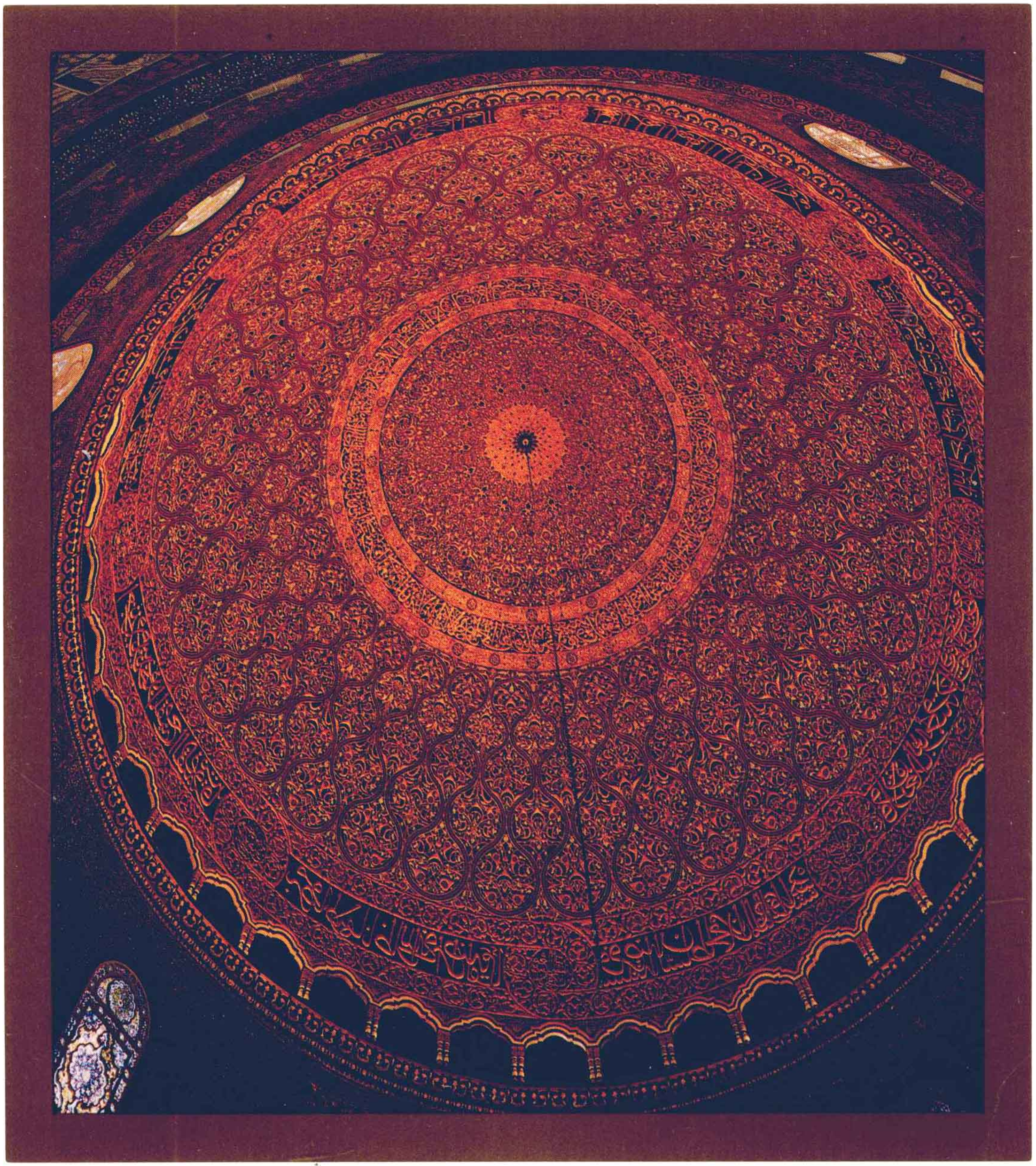
PRINCIPLES OF

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.

Published simultaneously in Canada.

Printed in the United States of America.

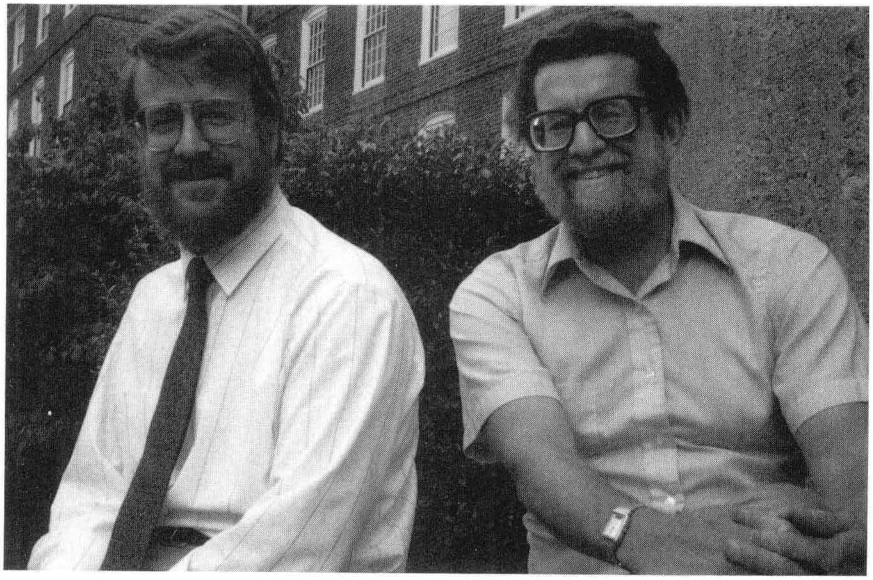
International Standard Book Number: 0-669-14493-2

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, woodworking, 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

CONTENTS

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