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James A. Brander • Jeffrey M. Perloff



Managerial Economics and Strategy

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A Newton's cradle with five spheres. One sphere on the left is in motion, having just struck the others or about to. The background is a light blue gradient.

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Preface

Successful managers make extensive use of economic tools when making important decisions. They use these tools to produce at minimum cost, to choose a price or an output level to maximize profit, and for many other managerial decisions including:

- How much to advertise.
- What strategies to use to compete with rival firms.
- Whether to sell several goods in a bundle for a single price.
- Whether to offer buy-one-get-one-free deals.
- How to design compensation contracts to provide appropriate incentives for employees.
- How to structure an international supply chain to take advantage of cross-country differences in production costs.

We show how to apply economic theory using actual business examples and real data. Our experience teaching managerial economics at the Wharton School (University of Pennsylvania) and the Sauder School of Business (University of British Columbia) as well as teaching a wide variety of students at the Massachusetts Institute of Technology; Queen's University; and the University of California, Berkeley, has convinced us that students prefer our emphasis on real-world issues and examples from actual markets.

What's New in the Second Edition

We have substantially revised the second edition based in large part on the very helpful suggestions of instructors and students who used the first edition. We have updated and revised every chapter. The vast majority of the Mini-Cases (brief applications of the theory) are updated or new. Each chapter opener now lists learning objectives, and Chapters 2–17 contain new end-of-chapter questions.

New Themes

This edition contains new material on two themes that have become increasingly important in business schools and corporate boardrooms: *corporate social responsibility* (CSR) and *innovation*. A new section on CSR in Chapter 7 discusses the tradeoff that managers face between promoting social objectives and maximizing short-run profit, but also describes how some *strategic* CSR activities increase long-run profits. Chapter 16 examines the possible role of environmental CSR as a response to environmental externalities.

This edition increases our coverage of innovation. The section “Innovation” in Chapter 5 contains an expanded treatment of *process innovation* and *organizational innovation*. The section “Cost and Innovation Strategies” in Chapter 13 examines the role of innovation in dynamic games between rival firms. Many of our Mini-Cases and other examples focus on the knowledge-based economy, in which innovation plays a crucial role. Such examples include genetically modified foods, the use of robots, the efforts of drug companies to maximize the profits earned from drug development, and the Internet.

Other New Content

We have revised and updated the text throughout the book. For example, the international coffee market is now the main example in the supply and demand analysis in Chapter 2. Chapter 3 illustrates econometric forecasting using Nike’s revenue and features the Excel Regression tool. Chapter 7 defines and discusses opportunistic behavior in a section on “Transaction Costs and Opportunistic Behavior.” Chapter 11 simplifies the treatment of the Cournot model in the main text by moving the algebraic analysis of the n -firm case with general linear demand to an appendix. Chapter 12 adds a discussion of double auctions. A new appendix to Chapter 13 covers the Stackelberg model with general linear demand. Chapter 17 uses newly estimated supply and demand curves to analyze the effect of trade policy in the oil market.

Most importantly, because instructors and students enjoyed the cartoons in the first edition, we have increased the number in this edition to 21. In addition to providing entertainment, these cartoons convey important economic points in a memorable way.

Managerial Problems, Mini-Cases, and Managerial Implications

In the second edition, we have 103 Managerial Problems and Mini-Cases. Of these, 80% are new or updated. The one-third that are new address important current topics including “Capping Oil and Gas Bankruptcies,” “Entry and Exit of Solar Power Firms,” “Chinese State-Owned Enterprises,” and “Mobile Phone Number Portability.” Of the 36 Managerial Implications (statements of economic principles that managers can use to make key managerial decisions), 4 are new and 12 are updated.

End-of-Chapter Questions

This edition has 593 end-of-chapter questions, of which 150 are new. We have increased the integration between Mini-Cases and end-of-chapter questions: Half of the Mini-Cases have corresponding end-of-chapter questions.

Spreadsheet Exercises

Many instructors and students appreciated the first edition’s spreadsheet exercises (designed by Satyajit Ghosh) and asked for more. This edition has 50% more: three exercises at the end of each chapter (apart from Chapter 1) instead of two.

MyLab Economics Videos

The second edition provides enhanced integration with MyLab Economics (<http://www.myeconlab.com>), a powerful online learning support system. Probably the most striking innovation in this edition is the addition of a set of MyLab Economics Videos that illustrate key points in the text. An icon shows which figures, tables, sections, and Excel applications have MyLab Economics Videos by Tony Lima, a skilled and experienced professor. For 48 of the book's figures, he slowly builds each figure and explains the economics behind each step. Six of his MyLab Economics Videos cover normal-form games. One MyLab Economics Video addresses correlation and diversification, while two MyLab Economics Videos tackle moral hazard. Two other MyLab Economics Videos show students how to use Excel to run regressions.

Experiments

The textbook now advises students about the availability of single-player experiments in MyLab Economics. A student plays against virtual players to see how competitive markets work, how price controls and taxes affect markets, how markets respond to informational problems, and why public goods are underprovided.

Main Innovations

This book differs from other managerial economics texts in three main ways.

- It places greater emphasis than other texts on modern theories that are increasingly useful to managers in areas such as agency and contract theory, behavioral economics, game theory, and pricing.
- It makes more extensive use of real-world business examples to illustrate how to use economic theory in making business decisions.
- It employs a *problem-based* approach to demonstrate how to apply economic theory to specific business decisions.

Modern Theories for Business Decisions

This book covers all the standard economic theory, of course. However, what sets it apart is its emphasis on modern theories that are particularly useful for managers.

Agency and Contract Theory How can a manager induce employees to work hard rather than shirk? How can the owner of a firm make sure a manager, as the owner's *agent*, acts in the owner's best interests rather than in the manager's own interests? How can a manager avoid being exploited by experts and other people with superior information? We use modern contract theory to show how to write contracts to avoid or minimize such problems.

Behavioral Economics. Should a manager allow workers to opt in or opt out of a retirement system? How can the manager of a motion picture firm take advantage of movie reviews? We address questions such as these using behavioral economics—one of the hottest new areas of economic theory—which uses psychological principles to explain why people deviate from rational behavior. These theories are

particularly relevant for managers, but managerial economics textbooks have largely ignored them.

Game Theory. Should the manager of a radio station schedule commercial breaks at the same time as rival firms do? What strategy should a manager use when bidding in an auction for raw materials? Under what circumstances should a manager act to prevent entry by a rival? This book goes well beyond other managerial economics texts by making significant use of game theory to examine such topics as oligopoly quantity and price setting, entry and exit decisions, entry deterrence, and innovation. Game theory provides a way of thinking about business strategies and choosing strategies that maximize profits. Unlike most microeconomics and managerial economics books, our applications of game theory are devoted almost exclusively to actual business problems.

Pricing. How often should a manager put products on sale? Should a manager charge low prices to build a network of users for a product? When should a manager use pricing tools such as volume discounts, off-season discounts, rebates, and package deals? When should a manager charge various customers different prices? This book provides more analysis of these important real-world pricing tools than other managerial economics textbooks.

Real-World Business Examples

We demonstrate that economics is practical and useful to managers by examining real markets and actual business decisions. We do so in two ways. In our presentation of the basic theory, we use real-world data and examples. Second, we examine many real-world problems in our various features.

To illustrate important economic concepts, we use graphs and calculations based on actual markets and real data. Students learn the basic model of supply and demand using estimated supply and demand curves for coffee, and they practice estimating demand curves using real data from sources such as from the Portland Fish Exchange. They study how imported oil limits pricing by U.S. oil producers using real estimated supply and demand curves, derive cost curves from Japanese beer manufacturers using actual estimated production functions, and analyze oligopoly strategies using estimated demand curves and cost and profit data from the real-world rivalries between United Airlines and American Airlines and between Coke and Pepsi.

Problem-Based Learning

Managers have to solve business problems daily. We use a problem-solving approach to demonstrate how economic theory can help managers make good decisions. In each chapter, we solve problems using a step-by-step approach to model good problem-solving techniques. At the end of each chapter, we have an extensive set of questions. Some of these require the student to solve problems similar to those solved in the chapter, while others ask the student to use the tools of the chapter to answer questions about Mini-Cases and Managerial Implications within the chapter or new real-world problems. We also provide exercises asking students to use spreadsheets to apply the theory they have learned to real-world problems.

Features

This book has more features dedicated to showing students how to apply theory to real-world problems than do rival texts.

Managerial Implications. The *Managerial Implications* feature provides bottom-line statements of economic principles that managers can use to make key managerial decisions. For example, we describe how managers can assess whether they are maximizing profit. We also show how they can structure discounts to maximize profits, promote customer loyalty, design auctions, prevent gray markets, and use important insights from game theory to make good managerial decisions.

Mini-Cases. Eighty-seven *Mini-Cases* apply economic theory to interesting and important managerial problems. For example, Mini-Cases demonstrate how price increases on iTunes affect music downloads using actual data, how to estimate Crocs' production function for shoes using real-world data, why top-end designers limit the number of designer bags customers can buy, how "poison pills" at Yahoo! harmed shareholders, how Pfizer used limit pricing to slow the entry of rivals, why advertisers pay so much for Super Bowl commercials, and how managers of auto manufacturing firms react to tariffs and other regulations.

Q&As. After the introductory chapter, each chapter provides three to five Q&As (Questions & Answers). Each Q&A poses a qualitative or quantitative problem and then uses a step-by-step approach to solve the problem. The 55 Q&As focus on important managerial issues such as how a cost-minimizing firm would adjust to changing factor prices, how a manager prices bundles of goods to maximize profits, how to determine Intel's and AMD's profit-maximizing quantities and prices using their estimated demand curves and marginal costs, and how to allocate production across plants internationally.

Managerial Problems and Managerial Solutions. After the introductory chapter, each chapter starts with a *Managerial Problem* that motivates the chapter by posing real-world managerial questions. At the end of each chapter, we answer this question in the *Managerial Solution* using the economic principles discussed in that chapter. Thus, each Managerial Problem–Managerial Solution pair combines the essence of a Mini-Case and a Q&A.

End-of-Chapter Questions. Starting with Chapter 2, each chapter ends with an extensive set of questions, including many real-world problems. Each Q&A has at least one associated end-of-chapter question that references that Q&A and allows the student to answer a similar problem. In addition, many of the end-of-chapter questions relate to Mini-Cases. The answers to selected end-of-chapter problems appear at the end of the book, and answers to all of the problems are available online in MyLab Economics.

Spreadsheet Exercises. In addition to the verbal, graphical, and mathematical exercises, each chapter has three end-of-chapter *spreadsheet exercises*. These exercises demonstrate how managers can use a spreadsheet to apply the economic methods described in the chapter. They address important managerial issues such as choosing the profit-maximizing level of advertising or designing compensation contracts to motivate employees. MyLab Economics provides answers for all of the book's spreadsheet exercises, as well as additional spreadsheet exercises.

Using Calculus. *Using Calculus* sections show how to analyze theory with calculus, reinforcing the graphical, verbal, and algebraic treatment of theory. In contrast, most other books relegate calculus to appendices, mix calculus in with other material where it cannot easily be skipped, or avoid calculus entirely. Because of this structure, both courses that use calculus and those that do not can use this book effectively. Some clearly indicated end-of-chapter questions use calculus.

Alternative Organizations

Because instructors differ in the order in which they cover material and in the range of topics they choose to teach, this text allows for flexibility. The most common approach to teaching managerial economics is to follow the sequence of the chapters in order. However, many variations are possible. For example, some instructors choose to address empirical methods (Chapter 3) first.

Instructors may skip consumer theory (Chapter 4) without causing problems in later chapters. Or, they may cover consumer theory after the chapters on production and cost (Chapters 5 and 6).

Chapter 7, “Firm Organization and Market Structure,” provides an overview of the key issues that are discussed in later chapters, such as types of firms, profit maximization and its alternatives, conflicts between managers and owners (and other “agency” issues), and the structure of markets. We think that presenting this material early in the course is ideal, but an instructor can cover all of this material except for the section on profit maximization later.

An instructor may teach pricing with market power (Chapter 10) at any point after discussing monopoly (Chapter 9). Because game theory is introduced in two chapters (Chapters 12 and 13), instructors can conveniently choose how much game theory to present. Although Chapter 11 on oligopoly and monopolistic competition precedes the game theory chapters, a course could cover the game theory chapters first.

A common variant is to present Chapter 14 on uncertainty earlier in the course. A course could present asymmetric information (Chapter 15) at any point after Chapter 7 (if it is covered) and the uncertainty chapter. Thus, a course could cover both the uncertainty and information chapters early.

Chapter 16 on government and business discusses market failures, government regulation, externalities, public goods, and intellectual property. A course could cover this material earlier. For example, the regulation and intellectual property material could follow monopoly. The externality and public good treatment could be presented at any point after Chapter 8 on competitive firms and markets.

The final chapter, Global Business (Chapter 17), is valuable in a course that stresses international issues. An instructor could cover this chapter at any point after the competition and monopoly chapters.

MyLab Economics

MyLab Economics is a powerful assessment and tutorial system that works hand-in-hand with *Managerial Economics*. It includes comprehensive homework, quiz, test, and tutorial options, allowing students to test their knowledge and instructors to

manage all assessment needs in one program. Students and instructors can register, create, and access all of their MyLab courses, regardless of discipline, from one convenient online location: <http://www.pearsonmylab.com>.

Key innovations in the MyLab Economics course for *Managerial Economics*, second edition, include the following resources for students and instructors:

- **Pearson eText.** The Pearson eText gives students access to their textbook anytime, anywhere. In addition to notetaking, highlighting, and bookmarking, the Pearson eText offers interactive and sharing features. Instructors can share comments or highlights, and students can add their own, for a tight community of learners in any class.
- **MyLab Economics Videos.** Key figures and concepts from the textbook are presented in step-by-step animations with audio explanations of the action. These new videos are embedded in the eText and are accessible through MyLab Economics.
- **MyLab Economics Q&As.** Key Q&A features from the textbook are available in MyLab Economics. Many students have difficulty applying economics concepts to solving problems. The goal of this digital resource is to help students overcome this hurdle by giving them a model of how to solve an economic problem by breaking it down step by step. In this text, the Q&A features are presented as solved problems. Each Q&A in the printed text has a similar companion problem online so students can practice their problem-solving skills. These interactive tutorials help students apply basic problem-solving skills to homework, quizzes, and exams. The goal is for students to build skills they can use to analyze real-world economic issues they hear and read about in the news. Each Q&A in MyLab Economics and the eText also includes at least one additional graded practice exercise for students.
- **MyLab Economics Spreadsheet Exercises.** MyLab Economics provides Excel spreadsheets that students can work with and worked-out answers for end-of-chapter spreadsheet exercises.
- **NEW: Math Review Exercises in MyLab Economics.** MyLab Economics now offers a rich array of assignable and auto-graded exercises covering fundamental math concepts geared for managerial economics students. Aimed at increasing student confidence and success, the new math skills review Chapter R is accessible from the assignment manager and contains over 150 graphing, algebra, and calculus exercises for homework, quiz, and test use.
- **Practice.** Algorithmically generated homework and study plan exercises with instant feedback ensure varied and productive practice that helps students improve their understanding and prepare for quizzes and tests. Exercises that require drawing figures encourage students to practice the language of economics.
- **Learning Resources.** Personalized learning aids such as Help Me Solve This Problem walkthroughs, Teach Me explanations of the underlying concept, and figure Animations provide on-demand help when students need it most.
- **Study Plan.** Customized study plans show students which sections to study next, give easy access to practice problems, and provide an automatically generated quiz to prove mastery of the course material.
- **Digital Interactives.** Focused on a single core topic and organized in progressive levels, each interactive immerses students in an assignable and auto-graded

activity. Digital Interactives are lecture tools for traditional, online, and hybrid courses, many incorporating real-time data, data displays, and analysis tools for rich classroom discussions.

- **Learning Catalytics.** Learning Catalytics™ is a “bring your own device” student engagement, assessment, and classroom intelligence system that lets learners use their smartphone, tablet, or laptop to participate in and stay engaged in lecture. It allows instructors to generate classroom discussion, guides lectures, and promotes peer-to-peer learning with real-time analytics. Now students can use any device to interact in the classroom, engage with content and even draw and share graphs. Instructors can divide classes into pairs or groups based on learners’ response patterns, and learners with greater proficiency help motivate other learners while allowing instructors time to provide individualized and focused attention to learners who will benefit from it.
- **Current News Exercises.** These exercises provide a turnkey approach to assign gradable news-based exercises in MyLab Economics. Every week, Pearson scours the news, finds a current article appropriate for a managerial economics course, creates an exercise based on this news article, and then automatically adds it to MyLab Economics.
- **Reporting Dashboard.** Faculty can view, analyze, and report learning outcomes clearly and easily using the Reporting Dashboard. It is available via the Gradebook and fully mobile-ready. The Reporting Dashboard presents student performance data at the class, section, and program levels in an accessible, visual manner.
- **LMS Integration.** Faculty can link from any LMS platform to access assignments, rosters, and resources, and synchronize MyLab grades with your LMS gradebook. For students, a new direct, single sign-on provides easier access to all the personalized learning MyLab resources.
- **Mobile Ready.** Students and instructors can access multimedia resources and complete assessments from any mobile device.
- **Experiments in MyLab Economics.** Flexible, easy to assign, auto-graded, and available in Single and Multiplayer versions, the Experiments in MyLab Economics make learning fun and engaging.

For more information, visit <http://www.myeconlab.com>.

Supplements

This book has a full range of supplementary materials that support teaching and learning.

- The *Online Instructor’s Manual* by Matt Roelofs of Western Washington University contains many useful and creative teaching ideas. It offers additional discussion questions, and provides solutions for all the end-of-chapter questions in the text.
- The *Online Test Bank* by Todd Fitch of the University of California, Berkeley, features problems of varying levels of complexity, suitable for homework assignments and exams. Many of these multiple-choice questions draw on current events.