

PRINCIPLES OF
macroeconomics



*Henderson
&
Poole*

PRINCIPLES OF

Macroeconomics

J. Vernon Henderson

Brown University

William Poole

Brown University

D.C. Heath and Company

Lexington, Massachusetts Toronto

Address editorial correspondence to:

D. C. Heath
125 Spring Street
Lexington, MA 02173

Editorial Director: George Lobell
Developmental Editors: Debbie Osnowitz and Patricia Wakeley
Production Editor: Bryan Woodhouse
Designer: Henry Rachlin
Art Editor: Janet Theurer
Production Coordinator: Lisa Merrill
Photo Researcher: Sue C. Howard and Billie Ingram
Text Permissions Editor: Margaret Roll

Cover: Interior, cupola, Dome of the Rock, Jerusalem. Photo by Raffaello Bencini,
SCALA/Art Resource.

For permission to use copyrighted material, grateful acknowledgment is made to the
copyright holders listed on page xv, which is hereby considered an extension of this
copyright page.

Copyright © 1991 by D. C. Heath and Company.

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 or retrieval system, without permission in writing from the
publisher.

Published simultaneously in Canada.

Printed in the United States of America.

International Standard Book Number: 0-669-14493-2

Library of Congress Catalog Number: 90-84760

10 9 8 7 6 5 4 3 2

To our students, who have taught us so much
as they used this book in draft form,
and to our families, whose understanding, patience, and encouragement
during evening and weekend hours spent on the book,
have led to the finished product

About the Authors



J. Vernon Henderson, Professor of Economics at Brown University, received his PhD from the University of Chicago. He has worked extensively as an economist abroad, in Spain, China, India, Nepal, Brazil, and Canada. Recipient of a Guggenheim Memorial Fellowship, an Earhart Foundation Fellowship, and several National Science Foundation grants, Professor Henderson is a consultant to the World Bank and a research associate for the National Bureau of Economic Research. A frequent contributor to journals such as *American Economic Review*, *Journal of Political Economy*, *Journal of Public Economics*, and *Journal of Urban Economics*, he is also the author of *Economic Theory and the Cities* (1985) and *Urban Development: Theory, Fact, and Illusion* (1988). Currently, he is working on issues of industrial location and urban development in developing countries and the impact of fiscal decentralization on resource allocation. Besides his work and his foreign travels, Professor Henderson enjoys playing competitive squash and bringing up his four children, ages six to seventeen.

William Poole, Herbert H. Goldberger Professor of Economics at Brown University, received his PhD from the University of Chicago. From 1982 to 1985, he served as a member of the Council of Economic Advisers to President Reagan. He currently acts as an Adjunct Scholar for both the American Enterprise Institute and the Cato Institute, is a research associate for the National Bureau of Economic Research, a member of the Shadow Open Market Committee and an associate member for the Institute of Fiscal and Monetary Policy, Ministry of Finance, Japan. Professor Poole sits on advisory boards to the Federal Reserve Bank of New York and the Congressional Budget Office. He is a frequent contributor to the *Journal of Finance*, *American Economic Review*, and the *Journal of Money, Credit, and Banking*, of which he is also an associate editor. His current research is on issues in monetary policy, macroeconomics, and international finance. In addition to teaching, writing, and consulting, Professor Poole also finds time and enthusiasm for competitive sailing, and enjoys photography, travel, wood-working, hiking and camping.

Preface

There is no shortage of introductory economics texts, but there is a shortage of modern, relevant, and well-written ones. We wrote this text so that students could have a pedagogically sound presentation of modern economics. There is an emphasis on data (what economists know) and policy (how government economic policies are created) that is rare in an introductory text. The data are here to give students a basic knowledge of the facts about our world economy and to provide real-life examples. The policy emphasis helps students to understand the critical role of government in today's mixed economies. Moreover, evaluation of public policy is the skill that students need most, because that is how they will apply their knowledge of economics when they venture forth from college to join the labor force and participate in a democracy. The objective of this book is to blend economic modeling with a sense of what is important about economies and how and when economic models are applied to the real world. We have written this book with both students and instructors in mind.

For The Student

Material is clearly presented in a lively, informal style. We provide many examples in the text—in the Focus boxes, in the problems, and in the text proper. We are especially mindful of the need for examples in the traditionally dry theory sections. We have avoided ending sections with vague references to how some theory can be applied to real life, made more complex, or extended to lots of other problems. We have tried to make everything in the text understandable, immediately relevant, and sufficiently illustrated, so that students can embark on their own applications and extensions in the problem sets.

The book has a twofold international focus throughout: (1) We emphasize that today the United States is an open economy. Links to the rest of the world are pervasive; they affect public policy not only with respect to trade, but also in such areas as banking regulation and the international transmission of business cycles and inflation. (2) We are well aware that today's students often travel abroad. We emphasize that they need to understand that economic models apply in other cultures but that laws and institutions affect market structures and outcomes. Examples of

economic behavior from everyday life around the world appear throughout the text. These examples include the problems of Harris tweed weavers in Scotland and inflation in Brazil, and the migration from East to West Germany. Economic applications from developing countries are especially abundant and important because they help students see the universal aspects of economic principles.

For Instructors

We have tried to make teaching easier. We have worked hard to provide clear exposition. We make topics interesting both through hypothetical examples and through highly relevant real-world examples. We want students to be motivated by a desire to understand the world around them. We emphasize the science and facts of economics; we made a conscious decision to keep the book as ideologically balanced as we possibly could. This does not mean that the book is without opinions. Rather, students are taught how to think in economic terms and how to make their own evaluations and form their own opinions. We simply provide them with tools, facts, and an understanding of the complexity of most public-policy issues. Economics is an evolving discipline, even at the introductory level, and it is important that students learn to apply a healthy skepticism to the latest fad theory.

We have blended modern theory into traditional topics. There are chapters and sections and in some cases appendixes on uncertainty and expectations, financial innovation, the permanent income theory of consumption, rational expectations, and the theory of policy under uncertainty. These may be assigned or ignored as one chooses, without loss of continuity. However, the concepts from these developments in economic theory are blended into the presentation of traditional topics in an informal fashion. Professional economists, as readers of the journal literature, are very familiar with the key concepts from developments in economics over the last quarter century. These developments give us new insight into the traditional topics of Keynesian and monetarist analysis of aggregate demand. We put aside economics journal literature that must be regarded at this time as speculative, and concentrate on the newer developments that have become an established part of mainstream economics.

We weave this body of established newer work into the text while maintaining the traditional presentation of topics. Again, the emphasis is on clarity, intuition, application to everyday life, and consistency in level and style of presentation.

Organization

The text begins with an introductory section (Chapters 1–5). It covers the general topics—from scarcity and a market economy to the use of diagrams and other tools of economic analysis—that all students need to learn as they begin their study of economics. The real substance of economic analysis, however, comes later.

The three chapters following the introductory section (Chapters 6–8) provide an overview of macroeconomics, covering such basic concepts as the national income accounts and the important distinctions between money and financial assets on the one hand and real and nominal output flows on the other hand. The national income accounts are explained not so much for their own sake but rather as part of a framework for macro analysis.

Chapter 8 outlines the major characteristics of business cycles. This chapter reflects our commitment to provide students with a thorough grounding on the purpose of the macro theory that follows. Knowledge of business-cycle regularities is also important for its own sake; students should understand why, for example, new data showing a surge in inventories might lead to a bond-market rally as investors realize that inventories are rising because the economy is weak. This material is essential to understanding the facts that business-cycle theory must explain.

Following the three introductory macro chapters are two chapters on Keynesian theory. The first of these (Chapter 9) covers the Keynesian model of income determination and the basics of the Phillips-curve analysis of inflation. We have consciously put these two topics together in the same chapter to emphasize the integration of output and price determination, as economists always do in microeconomic analysis. The second of the two Keynesian chapters (Chapter 10) covers consumption and investment theory. This chapter explains how a deeper analysis of consumption and investment affects the results of the basic Keynesian model presented in the preceding chapter.

Chapter 11, on money and banking, appears between the Keynesian- and monetary-theory chapters. In a sense, the subject of money and banking belongs with the introductory macro chapters, and some

instructors may want to cover the topic there. However, money and banking material is also appropriate as an adjunct to discussing macro theory, so we have placed the topic in this section, just ahead of the monetary-theory chapters.

Following the two chapters on Keynesian theory and one on money and banking are two chapters on monetarist theory of business cycles and inflation. Some instructors may prefer to cover these chapters (Chapters 12 and 13) before the Keynesian ones, because monetarist theory is easier in some respects. Also, of course, the quantity theory of money predated the Keynesian theory and some of Keynes's ideas are best understood as a reaction to quantity-theory ideas.

Although the book is designed so that instructors may take up money first if they prefer, we have a strong conviction that a systematic treatment of stabilization policy should be delayed until the student has covered both Keynesian and monetarist analysis. Macro policy today is always conditioned by the effort to walk the fine line between output growth and inflation. Students cannot appreciate this policy tension without studying both Keynesian theory, with its emphasis on the real economy, and monetarist theory, with its emphasis on the price level.

The last of the macro-theory chapters (Chapter 14) provides a synthesis of Keynesian and monetarist ideas. Most economists today have borrowed heavily from both Keynesian and monetarist traditions, so it makes good sense to examine them together. Not everyone will agree on the way we have done this, but the discussion should nevertheless serve as a vehicle for the instructor to put a personal stamp on where all the theory leads. This chapter also provides a clear statement of the critical unresolved issue in macroeconomics—uncertainty over the correct theory to explain the slope of the aggregate supply curve. Economists find it difficult to abandon their traditional approach to theory—that markets can be best understood under the assumption that economic agents are rational and well-informed—and yet no such theory (as yet) provides a satisfactory explanation of the business cycle.

Three chapters on economic policy follow the macro-theory chapters. The theory chapters contain some policy applications to help make the theory come alive, but it is best to delay a thorough discussion of stabilization until after students have macro theory under their belts.

The first of the stabilization chapters (Chapter 15) provides a general introduction to the goals of policy

and the problems of lags and uncertainty. A chapter on fiscal policy (Chapter 16) follows; it covers traditional fiscal-policy topics such as the full-employment budget surplus. The chapter also includes material on the federal budget process, Gramm-Rudman, and supply-side fiscal policies.

The analysis of monetary policy (Chapter 17) includes a description of the Federal Reserve's policy process, the relative advantages of money and interest rates as guides to monetary policy, and a discussion of the changing behavior of velocity in the 1980s.

The last two chapters of the text are devoted to international issues. Of course, international examples and illustrations appear throughout the book, and we have emphasized that economic theory applies to all exchange, which of course includes international trade. The theory of comparative advantage is treated at the very beginning of the book and not simply relegated to a chapter on international trade. Nevertheless, there is a place for separate consideration of international economic issues.

Chapter 18, on international trade, presents the theory of comparative advantage explicitly in an international setting and explores theories of the sources of comparative advantage. Most of the trade chapter, however, is devoted to an analysis of trade barriers—how they work, their costs to consumers, and common arguments for them. International finance (Chapter 19) is inherently a rather specialized topic, and we devote a separate chapter to it. Topics include exchange rates, balance of payments, and international investment.

Learning Aids in the Text

Several elements in the text are specially designed as tools to help students learn:

- **Topics in This Chapter.** Each chapter begins with a list of the key concepts introduced in the chapter. It offers a convenient way to both preview and review the chapter's contents.
- **Focus.** Real-world events and opinion in these boxed applications show how economic principles operate in everyday life.
- **Public Policy in Action.** A special box on a public or controversial issue at the end of each chapter analyzes economic aspects of public life and politics.
- **Key Terms.** The definitions of terms comprise a complete learning system. When a term is first introduced, it is printed in boldface in the text. A

formal definition appears nearby, and the term is also listed at the end of the chapter with other key terms. Finally, all key terms and their definitions are brought together in the Glossary at the end of the text.

- **Questions and Problems.** These unusually lively and pertinent questions and problems were written by Albert E. Parish, Jr., who is also the author of the *Student Workbook*, the *Test Bank*, and the *Instructor's Guide*. Solutions to odd-numbered questions and problems are given at the end of the text; solutions to even-numbered problems are in the *Instructor's Guide*.

Text Supplements

Principles of Microeconomics is supported by several supplements for students and instructors. All of the print supplements were written by Albert E. Parish, Jr., of Charleston Southern University.

The *Student Workbook* is especially strong. Each chapter offers students a varied menu of activities and learning aids, including a detailed review of the most important equations and graphs from the text. Other features include a brief explanation of important concepts, chapter objectives and summary, and approximately 40 questions and problems of varying difficulty. One or two problems in each chapter require the use of calculus; these are clearly identified. Complete solutions at the end of the chapter help students stay on track.

The *Test Bank* provides approximately 1,250 multiple-choice questions, many with graphs that the students must analyze. The *Test Bank* is available in four formats: IBM, Macintosh, Apple, and a print version. With the computerized versions, instructors can easily edit the questions or add their own, including graphics.

The *Instructor's Guide* consists primarily of the problem solutions not given in the text. It also includes chapter outlines and our rationale for each chapter—why we wrote it as we did.

The Transparencies set pulls together the most important graphs from the text, printed in two colors and ready for use with an overhead projector.

Acknowledgments

We are grateful to the many individuals who contributed in various ways to the writing and development of this text.

Our thanks go first to our research and teaching assistants: Vivek Arora, Carlotta Baptista, Josiah Carberry, Donna Gibbons, Wanda Gorgol, Skoukang Lin, Paul Markowitz, Mary Pat McNulty, Philip Merrigan, Daniel Nuxoll, Seonghwan Oh, Richard Nisenson, and Orna Samuelly.

We also appreciate the patient typing and retyping of the manuscript by Chris Sonderegger and Carlotta Baptista.

William Poole made extensive use of the macroeconomic database maintained by Data Resources, Inc. (DRI), and acknowledges, with thanks, research support from DRI in the form of access to its database.

Reviews by academic colleagues were extensive and extremely helpful. We thank all of them, especially Mark Machina of the University of California—San Diego. Other reviewers were:

Susan Alexander, College of St. Thomas
 Steve Allen, North Carolina State University—Raleigh
 Richard K. Anderson, Texas A&M University
 G. Jeffrey Barbour, Central Michigan University
 Peter S. Barger, Eastern Illinois University
 Burley Bechdolt, Northern Illinois University
 Benjamin Bental, University of California—San Diego
 Charles A. Berry, University of Cincinnati
 Carl Biven, Georgia Institute of Technology
 Scott Bloom, North Dakota State University
 Douglas Brown, Georgetown University
 Richard Comerford, Bergen Community College
 Mary Cookingham, Michigan State University
 Chris Cornwell, University of Georgia
 Sheldon Danziger, University of Wisconsin—Madison
 Michael Donihue, Colby College
 Robert R. Ebert, Baldwin-Wallace College
 Mary Edwards, St. Cloud State University
 Robert Eisenstadt, Georgia State University
 David Fractor, California State University
 Roy Gardner, Indiana University
 Eric Gustafson, University of California—Davis
 Jan Hansen, University of Wisconsin—Eau Claire
 Dennis Heffley, University of Connecticut
 Catherine Hill, Williams College
 John Heywood, University of Wisconsin
 William Hogan, Southeastern Massachusetts University

Beth Ingram, University of Iowa
 Richard Kieffer, State University of New York—Buffalo
 Frederick Kottke, K. K. Economic Consultants
 Loren A. Lee, Palomar Community College
 Susan Linz, Michigan State University
 Katherine Lyall, University of Wisconsin
 Joseph Maddalena, St. Thomas Aquinas College
 Jay Marchand, Radford University
 David Martin, Davidson College
 Drew Mattson, Anoka Ramsey Community College
 Paul Menchik, Michigan State University
 Eija E. Multasuo, Eastern Michigan University
 Mark Nadler, State University of New York—Fredonia
 Kenneth Ng, California State University—Northridge
 Albert E. Parish, Jr., Charleston Southern University
 John Pomery, Purdue University
 Cliff Reid, Colby College
 Thomas Romans, State University of New York—Buffalo
 Bernard Saffran, Swarthmore College
 Lars Sandberg, Ohio State University
 Paul Schmitt, St. Clair Community College
 I. Shariff, University of Wisconsin
 Steve Sheffrin, University of California—Davis
 Gale Summerfield, California State University—Hayward
 James Vincent, University of Colorado—Denver
 Donald Wells, University of Arizona
 Art Welsh, Pennsylvania State University
 Donald Williams, Kent State University
 William Wood, James Madison University
 Darrel Young, University of Texas—Austin

Debbie Osnowitz did a splendid job of manuscript development, and we also wish to express appreciation to the members of the D. C. Heath staff who assisted in the preparation of this text. It has been a pleasure to work with all of them.

Our greatest debt, however—as reflected in the dedication to this volume—is to our students and to our families.

J. V. H.
 W. P.

Photo Credits

- Chapter 1: p. 8, Reuters/Bettmann Newsphotos; p. 25, Globe Photos.
Chapter 2: p. 42, Ross Marino/Sygma.
Chapter 3: p. 71, Jack J. Whipple.
Chapter 4: p. 124, Dan Loftin/*The New York Times*.
Chapter 5: p. 150, Baloo/Cartoon Features Syndicate.
Chapter 6: p. 193, © Bruno Barbey/Magnum.
Chapter 7: p. 200, H. Armstrong Roberts.
Chapter 8: p. 233, *The New York Daily News*.
Chapter 9: p. 287, Photri/Stock Imagery.
Chapter 11: p. 377, Bacall/Cartoon Features Syndicate.
Chapter 12: p. 413, Danzinger/*The Christian Science Monitor*.
Chapter 13: p. 430, © Carrion/Sygma.
Chapter 14: p. 457, (left) UPI/Bettmann Newsphotos; (right) Bill Nation/Sygma.
Chapter 15: p. 512, Eric Teitelbaum; © 1989 The New Yorker Magazine, Inc.
Chapter 16: p. 546, Copley News Service.
Chapter 17: p. 614, Gene Jeffers/Globe Photos.
Chapter 18: p. 661, Benson/Tribune Media Services.
Chapter 19: p. 686, Englehart/*The Hartford Courant*.

Contents in Brief

PART ONE

Introduction to Economics 1

1 The Discipline of Economics 1

2 Resource Constraints and Economic Exchange 33

3 Prices, Quantities, and Markets: An Overview 65

4 Supply and Demand Analysis 97

5 Tools of the Trade 131

PART TWO

Overview of Macroeconomics 161

6 Macroeconomics: The Big Picture 163

7 Structure of the Macroeconomy 199

8 Characteristics of Business Fluctuations 231

PART THREE

Macroeconomic Theory 267

9 Keynesian Theory of Business Fluctuations 269

10 Consumption and Investment 303

11 Money, Banking, and the Financial System 343

12 Money, Inflation, and Interest Rates 383

13 Monetarist Theory of Business Fluctuations 423

14 Keynesians, Monetarists, and New Classical Economists 455

PART FOUR

Stabilization 493

15 Overview of Stabilization-Policy Issues 495

16 Fiscal Policy 533

17 Monetary Policy 579

PART FIVE

The World Economy 621

18 International Trade 623

19 International Finance 673

Solutions to Odd-Numbered Questions and Problems S-1

Glossary G-1

Index I-1

CONTENTS

PART ONE

Introduction to Economics 1

1 The Discipline of Economics

3

Scarcity and Resource Allocation 6

What, How, and for Whom 7

Issues of the Day 10

For whom? 10

How? 10

What? 10

Positive Economics Versus Normative Economics 11

The Scientific Method in Economics 12

Public Policy 14

Managerial Economics 15

The Economic Person 15

Organization of the Market Economy—
Overview 16

Goods, Prices, and Markets 17

Goods 17

Prices 17

Markets 17

Circular flow 18

Interdependence of markets 19

The role of government 21

The mixed economy 22

Microeconomics 23

Macroeconomics 28

Public Policy in Action: The Issue of Organ
Transplants 26

FOCUS 1 Respect for the Individual and Acknowl-
edgment of Diversity Are the Pillars of Democratic
Society 5

FOCUS 2 Entrepreneurship: McDonald's Goes to
Moscow 8

FOCUS 3 An Unintended and Unforeseen Side
Effect [of Windmills] 13

FOCUS 4 The Berlin Wall Comes Tumbling
Down 24

2 Resource Constraints and Economic Exchange

33

The Production Possibilities Curve
(Production Frontier) 33

The Concept of the Production Possibilities
Curve 34

A Curved Production Frontier 35

*Production possibilities with two kinds of
land* 36

*Production possibilities with many kinds of
land* 40

Generalizing the Production Possibilities
Curve 40

Production possibilities for a country 41

Production possibilities for many goods 42

Opportunity Cost 43

Effect of Economic Growth 45

Exchange and Comparative Advantage 45

Trade Between Two Farms 45

Trade Between Two Countries 46

The Principle of Comparative Advantage 48

Voluntary Exchange 48

The Central Role of Exchange in Expanding Total Supply 50

Trade Among Individuals: Division and Specialization of Labor 50

Trade Among Regions of a Country 52

Trade Among Nations 52

Production Inside the Frontier 55

Misallocation of Resources 55

Unemployed Resources; Recessions and Depressions 57

Public Policy in Action: The Growth of World Trade 56

FOCUS 1 How to Read a Graph 36

FOCUS 2 The Opportunity Cost of Living in the German Democratic Republic 44

FOCUS 3 Adam Smith on the Division of Labor 51

FOCUS 4 Free Trade Constrains Government Taxes, Too 54

Appendix to Chapter 2: The Production Possibilities Surface for Three Goods 62

3 Prices, Quantities, and Markets: An Overview

65

Functions of Market Prices 65

Prices as Signals to Suppliers 66

Prices as Signals to Buyers 70

Coordination of Production Activities of Firms 71

Prices in Planned Economies 72

Supply and Demand 72

Quantities 73

Supply and Demand Equilibrium 73

The Demand Curve in a Market 76

Intuitive Justification of Demand Relation 76

Tracing Out the Demand Curve Through Hypothetical Experiments 77

Given price, how much will consumers buy? 78

Given quantity, how much will consumers pay? 80

A brief digression on terminology 81

Sensitivity of quantity demanded to price 81

Measuring demand sensitivity 82

The Supply Curve in a Market 83

Intuitive Justification of Supply Relation 83

Tracing Out the Supply Curve Through Hypothetical Experiments 83

Given price, how much will firms produce? 83

Given quantity, how much will firms charge? 84

Sensitivity of Quantity Supplied to Price 85

Market Equilibrium and Disequilibrium 85

Excess Supply and Demand 86

Shifts in Supply and Demand Curves 87

Public Policy in Action: Government Responses to Hurricane Hugo 92

FOCUS 1 Changing Tastes Cause Far-Reaching Effects 68

FOCUS 2 "The Ford Motor Company Has Laid an Egg" 71

FOCUS 3 Will the Last One Out Please Turn Off the Lights? 75

FOCUS 4 Effects of Abnormally Cold Weather on Supplies and Demands 90; Effects of Return to Normal Weather on Supplies and Demands 91

4 Supply and Demand Analysis

97

Relative Prices 98

Converting Prices to a Common Currency 100

Relative Prices of Two Goods 100

A Price Relative to Goods Prices in General 100

An Introduction to Reasons for Shifts of Demand Curves 102

Changes in Tastes 103

Changes in Income 103

Changes in Prices of Other Goods	105
<i>Substitutes</i>	106
<i>Complements</i>	108
Population	109
An Introduction to Reasons for Shifts of Supply Curves	109
Changes in Technology	109
Prices of Productive Inputs, Regulations, and Taxes	109
Elasticities of Demand and Supply Curves	110
Definition of Price Elasticity of Demand	110
Elasticity Versus Slope	112
Relationship of Amount Spent on a Good to Price Elasticity of Demand	114
Definition of Price Elasticity of Supply	118
Other Elasticities	118

Short Run Versus Long Run	119
Short-Run Versus Long-Run Demand	119
Short-Run Versus Long-Run Supply	120
Long-Run Equilibrium	121
The Stock-Flow Distinction	122
The Market for Stocks	123
The Market for Flows	123
FOCUS 1 The Drug Market in the News	98
FOCUS 2 An Open Letter to Bill Bennett	104
FOCUS 3 A Response to Milton Friedman	106

Appendix to Chapter 4: The Simple Algebra of Elasticities 129

Relationship Between Demand Elasticity and Amount Spent on a Good	129
Arc Elasticity	130

5 Tools of the Trade

131

Graphs and Diagrams	131
Scatter	133
<i>Causal relations versus associations</i>	133
<i>Relation between theoretical curves and empirical scatters</i>	137
Line Graphs	137
Bar Graphs	138
Stacked Bar Graphs	139
Pie Graphs	139
Lying with Graphs	141
Separate Right and Left Scales	142
Ratio Scales	144
Marginal This and Marginal That	146
Relationship of Marginal Changes to Slope of Tangent	146
Relationship of Marginal Changes to Arc Slope	149
Algebra	149

Interest Rates	151
----------------	-----

Future Value	151
Present Value	152

Developing Good Analytical Habits 153

Forward Versus Diagnostic Analysis	154
Economic Analysis: A Checklist	154
<i>Label axes and curves in diagrams</i>	154
<i>State your analytical assumptions</i>	154
<i>Break a problem into pieces for analytical purposes</i>	155
<i>When analyzing markets, remember that price and quantity never change unless the supply curve, the demand curve, or both shift</i>	155

Public Policy in Action: How Trustworthy Are Our Data? 156

FOCUS 1 The Census	132
FOCUS 2 Evidence on Smoking and Health from Mortality Data by State	136
FOCUS 3 Counting the Homeless	147
FOCUS 4 The Magic of Compound Interest	153

PART TWO

Overview of Macroeconomics 161**6 Macroeconomics: The Big Picture****163**

Macro Topics and Methods 164

Definitions of Macroeconomics Terms 165

Measurement 165

Distinguishing Macro Issues from Micro Ones 166

The Scope of "Other Things Being Equal" in Macro Analysis 167

Macro Interactions 167

Gross National Product 168

Aggregation 168

Nominal and Real GNP 169

National Income Accounting 170

Long-run Growth 170

U.S. Economic Growth 172

Impact of Growth 173

Business Fluctuations 176

Phases of the Business Cycle 177

Economic Indicators 179

Inflation 181

The Implicit GNP Price Deflator 181

*Calculating the implicit deflator 182**The deflator as an index number 183*

Inflation and the Purchasing Power of Money 184

Money and Other Financial Assets 184

Definition of Money 184

Creation and Destruction of Money 185

Non-money Financial Assets 185

The Aggregate Supply-and-Demand Framework 186

Comparison of Micro and Macro Analysis 186

The Person-in-the-Street View 187

The Keynesian View 188

*Keynesian views on output determination 188**Keynesian views on price-level determination 189*

The Monetarist View 190

*Monetarist views on output determination 190**Monetarist views on inflation 190*

The "Real Business Cycles" View 191

Eclectic Views 191

Policy Analysis 192

The Unsettled State of Macroeconomics 194

Public Policy in Action: Polish Reforms to Speed Economic Growth 192**FOCUS 1** The Origin of the National Income and Product Accounts 171**FOCUS 2** Perspective on World Economic Output and Growth 174**FOCUS 3** The Simple Algebra of Quarterly GNP and its Growth Rate 177**FOCUS 4** Anticipations of Price Increases Empty Shelves in Soviet Stores 180**7 Structure of the Macroeconomy****199**The Circular Flow of Income and Output:
The Basics 200

Double-entry Bookkeeping 201

Households 202

*Consumption 202**Saving 203*

Firms 203

*Value added 204**Producers' investment 206*

Gross and Net National Product 207

Income and Output 208

The Government Sector in the Circular Flow 208

Measuring Government Output 209
 Government Purchases 210
 Government Transfers 211

The Financial Sector in the Circular Flow 213

Borrowing and Lending 213
 Interest and Dividends 214
 Saving Versus Savings 215
 Income and Output Once Again 215

The Foreign Sector in the Circular Flow 216

Balanced and Unbalanced Trade 218
 Net Exports, National Output, and Spending 219

The Income Side of the Macroeconomy 219

Labor Income 220
 Capital Income 220

Rental income of people 220

Interest 221

Equity (profit) income 221

Proprietors' Income 222

Statistical Discrepancy 222

Circular Flow and Aggregate Supply and Demand 222

Public Policy in Action: Government in the National Accounts 224

Analytical Arguments for a Capital Budget 224

Political Arguments Against Capital Budgets for Government 225

FOCUS 1 What Do and Did U.S. Consumers Spend Their Incomes On? 204

FOCUS 2 Perils in Measuring National Defense Expenditures 212

FOCUS 3 The Changing Pattern of National Income 221

8 Characteristics of Business Fluctuations**231****The All-Time Champion Business Cycle: The Great Depression 231**

Unemployment 232
 Lost Income 232
 Despair and Conflict 232
 Government Action 233

Chronology and Principal Characteristics of Business Cycles 234

The Noncyclic Character of Business Cycles 235
 Comparing One Cycle to Another 236

Cyclical Behavior of Major Components of GNP 240

Measuring GNP Components Relative to Trend GNP 240
 Consumption and Investment 242
 Government Purchases and Net Exports 243

Employment and Unemployment 245

Unemployment Duration 246

Types of Unemployment 247

Cyclical unemployment 247
Frictional unemployment 247
Structural unemployment 248
Seasonal unemployment 248

Full Employment 248**Prices and Wages 250****Stock Prices and Interest Rates 253**

Stock Prices 253
 Interest Rates 254

The Task of Business-Cycle Theory 255

Public Policy in Action: The Anatomy of the 1981–82 Recession 258

FOCUS 1 Industrial Production in Germany and Japan, Monthly, 1949:1–1989:12 240

FOCUS 2 Unemployment in Germany, Japan, and the United States 249

FOCUS 3 The United States Discovers Stagflation 255

FOCUS 4 The 1987 Stock Market Crash 256

PART THREE

Macroeconomic Theory 267**9 Keynesian Theory of Business Fluctuations****269**Price Flexibility and Economic
Equilibrium 270

The Consumption Function 272

The Average Propensity to Consume 274

The Marginal Propensity to Consume 275

The Saving Function 277

The Keynesian-Cross Model of Income
Determination 278The Relationship of Disposable Income to the
GNP 279Autonomous Components of Aggregate
Expenditures 280Effects of Changes in Autonomous
Expenditures 281

The Multiplier 282

A Model Exercise—The Paradox of Thrift 283
Income as the Market-Clearing Variable in the
Keynesian Model 285

The Investment Function 286

Animal Spirits 286

Role of the Interest Rate 287

Role of Income 290

Government and Net Exports 292

Aggregate Demand and Supply 293

Slope of the Aggregate Demand Curve 293

Implication of Changing Prices for Aggregate
Demand 295

Aggregate Supply 298

Public Policy in Action: Are We All Keynesians
Now? 300**FOCUS 1** Personal Income: Changing Sources and
Taxes 275**FOCUS 2** The U.S. Personal Saving Rate,
1959–90 279**FOCUS 3** Keynes on the Stock Market 290**FOCUS 4** Panic Buying at the Outbreak of the
Korean War 297**Appendix to Chapter 9: The Simple
Algebra of Multipliers 301****10 Consumption and Investment****303**

Consumption 303

The Consumption Function 304

Understanding Cross-Section Data on Income
and Consumption 304

The Concept of Permanent Income 306

The Permanent-Income Theory of
Consumption 307Algebraic Statement of the Permanent-Income
Theory 310

The Time-Series Consumption Function 310

Consumption Versus Consumption
Expenditures 313

The Cyclical Behavior of Consumption 316

Implications of Consumption Theory for the
Business Cycle 318

Investment 320

Household Investment in Durable Goods 320

Investment in Residential Structures 322

Nonresidential Fixed Investment 324

Capital stocks and investment flows 324*Investment in a balanced growing economy* 325*Cyclical behavior of nonresidential fixed
investment* 325

The Investment Demand Function 326

The Investment Accelerator 326

Illustration of simple investment accelerator 326*The flexible accelerator* 328

Inventory Investment 329