of such economic measures as total output, total employment, total income, aggregate expenditures, and the general level of prices in analyzing various economic problems. Very little attention is given to the specific units making up the various aggregates.

Figuratively, macroeconomics looks at the beach, not the pieces of sand, the rocks, and the shells.

The micro–macro distinction does not mean that economics is so highly compartmentalized that every topic can be readily labeled as either micro or macro; many topics and subdivisions of economics are rooted in both. Example: While the problem of unemployment is usually treated as a macroeconomic topic (because unemployment relates to aggregate production), economists recognize that the decisions made by *individual* workers on how long to search for jobs and the way *specific* labor markets encourage or impede hiring are also critical in determining the unemployment rate.

## Positive and Normative Economics

Both microeconomics and macroeconomics contain elements of positive economics and normative economics. **Positive economics** focuses on facts and cause-and-effect relationships. It includes description, theory development, and theory testing. Positive economics avoids value judgments. It tries to establish scientific statements about economic behavior and deals with what the economy is actually like. Such scientific-based analysis is critical to good policy analysis.

Economic policy, on the other hand, involves **normative economics,** which incorporates value judgments about what the economy should be like or what particular policy actions should be recommended to achieve a desirable goal. Normative economics looks at the desirability of certain aspects of the economy. It underlies expressions of support for particular economic policies.

Positive economics concerns *what is,* whereas normative economics embodies subjective feelings about *what ought to be*. Examples: Positive statement: "The unemployment rate in France is higher than that in the United States." Normative statement: "France ought to undertake policies to make its labor market more flexible to reduce unemployment rates." Whenever words such as "ought" or "should" appear in a sentence, you are very likely encountering a normative statement.

Most of the disagreement among economists involves normative, value-based policy questions. Of course, economists sometime disagree about which theories or models best represent the economy and its parts, but they agree on a full range of economic principles. Most economic controversy thus reflects differing opinions or value judgments about what society should be like.

### QUICK REVIEW 1.1

- ✓ Economics examines how individuals, institutions, and society make choices under conditions of scarcity.
- ✓ The economic perspective stresses (a) resource scarcity and the necessity of making choices, (b) the assumption of purposeful (or rational) behavior, and (c) comparisons of marginal benefit and marginal cost.
- ✓ In choosing the best option, people incur an opportunity cost—the value of the next-best option.
- ✓ Economists use the scientific method to establish economic theories—cause-effect generalizations about the economic behavior of individuals and institutions.
- ✓ Microeconomics focuses on specific decision-making units within the economy. Macroeconomics examines the economy as a whole.
- ✓ Positive economics deals with factual statements ("what is"); normative economics involves value judgments ("what ought to be").

# Individual's Economizing Problem

**LO1.4** Explain the individual's economizing problem and how trade-offs, opportunity costs, and attainable combinations can be illustrated with budget lines.

A close examination of the **economizing problem**—the need to make choices because economic wants exceed economic means—will enhance your understanding of economic models and the difference between microeconomic and macroeconomic analysis. Let's first build a microeconomic model of the economizing problem faced by an individual.

## Limited Income

We all have a finite amount of income, even the wealthiest among us. Even Bill Gates must decide how to spend his money! And the majority of us have much more limited means. Our income comes to us in the form of wages, interest, rent, and profit, although we may also receive money from government programs or family members. As Global Perspective 1.1 shows, the average income of Americans in 2014 was $55,200. In the poorest nations, it was less than $500.

### GLOBAL PERSPECTIVE 1.1

**Average Income, Selected Nations**

Average income (total income/population) and therefore typical individual budget constraints vary greatly among nations.

| Country | Country Per Capita Income, 2014 (U.S. dollars, based on exchange rates) |
|---|---|
| Norway | $103,630 |
| Sweden | 61,610 |
| United States | 55,200 |
| Singapore | 55,150 |
| France | 42,960 |
| South Korea | 27,090 |
| Mexico | 9,870 |
| China | 7,400 |
| Iraq | 6,500 |
| India | 1,570 |
| Madagascar | 440 |
| Malawi | 250 |

*Source:* The World Bank, **www.worldbank.org.**

## Unlimited Wants

For better or worse, most people have virtually unlimited wants. We desire various goods and services that provide utility. Our wants extend over a wide range of products, from *necessities* (for example, food, shelter, and clothing) to *luxuries* (for example, perfumes, yachts, and sports cars). Some wants such as basic food, clothing, and shelter have biological roots. Other wants, for example, specific kinds of food, clothing, and shelter, arise from the conventions and customs of society.

Over time, as new and improved products are introduced, economic wants tend to change and multiply. Only recently have people wanted wi-fi connections, tablet computers, or flying drones because those products did not exist a few decades ago. Also, the satisfaction of certain wants may trigger others: the acquisition of a Ford Focus or a Honda Civic has been known to whet the appetite for a Lexus or a Mercedes.

Services, as well as goods, satisfy our wants. Car repair work, the removal of an inflamed appendix, legal and accounting advice, and haircuts all satisfy human wants. Actually, we buy many goods, such as automobiles and washing machines, for the services they render. The differences between goods and services are often smaller than they appear to be.

For most people, the desires for goods and services cannot be fully satisfied. Bill Gates may have all that he wants for himself, but his massive charitable giving suggests that he keenly wants better health care for the world's poor. Our desires for a particular good or service can be satisfied; over a short period of time we can surely get enough toothpaste or pasta. And one appendectomy is plenty. But our broader desire for more goods and services and higher-quality goods and services seems to be another story.

Because we have only limited income (usually through our work) but seemingly insatiable wants, it is in our self-interest to economize: to pick and choose goods and services that maximize our satisfaction given the limitations we face.

## A Budget Line

We can clarify the economizing problem facing consumers by visualizing a **budget line** (or, more technically, a *budget constraint*). It is a schedule or curve that shows various combinations of two products a consumer can purchase with a specific money income. Although we assume two products, the analysis generalizes to the full range of products available to consumers.

To understand the idea of a budget line, suppose that you received an Amazon gift card as a birthday present. The $120 card is soon to expire. You go online to Amazon.com and confine your purchase decisions to two alternatives: movies and paperback books. Movies are $20 each and paperback books are $10 each. Your purchase options are shown in the table in Figure 1.1.

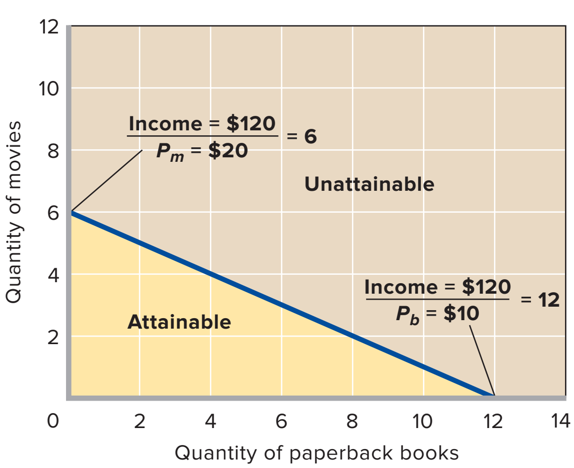
At one extreme, you might spend all of your $120 "income" on 6 movies at $20 each and have nothing left to spend on books. Or, by giving up 2 movies and thereby gaining $40, you can have 4 movies at $20 each and 4 books at $10 each. And so on to the other extreme, at which you could buy 12 books at $10 each, spending your entire gift card on books with nothing left to spend on movies.

The graph in Figure 1.1 shows the budget line. Note that the graph is not restricted to whole units of movies and books as is the table. Every point on the graph represents a possible combination of movies and books, including fractional quantities. The slope of the graphed budget line measures the ratio of the price of books ($P_b$) to the price of movies ($P_m$); more

**FIGURE 1.1 A consumer's budget line.** The budget line (or budget constraint) shows all the combinations of any two products that can be purchased, given the prices of the products and the consumer's money income.

**The Budget Line: Whole-Unit Combinations of Movies and Paperback Books Attainable with an Income of $120**

| Units of Movies (Price = $20) | Units of Books (Price = $10) | Total Expenditure |
|---|---|---|
| 6 | 0 | $120 (= $120 + $0) |
| 5 | 2 | $120 (= $100 + $20) |
| 4 | 4 | $120 (= $80 + $40) |
| 3 | 6 | $120 (= $60 + $60) |
| 2 | 8 | $120 (= $40 + $80) |
| 1 | 10 | $120 (= $20 + $100) |
| 0 | 12 | $120 (= $0 + $120) |



precisely, the slope is $P_b/P_m = \$-10/\$+20 = -\frac{1}{2}$. So you must forgo 1 movie (measured on the vertical axis) to buy 2 books (measured on the horizontal axis). This yields a slope of $-\frac{1}{2}$ or $-.5$.

The budget line illustrates several ideas.

**Attainable and Unattainable Combinations** All the combinations of movies and books on or inside the budget line are *attainable* from the $120 of money income. You can afford to buy, for example, 3 movies at $20 each and 6 books at $10 each. You also can obviously afford to buy 2 movies and 5 books, thereby using up only $90 of the $120 available on your gift card. But to achieve maximum utility you will want to spend the full $120. The budget line shows all combinations that cost exactly the full $120.

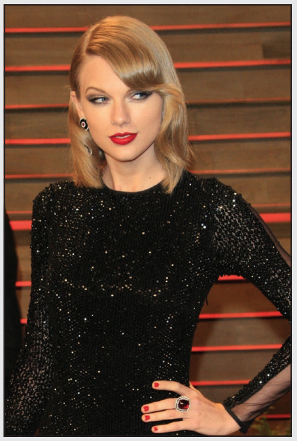
In contrast, all combinations beyond the budget line are *unattainable*. The $120 limit simply does not allow you to purchase, for example, 5 movies at $20 each and 5 books at $10 each. That $150 expenditure would clearly exceed the $120 limit. In Figure 1.1 the attainable combinations are on and within the budget line; the unattainable combinations are beyond the budget line.

**Trade-Offs and Opportunity Costs** The budget line in Figure 1.1 illustrates the idea of trade-offs arising from limited income. To obtain more movies, you have to give up some books. For example, to obtain the first movie, you trade off 2 books. So the opportunity cost of the first movie is 2 books. To obtain the second movie the opportunity cost is also 2 books. The straight-line budget constraint, with its constant slope, indicates constant opportunity cost. That is, the opportunity cost of 1 extra movie remains the same (= 2 books) as more movies are purchased. And, in reverse, the opportunity cost of 1 extra book does not change ( $= \frac{1}{2}$ movie) as more books are bought.

**Choice** Limited income forces people to choose what to buy and what to forgo to fulfill wants. You will select the combination of movies and paperback books that you think is "best." That is, you will evaluate your marginal benefits and marginal costs (here, product price) to make choices that maximize your satisfaction. Other people, with the same $120 gift card, would undoubtedly make different choices.

**Income Changes** The location of the budget line varies with money income. An increase in money income shifts the budget line to the right; a decrease in money income shifts it to the left. To verify this, recalculate the table in Figure 1.1, assuming the card value (income) is (a) $240 and (b) $60, and plot the new budget lines in the graph. No wonder people like to have more income: That shifts their budget lines outward and enables them to buy more goods and services. But even with more income, people will still face spending trade-offs, choices, and opportunity costs.

## CONSIDER THIS . . .



Source: © Helga Esteb/Shutterstock.com

### Did Zuckerberg, Seacrest, and Swift Make Bad Choices?

Opportunity costs come into play in decisions well beyond simple buying decisions. Consider the different choices people make with respect to college. The average salaries earned by college graduates are nearly twice as high as those earned by persons with just high school diplomas. For most capable students, "Go to college, stay in college, and earn a degree" is very sound advice.

Yet Facebook founder Mark Zuckerberg and media personality Ryan Seacrest both dropped out of college, while pop singer Taylor Swift never even bothered to start classes. What were they thinking? Unlike most students, Zuckerberg faced enormous opportunity costs for staying in college. He had a vision for his company, and dropping out helped to ensure Facebook's success. Similarly, Seacrest landed a professional DJ job at his local radio station when he was in high school before moving to Hollywood and eventually becoming America's top radio and TV personality. Finishing his college degree might have interrupted the string of successes that made his career possible. And Swift knew that staying on top in the world of pop takes unceasing work. So after her first album became a massive hit for her at age 16, it made sense for her to skip college in order to relentlessly pursue continuing success.

So Zuckerberg, Seacrest, and Swift understood opportunity costs and made their choices accordingly. The size of opportunity costs matters greatly in making individual decisions.

## QUICK REVIEW 1.2

- ✓ Because wants exceed incomes, individuals face an economizing problem; they must decide what to buy and what to forgo.
- ✓ A budget line (budget constraint) shows the various combinations of two goods that a consumer can purchase with a specific money income.
- ✓ Straight-line budget constraints imply constant opportunity costs for both goods.

# Society's Economizing Problem

**LO1.5** List the categories of scarce resources and delineate the nature of society's economizing problem.

Society must also make choices under conditions of scarcity. It, too, faces an economizing problem. Should it devote more of its limited resources to the criminal justice system (police, courts, and prisons) or to education (teachers, books, and schools)? If it decides to devote more resources to both, what other goods and services does it forgo? Health care? Energy development?

## Scarce Resources

Society has limited or scarce **economic resources,** meaning all natural, human, and manufactured resources that go into the production of goods and services. This includes the entire set of factory and farm buildings and all the equipment, tools, and machinery used to produce manufactured goods and agricultural products; all transportation and communication facilities; all types of labor; and land and mineral resources.

## Resource Categories

Economists classify economic resources into four general categories.

**Land** Land means much more to the economist than it does to most people. To the economist **land** includes all natural resources ("gifts of nature") used in the production process. These include forests, mineral and oil deposits, water resources, wind power, sunlight, and arable land.

**Labor** The resource **labor** consists of the physical actions and mental activities that people contribute to the production of goods and services. The work-related activities of a logger, retail clerk, machinist, teacher, professional football player, and nuclear physicist all fall under the general heading "labor."

**Capital** For economists, **capital** (or capital goods) includes all manufactured aids used in producing consumer goods and services. Included are all factory, storage, transportation, and distribution facilities, as well as tools and machinery. Economists use the term **investment** to describe spending that pays for the production and accumulation of capital goods.

Capital goods differ from consumer goods because consumer goods satisfy wants directly, whereas capital goods do so indirectly by aiding the production of consumer goods. For example, large commercial baking ovens (capital goods) help make loaves of bread (consumer goods). Note that the term "capital" as used by economists refers not to money but to tools, machinery, and other productive equipment. Because money produces nothing, economists do not include it as an economic resource. Money (or money capital or financial capital) is simply a means for purchasing goods and services, including capital goods.

**Entrepreneurial Ability** Finally, there is the special human resource, distinct from labor, called **entrepreneurial ability.** It is supplied by **entrepreneurs,** who perform several critically important economic functions:

- The entrepreneur takes the initiative in combining the resources of land, labor, and capital to produce a good or a service. Both a sparkplug and a catalyst, the entrepreneur is the driving force behind production and the agent who combines the other resources in what is hoped will be a successful business venture.
- The entrepreneur makes the strategic business decisions that set the course of an enterprise.
- The entrepreneur innovates. He or she commercializes new products, new production techniques, or even new forms of business organization.
- The entrepreneur bears risk. Innovation is risky, as nearly all new products and ideas are subject to the possibility of failure as well as success. Progress would cease without entrepreneurs who are willing to take on risk by devoting their time, effort, and ability—as well as their own money and the money of others—to commercializing new products and ideas that may enhance society's standard of living.

Because land, labor, capital, and entrepreneurial ability are combined to produce goods and services, they are called the **factors of production,** or simply "inputs."

# Production Possibilities Model

**LO1.6** Apply production possibilities analysis, increasing opportunity costs, and economic growth.

Society uses its scarce resources to produce goods and services. The alternatives and choices it faces can best be understood through a macroeconomic model of production possibilities. To keep things simple, let's initially assume:

- ***Full employment*** The economy is employing all of its available resources.
- ***Fixed resources*** The quantity and quality of the factors of production are fixed.
- ***Fixed technology*** The state of technology (the methods used to produce output) is constant.
- ***Two goods*** The economy is producing only two goods: pizzas and industrial robots. Pizzas symbolize **consumer goods,** products that satisfy our wants directly; industrial robots (for example, the kind used to weld automobile frames) symbolize **capital goods,** products that satisfy our wants indirectly by making possible more efficient production of consumer goods.