清华经济学系列英文版教材

Microeconomics

Fifth Edition

微观经济学

（第5版）

Robert S. Pindyck
Daniel L. Rubinfeld ／著

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出 版 说 明

为了适应经济全球化的发展趋势，满足国内广大读者了解、学习和借鉴国外先进的管理经验和掌握经济理论的前沿动态，清华大学出版社与国外著名出版公司合作影印出版一系列英文版经济管理方面的图书。我们所选择的图书，基本上是已再版多次、在国外深受欢迎、并被广泛采用的优秀教材，绝大部分是该领域中较具权威性的经典之作。在选书的过程中，我们得到了很多专家、学者的支持、帮助和鼓励，在此表示谢意！清华经济学系列英文版教材由清华大学经济管理学院和北京大学经济学院杨炘、李明志、钟笑寒、姚志勇等老师审阅，在此一并致谢！

由于原作者所处国家的政治、经济和文化背景等与我国不同，对书中所持观点，敬请广大读者在阅读过程中注意加以分析和鉴别。

我们期望这套影印书的出版对我国经济科学的发展能有所帮助，对我国经济管理专业的教学能有所促进。

欢迎广大读者给我们提出宝贵的意见和建议；同时也欢迎有关的专业人士向我们推荐您所接触到的国外优秀图书。

清华大学出版社第三编辑室
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总序

世纪之交，中国与世界的发展呈现最显著的两大趋势——以网络为代表的信息技术的突飞猛进，以及经济全球化的激烈挑战。无论是无远弗界的因特网，还是日益密切的政治、经济、文化等方面的国际合作，都标示着21世纪的中国是一个更加开放的中国，也面临着一个更加开放的世界。

教育，特别是管理教育总是扮演着学习与合作的先行者的角色。改革开放以来，尤其是20世纪90年代之后，为了探寻中国国情与国际上一切优秀的管理教育思想、方法和手段的完美结合，为了更好地培养高层次的“面向国际市场竞争、具备国际经营头脑”的管理者，我国的教育机构与美国、欧洲、澳洲以及亚洲一些国家和地区的大量的著名管理学院和顶尖跨国企业建立了长期密切的合作关系。以清华大学经济管理学院为例，2000年，学院顾问委员会成立，并于10月举行了第一次会议，2001年4月又举行了第二次会议。这个顾问委员会包括了世界上最大的一些跨国公司和中国几家顶尖企业的最高领导人，其阵容之大、层次之高，超过了世界上任何一所商学院。在这样高层次、多样化、重实效的管理教育国际合作中，教师和学生与国外的交流机会大幅度增加，越来越深刻地融入到全球性的教育、文化和思想观念的时代变革中，我们的管理教育工作者和经济管理学习者，更加真切地体验到这个世界正发生着深刻的变化，也更主动地探寻和把握着世界经济发展和跨国企业运作的脉搏。

我国管理教育的发展，闭关锁国、闭门造车是绝对不行的，必须同国际接轨，按照国际一流的水准来要求自己。正如朱镕基总理在清华大学经济管理学院成立十周年时所发的贺信中指出的那样：“建设有中国特色的社会主义，需要一大批掌握市场经济的一般规律，熟悉其运行规则，而又了解中国企业实情的经济管理人才。清华大学经济管理学院就要敢于借鉴、引进世界上一切优秀的经济管理学院的教学内容、方法和手段，结合中国的国情，办成世界第一流的经管学院。”作为达到世界一流的一个重要基础，朱镕基总理多次建议清华的MBA教育要加强英语教学。我体会，这不仅因为英语是当今世界交往中重要的语言工具，是连接中国与世界的重要桥梁和媒介，而且更是中国经济管理人才参与国际竞争，加强国际合作，实现中国企业的国际战略的基石。推动和实行英文教学并不是目的，真正的目的在于培养学生——这些未来的企业家——能够具备同国际竞争对手、合作伙伴沟通和对抗的能力。按照这一要求，清华大学经济管理学院正在不断推动英语教学的步伐，使得英语不仅是一门需要学习的核心

课程，而且渗透到各门专业课程的学习当中。

课堂讲授之外，课前课后的大量英文原版著作、案例的阅读对于提高学生的英文水平也是非常关键的。这不仅是积累相当的专业词汇的重要手段，而且是对学习者思维方式的有效训练。

我们知道，就阅读而言，学习和借鉴国外先进的管理经验和掌握经济理论动态，或是阅读翻译作品，或是阅读原著。前者属于间接阅读，后者属于直接阅读。直接阅读取决于读者的外文阅读能力，有较高外语水平的读者当然喜欢直接阅读原著，这样不仅可以避免因译者的疏忽或水平所限而造成的纰漏，同时也可以尽享原作者思想的真实表达。而对于那些有一定外语基础，但又不能完全独立阅读国外原著的读者来说，外文的阅读能力是需要加强培养和训练的，尤其是专业外语的阅读能力更是如此。如果一个人永远不接触专业外版图书，他在获得国外学术信息方面就永远会比别人差半年甚至一年的时间，他就会在无形中减弱自己的竞争能力。因此，我们认为，有一定外语基础的读者，都应该尝试一下阅读外文原版，只要努力并坚持，就一定能过了这道关，到那时就能体验到直接阅读的妙处了。

在掌握大量术语的同时，我们更看重读者在阅读英文原版著作时对于西方管理者或研究者的思维方式的学习和体会。我认为，原汁原味的世界级大师富有特色的表达方式背后，反映了思维习惯，反映了思想精髓，反映了文化特征，也反映了战略偏好。知己知彼，对于跨文化的管理思想、方法的学习，一定要熟悉这些思想、方法所孕育、成长的文化土壤，这样，有朝一日才能真正“具备国际战略头脑”。

以往，普通读者购买和阅读英文原版还有一个书价的障碍。一本外版书少则几十美元，多则上百美元，一般读者只能望书兴叹。随着全球经济合作步伐的加快，目前在出版行业有了一种新的合作出版的方式，即外文影印版，其价格几乎与国内同类图书持平。这样一来，读者可以不必再为书价发愁。清华大学出版社这些年在这方面一直以独特的优势领先于同行。早在1997年，清华大学出版社敢为人先，在国内最早推出一批优秀商学英文版教材，规模宏大，在企业界和管理教育界引起不小的轰动，更使国内莘莘学子受益良多。

为了配合清华大学经济管理学院推动英文授课的急需，也为了向全国更多的MBA试点院校和更多的经济管理学院的教师和学生提供学习上的支持，清华大学出版社再次隆重推出与世界著名出版集团合作的英文原版影印商学教科书，也使广大工商界人士、经济管理类学生享用到最新最好质优价廉的国际教材。

祝愿我国的管理教育事业在社会各界的大力支持和关心下不断发展、日进日新；祝愿我国的经济建设在不断涌现的大批高层次的面向国际市场竞争、具备国际经营头脑的管理者的勉力经营下早日中兴。

赵纯均 教授

清华大学经济管理学院院长

全国工商管理硕士教育指导委员会副主任

To our daughters,

Maya, Talia, and Shira
Sarah and Rachel

ABOUT THE AUTHORS

Professor Robert S. Pindyck

Professor Daniel L. Rubinfeld

Robert S. Pindyck is the Mitsubishi Bank Professor in Economics and Finance in the Sloan School of Management at M.I.T. He is also a Research Associate of the National Bureau of Economic Research, and a Fellow of the Econometric Society, and has been a Visiting Professor of Economics at Tel-Aviv University. He received his Ph.D. in Economics from M.I.T. in 1971. Professor Pindyck's research and writing have covered a variety of topics in microeconomics and industrial organization, including the effects of uncertainty on firm behavior and market structure, determinants of market power, the behavior of natural resource, commodity, and financial markets, and criteria for investment decisions. He has been a consultant to a number of public and private organizations, and is currently co-editor of *The Review of Economics and Statistics.* He is also the co-author with Daniel Rubinfeld of *Econometric Models and Economic Forecasts,* a best-selling textbook that may or may not be turned into a feature film.

Daniel L. Rubinfeld is Robert L. Bridges Professor of Law and Professor of Economics at the University of California, Berkeley. He taught previously at Suffolk University, Wellesley College, and the University of Michigan, and served from June 1997 through December 1998 as Deputy Assistant Attorney General for Antitrust in the U.S. Department of Justice. He has been a Fellow at the National Bureau of Economic Research, the Center for Advanced Study in the Behavioral Sciences, and the John Simon Guggenheim Foundation. He received a BA in mathematics from Princeton University in 1967 and a Ph.D. in Economics from M.I.T. in 1972. Professor Rubinfeld is the author of a variety of articles relating to competition policy, law and economics, law and statistics, and public economics. He is currently co-editor of the *International Review of Law and Economics,* and has served as Associate Dean and Chair of the Jurisprudence and Social Policy Program at Berkeley from 1987–1990 and 1999–2000. He is the co-author (with Robert Pindyck) of *Econometric Models and Economic Forecasts,* and expects to play the lead in the film version of the book.

PREFACE

For students who care about how the world works, microeconomics is one of the most relevant and interesting subjects they can study. A good grasp of microeconomics is vital for managerial decision making, for designing and understanding public policy, and more generally for appreciating how a modern economy functions.

We wrote this book, *Microeconomics,* because we believe that students need to be exposed to the new topics that have come to play a central role in microeconomics over the years—topics such as game theory and competitive strategy, the roles of uncertainty and information, and the analysis of pricing by firms with market power. We also felt that students need to be shown how microeconomics can help us to understand what goes on in the world and how it can be used as a practical tool for decision making. Microeconomics is an exciting and dynamic subject, but students need to be given an appreciation of its relevance and usefulness. They want and need a good understanding of how microeconomics can actually be used outside the classroom.

To respond to these needs, the fifth edition of *Microeconomics* provides a treatment of microeconomic theory that stresses its relevance and application to both managerial and public-policy decision making. This applied emphasis is accomplished by including 107 extended examples that cover such topics as the analysis of demand, cost, and market efficiency; the design of pricing strategies; investment and production decisions; and public policy analysis. Because of the importance that we attach to these examples, they are included in the flow of the text. (A complete list of the examples is included in the table of contents on pages ix–xxii.)

The coverage in the fifth edition of *Microeconomics* incorporates the dramatic changes that have occurred in the field in recent years. There has been growing interest in game theory and the strategic interactions of firms (Chapters 12 and 13), in the role and implications of uncertainty and asymmetric information (Chapters 5 and 17), in the pricing strategies of firms with market power (Chapters 10 and 11), and in the design of policies to deal efficiently with externalities such as environmental pollution (Chapter 18). These topics, which have only recently received attention in most books, are covered extensively here.

That the coverage in *Microeconomics* is comprehensive and up-to-date does not mean that it is "advanced" or difficult. We have worked hard to make the exposition clear and accessible as well as lively and engaging. We believe that the study of microeconomics should be enjoyable and stimulating. We hope that our book reflects this belief. Except for appendices and footnotes, *Microeconomics* uses no calculus. As a result, it should be suitable for students with a broad range of backgrounds. (Those sections that are more demanding are marked with an asterisk and can be easily omitted.)

Changes in the Fifth Edition

Each new edition of this book has built on the success of prior editions by adding a number of new topics, by adding and updating examples, and by improving the exposition of existing materials. The fifth edition continues in that tradition. We have included a new section on auctions in Chapters 13 (Game Theory and Competitive Strategy), and we have expanded our coverage of supply-demand analysis in Chapter 2, as well as our coverage of cost in Chapters 7 and 8. In addition, we have added several new examples, and we have replaced a number of older examples with new ones.

In keeping with the preferences of many of our faithful users, we have not changed the chapter organization of the book. However, we have significantly revised portions of the first eight chapters, explaining some basic concepts in a more detailed and systematic way. Our primary goal in revising the book has been, as always, to make the text as clear, accessible, and engaging as possible.

The fifth edition of *Microeconomics*, like the fourth, is printed in four colors. As before, we have tried to use color to make the figures as clear and pedagogically effective as possible. In addition, we have added several new diagrams, and we have modified a number of existing diagrams to improve their accuracy and clarity.

This edition uses a larger text layout than earlier editions. This gave us the opportunity to add some new pedagogical devices. Key terms now appear in boldface and are defined in the margins of the text. Often, important ideas in microeconomics build on concepts that have been developed earlier in the text. In recognition of this fact, we have added a number of Concept Links in the margins, which explicitly direct the student to prior relevant materials.

Alternative Course Designs

The fifth edition of *Microeconomics* offers instructors substantial flexibility in course design. For a one-quarter or one-semester course stressing the basic core material, we would suggest using the following chapters and sections of chapters: 1, 2, 3, 4.1–4.4, 6, 7.1–7.4, 8, 9.1–9.3, 10, 11.1–11.3, 12, 14, 15.1–15.4, 18.1–18.2, and 18.5. A somewhat more ambitious course might also include parts of Chapters 5 and 16 and additional sections in Chapters 4, 7, and 9. To emphasize uncertainty and market failure, an instructor should also include substantial parts of Chapters 5 and 17.

Depending on one's interests and the goals of the course, other sections could be added or used to replace the materials listed above. A course emphasizing modern pricing theory and business strategy would include all of Chapters 11, 12, and 13 and the remaining sections of Chapter 15. A course in managerial economics might also include the appendixes to Chapters 4, 7, and 11 as well as the appendix on regression analysis at the end of the book. A course stressing welfare economics and public policy should include Chapter 16 and additional sections of Chapter 18.

Finally, we want to stress that those sections or subsections that are more demanding and/or peripheral to the core material have been marked with an asterisk. These sections can easily be omitted without detracting from the flow of the book.

Supplementary Materials

Ancillaries of an exceptionally high quality are available to instructors and students using the fifth edition of *Microeconomics.* The **Instructor's Manual,** prepared by Nora Underwood of the University of California, Davis, provides detailed solutions to all end-of-chapter Review Questions and Exercises. Each chapter also contains Teaching Tips to summarize key points and extra Review Questions with answers.

The **Test Bank,** prepared by John Crooker of Texas Tech University, contains over 2,000 multiple-choice and short-answer questions with solutions. It is designed for use with the Prentice Hall **Test Manager,** a computerized package that allows instructors to custom-design, save, and generate classroom tests.

A **PowerPoint Lecture Presentation,** created by Jeffrey Caldwell and Steven Smith, both of Rose State College, is available for the fifth edition and can be downloaded from the text Web site *(www.prenhall.com/pindyck).* Instructors can edit the detailed outlines and summaries to fit their own lecture presentations. A set of **Color Acetates** of the figures and selected tables from the text is available for instructors using the fifth edition of *Microeconomics.*

The **Study Guide,** prepared by Valerie Suslow of the University of Michigan and Jonathan Hamilton of the University of Florida, provides a wide variety of review materials and exercises for students. Each chapter contains a list of important concepts, chapter highlights, a concept review, problem sets, and a self-test quiz. Worked-out answers and solutions are provided for all exercises, problem sets, and self-test questions.

Prentice Hall's Learning on the Internet Partnership (myPHLIP)/Companion Web site (www.prenhall.com/pindyck) is a Web site with Internet exercises, activities, and resources related specifically to this text. New Internet resources are added every two weeks to provide both the student and the instructor with updated services. The site includes an **On-Line Study Guide,** prepared by Peter Zaleski of Villanova University, containing multiple-choice and essay questions. The On-Line Study Guide has a built-in grading feature that provides students with immediate feedback in the form of coaching comments.

For the instructor, the Web site offers such resources as the Syllabus Manager, answers to Current Events and Internet exercises, and a Faculty Lounge area with teaching archives and faculty chat rooms. From the Web site, instructors can also download supplements and lecture aids, including the Instructor's Manual and PowerPoint Lecture Presentation. Instructors should contact their Prentice Hall sales representative to get the necessary username and password to access the faculty resources on the site.

Prentice Hall provides faculty with Internet tools to help create on-line courses. It provides content and enhanced features to help instructors create full-length on-line courses or simply produce on-line supplementary materials to use in existing courses. Content is available on both WebCT and Blackboard platforms.

Acknowledgments

Because the fifth edition of *Microeconomics* has been the outgrowth of years of experience in the classroom, we owe a debt of gratitude to our students and to the colleagues with whom we often discuss microeconomics and its presentation. We have also had the help of capable research assistants. For the first four editions of the book, these included Walter Athier, Phillip Gibbs, Jamie Jue, Masaya Okoshi, Kathy O'Regan, Karen Randig, Subi Rangan, Deborah Senior, Ashesh Shah, and Wilson Tai. Kathy Hill helped with the art, while Assunta

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R.S.P.

D.L.R.

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