Edgar K. Browning

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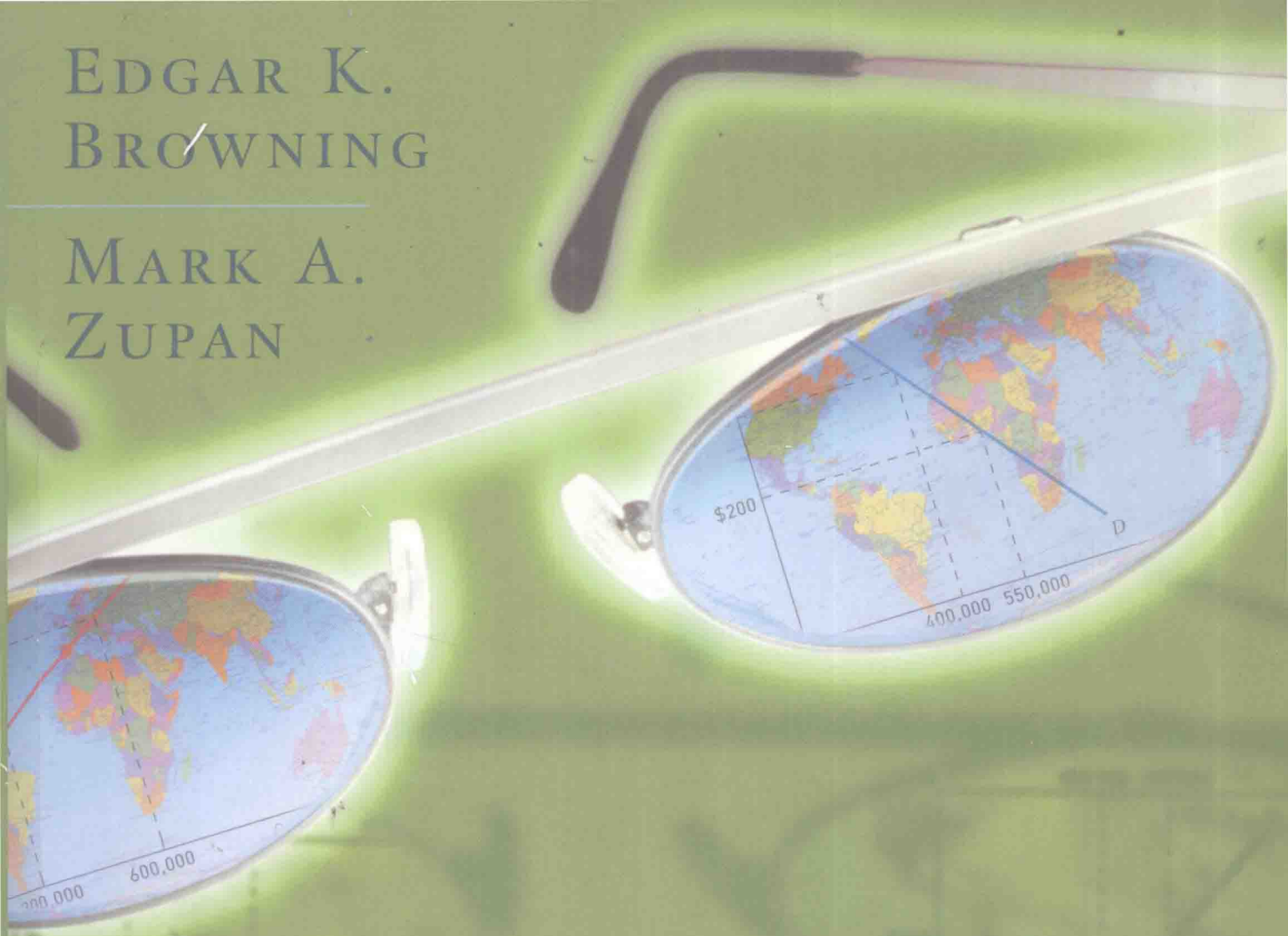

Microeconomics

Theory & Applications

9th Edition

Microeconomics: Theory & Applications

Ninth Edition

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WILEY

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Preface

According to certain labor unions, traditional retailers, and community groups, Wal-Mart imposes significant costs on society. Among the asserted costs are the destruction of jobs in competing stores, driving of employees toward public welfare systems by paying lower wages and providing limited health care coverage, and the fostering of urban sprawl. Arrayed against these claimed costs are the benefits generated by Wal-Mart through the employment of a large number of workers (Wal-Mart now is the largest private sector employer in the United States) and the promotion of lower retail prices for consumers.

How can one assess the validity of the claims made by Wal-Mart's critics? Moreover, is the combined magnitude of costs associated with Wal-Mart sizable enough to outweigh the benefits generated by the retailing giant? A thorough knowledge of microeconomics can help answer topical questions such as these and, more broadly, gives students an understanding of how markets operate and also helps students see the world through the eyes of an economist.

Our intention with this edition of the text is to give students the fundamental tools of analysis and to show how the tools can be used to explain and predict market phenomena. To this end, we present basic microeconomic principles in a clear, thorough way, using numerous applications to illustrate the use of theory and to reinforce students' understanding of it.

We believe that microeconomics is the most important course in the undergraduate economics curriculum. We also believe that understanding microeconomics provides an essential foundation to any bachelor's or master's degree business student. As a result, our text is written so that both economics and business students will learn microeconomic theory and how to use it correctly.

Organization and Content

The ninth edition of *Microeconomics: Theory and Applications* continues to reflect our belief that it is better for students to be exposed to thorough coverage of fundamental microeconomic concepts and techniques than to skim through a superficial treatment of a great number of topics, many of which they will never encounter again. The enthusiastic reception given the first eight editions suggests that a large number of instructors also share this view. Apart from the emphasis on the core principles of microeconomics and how to use them, the text is by and large conventional in structure and organization except for one feature: Four chapters are devoted exclusively to applications. These are Chapter 5, "Using Consumer Choice Theory"; Chapter 10, "Using the Competitive Model"; Chapter 15, "Using Noncompetitive Market Models"; and Chapter 18, "Using Input Market Analysis."

A distinguishing feature of the text is the attention we give to input market analysis. Traditionally, this has been a weak area in most microeconomics texts, with seldom more than two, and frequently only one, chapter(s) on the subject. Yet in a fundamental quantitative sense, input markets and product markets are of equal importance,

because the sum of incomes generated in input markets (national income) equals total outlays on goods and services (national product). Moreover, public policy issues relating to input markets have become increasingly important, as suggested by the recent attention given to managerial compensation, income distribution, welfare programs, discrimination, comparable worth, interest rates and investment, Social Security, and minimum wage legislation. Consequently, we devote three chapters to the subject of input market analysis (Chapters 16 through 18).

Because all microeconomics courses are not taught the same way, the text is designed to give instructors great flexibility in adapting the book to their requirements. For example, in a short course emphasizing the theoretical underpinnings of partial equilibrium analysis, the instructor might cover only Chapters 1 through 4, 7 through 11, 16, and 17. A longer, more theoretically oriented course could include all chapters except that most instructors will steer a middle course and select three or four applications from each of these chapters (the way we normally use the material). In addition, instructors can either assign the applications as they appear in the text—following the development of the theory—or integrate them into their presentations of the theory chapters.

Applications

We believe that a large dose of applications is an essential ingredient in any microeconomics course. Although economists know that microeconomics is important and often exciting, students occasionally need to be convinced that this is so. Applications serve this purpose. In addition, they enliven the subject for students and help them better appreciate the theory. Time permitting, the more applications covered, the better prepared students will be to use the theory on their own.

Each of the four applications chapters (Chapters 5, 10, 15, and 18) contains four to seven longer applications that use and reinforce the graphical and logical techniques developed in the theory chapters. In Chapter 10, for example, the competitive model is employed to analyze taxicab licensing, airline regulation, and international trade. In Chapter 18, "Using Input Market Analysis," the theory is applied to discrimination, the incidence of the Social Security payroll tax, and the effects of the National Collegiate Athletic Association on college football players.

Applications are not relegated exclusively to the four applications chapters; all other chapters contain several shorter applications. We feel, however, that it is appropriate to use more applications in some areas than in others. For example, it seems a misallocation of limited textbook space to include as many applications for general equilibrium theory as for the competitive and monopoly models. Not only are the applications in the latter two areas likely to be more interesting to students, they are also likely to provide more useful background for students' later work.

Changes in the Ninth Edition

Based on comments from users and reviewers of the eighth edition, as well as our own desire to further improve the text, we have revised it in four important ways. These ways are aimed to enhance the hallmarks of the text: namely, the wealth of

real-world illustrations of microeconomic theory at work; clarity of exposition; the addition of optional mathematical sections at the end of each chapter for those students who are more mathematically inclined; the development of a softcover version that provides all of the same intellectual content but in an easier to carry and considerably more affordable format; and a commitment to coverage of cutting-edge concepts and applications.

Only the Best Applications (and More of Them)

When asked to identify strengths of this text, reviewers and users overwhelmingly cite the applications—the four chapters devoted to longer illustrations of microeconomic theory at work as well as the 120-plus shorter applications sprinkled throughout other chapters. To continue building on this hallmark of our text, we rely on a systematic rating system whereby we ask reviewers to evaluate each of the applications. Based on their responses, we have added 20 new applications in this edition. The topical issues they address include the reasons for the recent rise in housing prices in the United States, especially in localities such as the San Francisco Bay Area; whether cell phone use while driving should be banned; the economic and accounting costs of the Sarbanes–Oxley (SOX) Act intended to enhance corporate governance; the hidden costs of our Social Security system, including its impact on saving; the reasons for a cross-border "grey" market in pharmaceutical drugs; asymmetric information and online dating; efficient ways to deal with telemarketing; an explanation for why the average take-home pay of dentists has been increasing relative to the average take-home pay of other types of doctors and the impact this has had on the average hours worked by dentists versus other types of doctors; why Americans are getting fatter; and the effects of outsourcing on the net well-being of Americans.

We have retained (and enhanced, whenever possible) the top 80 percent of the applications in the previous edition. These cover topics such as: why company health benefits are tax exempt; why cigarette company profits did not get smoked by a recent $246 billion punitive damages award; an explanation for why getting an appointment with a doctor can take so long; the rise of online and mail-order shopping; compensating wage differentials for "glowboys"—individuals who fix steel pipes in aging nuclear power plants; monopsony in Major League baseball; why price ceilings are proving deadly to individuals seeking an organ transplant; the returns to investing in a BA and an MBA; and the benefits of being attractive when it comes to the wages earned by male and female workers.

By culling the cream of the applications from the preceding edition and adding numerous interesting demonstrations of the way microeconomic theory can be used to explain and predict real-world phenomena, we've made the book's outstanding feature—its applications—stronger than ever in this revision.

Clarity of Exposition

A second key feature of the text consistently noted by adopters and reviewers is its clarity of exposition. To strengthen this feature, we have looked carefully at each chapter—applying Occam's razor to make our explanations as straightforward and clear as possible. One telling manifestation of the care that has been applied is that the actual text (not counting the cover) is approximately a full pound lighter than the comparable text of our closest market competitors notwithstanding being as thorough in the topics covered. The expositional clarity we believe translates into an important benefit for students of microeconomics—superior comprehension.

To enhance the readability of the text, we have also made three important expositional improvements in this edition. First, we have increased the size of the typeface slightly based on reviewer feedback. Second, we have added a larger number of subheadings so that the sequence of key concepts covered is more readily apparent to the reader. Third, also based on reviewer input, we have avoided, wherever possible, bunching together shorter applications so as to make sure that the reader is not distracted from the central points being made by the text.

End-of-Chapter Optional Mathematical Sections

At the suggestion of a sizable number of reviewers and users of the text, we have moved the material formerly relegated to an appendix at the end of the book to smaller sections at the end of each relevant chapter. In this manner we hope to better supplement the intuitive, geometric, and/or algebraic explanations that have traditionally been employed by our text with a calculus-based approach for teachers and students who prefer a stronger mathematical grounding. While these sections can be treated as optional ones by the less-mathematically inclined, reviewer and user input indicate that their placement in the main body of the text is bound to represent a net improvement.

Providing Exceptional Value

As most faculty and students are well aware, textbook prices have been increasing steadily in real terms over the past few decades. This trend has negatively impacted the odds of a student actually purchasing an assigned text and thereby adversely affected the learning process.

To provide a meaningful solution to the problem of rising real textbook prices, we have shifted to a soft-cover binding with this edition. Importantly the ninth edition provides all of the same intellectual content as its preceding versions but in an easier-to-carry and considerably more affordable format. We look forward to the benefits that this exceptional value will imply for students and faculty as well as the overall learning process and are proud to be a market leader in promoting such an enhancement.

A Commitment to the Cutting Edge

In addition to the new applications, we are also pleased to report that students can use aplia with this edition. Aplia, founded by economist Paul Romer is the first web-based company to offer interactive problem sets, news analyses, tutorials, and economic experiments designed to save time for professors and encourage students to exert more effort in their learning. Interested faculty are encouraged to contact Aplia (sales@aplia.com) for more details. For a preview of Aplia materials, visit http://www.aplia.com.

Also, students have access to Excel-based tutorials relating to 16 of the key microeconomic concepts covered by our text through the companion Web site of www.wiley.com/college/browning. These concepts are typically covered in the Intermediate Microeconomics one-semester course and they enable students to manipulate the graphical presentations so they can actually see the concepts in action as they change the input values associated with each tutorial.

Pedagogical Aids

Several other in-text pedagogical aids help students to structure and retain information.

Chapter Outlines and Learning Objectives

Each chapter begins with an outline as well as a list of key learning objectives. These offer a preview of the chapter content and help structure study and review.

Glossary

A running glossary has been added in the margins of the text as a way to cement students' understanding of key concepts and terms. A complete glossary is also included at the end of the book.

Graphs

We have paid careful attention to the graphs used in the text. Unusually thorough explanations of graphs are given. Furthermore, the explanatory captions and liberal use of color will help students follow the text discussion and understand graphical analysis.

End-of-Chapter Aids

A summary at the end of each chapter highlights the important points of the chapter to help students review their knowledge of the basic material. More than 450 review questions and problems test students on chapter material and require them to solve analytical exercises. Answers to questions and problems with asterisks are provided at the end of the book.

Online Ancillaries

An online *Study Guide*, prepared by John Lunn, Hope College, is available through the PLUS course for this book. These student resources include chapter-by-chapter analysis of key concepts, review questions, multiple-choice questions, and discussion questions, problems, and answers to give students further review and practice in the use of microeconomic theory.

An *Instructor's Manual*, written by the text authors and Brian Kench, University of Tampa, also accompanies the text. Each chapter in the manual features a chapter outline, general comments on the chapter, specific section-by-section comments, and suggestions that may help in developing lectures and class discussion topics. The Appendix in the Instructor's Manual contains the answers to those questions and problems in the text that are not already answered at the end of the text.

Lecture slides in Powerpoint, prepared by Della Sue Lee of Marist College, provide notes for all chapters with enlarged versions of all the figures contained in the text. This set can be used to create overhead transparencies for viewing in the classroom or they can be copied and used as handouts for students.

The *Test Bank* prepared by Mark Foley, Davidson College, contains 1,500 multiple-choice questions with answers. This Test Bank, which is also available electronically, shows instructors how to customize their exams. *WileyPLUS* is also available with the text.

A dedicated Web site with extensive resources for both students and professors (http://www.wiley.com/college/browning) is also available.

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This book is dedicated to our loved ones without whose unflagging encouragement and support our vision for the book would have never become a reality.

Edgar K. Browning
Mark A. Zupan

TAKE A CLOSER LOOK AT "A BOOK THAT WORKS"

Instructors who use Browning/Zupan often describe it as "a book that works." In preparing the ninth edition, we set out to learn exactly what users of the book mean when they describe it this way. In the guided tour of the book that follows, we'll describe what we learned: that when adopters say Browning/Zupan is a book that works, they are referring to the simple clear presentation of the book, the thorough way that concepts are developed in the graphs and the way applications are used to incite student interest. Here are some examples.

Preface

According to certain labor unions, traditional retailers, and community groups, Wal-Mart imposes significant costs on society. Among the asserted costs are the destruction of jobs in competing stores, driving of employees toward public welfare systems by paying lower wages and providing limited health care coverage, and the fostering of urban sprawl. Arrayed against these claimed costs are the benefits generated by Wal-Mart through the employment of a large number of workers (Wal-Mart now is the largest private sector employer in the United States) and the promotion of lower retail prices for consumers.

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Vivid and lively writing.
From the first words of the preface to the end of the book, the authors bring microeconomics to life. Even complex material is presented in a way that today's students can handle and appreciate.

5.3 Paying for Garbage

The Borough of Perkasie, a small Pennsylvania town, had a problem: throughout the 1980s its trash collection costs rose rapidly.[5] The local government devised an innovative solution to the problem by changing the way residents paid to have their trash picked up. Historically, Perkasie residents paid a fixed annual fee of $120 per residence for garbage collection, a system of payment typical of many U.S. communities. Under the new plan introduced in 1988, there is no annual fee but garbage is picked up only when it is placed in specially marked, black plastic bags. The bags are sold by the town at a price greater than their cost; for example, each large bag costs $1.50. The net revenue from sale of the bags (revenue less the cost of the bags to the town) is used to finance the town's trash collection services.

This change in the system of paying for garbage collection produced some dramatic effects in Perkasie. The amount of trash collected dropped nearly 50 percent, the average household spent about 30 percent less on garbage collection, and the town saved 40 percent on its garbage collection costs. Why did these changes occur? The answer lies in considering the incentives faced by households under the two payment systems. With a fixed annual fee, households faced an effective price of zero for the trash collection service: if a household doubled the amount of its trash, it bore no additional cost. In effect, the fixed fee gave no incentive to cut down on the amount of trash generated. By contrast, under the bag system, when more trash is generated, more bags have to be purchased and house-

APPLICATION 14.5 **Asymmetric Information and Internet Dating**

Online dating is the most widely subscribed Internet business. Over 40 million Americans participate annually in dating "markets" such as JDate.com, eHarmony.com, Yahoo Singles, Friend Finder, Match.com, ChristianSingles.com, Gay.com, and LatinMatcher.com.

Certainly, information on Internet dating sites is imperfect and asymmetrically possessed by the various participants. For example, Internet daters appear to be richer, blonder, trimmer, and better-looking than average—at least if the profiles posted by daters are to be believed. Internet daters (male and female) report being one inch taller than the national average. Roughly 70 percent claim to have "above-average" looks. Of online daters, 4 percent report earnings over $200,000 annually versus 1 percent for Internet users in general. The average female online dater reports being twenty pounds lighter than the national average, and 28 percent say they are blond—a number much higher than the national average. According to economist Steven Levitt and journalist Stephen Dubner in their book *Freakonomics*, this indicates: "a lot of dyeing, lying, or both."[10]

While information is imperfect in online dating, market responses work to curtail (although probably not entirely) the severity of any associated "lemons" problem. For example, online dating services provide means for participants to screen prospective partners through the posting of pictures, allowing for the exchange of e-mail or voice-mail messages, and facilitating background checks through Internet-based firms such as Web Detective. Males who fail to provide a picture generate roughly one-fourth as many inquiries as those who do; a female who doesn't include her photo gets one-sixth the volume of e-mail. According to Levitt and Dubner:[11]

> A low-income, poorly educated, unhappily employed, not-very-attractive, slightly overweight, and balding man who posts his photo stands a better chance of gleaning some e-mails than a man who says he makes $200,000 and is deadly handsome but doesn't post a photo. There are plenty of reasons someone might not post a photo—he's technically challenged or is ashamed of being spotted by friends or is just plain unattractive—but as in the case of a brand-new car with a for-sale sign, prospective customers will assume he's got something seriously wrong under the hood.

In addition, the efficacy of online dating markets cannot be determined in a vacuum and must ultimately be judged relative to other means for individuals to find suitable prospective romantic matches. As anyone who has relied on non-Internet-based singles scenes such as bars, gyms, supermarkets, and hardware stores knows, online dating offers users some very attractive features in terms of the number of prospective partners one can search over in relatively little time and at minimal expense and in the comfort and security of one's own home. This likely explains why online dating has proven to be such a popular Internet service.

[10]Steven D. Levitt and Stephen J. Dubner, *Freakonomics* (New York: HarperCollins, 2005), p. 81. This application is based on a 2004 University of Chicago working paper co-authored by Dan Ariely, Gunter J. Hitsch, and Ali Hortacsu and overviewed by Levitt and Dubner in their best-selling book. The Ariely, Hitsch, and Hortacsu working paper focuses on 30,000 users of online dating services, half in Boston and half in San Diego.

[11]Ibid., p. 82.

Relevant examples and lots of them. The book shows students why the concepts of microeconomics are important and relevant to their lives by using over 120 current, high-interest applications to illustrate the concepts.

14.5 Adverse Selection and Moral Hazard

Our analysis of asymmetric information has emphasized markets in which consumers have less information than sellers. In some important instances, for example, insurance markets, it is the firms that are less well informed.[12] Our discussion in Chapter 5 of in-

[12]Another example is labor markets: when a firm hires workers, it is less well informed about the quality of the workers' labor services than the workers.

In addition to the many brief applications, four chapters of the book contain in-depth applications—showing students how microeconomics relates to a business career. These are Chapter 5 on using consumer choice theory, Chapter 10 on using the competitive model, Chapter 15 on using noncompetitive market models and Chapter 18 on using input market analysis.

Figure 3.1

An Indifference Curve
The indifference curve, U_1, shows all the combinations of movie passes and compact discs that the consumer considers equally satisfactory. The consumer prefers any market basket lying above U_1 (like point E) to all market baskets on U_1, and any market basket on U_1 is preferred to any market basket lying below U_1.

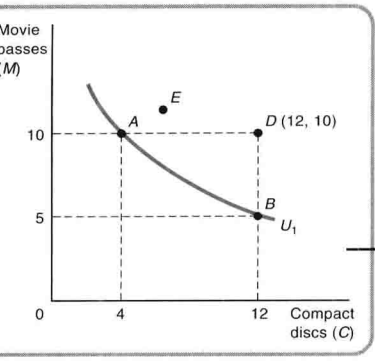
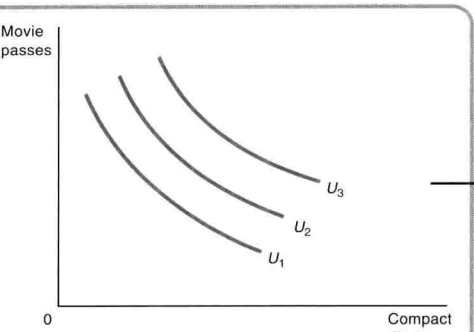


Figure 3.2

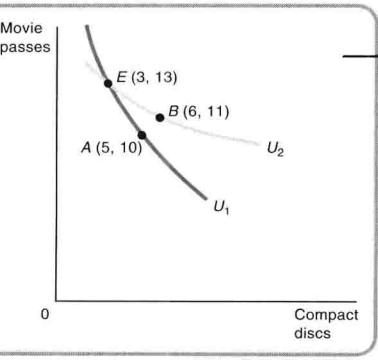
An Indifference Map
A set of indifference curves, or an indifference map, indicates how a consumer ranks all possible market baskets. Market baskets lying on indifference curves farther from the origin are preferred to those on curves closer to the origin.



Graphs that teach. Browning/Zupan have developed a set of graphs that do not merely depict data, but go much further to patiently illustrate and teach complex concepts. In many cases, this book uses a series of two or three progressive graphs to illustrate a concept, where many books would use just one.

Figure 3.3

Why Intersecting Indifference Curves Are Inconsistent
Intersecting indifference curves are inconsistent with rational choice; they violate the assumptions of nonsatiation and transitive preferences.



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