

ANDREW SCHOTTER

MICROECONOMICS

A MODERN APPROACH



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ANDREW R. SCHOTTER

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MICROECONOMICS: A MODERN APPROACH

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To Geoffrey and Elizabeth

ABOUT THE AUTHOR

Andrew R. Schotter is Professor and Chairman, Department of Economics, Faculty of Arts and Sciences, New York University. From 1983 to 1988, he was co-director of the C. V. Starr Center for Applied Economics at New York University. Professor Schotter received his B.S. degree from Cornell University and his M.A. and Ph.D. degrees from New York University. His areas of special interest in teaching are microeconomic theory, game theory, and public expenditures. His areas of special interest in research are applications of game theory to economics, microeconomics, experimental economics, and theories of economic and social institutions.

These interests are reflected in the many articles that Professor Schotter has contributed to economics journals and in the books he has written and edited. In addition to *Microeconomics: A Modern Approach*, he is the author of *Free Market Economics: A Critical Appraisal* and *The Economic Theory of Social Institutions*. He has edited *Selected Economic Writings of Oskar Morgenstern* and (with Steven Brams and Gerhard Schwödiauer) *Applied Game Theory*.

Professor Schotter's wide-ranging professional activities have also included serving as general editor of *Studies in Game Theory and Mathematical Economics*, doing consulting work for businesses and financial institutions, giving testimony before the Joint Economic Committee of the United States Congress on the cost of the tort system, and serving as a visiting scholar at the University of Paris, the University of Venice, and the Institution for Advanced Studies in Vienna. In 1993, he was given the Kenan Enterprise Award for his contributions to the economic theory of free markets.

Professor Schotter is married to Anne Howland Schotter, a Professor of English Literature at Wagner College in New York. They have two children—Geoffrey and Elizabeth, who have lent their names to the two archetypes of economic agents in the model society their father has created to illustrate microeconomic theory in this book.

PREFACE

Why did I decide to write a text for the intermediate microeconomics course? Over the years I have become concerned about how we teach microeconomics to undergraduates, especially undergraduates who are taking intermediate and advanced courses. My greatest concern is that our traditional undergraduate courses are presenting economics as a dead science, one with no unsolved puzzles and no unanswered questions. This is odd, because graduate education in microeconomics is filled with such puzzles and questions, and we teach graduate students to evaluate and criticize theories rather than merely to accept them. Yet somehow we permit our undergraduates to gain the impression that previous generations of economists have solved all the puzzles and answered all the questions and that their task as students is simply to learn a set of established principles. As a result, most undergraduates look on their microeconomics text as something akin to the Bible—as a source of divine wisdom. The truth is, however, that economics is an amazingly dynamic science that periodically undergoes waves of change that sweep out old ideas and bring in new ones. Unfortunately, although there are some fine microeconomics books that do a good job of explaining economic principles, few discuss the exciting things that are happening on the frontiers of our science.

A FRESH APPROACH

This book attempts to deal with the concerns just outlined by taking a distinctively modern approach to undergraduate education in microeconomics. I see no reason why undergraduates should not be swept up in the excitement over such issues as finding a solution to the free-rider problem, dealing with economic problems from the perspective of game theory, using controlled laboratory experiments to test economic postulates, or dealing in a rigorous way with problems of moral hazard, adverse selection, and asymmetric information. Of course, I am not proposing that a microeconomics text should skimp on the presentation of the fundamentals such as supply-and-demand analysis and perfectly competitive markets. What I am saying is that a microeconomics text should be like a good meal. It should consist not only of staples such as meat and potatoes but also of some interesting side dishes. Otherwise, the meal will be rather dull and the diners may lose their appetites fairly quickly.

However, giving students a sense of the excitement of new approaches to solving economic problems is only part of the reason why we should make some basic changes in the intermediate microeconomics course. There is also a need to nurture a spirit of critical analysis in students. *The development of critical thinking skills should start in our undergraduate economics courses and not wait for graduate studies.*

Another problem that I have encountered in teaching intermediate microeconomics is that there seems to be no overriding principle that ties together the various chapters of the text. One finds a wide array of theories mixed together with many real-world examples, mathematical applications, and explanatory diagrams but no underlying theme or themes to unify this massive amount of material. I think that there is a better way to present intermediate microeconomics to students. This book offers a consistent unifying model that runs through every chapter. I have been able to use such an approach because I define microeconomics somewhat differently here than other authors do in their books. For me, microeconomics is a tool that helps us understand why societies have the various economic institutions that they do have. For example, I believe that microeconomics helps us to understand why the United States has insurance companies, regulated monopolies, and paper money. It is the role of microeconomics to explain how these institutions, among others, were created by the individual utility-maximizing actions of a myriad of social agents.

THE STRUCTURE OF THE BOOK

Chapter 1 introduces the unifying theme of the book: how economic institutions develop to solve problems that arise in a society. Our model begins to unfold in Chapter 2, when the students encounter a primitive society that lacks any institutions except the state and property rights. As the book progresses, this society becomes more and more institutionally complex. Its agents create institutions to handle the problems that inevitably accompany advances in the nature and level of its economic activities. For example, in Chapter 4, when the problem of exchange must be faced, competitive markets develop. In Chapter 14, when the problem of uncertainty emerges, insurance companies are created.

As the model unfolds, the students examine the fundamentals of microeconomic theory: consumers and their preferences, demand and behavior in markets, exchange, production and its technology, and cost and choice (Chapters 2 through 6). Next, the students learn about game theory and strategic business analysis (Chapter 7), the nature of the firm and its internal organization (Chapter 8), and the structure of markets—monopolistic, oligopolistic, and perfectly competitive markets (Chapters 9 through 13). Then, the students encounter uncertainty and the emergence of insurance (Chapter 14), general equilibrium and the origins of the free-market and interventionist ideologies (Chapter 15), informational market failures caused by problems of moral hazard and adverse selection (Chapter 16), externalities (Chapter 17), public goods and the role of government (Chapter 18), and input markets and the origins of class conflict (Chapter 19).

The net result of presenting the content of the course within the framework of a unified model is that the students can relate the theory they are learning to a society and its people. In effect, all the chapters of the book form one large-scale application of microeconomic theory. In my teaching experience, this approach has been very successful with students because it allows them to view microeconomics in more human terms than is usually the case.

One note of caution: For this approach to work properly, it is essential that students read Chapter 1. Otherwise, they will not understand the model as it develops in the remainder of the book.

HOW THIS BOOK DIFFERS FROM OTHERS

This book breaks with tradition in a number of different ways.

Cohesive Narrative

As I have already noted, this book tells one continuing story that ties all the chapters together. Rather than treating intermediate microeconomics as a series of unrelated topics, it presents the content of the course within the context of a society that starts out in a primitive state of nature and gradually develops the characteristics and institutions of a modern economy. While I have found that this approach has great pedagogical advantages, I am sure that some instructors will not be inclined to teach the subject in such a manner. To these people, I would say that it is quite possible to play down the narrative in class. You will find that you can continue to teach supply-and-demand analysis and all the usual topics without becoming deeply involved in the model presented in the text. Yet it will be there as a frame of reference for your students when they do their reading assignments.

Some Organizational Differences

The chapter sequence in this book differs from that in most, if not all, other texts for the intermediate microeconomics course. One of these organizational differences arises from my belief that perfect competition is best understood as the limit of a process of entry into monopolistic and oligopolistic industries. Perfect competition results when entry becomes unrestricted. Therefore, instead of presenting perfect competition before monopoly and oligopoly, I cover those market structures first and then show that perfect competition can be seen as their limiting case. Such an approach fits well in the model used in this book because it is likely that when production was first discovered in primitive societies, the earliest markets were monopolistic and oligopolistic rather than perfectly competitive. Probably, perfectly competitive markets emerged at a later stage of economic development.

A traditional sequence for teaching intermediate microeconomics is to cover the theory of the consumer first, cover the theory of the firm next, and then cover market structures beginning with perfectly competitive markets. This order is

abandoned here. Instead, after establishing the theory of the consumer and the theory of the producer, I present monopolies and oligopolies when I introduce the coverage of market structures. Then I discuss the entry prevention schemes of incumbents and the devices that potential entrants use to overcome such schemes. When these schemes fail, unlimited entry occurs and perfectly competitive markets develop. Any instructor who finds this approach too unorthodox can easily present the chapters on market structure in the conventional order.

An Emphasis on Game Theory and Strategic Analysis

The analytical tools used in this book also require some discussion. Although students do not need a knowledge of calculus, the text is rigorous and demanding. It is written in a simple, straightforward manner that should be comprehensible to a wide variety of students, but it does require that students be willing to think hard. One of the major analytical tools used here is game theory. Chapter 7 introduces students to the fundamentals of game theory and shows them how it can serve as a tool for strategic business analysis. Game theory is then used throughout the remaining chapters as a means of understanding the different strategies of the various parties to a situation. My experience has been that presenting economic and social problems to students in the form of games is a very effective way to help them grasp such problems in their entirety.

Of course, until recently, intermediate microeconomics books have given very limited coverage to game theory. Often, it was simply mentioned in passing or it was relegated to an appendix of the chapter on oligopoly. Today, with the increasing interest in game theory, a few books are giving it more coverage, but none makes extensive use of it as a tool for strategic analysis, as this book does.

Encouragement of Critical Thinking

To help students see economics as a dynamic science, I devote a considerable amount of space to criticisms of the theories presented. In some chapters, this is done through a device that I call “consulting reports.” These reports suggest possible solutions to problems that our model society faces, such as how to regulate natural monopolies. Usually, the solution provided by a consulting report reflects the views of a well-known economist. After each report, I examine the theory it propounds, raising criticisms that have probably occurred to the students and citing the arguments of other economists who support the theory or disagree with it.

In most cases, I intentionally leave some doubt as to which side of the controversy has won. I hope that this approach to presenting microeconomic theory will stimulate debate in the classroom and encourage students to develop a spirit of critical analysis. Rather than simply accepting the theories they encounter because these theories were devised by famous economists, it is important that students look at every economic plan with a critical attitude, analyze its strengths and weaknesses, come to their own conclusions, and then have the confidence to defend their conclusions even though they may differ from the opinions of “experts.”

Broad Coverage of Experimental Economics

This book is unique in the amount of coverage it gives to experimental economics. It is my belief that the future of microeconomics will be heavily connected with the use of experimental tools. These tools have already proven themselves quite valuable in shedding light on some difficult theoretical issues. Therefore, at many junctures in the book, I present the results of experiments that relate to issues that are being discussed. Sometimes these experimental results form the basis for a consulting report, and sometimes they are cited as part of the critical analysis of a theory that was first proposed in a consulting report. For example, I use the preference reversal experiments of Kahneman and Tversky to warn students that although the theory of expected utility seems logical and consistent, it may not prove to be a good predictor of real human behavior. The question of whether people (or experimental subjects) actually take a free ride when the opportunity is available to them is discussed in the chapter on public goods (Chapter 18).

Of course, I also subject experimental results to criticism. Students should view conclusions drawn from empirical data with a critical eye, just as they view theoretical ideas.

Some Nontraditional Chapters That Can Enrich the Course

There are several chapters in this book that are not normally found in texts for the intermediate microeconomics course. I think that these chapters enrich the course, but it is not necessary to teach them. For example, I devote an entire chapter to the internal organization of the firm (Chapter 8). In this chapter, I investigate the issues of how best to organize work within a firm and how best to compensate workers. Because these issues are currently of great concern in business, some instructors may want to cover them. Similarly, I have devoted a chapter to the topic of entry prevention (Chapter 12), in which students learn how monopolists and oligopolists defend their markets against potential entrants and how potential entrants try to overcome these defenses. For instructors and students who are especially interested in strategic business analysis, this can be a valuable chapter. Another unconventional chapter in this book is the one on natural monopoly and the economics of regulation (Chapter 10).

I strongly believe in the principle of free disposability. If the nontraditional chapters do not fit the objectives of your course or if there is little time available, eliminate them or cover them very briefly. I have written these chapters in such a way that they can be omitted without significantly damaging the logic of the book. The same is not true for the chapter on game theory. Because this chapter provides a foundation for the applications of game theory that appear in later chapters, I would urge you to give it at least limited coverage in your course.

I have relegated topics that involve fairly difficult quantitative material to the appendixes of some chapters. Instructors with students who are more advanced, have a better math background, or are willing to work harder may want to use these appendixes.

New Examples and Problems

Throughout this text, I have tried to use examples that differ from those appearing in other books. For instance, instead of the example of cars that are “lemons,” which is so often used to present the topic of asymmetric information and market failure, I have substituted the example of car mechanics who offer expert opinions to partially informed car owners. Similarly, to present the topic of adverse selection, I have used the example of tipping in restaurants. I have also attempted to make the end-of-chapter exercises and problems fresh and interesting.

One additional note about the exercises and problems: Although the use of calculus is not required in any of this material, some exercises and problems have been written so that students who are familiar with calculus can easily use it if it helps them.

SUPPLEMENTS

I know how important it is to provide strong teaching and learning supplements when offering a new approach to a traditional course. Therefore, the following items are available for use with my book.

Instructor's Manual

Sunando Sen of New York University has prepared the *Instructor's Manual* to assist you in using the text as effectively as possible. This manual has two parts: Part I, written by me, contains notes about the pedagogy of the book, suggestions about the teaching sequence, and two possible schedules for different teaching sequences. Part II, written by Sunando Sen, provides comments about the content and approach of each chapter, detailed solutions for all the exercises and problems in the text, and additional exercises and problems that you can use in class or for student assignments.

Test Bank

William Doyle Smith of the University of Texas at El Paso has prepared the *Test Bank* for this book. He has developed a comprehensive file of questions that covers the key terms and concepts presented in every chapter of the text.

Transparency Masters

The *Transparency Masters* reproduce more than 130 of the most important diagrams that appear in the text. These visual aids should enhance your classroom presentation of each chapter.

Study Guide

The *Study Guide*, which was written by Yaw Nyarko of New York University, is a handy means of review and reinforcement for students. It contains a summary of each chapter, a list of the key terms and concepts introduced in the chapter, and a variety of questions and short exercises with self-check answers that allow the students to evaluate their understanding of the chapter.

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Andrew R. Schotter

MICROECONOMICS

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