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Economics Classics
经济学经典教材·核心课系列

中级微观经济学

Microeconomics

(英文版·第六版)
(Sixth Edition)

杰弗里·M·佩罗夫 (Jeffrey M. Perloff) 著

中国人民大学出版社



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· 北京 ·

出版说明

入世十年,我国已完全融入到经济全球化的浪潮中。党的十六大确立了“引进来,走出去”的发展战略,使得“国际化”复合型人才的需求不断增加。这就对我国一般本科院校多年来所采取的单一语言(母语)教学提出了严峻挑战,经济类专业双语教学改革迫在眉睫。

为配合高校经济类专业双语教学改革,中国人民大学出版社携手培生、麦格劳-希尔、圣智等众多国际知名出版公司,倾情打造了该套“经济类双语系列教材”,本套教材包括:经济管理类专业开设的核心课程、经济学专业开设的主干课程以及财政金融专业和国际贸易专业的主要课程。所选教材均为国外最优秀的本科层次经济类教材。

我们在组织、引进和出版该系列教材的过程中,严把质量关。聘请国内著名经济学家、学者以及一线授课教师审核国外原版教材,广泛听取意见,努力做到把国外真正高水平的适合国内实际教学需求的优秀教材引进来,供国内广大师生参考、研究和学习。

本系列教材主要有以下特点:

第一,教材体系设计完整。本系列教材全部为国外知名出版公司的优秀教材,涵盖了经济类专业的所有主要课程。

第二,保持英文原版教材特色。本系列教材依据国内实际教学需要以及广泛的适应性,部分对原版教材进行了全文影印,部分在保持原版教材体系结构和内容特色的基础上进行了适当删减。

第三,内容紧扣学科前沿。本系列教材在原著选择上紧扣国外教学前沿,基本上都是国外最流行教材的最新版本。

第四,篇幅合理、价格适中。本系列教材一方面在内容和篇幅上很好地适应了国内双语教学的实际需要,另一方面,低定价策略又避免了国外原版图书高额的学习费用。

第五,提供强大的教学支持。依托国外知名出版公司的资源,本系列教材为教师提供丰富的配套教辅资源,如教师手册、PPT课堂演示文稿、试题库等,并配有内容丰富的网络资源,使教学更为便利。

本系列教材既适合高等院校经济类专业的本科教学使用,也适合从事经济类工作和研究的广大从业者阅读和学习。我们在选书、改编过程中虽然全面听取了专家、学者和教师的意见,努力做到满足广大读者的需求,但由于各教材的作者所处的政治、经济和文化背景不同,书中内容仍可能有不妥之处,我们真诚希望广大读者提出宝贵意见和建议,以便我们在以后的版本中不断改进和完善。

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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 minimum 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.

This edition is substantially revised. Each chapter has new and updated examples, and all but the first chapter have new or revised theoretical material.

Features

This book differs from other microeconomics texts in three main ways:

- The text integrates real-world “widget-free” examples throughout the exposition, in addition to offering extended applications.
- 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.
- 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, 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 examples based on actual data

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 and U.S. sweetheart roses. They analyze consumer choice employing typical consumers' estimated indifference curves between beer and wine or between downloaded music and live concerts. 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 Applications that illustrate the versatility of microeconomic theory. Applications derive an isoquant for semiconductors using actual data, show how auction houses that provide more information achieve higher prices than sellers on eBay, and analyze the debate on drilling in the Arctic National Wildlife Refuge.

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, barriers to entry, price floors and ceilings, quotas and tariffs, zoning, pollution controls, and licensing laws.

Modern Theories

The first half of the book examines competitive markets and shows that competition has very desirable properties. The second half concentrates on imperfectly competitive markets, firms with market power, uncertainty and firms and consumers with limited information, externalities, and public goods.

The book goes beyond basic microeconomic theory to look at theories and applications from many important contemporary fields of economics such as behavioral economics, resource economics, transaction cost analysis, labor economics, international trade, public finance, and industrial organization.

This book differs from other microeconomics texts by using game theory in several chapters to examine oligopoly quantity and price setting, strategic trade policy, strategic behavior in multiperiod games, investing when there's uncertainty about the future, pollution (the Coase Theorem), and other topics. 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. The text covers lemons markets, signaling, preventing shirking, and the revelation of information.

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 after Chapter 1 provides many Solved Problems showing students how to answer qualitative and quantitative problems using a step-by-step approach. The Solved Problems focus on important economic issues such as analyzing government policies and determining firms' optimal strategies.

The Solved Problems illustrate how to approach the two sets of formal end-of-chapter problems. The first set of questions can be solved using graphs or verbal arguments; the second set of problems 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.

What's New in the Sixth Edition

The Sixth Edition is substantially updated and modified based on the extremely helpful suggestions of faculty and students who used the first five editions. Three major changes run throughout the book:

- Each chapter starts and ends with a new feature, a Challenge, which combines an Application with a Solved Problem.
- This edition has nearly 50% more Solved Problems than the previous edition.
- The vast majority of examples and Applications throughout the book are updated or new.

In addition, most chapters have new or revised sections.

Challenges

Starting with Chapter 2, each chapter begins with a Challenge that presents information about an important, current real-world issue and concludes with a series of questions about that material. The issues covered include the effects from introducing genetically modified foods, rationing water versus raising its price during droughts, whether higher salaries for star athletes raise ticket prices, whether it pays to go to college, whether free trade is desirable in a world with pollution, and whether health insurance creates efficiency problems. At the end of the chapter, a Challenge Solution answers these questions using methods presented in that chapter. (To make room for this new feature, I dropped an old feature, the Cross-Chapter Analysis, though much of the material from that feature remains in the book.)

Solved Problems and Exercises

Because many users requested more Solved Problems, I increased the number of Solved Problems in this edition to 96 from 65 in the previous edition. About 40% of these Solved Problems are tied to real-world events. Many of these are associated with an adjacent Application or examples in the text. Examples of a paired Application and Solved Problem include Apple's iPod pricing and "smuggling" Canadian pharmaceuticals into the United States.

Starting with Chapter 2, at the end of each chapter there are a large number of additional exercises, divided into verbal or graphical Questions and mathematical Problems. This edition has 705 exercises, 35 more than in the previous edition, and an average of 37 per chapter. Of these, over a third are based on recent real-life events and issues drawn from newspapers and other sources.

In this edition, every exercise is referenced within the chapters. These references in the margins indicate to the student which material is particularly relevant to solving the exercise. Moreover, every Solved Problem has at least one associated Question or Problem.

Applications

The sixth edition has 126 Applications, 5 more than in the previous edition. Of these, 48% are new and 35% are updated, so that 83% are new or updated. The vast majority of the Applications cover events in 2009 and 2010, a few deal with historical events, and most of the rest examine timeless material.

To make room for the new Applications, some older Applications from the Fifth Edition were moved to MyEconLab. Also several new ones have been added to MyEconLab. With these additions, MyEconLab has 220 Applications.

New and Revised Material

Virtually every chapter has updated examples and statistics throughout the chapter. In addition, many theoretical sections throughout the book were significantly revised:

- Chapter 2 has a revised discussion of how markets adjust to equilibrium.
- Chapter 3 has a new section on demand elasticities and revenue and a rewritten discussion of elasticities.
- Chapter 4 contains a revised section on utility and indifference curves and a new three-dimensional utility-indifference curve figure. The discussion of preferences now uses formal preference notation. The analysis of the slope of the budget line is more extensive.
- Chapter 5 uses a new empirical model to illustrate consumer choice between music tracks and live music. The basic figures are revised to make substitution and income effects clearer. The section on deriving demand curves is rewritten with new material on price-consumption curves.
- Chapter 6 has new and revised material on the structure and nature of firms, relative productivity, and organizational change (with more examples from history) and on relative productivity. It includes a new section on the marginal rate of substitution of the Cobb-Douglas production function. A new appendix, 6B, on the slope of an isoquant was added at the end of the book, and Appendix 6C on the Cobb-Douglas production function was rewritten.
- Chapter 7's section on measuring costs is completely rewritten, particularly the subsection on sunk costs, which is substantially expanded. The section on learning by doing is revised. A number of new Applications were added to MyEconLab, including one on learning by drilling in oil fields.
- Chapter 8 has a significantly revised section on perfect competition. Also revised are the sections on profit and entry and exit. The material on firms earning zero profit in the long-run equilibrium shifts from Chapter 8 to Chapter 9.
- Chapter 9 adds new material on allocative efficiency.
- Chapter 11 is reorganized and revised. Sections that are particularly revised include those on market power, government actions that reduce market power, and monopoly decisions over time and behavioral economics.
- In Chapter 12, the bundling section is completely revised and includes new material on mixed bundling. The two-part tariff analysis is revised. The discussion of multimarket price discrimination is revised and includes a new real-world example concerning international sales of the DVD *Mama Mia!* MyEconLab has a new Application on how Hewlett Packard prices printer cartridges.
- Chapter 14's discussion of dominance and iterative dominance is substantially revised and several other sections are reorganized. The normal-form game tables have been revised to facilitate understanding.
- Chapter 15 is shorter, with much of the material, particularly on vertical integration and monopsony price discrimination, moved to MyEconLab to save space.
- Chapter 18 has a revised section on reducing free riding.
- Chapter 20 has a revised discussion of performance termination contracts.

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 (Chapters 13 and 14), 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 game and theory strategies (Chapter 14), 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.



MyEconLab

MyEconLab's powerful assessment and tutorial system works hand-in-hand with the Sixth Edition of *Microeconomics*. **MyEconLab** includes comprehensive homework, quiz, test, and tutorial options, where instructors can manage all assessment needs in one program.

MyEconLab includes:

- Versions of select end-of-chapter Questions and Problems are available for student practice or instructor assignment. These Problems include algorithmic, draw-graph, and numerical exercises.
- Solved Problem exercises show students how to address economic questions using an interactive step-by-step approach. These exercises are available for practice or instructor assignment.
- Test Item File questions are available for assignment as homework.
- The Custom Exercise Builder allows instructors the flexibility of creating their own problems for assignment.
- The powerful Gradebook records each student's performance and time spent on the Tests and Study Plan and generates reports by student or chapter.
- Animated Figures. Key figures from the textbook are presented in step-by-step animations with audio explanations of the action.
- Video Solutions. James Dearden of Lehigh University wrote over 60 end-of-chapter exercises, which feature step-by-step video solutions in **MyEconLab**. Starting with Chapter 2, each chapter has at least two of Professor Dearden's exercises, and some chapters have as many as ten. The majority of the exercises are based on real-world events, many taken from newspapers, and most are multipart exercises. Professor Dearden walks you through the answer for each exercise using slides. The video solutions are available in the Textbook Resources section of **MyEconLab**.
- Visit www.myeconlab.com for more information on and an online demonstration of instructor and student features.

The enhanced **MyEconLab** problems for Microeconomics were created by Charles L. Baum II at Middle Tennessee State University and Bert G. Wheeler at Cedarville University. For more information about **MyEconLab**, or to request an Instructor Access Code, visit www.myeconlab.com.

Supplements to Accompany Microeconomics

A full range of additional supplementary materials to support teaching and learning accompanies this book.

- The Study Guide, by Charles F. Mason of the University of Wyoming and Léonie Stone of the State University of New York at Geneseo, provides students with Chapter Summary, 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.
- The Online Instructor's Manual, revised by Jennifer Steele of Washington State University, has many useful and creative teaching ideas. It also offers additional Applications, as well as extra problems and answers, and it provides solutions for all the end-of-chapter text problems, checked for accuracy by Patricia J. Cameron-Lloyd of the University of California, Berkeley.
- The Online Test Item File, revised and accuracy-checked by Fei Han and Patricia J. Cameron-Lloyd of the University of California, Berkeley, features problems of varying levels of complexity, suitable for homework assignments and exams. Many of these multiple choice questions draw on current events.
- The Computerized Test Bank reproduces the Test Item File material in the TestGen software that is available for Windows and Macintosh. With TestGen, instructors can easily edit existing questions, add questions, generate tests, and print the tests in a variety of formats.
- The Online PowerPoint Presentation with Art, Figures, and Lecture Notes was written by Tibor Besedeš of Georgia Institute of Technology and reviewed for accuracy by Jennifer Steele of Washington State University. This resource contains text figures and tables, as well as lecture notes and click-animated graphs. These layered slides allow instructors to walk through examples from the text during in-class presentations.

These teaching resources are available www.pearsonglobaleditions.com/perloff, and on the catalog page for *Microeconomics*.

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Introduction

1

I've often wondered what goes into a hot dog. Now I know and I wish I didn't.
—William Zinsser

If each of us could get all the food, clothing, and toys we want without working, no one would study economics. Unfortunately, most of the good things in life are scarce—we can't all have as much as we want. Thus scarcity is the mother of economics.

Microeconomics is the study of how individuals and firms make themselves as well off as possible in a world of scarcity and the consequences of those individual decisions for markets and the entire economy. In studying microeconomics, we examine how individual consumers and firms make decisions and how the interaction of many individual decisions affects markets.

Microeconomics is often called *price theory* to emphasize the important role that prices play. Microeconomics explains how the actions of all buyers and sellers determine prices and how prices influence the decisions and actions of individual buyers and sellers.

Microeconomics
the study of how individuals and firms make themselves as well off as possible in a world of scarcity and the consequences of those individual decisions for markets and the entire economy

1. **Microeconomics: The Allocation of Scarce Resources.** Microeconomics is the study of the allocation of scarce resources.
2. **Models.** Economists use models to make testable predictions.
3. **Uses of Microeconomic Models.** Individuals, governments, and firms use microeconomic models and predictions in decision making.

In this chapter, we examine three main topics

1.1 Microeconomics: The Allocation of Scarce Resources

Individuals and firms allocate their limited resources to make themselves as well off as possible. Consumers pick the mix of goods and services that makes them as happy as possible given their limited wealth. Firms decide which goods to produce, where to produce them, how much to produce to maximize their profits, and how to produce those levels of output at the lowest cost by using more or less of various inputs such as labor, capital, materials, and energy. The owners of a depletable natural resource such as oil decide when to use it. Government decision makers—to benefit consumers, firms, or government bureaucrats—decide which goods and services the government produces and whether to subsidize, tax, or regulate industries and consumers.

Trade-Offs

People make trade-offs because they can't have everything. A society faces three key trade-offs:

- **Which goods and services to produce.** If a society produces more cars, it must pro-

duce fewer of other goods and services, because there are only so many *resources*—workers, raw materials, capital, and energy—available to produce goods.

- **How to produce.** To produce a given level of output, a firm must use more of one input if it uses less of another input. Cracker and cookie manufacturers switch between palm oil and coconut oil, depending on which is less expensive.
- **Who gets the goods and services.** The more of society's goods and services you get, the less someone else gets.

Who Makes the Decisions

These three allocation decisions may be made explicitly by the government or may reflect the interaction of independent decisions by many individual consumers and firms. In the former Soviet Union, the government told manufacturers how many cars of each type to make and which inputs to use to make them. The government also decided which consumers would get a car.

In most other countries, how many cars of each type are produced and who gets them are determined by how much it costs to make cars of a particular quality in the least expensive way and how much consumers are willing to pay for them. More consumers would own a handmade Rolls-Royce and fewer would buy a mass-produced Ford Taurus if a Rolls were not 21 times more expensive than a Taurus.

APPLICATION

Flu Vaccine Shortage

In 2004, the U.S. government expected a record 100 million flu vaccine doses to be available, but one vaccine maker, Chiron, could not ship 46 million doses because of contamination.¹ As a consequence, the government expected a shortage at the traditional price.

In response, government and public health officials urged young, healthy people to forgo getting shots until the sick, the elderly, and other high-risk populations, such as health care providers and pregnant women, were inoculated. Public spirit failed to dissuade enough healthy people. Perversely, the high-priority adult population was the group most likely to show self-control and not ask for a shot (de Janvry et al., 2008). Consequently, federal, state, and local governments restricted access to the shots to high-risk populations. Again, in 2009 and 2010, when faced with shortages of the H1N1 “swine flu” vaccine, most government agencies restricted access to the highest risk groups.

In most non-health-related goods markets, prices adjust to prevent shortages. In contrast, during the flu shot shortage, governments didn't increase the price to reduce demand, but relied on exhortation and formal allocation schemes.

Prices Determine Allocations

An Economist's Theory of Reincarnation: If you're good, you come back on a higher level. Cats come back as dogs, dogs come back as horses, and people—if they've been real good like George Washington—come back as money.

Prices link the decisions about *which goods and services to produce, how to produce them, and who gets them*. Prices influence the decisions of individual consumers and firms, and the interactions of these decisions by consumers, firms, and the government determine price.

¹Sources for applications appear at the end of the book.