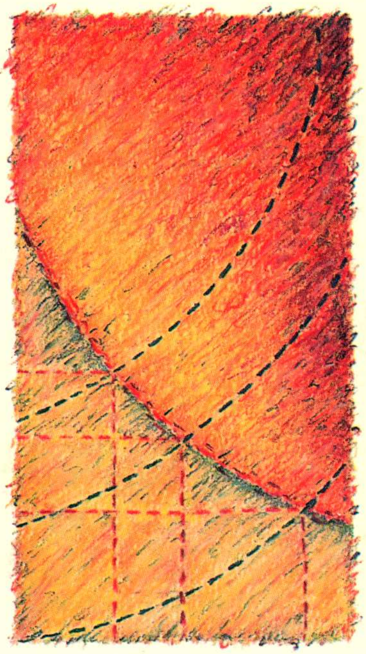
Microeconomic Analysis

M·A·R·K·E·T·S & D·Y·N·A·M·I·C·S



ARTHUR DENZAU

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P • R • E • F • A • C • E

I wrote this book because, after teaching intermediate microeconomics 20 times, I had found no book that met my standards for an ideal text. After writing this book, I find it is also not that perfect ideal. It does, however, come closer than anything else I have found.

APPROACH

My vision of microeconomics is of a set of ideas and tools that help us to understand some aspects of human activity. The standard approach to the subject is embodied in **perfect competition,** as presented by Frank Knight (1921) in his published dissertation entitled *Risk, Uncertainty and Profit.* Contained in that work is the list of assumptions that in some form is called perfect competition in a typical text today.

This perfect competition approach requires the analyst to ignore what has come to be called **transaction costs.** As a result of this sacrifice, precise answers for price and quantity changes can be obtained for myriad questions involving the effects of exogenous changes in price, demand, or technology. Many economic phenomena, however, have been excluded in this approach by assuming away all transaction costs.

This text attempts to present the Knightian perfect competition approach but also to use transaction cost ideas where they are most appropriate. Similarly, ideas involving **evolutionary economics** are employed to supplement the perfect competition model.

THEMES

Two themes distinguish this text. The first regards the **individual chooser.** The individual chooser is the focus of microeconomics. The importance of both incentives and information is emphasized as warranted, with the initial emphasis on incentives being provided in the standard modeling of consumer tastes. The informational problems in the exchange and bargaining setting are presented after the Edgeworth box material, and this motivates the analysis of impersonal, frictionless competitive markets. Whenever valuable, the importance of information and nonprice rationing problems are shown. Chapter 13 develops the analysis of valuing information in risky situations. Finally, the importance of information to the price-discriminating monopolist is presented in Chapters 7 and 27, in which the use of self-selection techniques by the monopolist is emphasized rather than the usual analysis of the incredible idea of perfect price discrimination.

The second theme regards the **competitive process.** The competitive process in an institutional setting of decentralization is of fundamental importance to the analysis of how a resource allocation process responds to change. The process by which a new equilibrium is discovered deserves discussion, in both stories of adjustment and analysis of institutional changes.

OBJECTIVES

The objectives for this text are threefold. The first objective is to reflect the way in which microeconomics speaks about and explains the world in which we live. For those who want to learn about microeconomics, the most suitable course emphasizes the application of concepts. Application is accomplished in this text through 130 examples and the end-of-chapter problems.

The next objective of this text is to maintain rigor, without conflicting with the first objective and without using calculus. The students who take a course in intermediate microeconomics come from a diversity of backgrounds and levels of mathematical skill. The problem with calculus, unless dealing with a homogeneous group of students, is that the mathematically weaker spend their time relearning calculus and the mathematically stronger rely on their knowledge of calculus as a crutch. Neither group focuses on learning and applying the concepts of microeconomics. Practically all the topics viewed as exclusively based on calculus, such as the Slutsky equation and duality, are derived in this book without calculus through the use of algebra and graphs.

The final objective of this text is to teach only those things that won't require unlearning in further economics courses. The concepts presented in this text are still used in currently published research. Any topics known to be so flawed that they play no role in the thinking of working economists have been excluded from discussion.

TEXT AUDIENCE

The primary course for this text is entitled Price Theory or Intermediate Microeconomics. The typical student for a course taught with this text is an undergraduate who has completed a principles of microeconomics course and wishes to learn more about that subject. This course is usually required of economics majors, but majoring students are often not the majority of the class. Typically, my classes include many engineering students and a variety of majors from the liberal arts and business schools.

In addition to intermediate microeconomics, this text can be used in an advanced business economics course because many of the examples from business and economics develop and apply the theoretical ideas. For such a course, Chapters 12 (discounting future values) and 13 (risk and insurance) should be covered. Chapters 20 (theory of the firm) and 23 (size and scope of the firm) are also useful focal points.

TEXT ORGANIZATION

The 30 chapters of this text are organized into seven parts that provide the basic structure of the material. Throughout the table of contents you will find various chapters and subsections marked with an asterisk, which denotes that the material is optional and can be avoided without losing continuity.

The introductory part contains some new material that is not likely to be just review for many principles students. The third section of Chapter 2 discusses the key economic question: How can a group of selfish individuals gain the benefits of cooperation due to specialization, division of labor, and learning?

Part II presents the standard analysis of consumer choice in Chapters 4 through 8. After consumer preferences and indifference curves are developed as means of modeling consumer tastes in Chapter 4, Chapter 5 immediately applies these analytical tools in the exchange model. The exchange efficiency of voluntary exchange is shown using the Edgeworth box. The second half of the chapter, however, is devoted to transaction problems ignored in the first half. Each trader tries to strategically withhold the information necessary to move toward the contract curve. This leads naturally to the use of a price system and competitive, price-taking demand. Chapters 9 and 10 take up the Slutsky equation and duality, showing their value when applied. Then, a series of chapters applies consumer choice analysis in the specialized settings of labor supply, time allocation, discounting, and situations of risk and strong uncertainty.

The analyses of production, cost, and supply are developed in Part III. Focus is on the use of Marshallian period analysis to separate the different types of adjustments firms make, and the incentives inducing each.

Part IV puts together the consumer demand analysis and the supply analysis to study competitive markets. The period analysis is continued with the Marshallian market period equilibrium and the separation of the firm's long run from the period in which exit/entry decisions are made. This allows separate consideration of these adjustments and the incentives for them. Factor demand is developed in Chapter 18 and integrated into the market analysis in Chapter 19. The four-panel graphical scheme presented there allows coordinated comparative static analysis of input and output market outcomes.

All of Part V, Competition as a Process, is optional. This part examines a more dynamic notion of competition, including competition between rivalrous firms rather than perfect competition. Chapter 20 develops the theory of the firm more extensively; Chapter 21 analyzes the various related markets that involve a commodity, including the used, scrap, stolen, counterfeit, and gray markets, and the markets for related services as well as network externalities; Chapter 22 examines the comparative statics of closely related markets; Chapter 23 analyzes vertical integration questions as well as the scope of the firm; Chapter 24 develops the evolutionary analysis pioneered by Armen Alchian in 1950, applying the ideas to hierarchies as well as product markets; and Chapter 25 takes up dynamic questions, including the notion of dynamic efficiency and learning by doing.

The theory of monopoly is developed in Part VI, with the ending in 1894 of AT&T's patent monopoly used as a setting to test and elaborate the analysis. Chapter 27 devotes attention to price discrimination and the myriad devices that can be used to profit by these means. Chapter 28 focuses on the means available to create and exploit a monopoly, including cartels.

Part VII develops the analysis of what product is produced by a firm or industry. Chapter 29 examines markets that are differentiated horizontally, like markets for clothing, so that different consumers prefer different products, ignoring price. Chapter 30 analyzes a different type of product differentiation involving quality dimensions. This chapter focuses on the computer industry as an example of quality competition and technological change.

CONTENT FEATURES

A number of content features in this text distinguish it from others. These topics are as follows:

Duality Duality is an easier way of presenting the value of a policy change, access to a market, or an institution. The expenditure function is developed in Chapter 10; the profit function, in Chapter 15.

Transaction costs If economic growth were simply a question of investing in human capital and plant and equipment, then the whole world should be developed. We need to know why most economies in the world during recent decades have been nearly stagnant. The answer requires understanding why a group of selfish people have problems in cooperating to accrue the benefits of specialization and exchange and then analyzing the solutions that have been employed. The development of the new institutional economics (by Douglass North and Oliver Williamson) has arrived at a point where some of its ideas should be presented in an intermediate microeconomics text. This plays a key role in Chapters 5, 20, and 23.

Experimental economic results If economics talks about the resource allocation choices that real people make, then it can be tested in a laboratory environment. Vernon L. Smith and others have developed experimental economics into an essential tool for determining the effects of institutional details on allocative outcomes. Several of the examples in the book present some of this work. For example, the basic notion of a decentralized economy and a price system have been shown experimentally to be a valuable means of getting networked computers to cooperate in running a set of programs (Examples 1–2 and 2–6).

The Slutsky equation The Slutsky equation is derived and applied in consumer problems that it simplifies. Chapter 9 presents a graphical (and algebraic) derivation of the Slutsky equation and a set of applications.

Theory of the firm One of the institutions formed to reduce transaction cost problems is the private firm; the agency problems created by liability structures (Chapter 20), employment contracts (Chapter 14), and the scope of the firm as well as its integrating forward and backward (Chapter 23) are examined in this text. The modern, diffusely held public corporation is analyzed and shown to act much like a classical owner-operated firm of traditional microeconomics, and the scope of microeconomic analysis is more rigorously extended to modern firms by analysis, not assumption. Chapters 14 and 20 consider some possible problems with the simple profit-maximizing model.

Integrating competitive input and output markets Chapter 19 develops a graphical scheme of analysis that can be used to study the interrelations of the output and input markets of a firm or industry. The equilibriums of the scheme are presented, based on the previous standard material used. Four distinct types of comparative statics problems are then examined, along with the interesting results that come from industry-specific factors, for which increases in derived demand increase the size of factor rents. The dynamics of the Marshallian period dynamic system are analyzed, with process stories elaborated when useful.

Nonprice rationing The idea that factors other than competitive price are used to ration demand in markets is developed and used whenever possible. Beginning in the third chapter in the example considering rent controls, the importance of nonprice rationing in explaining real world choices is highlighted.

Dynamic issues The idea of learning by doing is presented (Chapter 25) and argued to be a key issue for firm pricing and trade policy. Chapter 25 also takes up such questions as when to introduce a new product or process innovation, analyzing these with standard micro tools. The notion of dynamic efficiency is discussed in the same chapter, and an evolutionary analysis (see the next point) of the determinants of such efficiency is provided. The comparative statics analyses of Chapters 15, 17, 18, and

19 are interpreted as a form of period dynamics that shows the incentives present dynamically and some of the responses to those incentives. Process discussion of some of the comparative statics analyses throughout the book continually focus on questions of information and incentives in a dynamic context.

Evolutionary economics Armen Alchian presented a novel set of ideas in his 1950 *Journal of Political Economy* paper. He argued that even without any intention to profit maximize on the part of individual agents and in the face of considerable ignorance, firms competing for profits would yield a set of surviving firms that acted much like those profit maximizing with perfect information. All that was needed was for competition to act as a filter, terminating (through bankruptcy or dissolution) more of those firms with negative profits than those with positive profits. Over the more than 40 years since, a new branch of analysis, evolutionary economics, has come to follow the research agenda implicitly set out in Alchian's paper. The basic concepts and results of this work are presented in optional Chapters 24 and 25.

Product theory Microeconomics is not only a theory of price, but a theory of product. The analytics of horizontal product differentiation (fad and fashion) is presented in Chapter 29, and newly developing material on quality differentiation is in Chapter 30. Products can differ not simply in terms of style of fashion (horizontal differentiation), but in product specifications (quality differentiation) as well. Computers vary with respect to such specifications as speed and memory size, and every user wants more of each characteristic. They may be willing to pay more or less for a specification change, but every consumer wants more of a quality attribute—unlike a horizontally differentiated product attribute, for which different consumers may prefer quite different attributes. The theory of quality differentiation is essential to understanding pricing and technological competition strategy in important high-technology industries. It also is of considerable importance in interindustry sales of both materials and capital equipment.

PEDAGOGICAL FEATURES

I have gone to particular effort to make this text more interesting to the student and more valuable as a study tool. Various pedagogical devices and illustrative features make the text more accessible and useful to the student. These features are described below.

1. *Key concepts* Key concepts are boldfaced within the text at the point where they first appear and are defined. For easy reference and review, key concepts are called out in the text margin in a second color. All of these are collected in the Study Guide and Instructor's Manual for the text.
2. *Key equations* Key equations have been numbered and designated with a second color. All of the key equations are collected in the end-of-chapter summaries, as well as in the Study Guide and Instructor's Manual. Most of the numerical manipulation discussed in a chapter is based on key equations.
3. *Assumptions* Assumptions with general implications have been broken out from the text discussion and designated in the margin.
4. *Examples* Over 130 illustrative examples are provided within the text. A complete list of these examples is provided in a table of examples following the table of contents. The examples are not separated from the main body of the text discussion in boxes but rather are right in the flow of text material. Some of the theoretical concepts are first presented and analyzed in examples. I have found that many students learn theory not in the abstract but in terms of a vivid example. The examples are sometimes mythical, like Adam Smith's conjectural history of the lazy boy who invented the steam engine governor. More often, these examples come from published works in business and economic history or from experimental economics.

Each chapter concludes with a series of elements designed to help a student in comprehension and review of the information presented.

1. *Summaries* At the end of each chapter, following the lists of key concepts and equations, a chapter summary is provided. This summary discusses each of the key concepts and relates them, suggesting the main line of analysis of the chapter.
2. *Problems* Each chapter contains a set of problems designed to test the student's understanding of and ability to apply the chapter material. Problems that are relatively more difficult have been denoted with a † symbol.
3. *References and additional readings* Most chapters conclude with a list of annotated citations for further reading.

AN INVITATION

As I stated in my introductory paragraph, this book is not perfect. Like products and methods of production, it can be improved by feedback from the people involved directly in its use. If you, the instructor, or one of your students find something in this text you don't like, show me—I'm from Missouri. You are better situated to tell me what you didn't get from the book than am I. I can only try to imagine the many different readers and attempt to reach each one. Tell me when I've failed in that task. Write to me:

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Many things cannot be done by one individual, and producing a textbook is an example in this set. My father taught me about supply and demand, and my mother taught me to read. I dedicate this book to Dolly, for her continual help, support, and love. Mr. Buddy read early drafts of some chapters. I thank him for this and for his willingness to take care of business on his own when I told him I had to work on the book.

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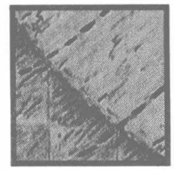

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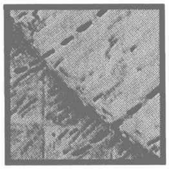
PART VI

Monopolized Markets



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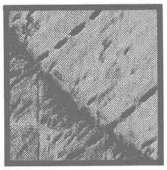
PART VII

*Product Theory**



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