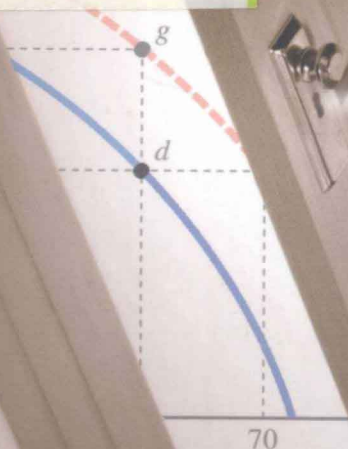


Includes active learning
CD-ROM

MICROECONOMICS PROBLEMS AND TOOLS



 Sullivan • Sheffrin

THIRD EDITION

Microeconomics

Principles and Tools

Third Edition

Arthur O'Sullivan

Lewis and Clark College

Steven M. Sheffrin

University of California, Davis

Prentice
Hall

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Microeconomics

Principles and Tools

Third Edition



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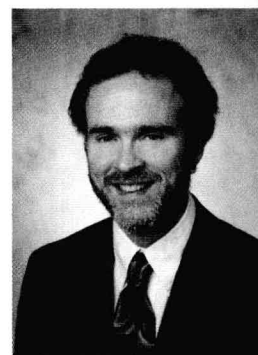
About the Authors

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Arthur O'Sullivan is a professor of economics at Lewis and Clark College in Portland, Oregon. After receiving his B.S. Degree in economics at the University of Oregon, he spent two years in the Peace Corps, working with city planners in the Philippines. He received his Ph.D. degree in economics from Princeton University in 1981 and has taught at the University of California, Davis and Oregon State University, winning several teaching awards at both schools. He recently accepted an endowed professorship at Lewis and Clark College, where he teaches microeconomics and urban economics. He is the author of the best-selling textbook, *Urban Economics*, currently in its fifth edition.

Professor O'Sullivan's research explores economic issues concerning urban land use, environmental protection, and public policy. His articles appear in many economics journals, including *Journal of Urban Economics*, *Journal of Environmental Economics and Management*, *National Tax Journal*, *Journal of Public Economics*, and *Journal of Law and Economics*.

Professor O'Sullivan lives with his family in Lake Oswego, Oregon. He enjoys outdoor activities, including tennis, rafting, and hiking. Indoors, he plays chess, foosball, and ping-pong with his two kids, and is lucky to win one of five games.



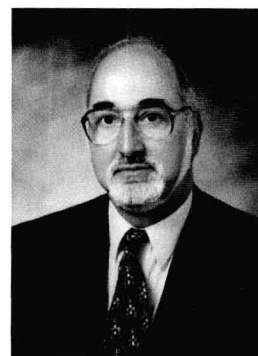
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Steven M. Sheffrin is dean of the division of social sciences and professor of economics at the University of California, Davis. He has been a visiting professor at Princeton University, Oxford University, and the London School of Economics, and served as a financial economist with the Office of Tax Analysis of the United States Department of Treasury. He has been on the faculty at Davis since 1976 and served as the chairman of the department of economics. He received his B.A. from Wesleyan University and his Ph.D. in economics from the Massachusetts Institute of Technology.

Professor Sheffrin is the author of eight other books and monographs and over 100 articles in the fields of macroeconomics, public finance, and international economics. His most recent books include *Rational Expectations* (Second Edition) and *Property Taxes and Tax Revolts: The Legacy of Proposition 13* (with Arthur O'Sullivan and Terri Sexton), both from Cambridge University Press.

Professor Sheffrin has taught macroeconomics at all levels, from large lectures of principles (classes of 400) to graduate classes for doctoral students. He is the recipient of the Thomas Mayer Distinguished Teaching Award in economics.

He lives with his wife Anjali (also an economist) and his two children in Davis, California. In addition to a passion for current affairs and travel, he plays a tough game of tennis.





Preface

Our Story

When we set out to write an economics text, we were driven by the vision of the sleeping student. A few years ago, one of the authors was in the middle of a fascinating lecture on monopoly pricing when he heard snoring. It wasn't the first time a student had fallen asleep in one of his classes, but this was the loudest snoring he had ever heard—it sounded like a sputtering chain saw. The instructor turned to Bill, who was sitting next to the sleeping student and asked, "Could you wake him up?" Bill looked at the sleeping student and then gazed theatrically around the room at the other students. He finally looked back at the instructor and said, "Well professor, I think you should wake him up. After all, you put him to sleep."

That experience changed the way we taught economics. It highlighted for us a basic truth—for many students, economics isn't exactly exciting. We took this as a challenge—to get first-time economics students to see the *relevance* of economics to their *lives*, their *careers*, and their *futures*.

In order to get students to see the relevance of economics we knew that we had to *engage* them. With the first and second editions of *Microeconomics: Principles and Tools*, we helped professors to do that by emphasizing an active learning approach. We engaged students by teaching them how to do something—economic analysis. We kept the book **brief, lively, and to the point**, and used the **five key principles** of economics as an organizing theme. The result was that the first and second editions were a success in classrooms across the country, and we strove in this edition to do even better.

Key Changes

We knew that our text's brevity and student accessibility were key strengths and we worked to enhance and preserve them in the third edition. We also found that professors and students truly appreciated our concerted effort to use economic principles to explain current and topical events. For the third edition, we made a systematic attempt to refine this feature of the book. We made a special effort to enhance our chapter opening stories, Economic Detective exercises, and Closer Look boxes. The result is a text that applies economic reasoning to the most current economic controversies and debates.

We also added new text material on developing policy issues with fresh applications of basic concepts. For example, in the microeconomics area we added a new section on electricity deregulation, focusing on the deregulation plans and experience in California, Pennsylvania, and New York. We also provide a progress report on welfare reform. Among the fresh applications are Ecohotels in Central American rain forests,





video piracy in China, wind energy, phone service in small villages in Pakistan, satellite radio, genetic testing by insurance companies, and special immigration for high-technology workers.

The September 11, 2001 terrorist attack impacted the economy in many different ways. In this edition, we have updated our discussion of the recent performance of the U.S. economy. We also discuss the implications of the terrorist attack and its aftermath on the markets for different modes of travel. In terms of policy issues, we explore the issues of airport security, patent policy for drugs designed to deal with bioterrorism, and the rationale for the government's bailout of airlines.

In addition to these changes, we undertook a thorough review of our test bank to ensure accuracy and to provide a more focused range of questions for instructors' use. A totally new test bank was added to the supplement package to give instructors even greater flexibility in creating quizzes and exams. We incorporated the *Active Learning* aspect of the text into the questions in the supplement package—focusing new questions on asking students to create graphs, rather than just interpreting them. The Active Learning CD-ROM also was enhanced in this fashion through the addition of a Graphing Tool and Tutorial. In addition, we added videos to the CD-ROM so that students could see the economic experiments referred to in the text in action.

Teaching Philosophy

We began with the idea that an introductory economics course should be taught as if it is the last economics class a student will ever take. Because this is *true* for most students, we have just one opportunity to teach them how to use economics. The best way to teach economics is to focus on a few key concepts and ideas and apply them repeatedly in different circumstances.

We start the book with the five key principles of economics and then apply them throughout the book. This approach provides students with the big picture—the framework of economic reasoning. We make the key concepts unforgettable by using them repeatedly, illustrating them with intriguing examples, and giving students many opportunities to practice what they've learned.

Our book is designed to be accessible to students. We have kept the writing lean, the examples lively and topical, and the visuals exciting.



Principles and Tools

In keeping with the themes of relevance and student accessibility, we have once again organized our text around the **five key principles** of economics. Throughout the text, every point of theory is tied back to the five key principles and is indicated by the key symbol (see margin).

- 1. The Principle of Opportunity Cost.** The opportunity cost of something is what you sacrifice to get it.
- 2. The Marginal Principle.** Pick the level of an activity at which the marginal benefit equals the marginal cost.
- 3. The Principle of Diminishing Returns.** If we increase one input while holding the other inputs fixed, output will increase, but at a decreasing rate.
- 4. The Spillover Principle.** In some circumstances, decision-makers do not bear all the cost or experience all the benefits from their decision.
- 5. The Reality Principle.** What matters to people is the real value of money or income—its purchasing power—not the face value of money or income.

We use these principles to explain the logic underpinning the most important tools of economics. By using these five principles repeatedly, we reveal the logic of economic reasoning and demystify the tools of economics. Students see the big picture and also learn how to use the tools of economics properly.

“What I Do, I Understand”—Confucius

Our book is based on **Active Learning**, a teaching approach based on the idea that students learn best by doing. Our book engages students by letting them do activities as they read. We implement **Active Learning** with the following features:

- **Economics Detective** exercises provide a few clues and then ask the student to solve the economic mystery.
- **Using the Tools** questions at the end of each chapter give students opportunities to do their own economic analysis. Complete answers appear at the end of each chapter.
- **Economic Experiments** actively involve the student in role-playing as consumers, producers, and policymakers. All these activities are designed to be fun for students and easy for professors, who decide when and how to use them.
- **Test Your Understanding** questions help students determine whether they understand the preceding material before continuing. These are straightforward questions that ask students to review and synthesize what they have read. Complete answers appear at the end of each chapter.
- **Chapter-Opening Stories** open each chapter and motivate the chapter's subject matter.
- Each chapter starts with a list of **practical questions** that are answered in the chapter.
- **Lively Examples** are integrated throughout the text and help bring economic concepts to life. We have hundreds of fresh, new examples in this edition.
- **A Closer Look** boxes are featured throughout the text and provide brief, interesting examples of the tools and concepts discussed in the text.

The Mystery of the Three-Clock Tower



Back in the days before the inexpensive wristwatch, most people did not carry their own timepieces. Many towns built clock towers in the center of town so that their citizens could know the time. The towns paid for the clock towers with voluntary contributions from citizens. One town in the northeastern United States built a four-sided tower but put clock faces on only three sides of the tower. To most people, this seems bizarre. If you build a clock tower, why not put clock faces on all four sides?

The key to solving this puzzle is the fact that the town turns out that one of the



Using the **TOOLS**

This chapter introduced several new tools of economics, including four different elasticities and a formula that can be used to predict the change in price resulting from a change in supply or demand. Here are some opportunities to use these tools to do your own economic analysis.

APPLICATIONS

1. Projecting Transit Ridership

As a transit planner, you must predict how many people ride commuter trains and how much money is generated from train fares. According to a recent study,⁹ the short-run price elasticity of demand for commuter rail is 0.62 and the long-run elasticity is 1.59. The current ridership is 100,000 people per day. Suppose fares increase by 10%.

- Predict the changes in train ridership over a one-month period (short run) and a five-year period (long run).
- Over the one-month period, will total revenue increase or decrease? What will happen in the five-year period?

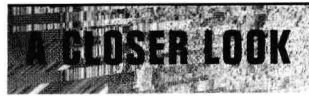
2. Bumper Crops

Your job is to predict the total revenue generated by the nation's corn crop. Last year's crop was 100 million bushels, and the price was \$4.00 per bushel. This year's weather was favorable throughout the country, and this year's crop will be 120 million bushels, or 20% larger than last year's. The price elasticity of demand for corn is -1.5. What is the effect on total revenue?

TEST Your Understanding

- Money solves the problem of double coincidence of wants that would regularly occur under a system of _____.
- Why is money only an imperfect store of value?
- What is the problem associated with the double coincidence of wants?
- Because we measure all prices in monetary units, money serves as a unit of account. True or false? Explain.
- Why are checks included in the definition of money?





JAPAN'S LOST DECADE

Japan's rapid post-World War II economic growth came to a halt around 1992, and by 1993–1994, the country was suffering from a recession. Inflation started to fall as the economy entered the recession. By 1995, inflation had nearly disappeared from the economy, and wholesale prices had fallen for several years.

Yet the reduction in inflation caused problems for the economy. Real estate prices fell nearly 50% starting in 1990. Large banks that were major investors in real estate lost vast sums of money, and became reluctant to make loans for other investments. Inflation rates were lower than business and household borrowers had anticipated. This raised the burden of debt for both businesses and households and made them more reluctant to purchase goods and services. With fewer loans from banks for new investment and reluctant households and firms, aggregate demand for goods and services was weak.

For a number of years, the United States urged Japan to increase public spending to end its recession. Eventually, Japan tried this approach, but by 2001 the economy was still in a slump and government

deficits were very large. Nominal interest rates were also very close to zero, making it difficult to use monetary policy to stimulate the economy. Some observers claimed that Japan was suffering from a Keynesian liquidity trap. Faced with these difficulties, restoring the health of the banking system became a major priority for economic policy.



While in

in Tokyo, Japan

Book Organization

A course in microeconomics starts with the first four chapters of the book, which provide a foundation for more detailed study of individual decision-making and markets. Part 2 provides a closer look at supply and demand, discussing elasticity, market efficiency, and consumer choice. In Part 3 we start with a discussion of production and costs, setting the stage for an examination of alternative market structures, including the extremes of perfect competition and monopoly, as well as the middle ground of monopolistic competition and oligopoly. There are two applied chapters, one on advertising and price discrimination, and a second on antitrust policy and deregulation. Part 4 discusses the circumstances under which markets break down, including imperfect information, public goods, and environmental degradation. The final part of the microeconomics section explores the labor market and three policy challenges: poverty, the aging of the population, and health care.

The Active Learning Package

Each component of the teaching and learning package has been carefully reevaluated to ensure that it is consistent with the changes made to this edition and with the needs of our audience.

Print Supplements

New Two-Volume Test Bank

Our team of instructors has striven to write, edit, review, and accuracy check the over 9,000 questions in both of the microeconomics and macroeconomics test banks.

Test Bank #1—The test bank for *Microeconomics: Principles and Tools* prepared by Mary Lesser of Iona College, offers approximately 3,000 multiple-choice, true/false, short answer, and graphing questions. The questions are referenced by topic and are presented

in sequential order. Each question is keyed by degree of difficulty as *easy*, *moderate*, or *difficult*. Easy questions involve straightforward recall of information in the text. Moderate questions require some analysis on the student's part. Difficult questions usually entail more complex analysis and may require the student to go one step further than the material presented in the text. Questions are also classified as *fact*, *definition*, *conceptual*, and *analytical*. A question labeled Fact tests student's knowledge of factual information presented in the text. A Definition question asks the student to define an economic concept. Conceptual questions test a student's understanding of a concept. Analytical questions require the student to apply an analytical procedure to answer the question.

The test bank includes tables and a series of questions asking students to solve for numerical values, such as profit or equilibrium output. It also contains numerous questions based on graphs. The test bank includes examples of all of the graphs that students have seen in the textbook. The questions ask the students to interpret the information that is presented in the graph.

There are also many questions in the test bank that are not referenced by a graph, but which require students to sketch out a graph on their own to be able to answer the question. The author worked to create many new questions focused on testing the graphing ability of student and their ability to *actively* answering each question.

Test Bank #2—This new addition to the supplement package, prepared by Linda S. Ghent of Eastern Illinois University, will serve as another important resource for instructors. These new test banks for *Microeconomics: Principles and Tools* contain over 1,500 multiple-choice, true/false, and short answer questions. Each question is also keyed by degree of difficulty (*easy*, *moderate*, or *difficult*), topic reference, and type of question (*definition*, *fact*, *conceptual*, or *analytical*).

Instructor's Manual

The instructor's manual to accompany *Microeconomics: Principles and Tools*, prepared by Leonie Stone of SUNY, Geneseo, follow the textbook's organization, incorporating policy problems in case studies, exercises, extra questions, and useful Internet links. The manual also provides detailed outlines (suitable for use as lecture notes) and solutions to all questions in the textbook. The instructor's manual is also designed to help the instructor incorporate applicable elements of the supplement package.

The instructor's manual contains by chapter: a summary, objectives, an outline, opening questions, examples for class discussion, teaching tips, extended examples, problems and discussion questions, Test Your Understanding questions, Internet exercises, and tips for classroom experiments.

Study Guide

The study guide to accompany *Microeconomics: Principles and Tools*, prepared by Janice Boucher Breuer of University of South Carolina, emphasize the practical application of theory. This study guide is a practicum designed to promote comprehension of economic principles and develop each student's ability to apply them to different problems.

Integrated throughout this study guide are Performance Enhancing Tips (PETs), which are designed to help students understand economics by applying the principles and promoting analytical thinking.

Two practice exams, featuring both multiple-choice and essay questions, are included at the end of each chapter. Both exams require students to apply one or more economic principles to arrive at each correct answer. Full solutions to the multiple-choice questions are included, not only listing each correct answer but also explaining in detail why one answer is correct and the others are not. Detailed answers to the essay questions are also provided.

This study guide contains by chapter: an overview of the corresponding chapter in the textbook, a checklist to provide a quick summary of material covered in the textbook and lectures, a list of key terms and their definitions, practice exams, and the detailed answer keys.

Using Experiments, Cases, and Activities in the Classroom

Prepared by Dirk Yandell of the University of San Diego, this manual contains experiments that illustrate topics such as positive versus normative economics and monopoly. The experiments include tables and charts, in addition to an overview, learning objectives, a list of preparations and materials needed, a detailed what-to-do section, an analysis of the results, and questions that require students to interpret and analyze the material.

Color Transparencies

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

E-Commerce Guide

Electronic commerce is playing an increasingly important role in how business is conducted. Prentice Hall's *Guide to E-Commerce and E-Businesses* provides readers with background on the history and direction of E-Commerce, the impact it has on the economy, and how to use it as a source of economic information and data. This guide can be shrink-wrapped free with a new copy of the third edition.

Technology Supplements



Active Learning CD-ROM

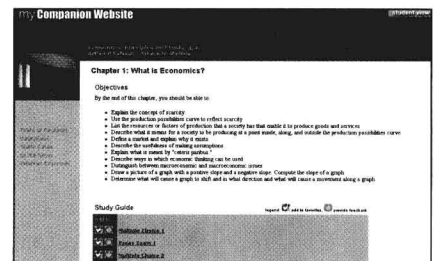
An interactive learning tool for students, the CD-ROM begins with detailed outlines that guide the student through all the key concepts of each chapter. Over 40 Active Graphs (referenced in the text) allow students to change the value of variables and see the effects in the movement of the graphs. New to this edition are seven videos of selected Economic Experiments from the textbook; a Graphing Tutorial and an electronic Graphing Tool. Graphing questions, concept checks, and end-of-chapter quizzes provide ample opportunity for self-assessment. The Active Learning CD-ROM is free with every new copy of the textbook.

TestGen-EQ Software

New for this edition, the print Test Banks are designed for use with the TestGen-EQ test-generating software. This computerized package allows instructors to custom design, save, and generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test banks; edit existing graphics and create new graphics; analyze test results; and organize a database of tests and student results. This new software allows for greater flexibility and ease of use. It provides many options for organizing and displaying tests, along with a search and sort feature. The software can prepare 25 versions of a single test.

Mastering Economics CD-ROM

This CD-ROM, developed by Active Learning Technologies, is an integrated series of 12 video-enhanced interactive exercises that follow the people and issues of CanGo., an e-business start-up. Students use economic concepts to solve key business deci-



Downloadable Supplements—From the Companion Web site, instructors can also download supplements and lecture aids. Instructors should contact their Prentice Hall sales representative to get the necessary username and password to access the faculty resources. The supplements include the following:

- **The PowerPoint Presentation**—This lecture presentation tool, prepared by Fernando Quijano and Yvonn Quijano, offers outlines and summaries of important text material, tables and graphs that build, and additional exercises. The PowerPoint Presentation is included in the instructor's resource CD-ROM and is downloadable from the O'Sullivan/Sheffrin Web site. Many important graphs "build" over a sequencing of slides so that students may see the step-by-step process involved in economic analysis. The package will allow for instructors to make full-color, professional-looking presentations while providing the ability for custom handouts to be provided to the students.
- **The Instructor's Manual**
- **Mastering Economics Instructor's Manual**

Prentice Hall Video Library

A comprehensive video ancillary is available to help bring the major concepts covered in the textbook to life. The Video Library offers a resource for feature and documentary-style videos related to the chapters in the text. The programs have extremely high production quality, present substantial content, and are hosted by well-versed, well-known anchors.

Video Guide

The integrated Video Guide provides a summary of each of the clips in the Video Library. For each video, the guide also supplies running time, teaching notes, and discussion questions, as well as useful tips on how to use the clip in class. Each video is keyed to the appropriate topic in the text.

Online Course Offerings

WebCT



Developed by educators, WebCT provides faculty with easy-to-use Internet tools to create online courses. Prentice Hall provides the content and enhanced features to help instructors create a complete online course. For more information, please visit our Web site located at <http://www.prenhall.com/webct>.

Blackboard

Easy to use, Blackboard's single template and tools make it easy to create, manage, and use online course materials. Instructors can create online courses using the Blackboard tools, which include design, communication, testing, and course management tools. For more information, please visit our Web site located at <http://www.prenhall.com/blackboard>.



CourseCompass

This customizable, interactive, online course-management tool powered by Blackboard provides the most intuitive teaching and learning environment available. Instructors can communicate with students, distribute course material, and access student progress

online. For further information, please visit our Web site located at <http://www.prenhall.com/coursecompass>.



CourseCompass with Ebook

This online course provides the features of CourseCompass along with an electronic version of the textbook. The addition of a digital textbook to CourseCompass gives instructors greater choice and flexibility as they design and build their online courses. With this feature, students can remain online and use an eBook for all of their online assignments.

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Mahamudu Bawumia, Baylor University
Charles Scott Benson Jr., Idaho State University
Jay Bhattacharya, Okaloosa–Walton Community College

Linda Ghent, East Illinois University
Hossein Gholami, Fayetteville Tech Community College

John Payne Bigelow, Louisiana State University
Scott Bloom, North Dakota State University
Janice Boucher Breuer, University of South Carolina

Susan Glanz, St. John's University
Randy R. Grant, Linfield College
Paul C. Harris, Jr., Camden County College
James E. Hartley, Mount Holyoke College
Rowland Harvey, DeVry Institute of Technology
John Henry, California State University, Sacramento

Kathleen K. Bromley, Monroe Community College

Robert Herman, Nassau Community College
Charles W. Haase, San Francisco State University
Charlotte Denise Hixson, Midlands Technical College

Cindy Cannon, North Harris College
Katie Canty, Cape Fear Community College
David L. Coberly, Southwest Texas State University

Jeff Holt, Tulsa Community College
Brad Hoppes, Southwest Missouri State University
Calvin Hoy, County College of Morris
Jonathan O. Ikoba, Scott Community College
John A. Jascot, Capital Community Technical College

John L. Conant, Indiana State University
Ana-Maria Conley, DeVry Institute of Technology
Ed Coulson, Penn State University
Lee Craig, North Carolina State University
Peggy Crane, San Diego State University
Albert B. Culver, California State University, Chico

Thomas Jeitschko, Texas A & M University
George Jensen, California State University, Los Angeles

Norman Cure, Macomb Community College
Irma de Alonso, Florida International University
Sel Dibooglu, Southern Illinois University
Martine Duchatelet, Barry University

Taghi T. Kermani, Youngstown State University
Rose Kilburn, Modesto Junior College