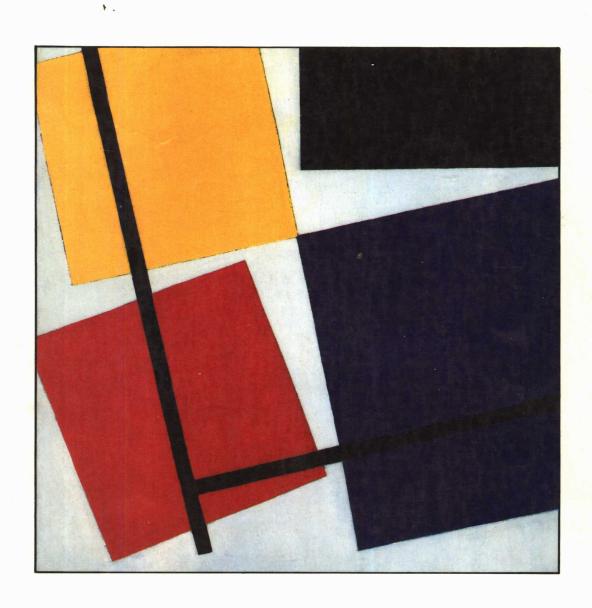
# PRINCIPLES OF MACROECONOMICS



Richard T. Froyen Douglas F. Greer

# Richard T. Froyen

# Douglas F. Greer

# Principles of Macroeconomics

MACMILLAN PUBLISHING CUMPANY **NEW YORK** 

> Collier Macmillan Publishers LONDON

Copyright © 1989. Macmillan Publishing Company, a division of Macmillan, Inc.

PRINTED IN THE UNITED STATES OF AMERICA

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

Macmillan Publishing Company 866 Third Avenue, New York, New York 10022

Collier Macmillan Canada, Inc.

LIBRARY OF CONGRESS CATALOGING IN PUBLICATION DATA

Froyen, Richard T.

Principles of macroeconomics.

Includes index.

1. Macroeconomics. I. Greer, Douglas F.

Title.

HB172.5.F764 1989 339 88-13355

ISBN 0-02-339450-1

Printing: 2 3 4 5 6 7 8 Year: 9 0 1 2 3 4 5 6 7 8

# Principles of Macroeconomics

To Lars and Linda Sara, Andrea and Katherine

R. T. F.

To Lill

D. F. G.

# Prefa

There are a number of good introductory economics textbooks. Our book acknowledges their strengths by emulating them in several respects. First, it shares a common purpose with others. We explain how the economy works when functioning freely by markets, as well as when influenced by government policies. Second, our selection of subjects has not straved from the mainstream. We treat the standard topics: market equilibrium; the Keynesian, monetarist, and new classical models; monetary and fiscal policy; economic growth; oligopoly and other market structures; income distribution; labor relations; and international monetary relations and international trade. In the paperback volumes we cover the standard topics in clusters of micro and macro orientation, as is now customary.

We explain different political and ideological views in an evenhanded manner. We cover the views of both conservatives and liberals.

#### Features

Why then another principles text? Why try this new offering? An examination of the book will reveal many distinguishing features—matters of content, organization, and exposition.

One significant feature is logical flow. The student should not be left with the impression that economics is a loose collection of unconnected topics. We avoid this in several ways. For example, all principles books refer to the basic questions of "what," "how," and "for whom" in the early chapters. We maintain the connection between these basic questions and various aspects of market performance discussed later in the book. In the same vein, we maintain a focus for the student by developing the methodology of two-question logic. For macroeconomics the two questions are "What is expected?" and "What actually happens?"; for microeconomics the questions are "What are the benefits?" and "What are the costs?" Using this two-question logic much hard analysis can be reduced to familiar ways of thinking. The flow of several chapters is smoothed by the use of a running example. In Chapter 5, for instance, the basic facts of American business are illustrated by a series of discussions concerning General Motors.

A second source of freshness concerns summaries. Most texts open each chapter with a preview or outline of the contents and close with a recapitulation. We do this and more. We introduce additional summaries within the chapters. Charts that compare several related diagrams appear throughout the book. "Check your Bearings" reviews within chapters help readers cement their comprehension at intervals shorter than those afforded by end of chapter summaries. Chapter 16 is itself a summary, tying together the classical, Keynesian, monetarist, and new classical models.

A third characteristic, overlapping the others, is care. We maintain a sequence of presentation and develop matters one step at a time. We draw a distinction between *problems* to be solved (for example, what price maximizes profit) and *dilemmas* that require value judgments (for example, the short-run unemployment—inflation tradeoff). We develop alternative macroeconomic models in a clear building-block fashion, with rigor, but without excess complexity.

Finally, while as stated above we cover all mainstream topics, we also include many topics of *current interest*. In this macroeconomics volume the reader will find: an up-to-date treatment of controversies between Keynesian and new classical economists; a discussion of monetarism as related to instability in monetary aggregates in the 1980s; thorough coverage of international economic questions such as exchange rate management and instability, strategic considerations in trade policy and the causes and effects of U.S. trade deficits; and analysis of recent shifts in monetary policy strategy and of fiscal policy in the post Gramm-Rudman environment.

#### Organization

The macroeconomics volume is organized as follows.

PART I is common to both the macroeconomics and microeconomics sections and lays the foundation for the whole volume. Chapter 1 begins with the fundamental concepts of scarcity and choice. In Chapter 2 production possibility frontiers illustrate scarcity in a formal fashion. Opportunity costs naturally follow, and their manipulation leads logically to the development of specialization, market exchange and circular flow. Chapter 3 presents simple market mechanicsdemand, supply and their interaction. Chapter 4 covers the market's shortcomings and introduces government as the source of economic policy, recognizing that such intervention may be harmful. Chapter 5 concludes Part I with a glance at basic business realities, such as corporations and stock markets.

PART II begins with a definition and discussion of unemployment and inflation—two key macroeconomic variables—in Chapter 6. Chapter 7 describes the central measures in the National Income Accounts. In Chapter 8 we turn from describing to explaining the behavior of macroeconomic variables. Four macroeconomic models (or systems) are discussed in turn. The starting point is the Classical system (Chapter 8). Consideration of the classical system at the start is useful for several reasons. Understanding the classical system provides the background for understanding the Keynesian revolution. Moreover, the major modern challenges to Keynesian views are all rooted in classical theory. Keynesian economics is presented in Chapters 9-12, building up the complete model in steps. Chapter 13 applies the Keynesian theory to explain the behavior of inflation and unemployment over the past three decades. The next two chapters consider modern alternatives to the Keynesian theory—monetarism in Chapter 14 and the new classical economics in Chapter 15. Chapter 16 concludes Part II with a summary of the models, examining areas of consensus as well as controversy.

PART III goes into more detail concerning *macroeconomic policy*. Policy questions are discussed in Part II as well, but to keep the initial presentation of macroeconomic models simple, institutional detail and most discussion of actual policymaking procedures are left to Part III. Chapters 17 and 18 consider monetary policy and the banking system. Chapter 19 deals with fiscal policy. In Chapter 20 the focus shifts to the longer run as economic growth and trends in employment and unemployment are discussed. Supply-side economic theories and fiscal policy enter in this discussion, in Chapter 20 as well as Chapter 19.

PART IV begins with an analysis of international economics. Chapter 21 recalls international considerations from our earlier discussion of macroeconomic models and policy questions. In fact, a number of examples used in the earlier analysis help to emphasize that the U.S. economy functions within a world economy. Now in Chapters 21 and 22 international trade and international monetary relations come to center stage. Chapter 23 closes the macroeconomics volume with a discussion of the developing economies and of nonmarket communist systems. The Soviet economy is used as an example of a nonmarket economy and recent Soviet economic reforms are described.

#### Learning Aids

The book includes a number of features aimed at increasing reader comprehension. These are:

- Chapter outlines at the beginning of each chapter
- "Check Your Bearings" sections for review at crucial points
- Boxed Perspectives that expand on the text discussion
- End-of-chapter summaries
- End-of chapter questions
- · Lists of key terms following each chapter
- · Glossary with definitions of key terms

#### Teaching Aids and Supplements

*Principles of Economics* has a complete set of materials containing the following elements:

- 1. An *Instructor's Manual*, written by Professor Jack Adams of the University of Arkansas–Little Rock, includes chapter objectives and highlights, suggested instructional strategies, research projects, and complete answers to all end-of-chapter questions and problems.
- 2. A Study Guide by Professor Guy Schick of California State University, Fullerton, will provide students with outstanding self-instructional content. It contains appropriate lists of key terms, succinct summaries of chapters, and a variety of self-tests: multiple choice, true-false, and fill in questions. In addition, graphical and numerical problems are included.
- 3. The *Test Bank* has a mix of multiple choice, fill-in, true-false, and short essay questions. An additional test bank will contain all multiple choice questions.
- 4. *Transparencies* will be available upon adoption for those instructors who want overhead projections.
- 5. Software will be provided in a simple "menudriven" program for students that will contain a series of mini-simulations in which students can make a variety of economic decisions.

#### Acknowledgments

The authors are grateful to the many reviewers who read all or part of the manuscript and provided many useful comments. These reviewers are:

John D. Abell, University of North Carolina, Charlotte;

Jack E. Adams, University of Arkansas at Little Rock:

Bahram Adrangi, University of Portland;

James T. Bennett, George Mason University;

Michael D. Bradley, The George Washington University;

Ronald Brautigam, Northwestern University; Byron W. Brown, Michigan State University; K. Laurence Chang, Case Western Reserve University;

Carl Davidson, Michigan State University; Larry DeBrock, University of Illinois; Stephen Gardner, Stephen F. Austin State University; Otis W. Gilley, Louisiana Tech. University; Cecil G. Gouke, Ohio State University; Curtis Harvey, University of Kentucky; Larry Herman, Ascension College; Eric Jensen, College of William and Mary; William Lang, Rutgers University;

Allan Mandelstamm, Virginia Polytechnic and State University;

Walter S. Misiolek, University of Alabama; Steven M. Rock, Northern Illinois University; Willard W. Radell, Jr., Indiana University of Pennsylvania;

David I. Rosenbaum, University of Nebraska, Lincoln;

Guy A. Schick, California State University; Lars G. Sandberg, Ohio State University, Fuller-

Peter M. Schwarz, University of North Carolina, Charlotte:

Robert W. Thomas, Iowa State University;
Wade L. Thomas, Ithaca College;
C. Gerald Walsh, Villanova University;
Thomas G. Watkins, Eastern Kentucky University;

William C. Wood, Bridgewater College.

We are also grateful to Tony English and Ken MacLeod who, as editors, guided the development of the book at various stages. We have a very great debt to Gerald Lombardi, at Macmillan, who read, commented on, and suggested revisions in the book at every stage. Likewise we are grateful to Linda Froyen who typed the bulk of the macroeconomic section, made editorial changes, suggested revisions, and was still willing to prepare the index. We are grateful to Cheryl Mitchell and Ann Marie Vidovitch for competent and timely typing assistance near the end of the project. Marsha Shelburn did an excellent job helping with endof-chapter questions and in the process caught some errors in the text. Finally, John Travis was diligent, persistent, and as usual, highly competent as production editor.

With all this help, it is more than normally the case that the authors are at fault for weaknesses or errors that may remain.

R. T. F. D. F. G.

## **Contents**

## Introduction

#### CHAPTER 1

3

	The Heart and Soul of Economics	
I.	Scarcity and Economics	4
	A. Scarcity	
	B. Definition of Economics	
II.	The Basic Economic Questions Raised	
	by Scarcity	7
	A. What? (Resource Allocation)	
	B. How? (Production Techniques)	
	C. Who? (Distribution)	
	D. What's New? (Technological Change and Growth)	
	E. How Stable? (Aggregate Employment and Price Levels)	
III.	<b>Positive Economics and Normative Economics</b>	8
	A. Positive Economics (Actualities)	
	B. Normative Economics (Value Judgments)	
	C. Positive and Normative Economics Plus Procedures and	
	Results	
IV.	Choice Procedures	11
	A. Observed Economy (Positive)	
	B. Desired Economy (Normative)	
V.	Choice Results	13
	A. Observed Economy (Positive)	
	B. Desired Economy (Normative)	
VI.	The Methods of Economists	16
	A. Positive Economic Analysis	
	B. Normative Economic Analysis	

xii	Contents		
VII.	Common Pitfalls in Economic Analysis  A. The Fallacy of False Cause  B. The Fallacy of Composition  C. The Fallacy of Misplaced Blame	18	
Appendix:	Reading Graphs	21	
	CHAPTER 2		
	The Ways of Economics: Scarcity Undersco	red	29
I.	Two Ways of Approaching Economics  A. Microeconomics  B. Macroeconomics	30	
II.	Two Ways of Thinking About Economics A. Problem Solving B. Dilemma Addressing	31	
III.	Two Ways of Explaining Economics  A. Models  B. Ceteris Paribus Conditions	33	
IV.	Production Possibilities: What?, How?, Who?  A. Scarcity Diagrammed  B. What? How? Who?	34	
v.	Exchange Possibilities and Specialization  A. Exchange Possibilities B. Exchange and Specialization	38	
VI	Growth and Technological Change: What's New?  A. Introduction and Definitions B. Capital Investment (Input) C. Technological Change (Output/Input)	42	
VII	A. Barter versus Money Exchange B. Final Goods Markets and Factor Markets C. How Stable? (Plus What?, How?, and Who?)	45	
Appendix	: Adam Smith, The Founder of Economics	49	

#### CHAPTER 3 The Market: Desirable Process and Results **53** I. Perfect Competition Defined **54** II. Demand-Side Mechanics 55 **Demand Defined** В. The Law of Demand Shifts versus Movements Along the Demand Curve 62 III. Supply-Side Mechanics A. Supply Defined В. The Law of Supply Shifts versus Movements Along the Supply Curve IV. Demand and Supply Together: Equilibrium 67 A. Actual Price and Output B. Surplus C. Shortage 69 V. Changes in Equilibrium A. Shifts in Demand B. Shifts in Supply C. Shifts in Both Demand and Supply VI. Competitive Market Results: What? How? Who? 76 What's New? and How Stable? A. What? B. How? C. Who? D. What's New? E. How Stable? CHAPTER 4 83 The Role of Government I. Problems of Procedure: Market Maintenance 84 Basic Upkeep B. Correction of Market Imperfections 86 **II. Problems Regarding Results** Allocation Problems (Re: What? and a Bit of How?) B. Distribution Problems (Re: Who?) C. Promotion Problems (Re: What's New?) D. Stabilization Problems (Re: How Stable?) 92

Specifics: Problems and Policies Together

III. Government Policies

A. Overview: Basic Tools

Contents		
IV. Problems with Government	99	
A. Imperfections: Monopoly and Ignorance		
B. Allocation Problems		
C. Distribution Problems D. Promotion Problems		
E. Stabilization Problems		
 CHAPTER 5  Basic Facts About American Busine		
		107
I. Firms versus Establishments	108	
A. Basic Definitions B. The Biggest Firms		
C. Smaller Firms		
и в	444	
II. Business Types	111	
A. Sole Proprietorships		
<ul><li>B. Partnerships</li><li>C. Corporations</li></ul>		
-	117	
III. Corporate Finance: Stocks and Bonds	117	
A. Common Stock B. Preferred Stock		
C. Bonds		
IV. The Stock Market	118	
II Macroeconomics: Measur	rement	
	ement	
 Macroeconomics: Measur	rement	
Macroeconomics: Measur and Models		127
Macroeconomics: Measur and Models CHAPTER 6 Twin Macroeconomic Problems: Unemploymen		127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  1. Unemployment	t and Inflation	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  A. The Costs of Unemployment  B. Types of Unemployment	t and Inflation	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  1. Unemployment  A. The Costs of Unemployment	t and Inflation	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  A. The Costs of Unemployment  B. Types of Unemployment	t and Inflation	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  A. The Costs of Unemployment  B. Types of Unemployment  C. Unemployment: The Historical Record	at and Inflation 128	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  A. The Costs of Unemployment  B. Types of Unemployment  C. Unemployment: The Historical Record  II. Inflation  A. The Inflation Rate  B. The Costs of Inflation	at and Inflation 128	127
Macroeconomics: Measur and Models  CHAPTER 6  Twin Macroeconomic Problems: Unemployment  A. The Costs of Unemployment  B. Types of Unemployment  C. Unemployment: The Historical Record  II. Inflation  A. The Inflation Rate	at and Inflation 128	127

#### CHAPTER 7

	The National Income and Product Accou	ınts	141
I.	<b>Gross National Product</b>	142	
II.	<ul><li>The Components of GNP</li><li>A. Consumption</li><li>B. Investment</li><li>C. Government Spending</li><li>D. Net Exports</li></ul>	143	
III.	National Income	145	
IV.	<ul> <li>The Components of National Income</li> <li>A. Compensation of Employees</li> <li>B. Corporate Profits</li> <li>C. Net Interest and Rental Income of Persons</li> <li>D. Proprietor's Income</li> </ul>	146	
V.	Personal Income and Personal Disposable		
	Income	147	
VI.	Real versus Nominal GNP	148	
VII.	Alternative Price Measures	150	
VIII.	Cyclical Movements in Output	151	
	CHAPTER 8  Getting Started: The Classical Macroecon	omics	155
T	The Keynesian Revolution	156	
	Aggregate Supply and Demand	156	
<b></b>	A. Aggregate Supply B. Aggregate Demand C. Macroeconomic Equilibrium		
III.	The Classical Model	<b>158</b>	
	The Classical Theory of Supply  A. The Classical Labor Market  B. The Classical Aggregate Supply Curve	158	
V	A. The Equation of Exchange B. The Classical Aggregate Demand Curve	162	
VI	<ul> <li>Stabilization Policy in the Classical System</li> <li>A. Monetary Policy</li> <li>B. Fiscal Policy</li> </ul>	164	

#### CHAPTER 9

	CILL IEM 5		
	The Keynesian Theory of Aggregate Demar	ıd	171
I.	The Keynesian Income-Expenditure		
	Approach	173	
II.	The Components of Aggregate	170	
	Demand A. Consumption	173	
	A. Consumption B. Investment		
ш.	Equilibrium Output	179	
	A. Interpreting the Condition for Equilibrium Output		
	B. The Tendency Toward Equilibrium		
IV.	Equilibrium Output: A Numerical		
	Example	182	
V.	Equilibrium Output: A Graphic	183	
\$/7	Illustration Keynes versus the Classics:	165	
V1.	A First Look	185	
Appendix:	Equilibrium in the Keynesian System:		
• •	An Algebraic Interpretation	187	
	CHAPTER 10		
The	Government Sector, the Multiplier Concept, and	Fiscal Policy	189
I.	A Model with a Government Sector	190	
	A. Equilibrium Output with a Government Sector		
	<ul><li>B. Equilibrium Output: A Numerical Example</li><li>C. Equilibrium Output: A Graphic Illustration</li></ul>		
**	•		
11.	Factors That Cause Changes in Equilibrium Output	195	
	A. The Change in Equilibrium Output with a Change in		
	Investment		
	B. The Autonomous Expenditure Multiplier	000	
III.	Fiscal Policy	200	
	<ul><li>A. The Effect of a Change in Government Spending</li><li>B. The Effect of a Change in Taxes</li></ul>		
	C. The Balanced Budget Multiplier		
IV.	. Fiscal Stabilization Policy in the Keynesian		
	Model	206	
Appendix	: An Algebraic Interpretation of the	000	
	Simple Keynesian Model	209	

<u> </u>				
$C \alpha$	77	to	n	te

\_xvii

	CHAPTER 11		
	Money and the Interest Rate		213
I.	The Definition of Money  A. The Functions of Money  B. Components of the Money Supply  C. Who Controls the Money Supply?	214	
II.	The Role of Money: Keynes versus the Classics	216	
III.	The Keynesian View of the Money Market  A. Keynes's Theory of Money Demand B. The Money Supply and the Interest Rate	217	
	The Interest Rate, Aggregate Demand, and Equilibrium Output Feedback Effects from Output to the Interest	219	
VI.	Rate Monetary Policy in the Keynesian System	<ul><li>222</li><li>223</li></ul>	
VII.	Fiscal Policy, the Interest Rate, and Crowding Out	223	
	CHAPTER 12		
The	Complete Keynesian System: Aggregate Supply a	nd Demand	229
	The Aggregate Demand Curve  A. The Slope of the Aggregate Demand Curve  B. Shifts in the Aggregate Demand Curve	230	
II.	The Keynesian Theory of Aggregate Supply  A. Rising Cost as Output Rises  B. But Cost Rises Less Than Price	234	
111.	Macroequilibrium in the Keynesian System  A. Shifts in the Aggregate Demand Curve  B. Shifts in the Aggregate Supply Curve	236	
IV.	<ul> <li>Factors that Shift the Aggregate Supply Curve</li> <li>A. Changes in Inflationary Expectations</li> <li>B. Supply Shocks</li> </ul>	239	
Summary	: Keynes versus the Classics	241	

xviii	Contents		
	CHAPTER 13		
	Inflation and Unemployment: The Keynesian	View	245
I.	Inflation and the Unemployment-Inflation Tradeoff  A. Inflation and Aggregate Demand B. Supply-Side Factors, Inflation, and the Unemployment-Inflation Tradeoff	246	
II.	The Changing Nature of the Unemployment-Inflation Tradeoff	252	
	CHAPTER 14		
	The Monetarist Counterrevolution		257
	Central Monetarist Themes	<b>25</b> 8	
II.	Longer-Run Self-Stabilizing Properties	258	
III.	Money Determines Money GNP	259	
IV.	The Natural Rates of Output and Employment  A. Effects of an Increase in Money Growth  B. Policy Implications	261	
V.	Noninterventionist Policy Conclusions  A. Monetary Policy  B. Fiscal Policy	265	
VI.	<ul> <li>Monetarists versus Keynesians</li> <li>A. Longer-Run Self-Stabilizing Properties of the Economy</li> <li>B. Money as the Dominant Influence on Money GNP</li> <li>C. Monetarist Noninterventionist Policy Conclusions</li> <li>D. The Monetarist-Keynesian Controversy: Evidence from U.S. Experience</li> </ul>		
	CHAPTER 15		
	The New Classical Economics		275
I.	Rational Expectations and the New Classical V of the Labor Market  A. A Review of the Classical Labor Market Assumptions  B. The Keynesian and Monetarist Objections  C. The New Classical View	/iew 277	
II.	Policy Implications of Rational Expectations  A. Effects of a Predictable Increase in the Money Supply  B. Effects of a Monetary Surprise  C. Real-World Policy: Predictable or Surprising?	279	

Contents		xix
<ul> <li>III. New Classical Policy Prescriptions</li> <li>IV. The Keynesian Countercritique</li> <li>A. The Realism of Rational Expectations</li> <li>B. The Role of Labor Market Contracts</li> </ul>	282 282	
<ul> <li>V. The New Classical-Keynesian Controversy: So Evidence from the U.S. Experience</li> <li>A. A Keynesian or Monetarist Explanation of the Data</li> <li>B. A New Classical Explanation of the Data</li> </ul>	me 283	
CHAPTER 16		
Macroeconomics: Controversy and Consen	sus	289
<ul><li>I. The Models in Pictures</li><li>A. Aggregate Supply</li><li>B. Aggregate Demand</li></ul>	290	
<ul> <li>II. Policy Conclusions</li> <li>A. Keynesian Policy Conclusions</li> <li>B. Monetarist Policy Conclusions</li> <li>C. New Classical Policy Conclusions</li> <li>D. Classical Policy Conclusions</li> </ul>	292	
III. Areas of Consensus	294	
III		
Macroeconomic Policy		
CHAPTER 17		
Money and the Banking System		299
<ul><li>I. Federal Reserve Control of the Money Supply</li><li>A. The Control Process</li><li>B. Tools of Federal Reserve Control</li></ul>	y <b>300</b>	
<ul> <li>II. The Banking System and the Money Supply</li> <li>A. Banks as Depository Institutions</li> <li>B. Bank Deposits and Bank Reserves</li> <li>C. A Simple Model of Deposit Creation</li> </ul>	305	
<ul> <li>III. Deposit and Money Multipliers</li> <li>A. The Deposit Multiplier</li> <li>B. The Money Multiplier</li> <li>C. Deposit Creation: More Complex Cases</li> </ul>	310	
IV. The Precision of Money Supply Control	313	