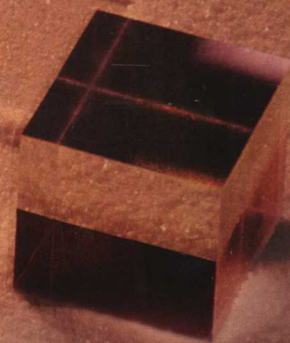
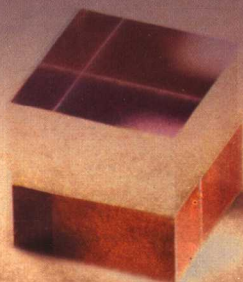


# MICROECONOMICS

Second Edition



JEFFREY M. PERLOFF

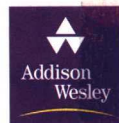
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# MICROECONOMICS

Second Edition

**Jeffrey M. Perloff**

*University of California, Berkeley*



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## *To my mother, Mimi Perloff*

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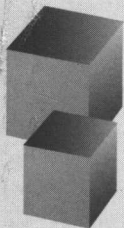
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# PREFACE

When I was a student, I fell in love with microeconomics because it cleared up many mysteries about the world and provided the means to answer new questions. I wrote this book to show students that economic theory has practical, problem-solving uses and is not an empty academic exercise.

This book shows how individuals, policy makers, and firms can use microeconomic tools to analyze and resolve problems. For example, students learn that

- individuals can draw on microeconomic theories when deciding about issues such as whether to invest and whether to sign a contract that pegs prices to the government's measure of inflation;
- policy makers (and voters) can employ microeconomics to predict the impact of taxes, regulations, and other measures before they are enacted;
- lawyers and judges use microeconomics in antitrust, discrimination, and contract cases;
- firms apply microeconomic principles to produce at least cost and maximize profit, select strategies, decide whether to buy from a market or to produce internally, and write contracts to provide optimal incentives for employees.

My experience in teaching microeconomics for the departments of economics at MIT, the University of Pennsylvania, and the University of California, Berkeley; the Department of Agricultural and Resource Economics at Berkeley; and the Wharton Business School has convinced me that students prefer this emphasis on real-world issues.

## FEATURES

This book differs from other microeconomics texts in three main ways. First, it integrates real-world “widget-free” examples throughout the exposition, in addition to offering extended applications. Second, it places greater emphasis than other texts on modern theories—such as industrial organization theories, game theory, transaction cost theory, information theory, and contract theory—that are useful in analyzing actual markets. Third, it employs a step-by-step approach to demonstrate how to use microeconomic theory to solve problems and analyze policy issues.

### **Widget-Free Economics**

To convince students that economics is practical and useful, not just a textbook exercise, this text presents theories using real-world examples rather than made-up analyses of widgets, those nonexistent products beloved by earlier generations of

textbook writers. These real economic “stories” are integrated into the formal presentation of many economic theories, discussed in featured Applications, and analyzed in what-if policy discussions.

**Integrated Real-World Examples.** The book uses real-world examples throughout the narrative to illustrate many basic theories of microeconomics. Students learn the basic model of supply and demand using estimated supply-and-demand curves for Canadian processed pork. They analyze consumer choice employing typical consumers’ estimated indifference curves between beer and wine and mill workers’ indifference curves between income and leisure. They learn about production and cost functions using evidence from a Norwegian printing firm. Students see monopoly theory applied to a patented pharmaceutical, Tagamet. They use oligopoly theories to analyze the rivalry between United Airlines and American Airlines on the Chicago–Los Angeles route and between Coke and Pepsi in the cola industry.

**Applications.** The text also includes many featured Applications to illustrate the versatility of microeconomic theory. One such Application derives an isoquant for semiconductors using actual data. Other Applications look at measures of the pleasure consumers get from television, and the amount by which recipients value Christmas presents relative to the cost to gift givers. Applications analyze the impact of government subsidies on the rivalry between Boeing and Airbus and the effects of the coverage of the O. J. Simpson trial on television advertising. One Application investigates whether buying flight insurance makes sense.

**What-If Policy Analysis.** In addition, the book uses economic models to probe the likely outcomes of changes in public policies. Students learn how to conduct what-if analyses of policies such as taxes, subsidies, barriers to entry, price floors and ceilings, quotas and tariffs, zoning, laws limiting diversification, pollution controls, licensing laws, and laws governing pensions. The text analyzes the effects of taxes on virtually every type of market.

The book also reveals the limits of economic theory for policy analysis. For example, to illustrate why attention to actual institutions is important, the text uses three different models to show how the effects of minimum wages vary across types of markets and institutions. Similarly, the text illustrates that a minimum wage law that is harmful in a competitive market may be desirable in certain noncompetitive markets.

## Modern Theories

The first half of the book (Chapters 1–10) examines competitive markets and shows that competition has very desirable properties. The second half (Chapters 11–20) concentrates on imperfectly competitive markets, where firms have market power, firms and consumers are uncertain about the future and have limited information, and there are externalities and public goods.

The book goes beyond basic microeconomic theory to look at theories and applications from many important contemporary fields of economics. Extensive coverage

of problems from resource economics, labor economics, international trade, public finance, and industrial organization is featured throughout.

This book differs from other microeconomics texts by using game theory throughout the second half rather than isolating the topic in a single chapter. Game theory and decision trees are used to study oligopoly quantity and price setting, strategic trade policy, strategic behavior in multiperiod games (such as collusion and preventing entry), strategic advertising, investing when there's uncertainty about the future, and pollution (the Coase Theorem). Unlike most texts, this book covers pure and mixed strategies and analyzes both normal-form and extensive-form games.

The last two chapters draw from modern contract theory to analyze adverse selection and moral hazard extensively, instead of (as other texts do) mentioning these topics only in passing, if at all. The text covers lemons markets, signaling, preventing shirking, and the revelation of information (including through contract choice).

### **Step-by-Step Problem Solving**

Many professors report that their biggest challenge in teaching microeconomics is helping students learn to solve new problems. This book is based on the belief that the best way to teach this important skill is to demonstrate problem solving repeatedly and then to give students exercises to do on their own. Each chapter (except Chapter 1) provides several Solved Problems showing students how to answer qualitative and quantitative problems using a step-by-step approach. Rather than empty arithmetic exercises demanding no more of students than to employ algebra or a memorized mathematical formula, the Solved Problems focus on important economic issues such as analyzing government policies and determining firms' optimal strategies.

One Solved Problem uses game theory to examine the competition between Netscape and Microsoft in the Internet browser market. Another shows how a monopolistically competitive airline equilibrium would change if fixed costs (such as fees for landing slots) rise. Others examine why firms charge different prices at factory stores than elsewhere, and when markets for lemons exist, among many other topics.

The Solved Problems illustrate how to approach the two sets of formal end-of-chapter problems. The first set of problems poses questions that students can solve using graphs or verbal arguments; the second set requires the use of math. The answers to selected end-of-chapter problems appear at the end of the book, and the solutions to the remaining problems may be found in the Instructor's Manual and at [www.awlonline.com/perloff](http://www.awlonline.com/perloff).

## **CHANGES IN THE SECOND EDITION**

This Second Edition is substantially updated and reorganized based on the very helpful suggestions of faculty and students who used the First Edition. In addition, I have made numerous small changes throughout the book in response to their insightful comments.

Because adopters of the First Edition said that one of the main reasons that they chose the book was its up-to-date examples, I have added 21 new Applications. Most of these are based on 1998–2000 newspaper and journal articles, as well as other sources. These Applications cover taxes on the Internet, the end of the monopoly in obtaining Internet addresses, the living wage, the latest methods used by Coke to price discriminate, and baseball ticket-pricing strategies, among others. Also, I have integrated several new, longer examples in the text. For example, I analyze why Sony has set a different price in Japan than in the United States for its robot dog, Aibo, and study the effect of taxes in the American market for roses. In addition, I have revised and updated 29 other Applications and added new problems (many based on recent events) at the end of chapters. To make room for this new material, I moved some of the older Applications to the book's companion Web site at [www.awlonline.com/perloff](http://www.awlonline.com/perloff), where they are easily accessible.

I also reorganized the book slightly, in response to feedback from several adopters of the First Edition who recommended that the former Chapter 13 (Pricing) be moved up to follow immediately after Chapter 11 (Monopoly). So the new sequence is Monopoly (Chapter 11), then Pricing (Chapter 12), and then Oligopoly and Monopolistic Competition (Chapter 13). Further, in this edition, Chapter 13 examines *all* the standard oligopoly models, including Bertrand, which I formerly covered in the chapter on pricing.

## ALTERNATIVE ORGANIZATIONS

Because instructors differ as to the order in which they cover material, this text has been designed for maximum flexibility. The most common approach to teaching microeconomics is to follow the sequence of the chapters in the first half of this book: supply and demand (Chapters 2 and 3), consumer theory (Chapters 4 and 5), the theory of the firm (Chapters 6 and 7), and the competitive model (Chapters 8 and 9). Many instructors then cover monopoly (Chapter 11), price discrimination (Chapter 12), oligopoly (Chapter 13), input markets (Chapter 15), uncertainty (Chapter 17), and externalities (Chapter 18).

A common variant is to present uncertainty (Sections 17.1 through 17.3) immediately after consumer theory. Many instructors like to take up welfare issues between discussions of the competitive model and noncompetitive models, as Chapter 10, on general equilibrium and economic welfare, does. Alternatively, that chapter may be covered at the end of the course. Faculty can assign material on factor markets earlier (Section 15.1 could follow the chapters on competition, and the remaining sections could follow Chapter 11). The material in Chapters 14–20 can be presented in a variety of orders, though Chapter 20 should follow Chapter 19 if both are covered, and Section 17.4 should follow Chapter 16.

Many business school courses skip consumer theory (and possibly some aspects of supply and demand, such as Chapter 3) to allow more time for consideration of the topics covered in the second half of this book. Business school faculty may want to place particular emphasis on strategies (Chapter 14), vertical integration (Section 15.4), capital markets (Chapter 16), and modern contract theory (Chapters 19 and 20).



Technically demanding sections are marked with a star (★). Subsequent sections and chapters can be understood even if these sections are skipped.

## SUPPLEMENTS TO ACCOMPANY MICROECONOMICS

Excellent supplements for this textbook are available for students and faculty. These supplements have been updated for the Second Edition. The **Study Guide**, by Charles F. Mason of the University of Wyoming and Robert Whaples of Wake Forest University, provides students with a quick guide to Key Concepts and Formulas, as well as additional Applications, and it walks them through the solution of many problems. Students can then work through a large number of Practice Problems on their own and check their answers against those in the Guide. At the end of each Study Guide chapter is a set of Exercises suitable for homework assignments. Also available to students is the **Student Resource Kit** by Gautam Sethi of the University of California, Berkeley. It features a review of the main text concepts, some sample Solved Problems, and handy flash cards to aid in the review of key terms and ideas. And at [www.awlonline.com/perloff](http://www.awlonline.com/perloff), students will find the text figures in downloadable form, self-assessment chapter quizzes, a sample midterm and final exam, and additional Applications and Solved Problems.

The **Instructor's Manual**, by Peter von Allmen of Moravian College, has many useful and creative teaching ideas. It also offers additional Applications, as well as extra problems and answers, and it provides solutions for the end-of-chapter text problems for which answers are not given at the end of this book. The **Test Bank**, by Hayley Chouinard of the University of California, Berkeley, and Peter Zaleski of Villanova University, has been substantially revised. It features many different types of problems of varying levels of complexity, suitable for homework assignments and exams. A computerized testing program for Windows users, **TestGen-EQ**, provides the same questions as the print Test Bank in a versatile electronic format.

Additionally for instructors, all the text figures are available both as full-color **PowerPoint Presentation** slides and as separately bound black-and-white **Transparency Masters**. The perforated and three-hole-punched book containing the masters also includes convenient **Student Graph Worksheets** reproducing all the text figures; these may be photocopied and distributed to students for class note taking.

Finally, a set of original **Microeconomics Experiments** for instructors who opt to use active classroom learning to help their students grasp key principles is available at [www.awlonline.com/perloff](http://www.awlonline.com/perloff).

## ACKNOWLEDGMENTS

My greatest debt is to my students and to the two best development editors in the business, Jane Tufts and Sylvia Mallory. My students at MIT, the University of Pennsylvania, and the University of California, Berkeley, patiently dealt with my various approaches to teaching them microeconomics and made useful (and generally

polite) suggestions. I received constructive student and faculty comments on early versions of this book when it was used by faculty members at Berkeley and by Jerome Culp at the Duke University Law School.

Jane Tufts reviewed drafts of this book for content and presentation. By showing me how to present the material as clearly, orderly, and thoroughly as possible, she greatly strengthened this text. Sylvia Mallory worked valiantly to improve my writing style and helped to shape and improve every aspect of the book's contents and appearance. In addition, Jane and Sylvia collected the views and advice of many reviewers from around the world.

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J. M. P.

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**PART FOUR PERFECT COMPETITION**

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