



MICROECONOMICS AND BEHAVIOR

ROBERT H. FRANK



MICROECONOMICS AND BEHAVIOR

FIFTH EDITION

Robert H. Frank
Cornell University



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MICROECONOMICS AND BEHAVIOR

For DANA

ABOUT THE AUTHOR



Robert H. Frank received his B.S. in mathematics from Georgia Tech in 1966, then taught math and science for two years as a Peace Corps Volunteer in rural Nepal. He received his M.A. in statistics from the University of California at Berkeley in 1971 and his Ph.D. in economics in 1972, also from U.C. Berkeley. He is currently the H. J. Lewis Professor of Economics at the Johnson Graduate School of Management at Cornell University, where he also teaches principles of microeconomics in the College of Arts and Sciences. During leaves of absence from Cornell, he has been chief economist for the Civil Aeronautics Board (1978–1980), a Fellow at the Center for Advanced Study in the Behavioral Sciences (1992–1993), and the Professor of American Civilization at l'École des Hautes Études en Sciences Sociales in Paris (2000–2001). He has published on a variety of subjects, including price and wage discrimination, public utility pricing, the measurement of unemployment spell lengths, and the distributional consequences of direct foreign investment. For the past several years, his research has focused on rivalry and cooperation in economic and social behavior. His books on these themes include *Choosing the Right Pond*, *Passions Within Reason*, and *Luxury Fever*. He and Philip Cook are co-authors of *The Winner-Take-All Society*, which received a Critic's Choice Award and appeared on both the *New York Times* Notable Books list and *Business Week* Ten Best list for 1995. Professor Frank is also the co-author, with Ben Bernanke, of *Principles of Economics*. His books have been translated into eight languages. He is past president of the Eastern Economic Association and has been awarded an Andrew W. Mellon Professorship (1987–1990), a Kenan Enterprise Award (1993), and a Merrill Scholars Program Outstanding Educator Citation (1991).

PREFACE

My goal in writing *Microeconomics and Behavior* was to produce an intellectually challenging textbook that would also be accessible and engaging to students. The more common approach in this market has been to emphasize one of these dimensions or the other. For example, some texts have done well by sacrificing rigor in the name of user-friendliness. But although such books sometimes keep students happy, they often fail to prepare them for upper-division courses in the major. Others texts have succeeded by sacrificing accessibility in the name of rigor, where rigor all too often means little more than mathematical density. These courses overwhelm many undergraduates, and even those few who become adept at solving well-posed mathematical optimization problems are often baffled by questions drawn from everyday contexts. I have always believed that a text could at once be rigorous *and* user-friendly. And to judge by the breadth of the adoption list, many of you apparently agree.

I wrote *Microeconomics and Behavior* in the conviction that the teaching of intuition and the teaching of technical tools are complements, not substitutes. Students who learn only technical tools rarely seem to develop any real affection for our discipline; and even more rarely do they acquire that distinctive mindset we call “thinking like an economist.” By contrast, students who develop economic intuition are stimulated to think more deeply about the technical tools they learn and to find more interesting ways to apply them. Most important, they usually end up *liking* economics.

Microeconomics and Behavior develops the core analytical tools with patience and attention to detail. At the same time, it embeds these tools in a uniquely diverse collection of examples and applications to illuminate the power and versatility of the economic way of thinking.

ECONOMIC NATURALISM

In more than 30 years of teaching, I have found no more effective device for developing intuition than to train students to become “Economic Naturalists.” Studying biology enables people to observe and marvel at many details of life that would otherwise have escaped notice. In much the same way, studying microeconomics can enable students to see the mundane details of ordinary existence in a sharp new light. Throughout the text, I try to develop intuition by means of examples and applications drawn from everyday experience. *Microeconomics and Behavior* teaches students to see each feature of the manmade landscape as the reflection of an implicit or explicit cost-benefit calculation.

To illustrate, an economic naturalist is someone who wonders why the business manager of the economics department was delighted when I began putting the lecture notes for my course on the university’s intranet server, whereas the very same move made the associate dean in the management school (where I also teach) upset. About a week into the term, I got an urgent letter from this dean telling me that henceforth I should instruct the copy center to make hard-copies of my lecture notes for distribution to students free of charge. No similar instruction came from the business manager of the economics department. When I asked for clarification, the management school’s dean told me that students had

been downloading my notes and printing them in the school's computer labs at a cost of 5 cents a page, which was far more than the 1.25 cents the school's copy center was charging at the time. Fair enough. But then why was the economics department's administrator not worried about the same problem? (When I asked whether he wanted me to distribute hardcopies of my notes, he replied "Don't you dare!")

Their different viewpoints, I soon discovered, had nothing to do with the very different cultures of the two units, but were instead a consequence of a small but important difference in economic incentives: In the management school, the same administrator pays for printing in both the computer labs and the copy center. The economics department administrator, however, pays only for printing done on the department copier. When economics students print my lecture notes off the web in the various campus computer laboratories in the Arts College, the bills go directly to the College. From the economics department's point of view, these copies were free.

Year in and year out, the most valuable assignments in my course are the two brief papers in which I ask students to report on their efforts to become Economic Naturalists. Their specific charge is to use microeconomic principles to answer a question prompted by a personal observation. In recent terms, students have grappled with questions like these: Why do the keypads of drive-up ATM machines have Braille dots? Why do top female models earn more than top male models? Why do brides spend so much money on wedding dresses, while grooms often rent cheap tuxedos (even though grooms could potentially wear their tuxedos on many other occasions and brides will never wear their dresses again)? Why are child safety seats required in cars but not in airplanes? Why do airlines charge their highest prices to passengers who buy at the last minute, while the practice is exactly the reverse for Broadway theaters? The beauty of this assignment is not only that most students enjoy writing these papers, but also that few manage to complete them without becoming lifelong Economic Naturalists.

FOCUS ON PROBLEM SOLVING

Most economists agree that a critical step in learning price theory is to solve problems. More than any other text currently available in the marketplace, *Microeconomics and Behavior* prepares students for its end-of-chapter problems by taking them through a sequence of carefully crafted examples and exercises within each chapter. Because most of these examples and exercises are drawn from familiar contexts, and because students engage more readily with the concrete than with the abstract, this approach has proven effective. In the absence of such groundwork, many students would reach the end-of-chapter problems with little or no idea how to proceed.

OPTIMAL TOPIC COVERAGE

A guiding principle in the evolution of *Microeconomics and Behavior* has been that topics should be emphasized in proportion both to their importance and to the difficulty that students have in mastering them. Because the basic rational choice model is the building-block for much of what comes later in the course, I have devoted considerably more attention to its development than competing texts

do. I have also allocated extra space for elasticity and its applications in demand theory and for the average-marginal distinction in production theory.

As an additional means for discovering which topics are most difficult to master, I have used research in behavioral economics that identifies systematic departures from the prescriptions of the rational choice model. For example, whereas the model says that rational persons will ignore sunk costs, many people are in fact strongly influenced by them. (Someone who receives an expensive, but painfully tight, pair of shoes as a gift is much less likely to wear them than is someone who spent \$300 out of his own pocket for those same shoes.) Especially in the chapters on consumer behavior, I call students' attention to situations in which they themselves are likely to make irrational choices. Because student resources are limited, it makes sense to focus on precisely those issues for which knowing price theory is most likely to be helpful.

It may seem natural to wonder whether discussing examples of irrational choices might confuse students who are struggling to master the details of the rational choice model. Ironically, however, my experience has been exactly to the contrary. Such examples actually underscore the normative message of the traditional theory. Students who are exposed to them invariably gain a deeper understanding of the basic theoretical principles at issue. Indeed, they often seem to take an almost conspiratorial pride in being able to see through the errors of judgment that many consumers make. For instructors who want to pursue how cognitive limitations affect consumer behavior in greater detail, there is an entire chapter devoted to this topic. When the first edition of *Microeconomics and Behavior* appeared in 1990, many in the economics profession were skeptical about the emerging field of behavioral economics. But as evidenced by U.C. Berkeley economist Matthew Rabin's receipt of the John Bates Clark Award in 2000 (the honor bestowed every two years by the American Economics Association on the most outstanding American economist under the age of 40), the behavioral approach is rapidly becoming part of the microeconomics mainstream.

A BROADER CONCEPTION OF SELF-INTEREST

Another of my goals has been to incorporate a broader conception of preferences into models of individual choice. Most texts mention at the outset that the rational choice model takes people's tastes as given. They may be altruists, sadists, or masochists; or they may be concerned solely with advancing their narrow material interests. But having said that, most texts then proceed to ignore all motives other than narrow self-interest. It is easy to see why, because economic research has scored its most impressive gains on the strength of this portrayal of human motivation. It tells us, for example, why car pools form in the wake of gasoline price increases; and why thermostats are generally set lower in apartments that have separately metered utilities.

And yet, as students are keenly aware, our *homo economicus* caricature is patently at odds with much of what we know about human behavior. People vote in presidential elections. They give anonymously to public television stations and private charities. They donate bone marrow to strangers with leukemia. They endure great trouble and expense to see justice done, even when it will not undo the original injury. At great risk to themselves, they pull people from burning buildings and jump into icy rivers to rescue people who are about to drown. Soldiers throw their bodies atop live grenades to save their comrades.

Seen through the lens of the self-interest theory emphasized in current microeconomics textbooks, such behavior is the human equivalent of planets traveling in square orbits. Indeed, many students are strongly alienated by our self-interest model, which they perceive as narrow and mean spirited.

Microeconomics and Behavior freely concedes the importance of the self-interest motive in many contexts. But it also devotes an entire chapter to the role of unselfish motives in social and economic transactions. Employing elementary game theory, this chapter identifies circumstances in which people who hold such motives have a competitive advantage over pure opportunists. It shows, for example, that people known to have cooperative predispositions can often solve prisoner's dilemmas and other commitment problems in a way that purely self-interested persons cannot.

ADDITIONAL PEDAGOGICAL FEATURES

Unlike most intermediate texts, *Microeconomics and Behavior* contains no boxed applications, which tend to distract students from the thread of argument being developed. Instead, applications and examples are integrated fully into the text. Many of these have the added advantage of being drawn from experiences to which students can personally relate.

The chapter introductions and summaries are another innovative feature of *Microeconomics and Behavior*. Most of the chapters begin with an anecdote that poses a problem or question that the material developed in the chapter will enable the student to answer. These introductions have proved especially helpful for the many students who find that getting started is often the hardest step. The chapter summaries in most current texts consist of brief annotated lists of the topics covered. The chapter summaries in *Microeconomics and Behavior*, by contrast, are written in a narrative form that carefully synthesizes the material covered in the chapters.

Each chapter concludes with a selection of problems that range in difficulty from routine to highly challenging. These problems have all been class-tested to assure their accuracy and effectiveness in helping students master the most important concepts in the chapters.

Answers to all in-text exercises appear at the end of the chapter in which they occur. Variations and extensions of these exercises are echoed in the end-of-chapter problems, enabling students to approach these problem sets with greater confidence. Detailed answers to all end-of-chapter problems are included in the instructor's manual.

CHANGES IN THE FIFTH EDITION

Many college textbooks are too long. A natural solution would seem to be to publish shorter ones. Yet a short book usually fails because too many potential adopters cannot find their favorite topics in it. Successful books are usually big to begin with, and invariably grow longer with each edition. New developments have to be covered, after all, and it's almost impossible to delete existing material that adopters have grown accustomed to using.

To that end, we transferred a significant amount of material from the third edition onto the *Microeconomics and Behavior* website. For reasons that research in behavioral economics should have led us to predict, that experiment proved

a dismal failure. We are creatures of habit. Having invested heavily to integrate their lecture notes with the material covered in the third edition, many users were distressed at having to instruct their students to download extensive material from the web. Although our intent in transferring content to the web was not to dilute the integrity of the published text at all, we got the message. In this fifth edition of *Microeconomics and Behavior*, the appendix material that appeared in the first three editions has been restored largely intact, as have several sections that had been deleted from the main text of the fourth edition.

Our primary focus in the fifth edition, however, was to employ extensive reviewer feedback in an effort to fine-tune both topic coverage and clarity of presentation. Chapter 12 on monopoly, for example, now contains additional material on network economies and the importance of fixed investment in the information sector. And Chapter 13 on imperfect competition now begins with an introduction on general principles of game theory before moving on to consider specific oligopoly models as special cases.

In the new edition I have also abandoned the practice in previous editions of labeling certain chapters “supplementary.” Thus Chapters 6 (The Economics of Information and Choice under Uncertainty), 7 (Explaining Tastes), 8 (Cognitive Limitations and Consumer Behavior), 15 (Capital), and 18 (Government), which had this designation in the fourth edition, no longer bear it. Deleting the supplementary designation will eliminate the potentially misleading signal that the material covered in those chapters is less important than the material covered elsewhere.

For users familiar with earlier editions, the most conspicuous change in the fifth edition will be its completely new look, a result of the first top-to-bottom design change since the first edition. One of the aims of the new design was to highlight and reinforce the lessons of the Economic Naturalist examples, a goal accomplished in two ways. First, these vignettes are now formally designated as numbered Economic Naturalist examples, in contrast to their appearance in earlier editions as undifferentiated elements in each chapter’s sequence of numerical examples. And second, many of the Economic Naturalist examples are now accompanied by simple line drawings in the margins, sketches that portray the situations described in the examples. For reasons that neuroscientists could best explain, such drawings seem to trigger rich cognitive associations. My own experience, for example, has been that if I ask students to recall as many items as they can from a list of examples I discussed in class several weeks earlier, the ones accompanied by these simple drawings are listed far more frequently than the others.

My conviction is that the single most important service we can render to our microeconomics students is to instill in them an inclination to see the world around them in economic terms. Learning economics is like learning to speak another language. Reading about grammar helps, but the only way to succeed at a deep level is to actually do a lot of talking. The Economic Naturalist approach is the most effective device I’ve discovered for getting students to talk economics. These examples empower them to tell economics stories. Once students realize that they can pose and answer interesting economics questions on their own, they’re hooked. A lifetime trajectory has begun in which their mastery of economic principles not only will not decay with each year following completion of the course but will actually grow stronger as they continue to hone their craft.

In addition to the extensive design changes, the entire text has gone through its most thorough round of line editing since the first edition. The overall result, in my view, is by far the strongest edition to date. It retains the essential character of the earlier editions that attracted such a loyal group of users. But it looks better and, in countless small ways, is better.

THE ANCILLARIES

The supplements package, which has been expanded and improved, now consists of the following materials:

Instructor's Manual and Test Bank: Each chapter contains a Chapter Summary, a Chapter Outline, Teaching Suggestions, a list of Stumbling Blocks for Students, Answers to Text Questions for Review, Problems, and Study Guide Homework Assignments. Problems, multiple-choice questions, and essay questions are also included.

Computerized Test Bank (Windows): The Brownstone Diploma software contains a test-generation program (Exam for Windows), a grade-book program, and an online testing program. It can create a wide array of paper tests, self-grading HTML tests (administered over a campus intranet or the Internet), and network-based tests (administered over a campus network in a computer lab). Network-based tests can be automatically graded and their results can be pulled directly into the grade-book program.

Overhead Transparencies: 200 acetates reproduce key figures in the text.

PowerPoints: These slides represent all the figures in the textbook.

Study Guide: For each chapter, the Guide provides these sections: Boiling Down (the chapter), Chapter Outline, Important Terms, A Case to Consider, Multiple-Choice Questions, Problems, and Homework Assignments.

Tutorial Software (Windows): Developed by Mark Reiman of Pacific Lutheran University, this Windows software contains 12 full-length tutorials, extensive graphical and numerical exercises, along with a hyperlink glossary and a bibliography.

Website: The Website contains a great many features for both students and instructors, including quizzes, PowerPoints, and Career Opportunities for the student and the complete IM and PowerPoints for the instructor (see <http://www.mhhe.com/economics/frank5>).

ACKNOWLEDGMENTS

I want to convey my sincere thanks and admiration to my editors at McGraw-Hill for their continued willingness to take steps that run counter to market trends. I'm sure that many other publishers would have turned down my request to spend significant sums on what some people might think are just silly pictures. After all, no other books in this segment use line illustrations in the way I proposed. But if Lucille Sutton and Tom Thompson did not initially share my view that these illustrations would be an essentially risk-free investment, they quickly came to view them as a risk well worth taking. And it would be difficult to imagine two people who would be a greater pleasure to work with.

I also want to thank the many reviewers who have been involved in the project, both in this edition and in earlier ones. Their insights and critiques have led to improvements too numerous to list. I hope they are as happy as I am with their influence on the final product.

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As usual, I welcome further comments and suggestions.

Robert H. Frank

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