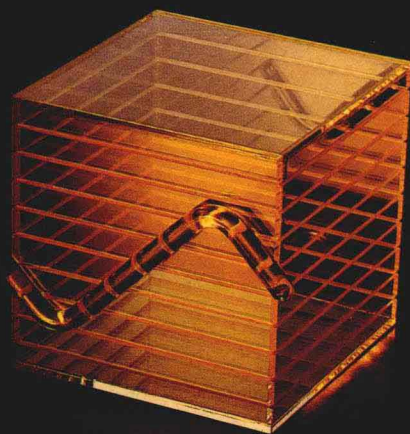


# ECONOMICS

Principles and Policy • Third Edition



## MICROECONOMICS

William J. Baumol and Alan S. Blinder

# ECONOMICS

Principles and Policy · Third Edition

## MICROECONOMICS

---

William J. Baumol

*New York University  
and  
Princeton University*

Alan S. Blinder

*Princeton University*



**Harcourt Brace Jovanovich, Publishers**

San Diego

New York

Chicago

Atlanta

Washington, D.C.

London

Sydney

Toronto

---

To my three children,  
Ellen, Daniel,  
and now Sabrina

W. J. B.

For William, who loves to read,  
and Scott, who loves to write

A. S. B.

---

Copyright © 1986 by Harcourt Brace Jovanovich, Inc.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Requests for permission to make copies of any part of the work should be mailed to:  
Permissions, Harcourt Brace Jovanovich, Publishers, Orlando, Florida 32887.

ISBN: 0-15-518850-X

Library of Congress Catalog Card Number: 85-81180

Printed in the United States of America

**Note:** This work is derived from *Economics: Principles and Policy*, Third Edition by William J. Baumol and Alan S. Blinder. Copyright © 1985, 1982, and 1979 by Harcourt Brace Jovanovich, Inc.

#### ILLUSTRATION CREDITS

Page 11: © 1971, General Drafting Co.; p. 12: Gousha-Chek Chart; p. 14: London School of Economics and Political Science; p. 24: U.S. Geological Survey; p. 45: National Portrait Gallery, London; p. 51: The Bettman Archive; p. 65: HBJ Photo; p. 80: Harvard University; p. 105: Dupont Company; p. 131: Photothyne, Canadian National Film Board; p. 180: Photo Courtesy of the San Francisco Forty-Niners; p. 206: Krokodil/Sovfoto; p. 249: Douglas Aircraft Co.; p. 267: William Gropper, "The Senate" (1935), oil on canvas, 25 1/8" x 33 1/8", Collection, The Museum of Modern Art, New York; gift of A. Conger Corporation; p. 277: Port Authority of New York; p. 282: UPI; p. 290: Union Electric Co.; p. 294: AT&T Photo Service; p. 322: UPI; p. 328: HBJ photo; p. 334: EPA; p. 341: U.S. Steel Corporation; p. 348: EPA; p. 354: Mobil Oil; p. 382: UPI; p. 404: The Bettman Archive; p. 409: UPI; p. 420: *The New Yorker*; p. 422: NY Urban Development Corp.; p. 438: UPI; p. 449: Culver Pictures; p. 455: George H. Harrison from Grant Heilman; p. 459: Air France; p. 461: AP/Wide World; p. 463: Culver Pictures; p. 490: The Bettman Archive; p. 504: UPI; p. 522: Sovfoto; p. 529: UPI; p. 530: UPI.

# ECONOMICS

Principles and Policy · Third Edition


## MICROECONOMICS

---

# Preface

---

**F**or decades, the “principles of economics” book has been expected to codify the entire discipline of economics. In recent years, this has become at once more difficult and more imperative. The explosion of economic knowledge has made it impossible to put all of economics between two covers. But at the same time, more and more public policy issues either are basically economic in nature or involve important economic considerations. Intelligent citizens can no longer afford to be innocent of economics.

While this Third Edition represents an extensive revision of the Second Edition, its preparation continued to be guided by this dilemma. We have studiously avoided the encyclopedic approach and abandoned the fiction, so popular among textbook writers, that literally everything is of the utmost importance. Since students are sufficiently intelligent to see through this ruse in any event, we have tried to highlight those important ideas that are likely to be of lasting significance—principles that you will want to remember long after the course is over because they offer insights that are far from obvious, because they are of practical importance, and because they are widely misunderstood by intelligent laymen. A dozen of the most important of these ideas have been selected as **12 Ideas for Beyond the Final Exam** and are called to your attention when they occur through the use of the book’s logo. 

All modern economics textbooks abound with “real world” examples, but we have tried to go beyond this, to elevate the examples to preeminence. For in our view, the policy issue or everyday economic problem ought to lead the student naturally to the economic principle, not the other way around. For this reason, many chapters start with a real policy issue or a practical problem that may seem puzzling or paradoxical to noneconomists, and then proceed to describe the economic analysis required to remove the mystery. In doing this, we have tried to utilize technical jargon and diagrams only where there is a clear need, never for their own sake.

Still, economics is a somewhat technical subject and, except for a few rather light chapters, this is a book for the desk, not for the bed. We have, however, made strenuous efforts to simplify the technical level of the discussion as much as we could without sacrificing content. Fortunately, almost every important idea in economics can be explained in plain English, and this, in general, is how we have tried to explain them. Yet, even while reducing the technical difficulty of the book, we have incorporated some elements of economic analysis that have traditionally been left out of

introductory books but that are really too important to omit.

One example is our treatment of how the market mechanism is able, under ideal circumstances, to allocate society's resources in the most efficient manner possible. Many introductory texts, thinking the topic too difficult for beginning students, give little more than some general hints about this important result. We offer a genuine proof and an extensive discussion of precisely what the result does—and does not—imply about the efficiency of real-world market economies.

## Changes from the Second Edition

### Microeconomics

In microeconomics, the discussion continues to be organized around a central theme that we believe deals with the most significant lessons to be learned in an introductory economics course: what a market system does well, and what it does poorly.

Thus Part 1 introduces the central theme and some of the fundamental ideas of economics (such as scarcity, opportunity cost, markets, and prices). Then Part 2 acquaints students with the central analytical tools of microeconomics and uses them to explain how both consumers (Chapters 5 and 6) and producers (Chapters 7 and 8) make decisions that best serve their own interests. Part 3 examines how these decisions interact in the marketplace and provides an extensive examination of the virtues and vices of free markets. The early chapters of Part 3 (Chapters 10 and 11) extol the remarkable accomplishments of an idealized system of markets, while the later chapters (Chapters 12–14) discuss some of the market system's principle failings. In this way, Part 3 sets the stage for Parts 4 and 5, in which we discuss where, why, and how the government intervenes in the economy.

Much of this material has been rewritten and/or reorganized since the Second Edition, partly in response to many extremely useful suggestions we have had from readers. Difficult points are explained more patiently, and there are more examples and graphs than in the Second Edition. In particular, the two chapters summarizing the market's virtues (Chapter 11) and vices (Chapter 14) now come much closer together in the text, and much of the "core" microeconomic chapters (Chapters 3 and 4 and 5–8) has been completely rewritten.

Revisions were particularly extensive in Chapters 6 (Consumer Demand and Elasticity) and 7 (Inputs and Costs). Chapter 6 now has a much more detailed, step-by-step description and explanation of the important elasticity concept, featuring many more examples. To improve its exposition, Chapter 7 has been divided into two parts.

The first part deals with the analytically simpler case in which the quantity of only one input is chosen. Using this simplification, we discuss how input choice determines the firm's cost curves—which are so crucial for the analysis of the output decisions of the enterprise described in the following chapter. We also introduce and explain the distinction between fixed and variable cost and that between the short and long run. These concepts, which have been moved here from the following chapter, are used to explain the characteristic shapes of the firm's cost curves.

The new second part of Chapter 7 deals with the complications that arise when many inputs are chosen at once. The cost-minimizing combination of inputs is analyzed, and phenomena such as the “law” of diminishing returns and returns to scale are examined and contrasted. The material is written so that the instructor can, without loss of continuity, postpone the multi-input discussion until later in the course, or can omit it entirely.

The policy-oriented chapters have been updated to reflect new developments in regulatory (Chapter 15), antitrust (Chapter 16), and environmental (Chapter 18) policy, heightened interest in tax loopholes and flat-rate taxes (Chapter 17), and the diminished importance of the “energy crisis” (Chapter 19). The new theory of “contestable markets” is introduced in Chapter 13 and referred to in several other chapters.

The chapter on international economics, 23 (and Chapter 19 in *Macroeconomics*), has also been revised extensively. Chapter 23 has a different, more patient, and more detailed explanation of comparative advantage, and much more material on current issues in trade policy.

Some twenty years of lag in the growth rate of American productivity behind that of a substantial number of European and Far Eastern countries has elicited worries about the consequences for U.S. competitiveness. Our belief that U.S. productivity performance will continue to be a major concern of policymakers has prompted us to add an entirely new chapter on this subject. Our new Chapter 24 describes the pertinent facts, examines some of the explanations that have been offered, analyzes the consequences of a protracted lag in productivity growth, and discusses some of the productivity stimulation policies that have been proposed.

## **Studying Principles of Economics**

Whatever the nature of your course, we would like to offer one suggestion. Unlike some of the other courses you may be taking, principles of economics is cumulative—each week's lesson builds on what you have learned before. You will save yourself a lot of frustration (and also a lot of work) if you keep up on a week-to-week basis. To help you do this, there is a chapter summary, a list of important terms and concepts, and a selection of discussion questions to help you review at the end of each chapter. In addition to these aids, many students will find the *Study Guide*, designed specifically to accompany this text by Professor Craig Swan, helpful as a self-testing and diagnostic device. When you encounter difficulties in the *Study Guide*, you will know which sections of the text you need to review.

## **Note to the Instructor**

In trying to improve the book from one edition to the next, we rely heavily on our own experiences as teachers. But our experience using the book is miniscule compared to that of the hundreds of instructors who use it nationwide. If you encounter problems, or have suggestions for improving the book, we urge you to let us know by writing to either one of us in care of Harcourt Brace Jovanovich, College Department, 1250 Sixth Avenue, San Diego, California 92101. Such letters are invaluable, and we are glad to receive them, even if they are critical.



What follows is a set of suggested course outlines.

## OUTLINE FOR A ONE-SEMESTER COURSE IN MICROECONOMICS

Chapter Number	Title
1	What Is Economics?
2	The Use and Misuse of Graphs
3	<i>The Economic Problem</i>
4	Supply and Demand: An Initial Look
5	The Common Sense of Consumer Choice
6	Consumer Demand and Elasticity
7	The Common Sense of Business Decisions: Inputs and Costs
8	The Common Sense of Business Decisions: Outputs and Prices
9	Firms in Reality: The Corporation and the Stock Market
10	The Firm in the Marketplace: Perfect Competition
11	The Price System and the Case for Laissez Faire
12	Pure Monopoly and the Market Mechanism
13	Between Competition and Monopoly
14	Shortcomings of the Market Mechanism and Government Attempts to Remedy Them
15	Limiting Market Power: Regulation of Industry
16	Limiting Market Power: Antitrust Policy
17	Taxation, Government Spending, and Resource Allocation
20	Input Prices: Interest, Rent, and Profits
21	The Labor Market and Wages

Plus Any Two of the Following:

- |    |  |
|----|--|
| 18 | The Economics of Environmental Protection                |
| 19 | The Economics of Energy and Natural Resources            |
| 22 | Poverty, Inequality, and Discrimination                  |
| 25 | Marxian Economics  |
| 26 | Comparative Economic Systems: What Are the Choices?      |
| 27 | Dissenting Opinions: Conservative, Moderate, and Radical |

## OUTLINE FOR A ONE-QUARTER COURSE IN MICROECONOMICS

Chapter Number	Title
3	<i>The Economic Problem</i>
4	Supply and Demand: An Initial Look
5	The Common Sense of Consumer Choice
6	Consumer Demand and Elasticity
7	The Common Sense of Business Decisions: Inputs and Costs
8	The Common Sense of Business Decisions: Outputs and Prices
9	Firms in Reality: The Corporation and the Stock Market
10	The Firm in the Marketplace: Perfect Competition
11	The Price System and the Case for Laissez Faire
12	Pure Monopoly and the Market Mechanism
13	Between Competition and Monopoly
14	Shortcomings of the Market Mechanism and Government Attempts to Remedy Them
17	Taxation, Government Spending, and Resource Allocation
20	Input Prices: Interest, Rent, and Profits
21	The Labor Market and Wages

## With Thanks

Finally, and with great pleasure, we turn to the customary acknowledgments of indebtedness. Ours have been accumulating now through three editions. In these days of specialization, not even a pair of authors can master every subject that an introductory text must cover. Our friends and colleagues Charles Berry, William Branson, Lester Chandler, Gregory Chow, Avinash Dixit, Stephen Goldfeld, Claudia Goldin, Ronald Grieson, Daniel Hamermesh, Peter Kenen, Melvin Krauss, Arthur Lewis, Burton Malkiel, Edwin Mills, Janusz Ordover, Uwe Reinhardt, Harvey Rosen, Hans Soderstrom, Laura Tyson, and Martin Weitzman have all given generously of their knowledge in particular areas over the course of three editions. We have learned much from them, and only wish we had learned more.

Many economists at other colleges and universities offered useful suggestions for improvements, many of which we have incorporated into the Third Edition. We wish to thank Mohsen Bahmani-Oskooee of University of Wisconsin–Milwaukee, Philip Bartholomew of University of Michigan, Merton Bernstein of Washington University, Vito Blomo of East Carolina University, Martin Bronfenbrenner of Aoyama Gakuin University (Tokyo), Robert Cherry of Brooklyn College, Fred Curtis of Drew University, Lawrence De Brock of University of Illinois–Champaign, Susan Feiner of Virginia Commonwealth University, Donald Frearson of Western Australian Institute of Technology, Gordon Galbraith of Portland Community College, R. Scott Gassler of Guilford College, Dermot Gately of New York University, David George of LaSalle College, Amyra Grossbard-Shechtman of San Diego State University, Art Gutowsky of California State University–Sacramento, James S. Hanson of Willamette University, Derek Jones of Hamilton College, Abraham Kidane of California State University–Dominguez Hills, Gary F. Langer of Roosevelt University, Alan Mandelstamm of Virginia Polytechnic Institute and State University, Benjamin N. Matta of New Mexico State University, Henry N. McCarl of University of Alabama–Birmingham, William Mounts of Mercer University, Mark Plant of University of California–Los Angeles, Robert Reilly of Virginia Commonwealth University, David Ring of State University of New York–Oneonta, Richard Roehl of University of Michigan–Dearborn, Francis (Bill) Rushing of Georgia State University, William Sher of Duquesne University, Mary A. Shulman of Northwestern University, James Starkey of University of Rhode Island, Robert Thomas of Iowa State University, William Thweatt of Vanderbilt University, Samuel Torres-Roman of University of Puerto Rico, Kay Unger of University of Montana, Bernard Wasow of New York University, James

Wetzel of Virginia Commonwealth University, William Wood of University of Virginia, Arthur Wright of University of Connecticut, and Philip Young of Pace University.

We also wish to thank the many economists who responded to our questionnaire: Kenneth Ainsworth of Allegheny College, James R. Alm of University of Colorado, John Anderson of Eastern Michigan University, Ronald Balvers of University of Notre Dame, David Baules of Clemson University, Eileen Boerio of University of Pennsylvania, Michael Brand of University of Texas–El Paso, G. E. Breger of University of South Carolina, Martin Brown of California State University–Chico, James T. Campen of University of Massachusetts–Boston, Paul Carlin of University of Pittsburgh, Kim Carney of University of Texas–Arlington, Arthur Centonze of Pace University, Joseph Chung of Illinois Institute of Technology, Carol A.M. Clark of Guilford College, Enid Dennis of Clarion State University, Adrian Dierx of University of Pittsburgh, James Diffley of Adelphi University, John Donnelley of Washington State University, G. Dorai of William Paterson College, Richard Dye of Lake Forest College, Todd Easton of University of Portland, Walter Enders of Iowa State, Yiu-Kwan Fan of University of Wisconsin–Stevens Point, Louis Ferleger of University of Massachusetts–Boston, William C. Freund of Pace University, Robert Scott Gassler of Guilford College, Charles Gillette of University of Northern Iowa, Richard Glendening of Central College, Stephen Goldfeld of Princeton University, Peter Gottshalk of Bowdoin College, Kenneth R. Gray of North Texas State University, Art Gutowsky of California State University–Sacramento, Philip Hahn of Youngstown State University, Clay Hall of Illinois Institute of Technology, Neal Higgins of University of Portland, David Howard of Delta College, Carol Johnson of Diablo Valley College, Derek Jones of Hamilton College, Harrie Kemna of University of Pittsburgh, Ki-Ho Kim of William Paterson College, W.J. Lane of Texas A & M University, George Lee of New York University, Craig Leisy of U.S. Coast Guard Academy, J. Patrick Lewis of Otterbein College, Marc Lieberman of University of California–Santa Cruz, William Mass of University of Massachusetts–Boston, Drew Mattson of Anoka Ramsey Community College, James Meszaros of William Paterson College, Douglas Morgan of University of California–Santa Barbara, William Mounts of Mercer University, E. Wayne Murdock of Stephen F. Austin State University, Edward Nadel of Ulster County Community College, Gregory W. Nicklas of William Paterson College, Louis E. Noyd of North Kentucky University, Charles F. Palmer of Wilmington College, Joseph S. Patrick of Diablo Valley College, Dan Pelad of Carnegie-Mellon University, Michael J. Piette of University of

Hartford, Shyamala Raman of Saint Joseph College, Yngve Ramstad of University of Rhode Island, Sydney Reagan of Dallas, N. N. Reddy of University of Michigan, James M. Rock of University of Utah, Steven Rock of Illinois Institute of Technology, Richard Roehl of University of Michigan, Emily Simons of Nazareth College, Henry Shaffer of University of Kansas, Kevin Sontheimer of University of Pittsburgh, William F. Stine of Clarion State College, George H. Sweeney of Vanderbilt University, R. W. Thomas of Iowa State, E. A. Tonak of Slippery Rock State College, C. R. Torrissi of University of Hartford, Laura D'Andrea Tyson of University of California—Berkeley, Kay Unger of University of Montana, John Vahaly of University of Louisville, William M. Van Lear of University of Pittsburgh, William Vickrey of Columbia University, L. Waldman of College of St. Benedict, Paul Weller of Warwick University (U.K.), James R. White of Hamilton College, Robertson Williams of Williams College, Arthur Wright of University of Connecticut, James Xander of University of Central Florida, Yung Yang of California State University—Sacramento, Philip Young of Pace University, and Habib A. Zuberi of Central Michigan University. Their responses were invaluable in planning this revision.

We were, of course, most gratified by a number of spontaneous and kind letters from student readers. Since it is for such readers that the book is primarily intended, no other comments have meant as much to us.

The book you hold in your hand was not done by us alone. The fine people at Harcourt Brace Jovanovich, including Hannah McHugh, Johanna Schmid, Barbara Girard, Avery Hallowell, Don Fujimoto, and Fran Wager, worked hard and well to turn our manuscript into the book you see. We appreciate their efforts.

Our sanity and survival during the preparation of the Third Edition were assured by the intelligence, ability, and pleasantness of our secretaries, Phyllis Durepos and Mary Mateja, who did so many things and did them all so well. Sue Anne Batey Blackman, who seems to know our thoughts on the subject better than we do ourselves, brought up to date the chapters on the environment and the economics of natural resources.

And finally there are our wives, Hilda Baumol and Madeline Blinder. They have now participated in this project for nine years, and with each successive revision they help in more and more ways. Their patience, good judgment, and love have made everything go more smoothly than we had any right to expect. We salute them.

**William J. Baumol**  
**Alan S. Blinder**

---

# Contents

---

<b>Preface</b>	<b>v</b>
----------------	----------

---

## **PART 1**

---

### **What Is Economics All About? 1**

#### **1 What Is Economics? 2**

#### **Ideas for Beyond the Final Exam 2**

Idea 1: The Trade-Off Between Inflation and Unemployment	3
Idea 2: The Illusion of High Interest Rates	3
Idea 3: The Consequences of Budget Deficits	4
Idea 4: Mutual Gains from Voluntary Exchange	4
Idea 5: The Surprising Principle of Comparative Advantage	4
Idea 6: Productivity Is Everything in the Long Run	5
Idea 7: Attempts to Repeal the Laws of Supply and Demand: The Market Strikes Back	5
Idea 8: Externalities: A Shortcoming of the Market Cured by Market Methods	6
Idea 9: Rational Choice and True Economic Costs	6
Idea 10: The Importance of Marginal Analysis	7
Idea 11: The Cost Disease of the Service Sector	7
Idea 12: Increasing Output May Require Sacrificing Equality	8
Epilogue	8

#### **Inside the Economist's Tool Kit 9**

What Economists Do	9
The Need for Abstraction	9
The Role of Economic Theory	12
What Is an Economic "Model"?	14
The Concept of "Rational" Behavior	14
Reasons for Disagreements: Imperfect Information and Value Judgments	15
The Economist's Odd Vocabulary	16

Summary	17
Concepts for Review	17
Questions for Discussion	17

## 2 The Use and Misuse of Graphs 18

### Graphs Used in Economic Analysis 19

Two-Variable Diagrams	19
The Definition and Measurement of Slope	20
Rays Through the Origin and 45° Lines	23
Squeezing Three Dimensions into Two: Contour Maps	24

### Perils in the Interpretation of Graphs 24

The Interpretation of Growth Trends	25
Distorting Trends by Choice of the Time Period	27
Dangers of Omitting the Origin	28
Unreliability of Steepness and Choice of Units	30
Summary	32
Concepts for Review	33
Questions for Discussion	33

## 3 The Economic Problem 34

The "Indispensable Necessity" Syndrome	34
Scarcity, Choice, and Opportunity Cost	35
Opportunity Cost and Money Cost	36
Scarcity and Choice for a Single Firm	37
Scarcity and Choice for the Entire Society	39
Scarcity and Choice Elsewhere in the Economy	41
The Concept of Efficiency	42
The Three Coordination Tasks of Any Economy	43
Specialization, Division of Labor, and Exchange	43

Markets, Prices, and the Three Coordination Tasks	45
Radicalism, Conservatism, and the Market Mechanism	46
Summary	47
Concepts for Review	48
Questions for Discussion	48

## **4 Supply and Demand: An Initial Look** **49**

Fighting the Invisible Hand	49
Demand and Quantity Demanded	50
Supply and Quantity Supplied	52
Equilibrium of Supply and Demand	54
Shifts of the Demand Curve	57
Shifts of the Supply Curve	59
Restraining the Market Mechanism: Price Ceilings	62
Restraining the Market Mechanism: Price Floors	64
A Can of Worms	66
Summary	67
Concepts for Review	68
Questions for Discussion	68

# **PART 2** ---

## **Essentials of Microeconomics: Consumers and Firms** **70**

### **5 The Common Sense of Consumer Choice** **72**

Total and Marginal Utility	73
From Marginal Utility to the Demand Curve	76
The Diamond–Water Paradox: The Puzzle Resolved	77
Prices, Income, and Quantity Demanded	78



Summary	80
Concepts for Review	81
Questions for Discussion	81

## **Appendix: Indifference Curve Analysis** 82

Geometry of the Available Choices: The Budget Line	82
Properties of the Budget Line	83
What the Consumer Prefers: The Indifference Curve	84
Properties of the Indifference Curve	84
The Consumer's Choice	85
Consequences of Income Changes: Inferior Goods	87
Consequences of Price Changes: Deriving the Demand Curve	87
Summary	89
Concepts for Review	89
Questions for Discussion	89

## **6 Consumer Demand and Elasticity** 90

From Individual Demand Curves to Market Demand Curves	90
The "Law" of Demand	91
Application: Who Pays an Excise Tax?	92
Elasticity: The Measure of Responsiveness	95
Elasticity and the Shape of Demand Curves	98
Elasticity and Total Expenditure	100
What Determines Elasticity of Demand?	101
Elasticity Is a General Concept	102
Quantity Demanded Depends on Many Variables	102
Shifts in Demand Curves	104
The Time Dimension of the Demand Curve and Decision Making	106
Statistical Analysis of Demand Relationships	106
Summary	109
Concepts for Review	109
Questions for Discussion	109