

MICROECONOMICS

PRINCIPLES AND APPLICATIONS



HALL & LIEBERMAN

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SOUTH-WESTERN College Publishing

An International Thomson Publishing Company

Publishing Team Director: Jack C. Calhoun
Acquisitions Editor: John Alessi
Developmental Editor: Dennis Hanseman
Marketing Manager: Lisa Lysne
Project Manager: Justified Left
Production House: WordCrafters Editorial Services, Inc.
Composition: GGS Information Services
Cover and Internal Designer: Joseph M. Devine
Internal Photo Researcher: Feldman & Associates
Team Assistants: Kristen Meere, C. Renee Bowsky, Julie Behan

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Cincinnati, Ohio

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Library of Congress Cataloging-in-Publication Data

Hall, Robert Ernest,

Microeconomics : principles and applications / Robert Hall, Marc Lieberman.

p. cm.

Includes index.

ISBN 0-538-84758-1

1. Microeconomics. I. Lieberman, Marc. II. Title.

HB172.H35 1998

338.5—dc21

97-17925
CIP

2 3 4 5 6 7 8 9 VH 5 4 3 2 1 0 9 8

Printed in the United States of America

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PREFACE

TO THE INSTRUCTOR

This book is about economic principles and how those principles are applied in the real world. It was conceived, written, and rewritten to help your students focus on those basic principles.

All of the existing books we have seen and used are *substitutes* for the instructor. They try to replicate what happens in class, as if there *were* no class. Moreover, many of them are encyclopedic: They cover every possible topic and subtopic *just in case* you might want to present them.

Our approach is very different. We believe in *complementarity* between textbook and instructor, letting each specialize in the task for which it is best suited. A text has a comparative advantage as a study and reference tool, since the instructor cannot be pulled down off the shelf at a moment's notice. Therefore, a text's primary goal should be a well-organized, logical exposition of economic analysis with a minimum of distraction. As an instructor, you have the comparative advantage in bringing current events into the classroom, sparking controversy and discussion, and fleshing out the material in a highly personal way, since the textbook—by its nature—cannot do any of these tasks well. This book is designed to support you and to stay out of your way. Our philosophy is to treat fewer topics and to treat them fully. We have tried hard not to write an encyclopedia of economics.

Microeconomics: Principles and Applications has a distinctive approach:

- **We stress the basic principles of economics.** Economic theory makes repeated use of some fundamental ideas that appear again and again in many contexts. To truly understand what economics is all about, students need to learn what these central ideas are, and they need to see them in action in different contexts. We've identified and stressed eight *basic principles of economics* in this text:
 - Maximization Subject to Constraints
 - Opportunity Cost

- Specialization and Exchange
- Markets and Equilibrium
- Short-Run versus Long-Run Outcomes
- Marginal Decision Making
- Policy Tradeoffs
- The Importance of Real Values

A full statement of each principle appears in Chapter 1 and again when it is first used later in the text. Then, whenever the principle is used again in subsequent chapters, it is identified with the key symbol shown in the margin.



- **We avoid nonessential material.** When we believed a topic was not essential to an introductory understanding of economics, we left it out. We have also avoided interviews, news clippings, and boxed inserts with only distant connections to the core material. The features your students *will* find in our book are there to help them understand basic economic theory itself, or to help them explore sources of information on their own using the Internet.
- **We explain difficult concepts patiently.** Because we have avoided the encyclopedic approach, we can explain the topics we *do* cover thoroughly and patiently. We try to lead students, step by step, through each aspect of the theory, through each graph, and through each numerical example. Moreover, in the process of developing this book, we asked other experienced teachers to tell us which aspects of economic theory are hardest for their students to learn, and we've paid special attention to the trouble spots (such as the relationship between production and costs, marginal analysis, the logic of present value calculations, the transition from short-run to long-run market equilibria, and many others). Of course, full, patient explanations take up space. This is why our book is only *somewhat* shorter than other texts, even though our focus is more concentrated.
- **We use concrete examples.** Students learn best when they see how economics can explain the world around them. Whenever possible, we develop the

theory using real world examples. When we employ hypothetical examples, because they illustrate the theory more cleanly, we try to make them realistic. In addition, each chapter ends with a thorough, extended application of new material.

SPECIAL PEDAGOGICAL FEATURES

We've chosen features that reinforce the basic theory, rather than distract from it. Here is a list of the most important ones, and how we believe they help students focus on essentials.

- *Using the Theory* sections, which present extended applications, appear at the end of each chapter. While there are plenty of real-world examples and facts in the body of the chapter, helping to illustrate each step along the way, we also felt it important to have one extended application that unifies the material in the chapter. In the Using the Theory sections, students see how the tools they've learned can explain something about the world—something that would be difficult to explain without those tools.
- *Myth* sections are designed to dispel confusions about the economy that students *bring with them* to the class—ideas that they may have picked up from the media or from friends or family. Confronting these myths head on helps to resolve dissonance between prior beliefs and current course content. We try to head off potential confusion before it occurs.
- The *Dangerous Curves* explanations are designed to eliminate confusion that sometimes arises as students read the text—the kinds of mistakes we see year after year in their exams.
- *Internet references* point students to resources that contain truly up-to-the-minute information. We prefer Internet references, rather than the traditional approach of including news stories in the text, for two reasons. First, we want to minimize distractions; and second, what is current news at the time a book is written is stale by the time the book is published.

WHAT'S DIFFERENT HERE, AND WHY

In addition to the special features just described, you will find some important differences in topical approach and arrangement. These, too, are designed to make the theory stand out more cleanly and to make learning easier. These are not pedagogical experiments, nor are they innovation for the sake of innovation. On the contrary,

we are sensitive to the burden of adapting an existing syllabus to a new text. The pedagogical differences you will find in this text are the product of years of classroom experience.

A few of the differences may require minor adjustments in class lectures, and these are listed below. But we would be remiss if we merely listed them without also pointing out why we believe they are improvements. Please indulge us a bit as you read through this list.

- **Scarcity, Choice, and Economic Systems** (Chapter 2). This early chapter, while covering some standard material such as opportunity cost, also introduces some central concepts much earlier than other texts. Most important, the chapter introduces the concept of *comparative advantage* and the basic principle of *specialization and exchange*. We have moved them to the front of our book because we believe they provide important building blocks for much that comes later. For example, economies of scale (Chapter 6) can result from comparative advantage and specialization *within* the firm. International Trade (Chapter 16) can be seen as a special application of these principles, extending them to trade between nations.
- **The Theory of the Firm** (Chapter 7). Many texts introduce the theory of the firm in the context of pure competition. We believe this is an unfortunate choice, because it forces students to master the logic of profit maximization and the details of a rather special kind of market at the same time. Students quite naturally think of firms as facing downward-sloping demand curves—not horizontal ones. We've found that they have an easier time learning the theory of the firm in a more familiar context. Further, by treating the theory of the firm in a separate chapter, before pure competition, we can present together those concepts that apply in *all* market structures (the shapes of marginal cost and average cost curves, marginal cost equals marginal revenue, the shutdown rule, etc.), as distinguished from those unique to pure competition.
- **Monopolistic Competition and Oligopoly** (Chapter 10). Two features of our treatment are worth noting here. First, we emphasize advertising, a key feature of both of these types of markets. We find that students are very interested in advertising and how firms make decisions about it. The chapter opens with this theme, and the Using the Theory section pursues it further. Second, we have taken the plunge and jettisoned older theories of oligopoly that raised

more questions than they answered, such as the kinked demand curve model. Our treatment of oligopoly is strictly game theoretic, but we've taken great care to keep it simple and clear.

- **Description versus Assessment** (Chapters 8–10 and 14). In treating each of the four basic product market structures (pure competition, monopoly, monopolistic competition, and oligopoly), most texts switch back and forth between the *description* of different markets and the *assessment* of market outcomes. In our view, this has some significant drawbacks. First, students often confuse the two. Second, it can make learning about market structure overwhelming. It is hard enough for first-time economics students to understand what happens in each type of market, let alone learn what is good and bad about each one at the same time. Finally, by mixing description and assessment, the all-important concept of economic efficiency is lost in the shuffle; it is diffused throughout the book, rather than treated comprehensively as a unified topic.

Our book collects the material on economic efficiency into a single chapter. This has three major advantages. First, it permits you to focus on *description* and *prediction* when teaching about the four market structures—a full plate, in our experience. Second, having a chapter devoted to efficiency allows a more comprehensive treatment of the topic than we've seen elsewhere. Finally, our approach—in which students learn about efficiency *after* they have mastered the four market structures—allows them to study efficiency with the perspective needed to really understand it.

- **The Government's Role in Economic Efficiency** (Chapter 15). Like the concept of efficiency itself, this important subject is treated in its own chapter. In addition to the standard topics (externalities, public goods, and assessment of imperfect competition), we introduce a crucial subject often missing from introductory texts: the economic role of the legal system. We believe this should be a core topic in the introductory course.

BUILDING A SYLLABUS

We have arranged the contents of each chapter, and the table of contents as a whole, according to the order of presentation that we recommend. But we've also built in some flexibility. For example: Chapter 5 develops consumer theory with both marginal utility and (in an appendix) indifference curves, allowing you to present either method in class. And while we've retained the tra-

ditional placement of international trade at the end of the book (Chapter 16), it does not depend on any material beyond Chapter 3. If you wish to highlight international trade, you could assign Chapter 16 immediately following Chapter 3.

Finally, we have included only those chapters that we thought were both essential and teachable in a one-semester course. But not everyone will agree about what is essential. While we—as authors—cringe at the thought of a chapter being omitted in the interest of time, we've allowed for that possibility. Nothing in Chapter 12 (Income Inequality), Chapter 13 (Markets for Capital and Natural Resources), Chapter 15 (Government's Role in Economic Efficiency), or Chapter 16 (Comparative Advantage and the Gains from Trade) is required to understand the other chapters in the book. Skipping any of these should not cause continuity problems.

In a single-quarter course, the choice will depend on the focus of the course. A business-oriented approach might cover Chapters 1 through 11, 13, 14, and—if time permits—16. A more traditional, social-science approach could use Chapters 1 through 11, 12, 14, 15, and possibly 16.

TEACHING AIDS FOR THE INSTRUCTOR

- The Instructor's Manual contains chapter summaries, lecture outlines, teaching tips and activities, ideas for interactive teaching, and solutions to all end-of-chapter problems and exercises.
- The Microeconomics Test Bank contains over 3,000 questions in multiple choice, true-false, exercise, and essay formats. It is available in both printed and electronic forms.
- Full-color transparencies are available for most of the key graphs and illustrations in the text.
- Our Web site gives students access to a variety of perspectives on economic issues of the day. It contains a series of accessible position papers that explain competing viewpoints on key policy issues. The site also contains news updates linked to the text, teaching and learning resources, and a variety of other interesting features.
- Tutorial software allows students to create, modify, and use key graphs.
- A CNN video provides a variety of short video clips on various aspects of economics.
- Many of the text's figures and tables are available as Microsoft PowerPoint files.

A REQUEST

Although we've worked hard on this book, we know we'll be able to improve it further in future editions. For that, our fellow users are indispensable. We invite your comments and suggestions wholeheartedly. We especially welcome your suggestions for additional "Myths" and "Dangerous Curves." You may send your comments to either of us care of South-Western College Publishing.

*Bob Hall
Marc Lieberman*

ACKNOWLEDGMENTS

This book is a case study of the principle of specialization and exchange. So many people contributed their valuable skills and expertise, especially the staff of South-Western College Publishing. First and foremost among them is our development editor, Dennis Hanseman. Not only does he hold a Ph.D. in economics, but he also possesses a rare ability to take the viewpoint of someone new to economics. His knack for spotting potential areas of confusion, his stubborn insistence on absolute clarity at every turn, and his innumerable contributions in planning and executing the project were immensely valuable. Jack Calhoun, formerly acquisitions editor at South-Western and now team director there, originally signed us as authors, so it is fair to say

that this book would not exist without him. He was a relentless advocate for South-Western as a superior publishing company (a description that turned out to be entirely accurate), and a great problem solver once the project was underway. John Alessi, who took over midstream from Jack, jumped into the project with enthusiasm, energy, and skill. Lisa Lysne did a superior job of marketing and advertising this book and coming up with creative ways to explain what it was all about. Joe Devine created the design features for the text and accomplished a near impossible task: designing a cover that both authors like a lot.

In addition to those at South-Western, we would like to thank Sue Ellen Brown, of Justified Left, and Ann Mohan at WordCrafters, who turned our manuscript into a beautiful book. Bruce Watson, an economist with a flair for teaching as well as writing, contributed many of the end-of-chapter questions. Geoffrey Jehle, of Vassar College, Heinz Kohler, of Amherst College, and Mike Pogodzinski, of San Jose State University, also made important contributions.

Finally we would like to thank our many reviewers, who carefully read the draft manuscript and provided, literally, more than a thousand suggestions for changes and improvements as we drafted and redrafted. While we had no intention of writing a book that would be "all things to all people," and could not incorporate every suggestion, our reviewers helped us make the book "more things for more people." Among those whose suggestions we found particularly valuable are the following:

David Aschauer, Bates College
Robert Averitt, Smith College
Neil Becker, University of Kansas
Alexandra Bernasek, Colorado State University
William Brown, Claremont-McKenna College
Cynthia Browning, Smith College
David Buffum, College of the Holy Cross
Paul Comolli, University of Kansas
Daniel Condon, University of Illinois, Chicago
James Peery Cover, University of Alabama
A. Edward Day, University of Central Florida
Bruce Dalgaard, St. Olaf College
John Duffy, University of Pittsburgh
Donald Dutkowsky, Syracuse University
Roger Nils Folsom, San Jose State University
Rodney Fort, Washington State University
Lisa Grobar, California State University, Long Beach

Philip Grossman, Virginia Polytechnic Institute
David Hakes, University of Northern Iowa
Daniel Hammond, Wake Forest University
John Heywood, University of Wisconsin, Milwaukee
Randall Holcombe, Florida State University
Frederick Inaba, Washington State University
Joyce Jacobsen, Wesleyan University
Helen Jensen, Iowa State University
Elizabeth Kelly, University of Wisconsin, Madison
Philip King, San Francisco State University
Catherine Krause, University of New Mexico
Ashley Lyman, University of Idaho
Michael Magura, University of Toledo
Robert Margo, Vanderbilt University
Howard Marvel, Ohio State University
Laurence McCulloch, Ohio State University
Janet Mitchell, Cornell University

W. Douglas Morgan, University of California,
Santa Barbara
Randy Nelson, Colby College
Norman Obst, Michigan State University
Virginia Owen, Illinois State University
Steve Petty, Oklahoma State University
Morteza Rahmatian, California State University,
Fullerton
Alan Richards, University of California, Santa Cruz

Jolyne Sanjak, SUNY, Albany
David Schaffer, Haverford College
Michael Smitka, Washington and Lee University
Rohini Somanathan, Emory University
Walter Wessels, North Carolina State University
Robert Whaples, Wake Forest University
Thomas White, Assumption College
David Wong, California State University,
Fullerton

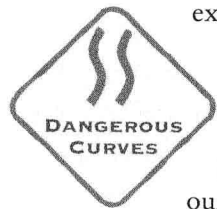
PERSONAL NOTE FROM MARC LIEBERMAN: I want to especially thank four people for helping me with this project in ways that are impossible to measure. First, Geoffrey Jehle, Professor of Economics at Vassar College, provided excellent advice on writing, organizing, and thinking about the material, as well as continual encouragement to keep going. Tami Yellin was both understanding and generous when I had to drop out of a collaborative film project to make time for this book. Finally, my parents, Harold and Charlene Lieberman, showed remarkable patience and support when their son had to cancel family visits—several times—due to deadlines.

PERSONAL NOTE FROM BOB HALL: Charlotte Pace, who keeps my office humming at Stanford, contributed in many ways, especially raising the art of copy checking and proofreading to new levels of excellence. My son Chris served as college culture consultant for the book. My wife, Susan Woodward—a financial economist—helped in so many ways, and happily tolerated the domestic dislocations that inevitably accompany a project like this one. She read and commented (not always favorably) on many of the chapters and drafted material in her areas of interest. And she made Marc very happy by cooking dinner for him.

TO THE STUDENT

You may have already noticed that this note is substantially shorter than our note to instructors. And for good reason. The entire book has been written with you in mind. Here, we just want to give you some advice on using some special features of this book, and suggest some helpful supplements.

- **Getting started.** Chapter 1 tells you what economics *is* and gives some tips on how to study it.
- **The *Basic Principles*.** As you will see, much of economic theory boils down to a small number of fundamental ideas that appear again and again in many contexts. In this book, we've identified eight of them, and we call them the *basic principles of economics*. The entire list is presented in Chapter 1, and each principle is discussed, in more detail, in a later chapter when it is first used. Throughout the book, each time the principle appears again, it is identified with a key symbol, as shown in the margin. When you see one of these keys, it's a signal to stop and think about how the principle is being used.
- **Dangerous Curves.** Professors *do* talk about other things besides the mistakes their students make on exams. But when the subject comes up, it is surprising that our experiences are so similar. Year after year, no matter how hard we try, the same confusions pop up. We've tried to identify the most common ones in our "Dangerous Curves" feature, which you will find throughout the text. You may want to skip them as you read through the chapter the first time, and concentrate on them later—especially before exam time.



- **Myths.** From reading the newspaper, watching the news on TV, or even talking to your friends, you have probably developed a number of ideas about the economy and how it operates.



- Some of these ideas will be accurate, but, unfortunately, others are dead wrong. We've identified some of the more common myths you may have encountered, and have tried to dispel them using the concepts you'll learn in this book. Again, these can be skipped as you read through the chapter the first time, but make sure you come back to them later.
- **Using the Theory.** Each chapter ends with an application that demonstrates how the tools you've

learned can help you understand something new about the world, something that would be hard to understand *without* those tools. These applications should be read the first time you go through the chapter. They can be read again later as a useful review of how economic tools are used.



USING THE
THEORY

- **Mathematical Appendix.** For the most part, the only math you need to understand this book is what you learned in high school—and only a small part of that. The required math and the basics of graphs are reviewed in the Mathematical Appendix at the end of the book. If you are very rusty, you might want to read the appendix in its entirety, early on. Otherwise, just know that it's there, and refer to it when you need it.
- **The Hall/Lieberman Web site** contains a variety of helpful features that will enrich your study of microeconomics. Check it out on a regular basis at <http://hall-lieb.swcollege.com>



LEARNING AIDS

The following items are also available to help you learn microeconomics:

- **The Study Guide.** Learning is different from memorizing. This textbook has been written to help you understand each concept. Nevertheless, to really master the material, there is nothing like repeated problem solving. Much as practicing helps a pianist, the Study Guide written to accompany this book will help you strengthen your knowledge of economics. (ISBN: 0-538-85472-3)
- **MICROECONOMICS ALIVE!** This is an exciting CD-ROM that contains animated lessons, economic tool-building exercises, and simulations that will help you learn microeconomics interactively. (ISBN: 0-538-84650-X)

Ask your bookstore to order these items.

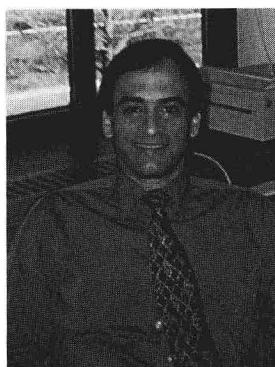
We are honored to help your instructor welcome you to the field of economics. We hope you find the experience of reading this book a fulfilling one—as fulfilling as the experience we had writing it.

Bob Hall
Marc Lieberman

ABOUT THE AUTHORS



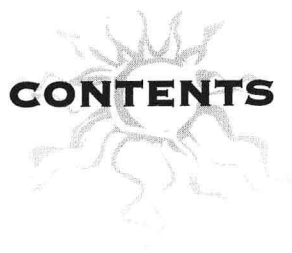
Robert E. Hall is one of the world's most eminent economists. He is Senior Fellow at the Hoover Institution and Professor of Economics at Stanford University where he conducts research on inflation, unemployment, taxation, monetary policy, and the economics of high technology. He received his Ph.D. from MIT and has taught there as well as at the University of California, Berkeley. Hall is Director of the research program on Economic Fluctuations of the National Bureau of Economic Research, and Chairman of the Bureau's Committee on Business Cycle Dating, which maintains the semiofficial chronology of the U.S. business cycle. He has published numerous monographs and articles in scholarly journals, and is the co-author of the popular intermediate text, *Macroeconomics: Theory, Performance, and Policy*. Hall has advised the Treasury Department and the Federal Reserve Board on national economic policy, and has testified on numerous occasions before congressional committees.



Marc Lieberman is Associate Professor of Economics at Vassar College and a visiting lecturer at Princeton University, where he received his Ph.D. He has presented his extremely popular Principles of Economics course at Vassar, Harvard, the University of California-Santa Cruz, and the University of Hawaii. Lieberman is co-editor and contributor to *The Road to Capitalism: Economic Transformation in Eastern Europe and the Soviet Union*. In addition, he has consulted with the Bank of America and the Educational Testing Service. In his spare time, he is a professional screenwriter. He co-wrote the script for *Love Kills*, a movie that aired on the USA Cable Network and is now available in video stores around the world.



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C H A P T E R

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WHAT IS ECONOMICS?

Economics. The word conjures up all sorts of images: monolithic corporate headquarters, highly paid executives in business suits, complicated graphs and charts, manic stock traders on Wall Street, an economic summit meeting in a European capital, a somber television news anchor announcing bad news about higher unemployment. . . . You probably hear about economics several times each day. But what *is* economics? How does it fit into human knowledge? How does the world benefit from it?

First, economics is a social science. It studies those aspects of human behavior relating to working, producing goods, distributing them, and consuming them. Economics explains how prices are set in markets where buyers and sellers come together to trade.

Second, economics has practical value to people, businesses, and government. An economist designed the system used by the public broadcasting system to decide what shows to produce. Economists have developed theories that have reduced risk in financial markets, enabled more people to obtain insurance against fire and theft, and helped to protect consumers against defective products. Economic principles have influenced decisions about taxation, Social Security, unemployment insurance, inflation, business regulations, international trade, and many other government policies.

If you have never studied economics before—and if your ideas about it come mostly from the media—then you may have some misconceptions about what the field is all about. Let's dispel some of these misconceptions right now.

CHAPTER OUTLINE

ECONOMICS, SCARCITY, AND CHOICE

- Scarcity and the Individual
- Scarcity and Society
- Scarcity and Economics

THE WORLD OF ECONOMICS

- Microeconomics and Macroeconomics
- Positive and Normative Economics
- Fields of Economics

WHY STUDY ECONOMICS?

- To Understand the World Better
- To Gain Self-Confidence
- To Achieve Social Change
- To Help Prepare for Other Careers
- To Become an Economist

THE METHODS OF ECONOMICS

- The Art of Building Economic Models
- Assumptions and Conclusions
- Two Fundamental Assumptions
- A Few Words on Macroeconomics
- Choosing among Theories
- "How Much Math Do I Need?"

THE BASIC PRINCIPLES OF ECONOMICS

HOW TO STUDY ECONOMICS