

International Economics

DOMINICK SALVATORE

11TH EDITION

International Economics

Eleventh Edition

Dominick Salvatore

Fordham University

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To Lucille

Preface

This is the eleventh edition of a text that has enjoyed a flattering market success, having been adopted by more than 600 colleges and universities throughout the United States, Canada, and other English-speaking countries and more than 1,000 in other countries around the world. The text has been translated into Chinese, French, Greek, Indonesian, Italian, Korean, Polish, Portuguese (Brazilian), Spanish, Russian, and other languages. All the features that have made the previous editions of this text one of the leading texts of International Economics in the United States and around the world have been retained in the eleventh edition. However, the content has been thoroughly updated and expanded to include many new significant topics and important recent developments.

Significant International Developments

The main objective of the eleventh edition of *International Economics* is to present a comprehensive, up-to-date, and clear exposition of the theory and principles of international economics that are essential for understanding, evaluating, and suggesting solutions to the important international economic problems and issues facing the United States and the rest of the world today, and that countries are likely to face in the coming years. These are:

1. Slow growth and high unemployment in advanced economies after the “Great Recession”—the deepest financial and economic crisis since the Great Depression of 1929.
2. Rising protectionism in the United States and in other advanced countries in the context of a rapidly globalizing world reduces the level of specialization and trade, and it raises the specter of trade wars that would be very detrimental to the welfare of all nations.
3. Excessive volatility and large and persistent misalignments of exchange rates discourage the international flow of trade and investments and could lead to international financial and monetary crises.
4. Deep structural imbalances in the United States, slow growth in Europe and Japan, and insufficient restructuring in the transition economies of Central and Eastern Europe reduce the volume of international trade and could cause the collapse of the dollar and/or the euro.

5. The deep poverty in many developing countries and the widening international inequalities pose serious moral, political, and developmental problems for the United States and other advanced countries.
6. Resource scarcity, environmental degradation, and climate change put at risk continued growth in the United States and other advanced countries, as well as sustainable development in emerging markets.

These events significantly affect the well-being of the United States and the rest of the world but are, to a large extent, beyond U.S. control.

New to the Eleventh Edition

Chapter 1 has been thoroughly revised and updated to reflect the dramatic economic and financial changes that have taken place in the world economy since the last edition of this text. Section 1.6 has been thoroughly revised to identify the major international economic (trade and financial) problems facing the United States and the world today, and so has the discussion in Chapter 21 (Section 21.6), which examines how they can be resolved.

The rapid globalization of the world economy is providing major benefits to most countries, but it is also presenting many challenges to poor countries that are unable to take advantage of globalization, as well as to the United States and other advanced countries that face increasing competition from some emerging markets, especially China. These topics are discussed in several new sections and case studies in the trade and finance part of the text.

The dollar–euro exchange rate is as much in the news these days as the huge and unsustainable trade deficits of the United States and sovereign debts in the Eurozone. The relationship between U.S. trade deficits, trade protectionism and misaligned exchange rates, as well as the crisis in the Euro Area are examined, both theoretically and empirically, and in all of their ramifications, in several trade and finance sections and case studies in this new edition of the text.

Besides their effect on international trade and international competitiveness, the continuing globalization of the world economy and liberalization of international capital markets have further eroded governments' control over national economic and financial matters. Exchange rates exhibit great volatility and large misalignments, both of which interfere with the flow of international trade and investments and distort the comparative advantage of nations. At the same time, international macroeconomic policy coordination has not progressed sufficiently to deal adequately with the potential problems and challenges that increased interdependence in world financial markets create.

The eleventh edition of this book also presents an in-depth analysis of the dangerous structural imbalances in the world economy and provides an evolution of the policy options available to deal with them. The major imbalances in the world economy today are the huge trade and budget (twin) deficits of the United States, the slow growth and high unemployment in Europe, the decade-long stagnation in Japan, the serious competitive challenge for both advanced and developing countries provided by the competition from China, the danger of financial and economic crises in emerging market economies, world poverty, resource scarcity, and environmental degradation. All of these topics are addressed in this edition of the text.

There are **122** case studies in the text. Many are new, and the others have been thoroughly revised.

The extended annotated Selected Bibliography at the end of each chapter has been thoroughly updated and extended, and it represents a major resource for further study and research on various topics.

The Internet section at the end of each chapter has been updated and expanded and gives the most important Internet site addresses or links to data sources, information, and analyses for the topics presented in each chapter to show how to access and use the wealth of information available on the Internet.

The Companion Web Site for the Text has also been thoroughly updated and expanded, and it presents for each chapter additional examples, cases, and theoretical points, as well as questions and problems that can be answered or solved using the Internet.

New, extended, and revised sections and case studies in the trade theory and policy parts of the text include benefits and challenges of globalization; the gravity model; the changing pattern of comparative advantage; variety gains from international trade; EU–US trade disputes and protectionism; the pervasiveness of nontariff trade barriers; strategic trade and industrial policies; the emergence of new economic giants; job losses in high U.S. import-competing industries; international trade and de-industrialization of the United States and other advanced countries; international trade and U.S. wage inequalities; benefits and costs of NAFTA; international trade and environmental sustainability; globalization and world poverty; trade and growth in developing countries; the collapse of the Doha Round; and the debate over U.S. immigration policy.

New sections and case studies in international finance include size, currency, and geographical distribution of the foreign exchange market; the carry trade; fundamental forces and “news” in exchange rate forecasting; the exploding U.S. trade deficit with China; the euro–dollar exchange rate defies forecasting; the Balassa–Samuelson effect in transition economies; structural imbalances and exchange rate misalignments; the effective exchange rate of the dollar and U.S. current account deficits; exchange-rate pass-through to import prices; petroleum prices and growth; inflation targeting and exchange rates; the global financial crisis and the Great Recession; slow recovery and growth after the Great Recession; the Eurozone crisis and the future of the euro; internationalization of the renminbi (yuan); exchange rate arrangements of IMF members; and reforms of the international monetary system.

More international trade and finance data are included throughout the text.

Audience and Level

The text presents all the principles and theories essential for a thorough understanding of international economics. It does so on an intuitive level in the text itself, and more rigorously in the appendices at the end of most chapters. In addition, partial equilibrium analysis is presented before the more difficult general equilibrium analysis (which is optional). Thus, the book is designed for flexibility. It also overcomes the shortcomings of other international economics texts in which the level of analysis is either too complicated or too simplistic.

Organization of the Book

The book is organized into four parts. Part One (Chapters 2–7) deals with trade theory (i.e., the basis and the gains from trade). Part Two (Chapters 8–12) deals with trade policy (i.e., obstructions to the flow of trade). Part Three (Chapter 13–15) deals with the measurement of

a nation's balance of payments, foreign exchange markets, and exchange rate determination. Part Four (Chapters 16–21) examines open-economy macroeconomics or the macro relationships between the domestic economy and the rest of the world, as well as the operation of the present international monetary system.

In the typical one-semester undergraduate course in international economics, instructors may wish to cover the 11 core chapters (1, 2–3, 5, 9, 13–17, 21) as well as the few other asterisked sections in other chapters, and exclude the appendices. Undergraduate courses in international trade could cover Chapters 1 to 12 and 21, whereas undergraduate courses in international finance could cover Chapters 1 and 13 to 21. The many examples and real-world case studies presented also make the text very suitable for international economics courses in business programs. In first-year graduate courses in international economics and business, instructors may want to cover the appendices also and assign readings from the extensive annotated bibliography at the end of each chapter.

For the Student

- *The same example is utilized in all the chapters dealing with the same basic concept.* This feature is unique to this text. For example, the same graphical and numerical model is used in every chapter, from Chapters 2 through 11 (the chapters that deal with trade theory and policy). This greatly reduces the burden on the student, who does not have to start fresh with a new example each time. It also shows more clearly the relationship among the different topics examined.
- *Actual numbers are used in the examples and the graphs are presented on scales.* This makes the various concepts and theories presented more concrete, accessible, and pertinent to the student, and the graphs easier to read and understand.
- *There are 122 case studies (from 4 to 9 per chapter).* These real-world case studies are generally short and to the point and serve to reinforce understanding and highlight the most important topics presented in the chapter.
- *The sections of each chapter are numbered for easy reference.* Longer sections are broken into two or more numbered subsections. All of the graphs and diagrams are carefully explained in the text and then summarized briefly in the captions.
- *The judicious use of color and shading enhances the readability of the text and aids student understanding.*
- *Each chapter ends with the following teaching aids:*
 - **Summary**—A paragraph reviews each section of the text.
 - **A Look Ahead**—Describes what follows in the subsequent chapter.
 - **Key Terms**—Lists the important terms introduced in bold face type in the chapter. A glossary of all these terms is provided at the end of the book.
 - **Questions for Review**—Fourteen review questions are presented (two or more for each section in the chapter).
 - **Problems**—Fourteen to fifteen problems are provided for each chapter. These ask the student to calculate a specific measure or explain a particular event.

Brief answers to selected problems (those marked by an asterisk) are provided at www.wiley.com/college/salvatore for feedback.

- **Appendices**—These develop in a more rigorous but careful and clear fashion certain material that is presented on an intuitive level in the chapter.
- **Selected Bibliography**—The most important references are included, along with specific notes indicating the topic they cover. A separate Author Index is included at the end of the book.
- **Internet**—A section at the end of each chapter provides relevant Internet site addresses or links to data sources, information, and analyses to show the student how to access and use the wealth of information available on the Internet.
- *Accompanying the text, there are also:*
 - **A Web Site**—Each chapter presents additional examples, cases, and theoretical points and questions as well as problems that can be answered or solved using the Internet. The web site is continuously updated to reflect important new developments in the international economy as they unfold.
 - **An Online Study Guide** prepared by Professor Arthur Raymond of Muhlenberg College is available for students. This provides extensive review of key concepts, numerous additional illustrative examples, and practice problems and exercise sets.
 - **A Schaum Outline** on the *Theory and Problems of International Economics* (4th edition, 1996), prepared by the author, can be purchased at a very low price in most bookstores. This provides a problem-solving approach to the topics presented in the traditional way in this and other international economics texts.

For the Instructor

- **An Instructor's Manual** prepared by the author is available. It includes chapter objectives and lecture suggestions, answers to the end-of-chapter problems, a set of 15 to 20 multiple-choice questions, with answers, and additional problems and essays for each chapter.
- **PowerPoint Presentations**, prepared by Professor Leonie L. Stone of the State University of New York at Geneseo, provide brief outline notes of the chapter and also contain all the figures and tables in the text. These are available on the Instructor Companion Site.
- **A Test Bank**, also prepared by Professor Stone, contains at least 25 multiple-choice questions per chapter and is available on the Instructor Companion Site. A computerized version for easy test preparation is also available.

Acknowledgments

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Brief Contents

| | |
|--|----------|
| Preface | v |
| 1 Introduction | 1 |
| Part 1 International Trade Theory | |
| 2 The Law of Comparative Advantage | 31 |
| 3 The Standard Theory of International Trade | 57 |
| 4 Demand and Supply, Offer Curves, and the Terms of Trade | 85 |
| 5 Factor Endowments and the Heckscher–Ohlin Theory | 109 |
| 6 Economies of Scale, Imperfect Competition, and International Trade | 157 |
| 7 Economic Growth and International Trade | 189 |
| Part 2 International Trade Policy | |
| 8 Trade Restrictions: Tariffs | 221 |
| 9 Nontariff Trade Barriers and the New Protectionism | 257 |
| 10 Economic Integration: Customs Unions and Free Trade Areas | 301 |
| 11 International Trade and Economic Development | 331 |
| 12 International Resource Movements and Multinational Corporations | 367 |
| Part 3 The Balance of Payments, Foreign Exchange Markets, and Exchange Rates | |
| 13 Balance of Payments | 397 |
| 14 Foreign Exchange Markets and Exchange Rates | 423 |
| 15 Exchange Rate Determination | 463 |
| Part 4 Open-Economy Macroeconomics and the International Monetary System | |
| 16 The Price Adjustment Mechanism with Flexible and Fixed Exchange Rates | 507 |
| 17 The Income Adjustment Mechanism and Synthesis of Automatic Adjustments | 541 |
| 18 Open-Economy Macroeconomics: Adjustment Policies | 573 |
| 19 Prices and Output in an Open Economy: Aggregate Demand and Aggregate Supply | 617 |
| 20 Flexible versus Fixed Exchange Rates, the European Monetary System, and Macroeconomic Policy Coordination | 645 |
| 21 The International Monetary System: Past, Present, and Future | 687 |
| Glossary of Key Terms | 729 |
| Name Index | 743 |
| Subject Index | 751 |

Contents

1 Introduction

1

| | |
|---|----|
| 1.1 The Globalization of the World Economy | 1 |
| 1.1A We Live in a Global Economy | 1 |
| ■ CASE STUDY I-1 <i>The Dell PCs, iPhones, and iPads Sold in the United States Are Anything but American!</i> | 2 |
| ■ CASE STUDY I-2 <i>What Is an “American” Car?</i> | 3 |
| 1.1B The Globalization Challenge | 3 |
| ■ CASE STUDY I-3 <i>Is India’s Globalization Harming the United States?</i> | 5 |
| 1.2 International Trade and the Nation’s Standard of Living | 6 |
| ■ CASE STUDY I-4 <i>Rising Importance of International Trade to the United States</i> | 8 |
| 1.3 The International Flow of Goods, Services, Labor, and Capital | 9 |
| 1.3A The International Flow of Goods and Services: The Gravity Model | 9 |
| 1.3B The International Flow of Labor and Capital | 10 |
| ■ CASE STUDY I-5 <i>Major Net Exporters and Importers of Capital</i> | 11 |
| 1.4 International Economic Theories and Policies | 11 |
| 1.4A Purpose of International Economic Theories and Policies | 11 |
| 1.4B The Subject Matter of International Economics | 12 |
| 1.5 Current International Economic Problems and Challenges | 13 |
| 1.6 Organization and Methodology of the Text | 15 |
| 1.6A Organization of the Text | 15 |
| 1.6B Methodology of the Text | 16 |
| Summary | 17 |
| A Look Ahead | 18 |
| Key Terms | 18 |
| Questions for Review | 18 |
| Problems | 19 |
| A1.1 Basic International Trade Data | 20 |
| A1.2 Sources of Additional International Data and Information | 24 |
| Selected Bibliography | 26 |
| INTERNet | 28 |

Part 1 International Trade Theory

2 The Law of Comparative Advantage

31

| | |
|--|----|
| 2.1 Introduction | 31 |
| 2.2 The Mercantilists' Views on Trade | 32 |
| ■ CASE STUDY 2-1 <i>Munn's Mercantilistic Views on Trade</i> | 33 |
| ■ CASE STUDY 2-2 <i>Mercantilism Is Alive and Well in the Twenty-first Century</i> | 33 |
| 2.3 Trade Based on Absolute Advantage: Adam Smith | 34 |
| 2.3A Absolute Advantage | 34 |
| 2.3B Illustration of Absolute Advantage | 35 |
| 2.4 Trade Based on Comparative Advantage: David Ricardo | 36 |
| 2.4A The Law of Comparative Advantage | 36 |
| 2.4B The Gains from Trade | 37 |
| 2.4C The Case of No Comparative Advantage | 39 |
| 2.4D Comparative Advantage with Money | 39 |
| ■ CASE STUDY 2-3 <i>The Petition of the Candlemakers</i> | 41 |
| 2.5 Comparative Advantage and Opportunity Costs | 41 |
| 2.5A Comparative Advantage and the Labor Theory of Value | 41 |
| 2.5B The Opportunity Cost Theory | 42 |
| 2.5C The Production Possibility Frontier under Constant Costs | 42 |
| 2.5D Opportunity Costs and Relative Commodity Prices | 44 |
| 2.6 The Basis for and the Gains from Trade under Constant Costs | 45 |
| 2.6A Illustration of the Gains from Trade | 45 |
| 2.6B Relative Commodity Prices with Trade | 46 |
| 2.7 Empirical Tests of the Ricardian Model | 47 |
| ■ CASE STUDY 2-4 <i>Relative Unit Labor Costs and Relative Exports—United States and Japan</i> | 49 |
| Summary | 50 |
| A Look Ahead | 51 |
| Key Terms | 51 |
| Questions for Review | 51 |
| Problems | 52 |
| A2.1 Comparative Advantage with More Than Two Commodities | 54 |
| A2.2 Comparative Advantage with More Than Two Nations | 55 |
| Selected Bibliography | 56 |
| INTERNet | 56 |

3 The Standard Theory of International Trade

57

-
- 3.1 Introduction 57
 - 3.2 The Production Frontier with Increasing Costs 58
 - 3.2A Illustration of Increasing Costs 58
 - 3.2B The Marginal Rate of Transformation 59
 - 3.2C Reasons for Increasing Opportunity Costs and Different Production Frontiers 59
 - 3.3 Community Indifference Curves 60
 - 3.3A Illustration of Community Indifference Curves 60
 - 3.3B The Marginal Rate of Substitution 61
 - 3.3C Some Difficulties with Community Indifference Curves 61
 - 3.4 Equilibrium in Isolation 62
 - 3.4A Illustration of Equilibrium in Isolation 62
 - 3.4B Equilibrium-Relative Commodity Prices and Comparative Advantage 63
 - CASE STUDY 3-1 *Comparative Advantage of the Largest Advanced and Emerging Economies* 64
 - 3.5 The Basis for and the Gains from Trade with Increasing Costs 64
 - 3.5A Illustrations of the Basis for and the Gains from Trade with Increasing Costs 65
 - 3.5B Equilibrium-Relative Commodity Prices with Trade 66
 - 3.5C Incomplete Specialization 67
 - CASE STUDY 3-2 *Specialization and Export Concentration in Selected Countries* 67
 - 3.5D Small-Country Case with Increasing Costs 69
 - 3.5E The Gains from Exchange and from Specialization 69
 - CASE STUDY 3-3 *Job Losses in High U.S. Import-Competing Industries* 70
 - CASE STUDY 3-4 *International Trade and Deindustrialization in the United States, the European Union, and Japan* 71
 - 3.6 Trade Based on Differences in Tastes 72
 - 3.6A Illustration of Trade Based on Differences in Tastes 72
 - Summary 73
 - A Look Ahead 74
 - Key Terms 74
 - Questions for Review 74
 - Problems 75
 - A3.1 Production Functions, Isoquants, Isocosts, and Equilibrium 76
 - A3.2 Production Theory with Two Nations, Two Commodities, and Two Factors 78

| | | |
|------|--|----|
| A3.3 | Derivation of the Edgeworth Box Diagram and Production Frontiers | 79 |
| A3.4 | Some Important Conclusions | 82 |
| | Selected Bibliography | 83 |
| | INTERNet | 84 |

4 Demand and Supply, Offer Curves, and the Terms of Trade 85

| | | |
|------|--|-----|
| 4.1 | Introduction | 85 |
| 4.2 | The Equilibrium-Relative Commodity Price with Trade—Partial Equilibrium Analysis | 86 |
| | ■ CASE STUDY 4-1 <i>Demand, Supply, and the International Price of Petroleum</i> | 87 |
| | ■ CASE STUDY 4-2 <i>The Index of Export to Import Prices for the United States</i> | 88 |
| 4.3 | Offer Curves | 89 |
| | 4.3A Origin and Definition of Offer Curves | 89 |
| | 4.3B Derivation and Shape of the Offer Curve of Nation 1 | 89 |
| | 4.3C Derivation and Shape of the Offer Curve of Nation 2 | 90 |
| 4.4 | The Equilibrium-Relative Commodity Price with Trade—General Equilibrium Analysis | 91 |
| 4.5 | Relationship between General and Partial Equilibrium Analyses | 93 |
| 4.6 | The Terms of Trade | 94 |
| | 4.6A Definition and Measurement of the Terms of Trade | 94 |
| | 4.6B Illustration of the Terms of Trade | 95 |
| | ■ CASE STUDY 4-3 <i>The Terms of Trade of the G-7 Countries</i> | 95 |
| | ■ CASE STUDY 4-4 <i>The Terms of Trade of Advanced and Developing Countries</i> | 96 |
| | 4.6C Usefulness of the Model | 96 |
| | Summary | 97 |
| | A Look Ahead | 98 |
| | Key Terms | 98 |
| | Questions for Review | 98 |
| | Problems | 98 |
| A4.1 | Derivation of a Trade Indifference Curve for Nation 1 | 100 |
| A4.2 | Derivation of Nation 1's Trade Indifference Map | 100 |
| A4.3 | Formal Derivation of Nation 1's Offer Curve | 101 |
| A4.4 | Outline of the Formal Derivation of Nation 2's Offer Curve | 104 |
| A4.5 | General Equilibrium of Production, Consumption, and Trade | 104 |
| A4.6 | Multiple and Unstable Equilibria | 107 |
| | Selected Bibliography | 108 |
| | INTERNet | 108 |

| | | |
|----------|---|------------|
| 5 | Factor Endowments and the Heckscher–Ohlin Theory | 109 |
| 5.1 | Introduction | 109 |
| 5.2 | Assumptions of the Theory | 110 |
| 5.2A | The Assumptions | 110 |
| 5.2B | Meaning of the Assumptions | 110 |
| 5.3 | Factor Intensity, Factor Abundance, and the Shape of the Production Frontier | 112 |
| 5.3A | Factor Intensity | 112 |
| 5.3B | Factor Abundance | 114 |
| 5.3C | Factor Abundance and the Shape of the Production Frontier | 115 |
| | ■ CASE STUDY 5-1 <i>Relative Resource Endowments of Various Countries</i> | 116 |
| | ■ CASE STUDY 5-2 <i>Capital–Labor Ratios of Selected Countries</i> | 117 |
| 5.4 | Factor Endowments and the Heckscher–Ohlin Theory | 118 |
| 5.4A | The Heckscher–Ohlin Theorem | 118 |
| 5.4B | General Equilibrium Framework of the Heckscher–Ohlin Theory | 119 |
| 5.4C | Illustration of the Heckscher–Ohlin Theory | 120 |
| | ■ CASE STUDY 5-3 <i>Classification of Major Product Categories in Terms of Factor Intensity</i> | 122 |
| | ■ CASE STUDY 5-4 <i>The Factor Intensity of Trade of Various Countries</i> | 122 |
| 5.5 | Factor–Price Equalization and Income Distribution | 123 |
| 5.5A | The Factor–Price Equalization Theorem | 124 |
| 5.5B | Relative and Absolute Factor–Price Equalization | 125 |
| 5.5C | Effect of Trade on the Distribution of Income | 126 |
| | ■ CASE STUDY 5-5 <i>Has International Trade Increased U.S. Wage Inequalities?</i> | 127 |
| 5.5D | The Specific-Factors Model | 128 |
| 5.5E | Empirical Relevance | 129 |
| | ■ CASE STUDY 5-6 <i>Convergence of Real Wages among Industrial Countries</i> | 130 |
| 5.6 | Empirical Tests of the Heckscher–Ohlin Model | 131 |
| 5.6A | Empirical Results—The Leontief Paradox | 131 |
| | ■ CASE STUDY 5-7 <i>Capital and Labor Requirements in U.S. Trade</i> | 132 |
| 5.6B | Explanations of the Leontief Paradox and Other Empirical Tests of the H–O Model | 133 |
| | ■ CASE STUDY 5-8 <i>The H–O Model with Skills and Land</i> | 135 |
| 5.6C | Factor-Intensity Reversal | 137 |
| | Summary | 138 |

| | |
|---|-----|
| A Look Ahead | 139 |
| Key Terms | 139 |
| Questions for Review | 139 |
| Problems | 140 |
| A5.1 The Edgeworth Box Diagram for Nation 1 and Nation 2 | 142 |
| A5.2 Relative Factor–Price Equalization | 142 |
| A5.3 Absolute Factor–Price Equalization | 145 |
| A5.4 Effect of Trade on the Short-Run Distribution of Income: The Specific-Factors Model | 146 |
| A5.5 Illustration of Factor-Intensity Reversal | 148 |
| A5.6 The Elasticity of Substitution and Factor-Intensity Reversal | 150 |
| A5.7 Empirical Tests of Factor-Intensity Reversal | 151 |
| Selected Bibliography | 151 |
| INTERNet | 155 |

6 Economies of Scale, Imperfect Competition, and International Trade 157

| | |
|---|-----|
| 6.1 Introduction | 157 |
| 6.2 The Heckscher–Ohlin Model and New Trade Theories | 158 |
| 6.3 Economies of Scale and International Trade | 159 |
| ■ CASE STUDY 6-1 <i>The New International Economies of Scale</i> | 161 |
| ■ CASE STUDY 6-2 <i>Job Loss Rates in U.S. Industries and Globalization</i> | 162 |
| 6.4 Imperfect Competition and International Trade | 163 |
| 6.4A Trade Based on Product Differentiation | 163 |
| ■ CASE STUDY 6-3 <i>U.S. Intra-Industry Trade in Automotive Products</i> | 163 |
| ■ CASE STUDY 6-4 <i>Variety Gains with International Trade</i> | 165 |
| 6.4B Measuring Intra-Industry Trade | 167 |
| ■ CASE STUDY 6-5 <i>Growth of Intra-Industry Trade</i> | 167 |
| ■ CASE STUDY 6-6 <i>Intra-Industry Trade Indexes for G-20 Countries</i> | 168 |
| 6.4C Formal Model of Intra-Industry Trade | 169 |
| 6.4D Another Version of the Intra-Industry Trade Model | 170 |
| 6.5 Trade Based on Dynamic Technological Differences | 172 |
| 6.5A Technological Gap and Product Cycle Models | 172 |
| 6.5B Illustration of the Product Cycle Model | 173 |
| ■ CASE STUDY 6-7 <i>The United States as the Most Competitive Economy</i> | 175 |
| 6.6 Costs of Transportation, Environmental Standards, and International Trade | 175 |
| 6.6A Costs of Transportation and Nontraded Commodities | 175 |
| 6.6B Costs of Transportation and the Location of Industry | 177 |

| | |
|--|-----|
| 6.6C Environmental Standards, Industry Location, and International Trade | 178 |
| ■ CASE STUDY 6-8 <i>Environmental Performance Index</i> | 179 |
| Summary | 179 |
| A Look Ahead | 180 |
| Key Terms | 180 |
| Questions for Review | 181 |
| Problems | 181 |
| A6.1 External Economies and the Pattern of Trade | 182 |
| A6.2 Dynamic External Economies and Specialization | 184 |
| Selected Bibliography | 185 |
| INTERNet | 187 |

7 Economic Growth and International Trade 189

| | |
|--|-----|
| 7.1 Introduction | 189 |
| 7.2 Growth of Factors of Production | 190 |
| 7.2A Labor Growth and Capital Accumulation over Time | 190 |
| 7.2B The Rybczynski Theorem | 192 |
| 7.3 Technical Progress | 193 |
| 7.3A Neutral, Labor-Saving, and Capital-Saving Technical Progress | 193 |
| 7.3B Technical Progress and the Nation's Production Frontier | 194 |
| ■ CASE STUDY 7-1 <i>Growth in the Capital Stock per Worker of Selected Countries</i> | 195 |
| 7.4 Growth and Trade: The Small-Country Case | 196 |
| 7.4A The Effect of Growth on Trade | 196 |
| 7.4B Illustration of Factor Growth, Trade, and Welfare | 197 |
| 7.4C Technical Progress, Trade, and Welfare | 199 |
| ■ CASE STUDY 7-2 <i>Growth in Output per Worker from Capital Deepening, Technological Change, and Improvements in Efficiency</i> | 200 |
| 7.5 Growth and Trade: The Large-Country Case | 201 |
| 7.5A Growth and the Nation's Terms of Trade and Welfare | 201 |
| 7.5B Immiserizing Growth | 202 |
| 7.5C Illustration of Beneficial Growth and Trade | 203 |
| ■ CASE STUDY 7-3 <i>Growth and the Emergence of New Economic Giants</i> | 205 |
| 7.6 Growth, Change in Tastes, and Trade in Both Nations | 206 |
| 7.6A Growth and Trade in Both Nations | 206 |
| 7.6B Change in Tastes and Trade in Both Nations | 208 |
| ■ CASE STUDY 7-4 <i>Growth, Trade, and Welfare in the Leading Industrial Countries</i> | 208 |

| | |
|--|-----|
| Summary | 209 |
| A Look Ahead | 210 |
| Key Terms | 210 |
| Questions for Review | 211 |
| Problems | 211 |
| A7.1 Formal Proof of the Rybczynski Theorem | 212 |
| A7.2 Growth with Factor Immobility | 214 |
| A7.3 Graphical Analysis of Hicksian Technical Progress | 216 |
| Selected Bibliography | 217 |
| INTERNet | 218 |

Part 2 International Trade Policy

8 Trade Restrictions: Tariffs 221

| | |
|---|-----|
| 8.1 Introduction | 221 |
| ■ CASE STUDY 8-1 <i>Average Tariff on Nonagricultural Products in Major Developed Countries</i> | 222 |
| ■ CASE STUDY 8-2 <i>Average Tariffs on Nonagricultural Products in Some Major Developing Countries</i> | 223 |
| 8.2 Partial Equilibrium Analysis of a Tariff | 223 |
| 8.2A Partial Equilibrium Effects of a Tariff | 224 |
| 8.2B Effect of a Tariff on Consumer and Producer Surplus | 225 |
| 8.2C Costs and Benefits of a Tariff | 226 |
| ■ CASE STUDY 8-3 <i>The Welfare Effect of Liberalizing Trade on Some U.S. Products</i> | 227 |
| ■ CASE STUDY 8-4 <i>The Welfare Effect of Liberalizing Trade on Some EU Products</i> | 228 |
| 8.3 The Theory of Tariff Structure | 229 |
| 8.3A The Rate of Effective Protection | 229 |
| 8.3B Generalization and Evaluation of the Theory of Effective Protection | 231 |
| ■ CASE STUDY 8-5 <i>Rising Tariff Rates with Degree of Domestic Processing</i> | 232 |
| ■ CASE STUDY 8-6 <i>Structure of Tariffs on Industrial Products in the United States, the European Union, Japan, and Canada</i> | 232 |
| 8.4 General Equilibrium Analysis of a Tariff in a Small Country | 234 |
| 8.4A General Equilibrium Effects of a Tariff in a Small Country | 234 |
| 8.4B Illustration of the Effects of a Tariff in a Small Country | 235 |
| 8.4C The Stolper–Samuelson Theorem | 236 |
| 8.5 General Equilibrium Analysis of a Tariff in a Large Country | 237 |

| | |
|---|-----|
| 8.5A General Equilibrium Effects of a Tariff in a Large Country | 237 |
| 8.5B Illustration of the Effects of a Tariff in a Large Country | 238 |
| 8.6 The Optimum Tariff | 239 |
| 8.6A The Meaning of the Concept of Optimum Tariff and Retaliation | 239 |
| 8.6B Illustration of the Optimum Tariff and Retaliation | 240 |
| Summary | 241 |
| A Look Ahead | 242 |
| Key Terms | 242 |
| Questions for Review | 243 |
| Problems | 243 |
| A8.1 Partial Equilibrium Effects of a Tariff in a Large Nation | 244 |
| A8.2 Derivation of the Formula for the Rate of Effective Protection | 247 |
| A8.3 The Stolper–Samuelson Theorem Graphically | 248 |
| A8.4 Exception to the Stolper–Samuelson Theorem—The Metzler Paradox | 250 |
| A8.5 Short-Run Effect of a Tariff on Factors’ Income | 251 |
| A8.6 Measurement of the Optimum Tariff | 252 |
| Selected Bibliography | 254 |
| INTERNet | 256 |

9 Nontariff Trade Barriers and the New Protectionism

257

| | |
|--|-----|
| 9.1 Introduction | 257 |
| 9.2 Import Quotas | 258 |
| 9.2A Effects of an Import Quota | 258 |
| ■ CASE STUDY 9-1 <i>The Economic Effects of the U.S. Quota on Sugar Imports</i> | 259 |
| 9.2B Comparison of an Import Quota to an Import Tariff | 260 |
| 9.3 Other Nontariff Barriers and the New Protectionism | 260 |
| 9.3A Voluntary Export Restraints | 261 |
| ■ CASE STUDY 9-2 <i>Voluntary Export Restraints (VERs) on Japanese Automobiles to the United States and Europe</i> | 261 |
| 9.3B Technical, Administrative, and Other Regulations | 262 |
| 9.3C International Cartels | 263 |
| 9.3D Dumping | 264 |
| 9.3E Export Subsidies | 266 |
| ■ CASE STUDY 9-3 <i>Antidumping Investigations by G20 Members</i> | 266 |
| ■ CASE STUDY 9-4 <i>Agricultural Subsidies in OECD Countries</i> | 267 |
| ■ CASE STUDY 9-5 <i>Pervasiveness of Nontariff Barriers</i> | 268 |
| 9.3F Analysis of Export Subsidies | 269 |
| 9.4 The Political Economy of Protectionism | 270 |

| | | |
|------|--|-----|
| 9.4A | Fallacious and Questionable Arguments for Protection | 270 |
| 9.4B | The Infant-Industry and Other Qualified Arguments for Protection | 271 |
| 9.4C | Who Gets Protected? | 272 |
| | ■ CASE STUDY 9-6 <i>Benefits to the World Economy from Complete Trade Liberalization</i> | 273 |
| 9.5 | Strategic Trade and Industrial Policies | 274 |
| 9.5A | Strategic Trade Policy | 274 |
| 9.5B | Strategic Trade and Industrial Policies with Game Theory | 275 |
| 9.5C | The U.S. Response to Foreign Industrial Targeting and Strategic Trade Policies | 277 |
| 9.6 | History of U.S. Commercial Policy | 278 |
| 9.6A | The Trade Agreements Act of 1934 | 278 |
| 9.6B | The General Agreement on Tariffs and Trade (GATT) | 279 |
| 9.6C | The 1962 Trade Expansion Act and the Kennedy Round | 280 |
| 9.6D | The Trade Reform Act of 1974 and the Tokyo Round | 280 |
| 9.6E | The 1984 and 1988 Trade Acts | 281 |
| 9.7 | The Uruguay Round, Outstanding Trade Problems, and the Doha Round | 282 |
| 9.7A | The Uruguay Round | 283 |
| | ■ CASE STUDY 9-7 <i>Gains from the Uruguay Round</i> | 285 |
| | ■ CASE STUDY 9-8 <i>The Multilateral Rounds of Trade Negotiations</i> | 286 |
| 9.7B | Outstanding Trade Problems and the Doha Round | 286 |
| | ■ CASE STUDY 9-9 <i>Benefits from a Likely Doha Scenario</i> | 288 |
| | Summary | 288 |
| | A Look Ahead | 290 |
| | Key Terms | 290 |
| | Questions for Review | 290 |
| | Problems | 291 |
| A9.1 | Centralized Cartels | 292 |
| A9.2 | International Price Discrimination | 293 |
| A9.3 | Tariffs, Subsidies, and Domestic Goals | 294 |
| | Selected Bibliography | 295 |
| | INTERNet | 299 |

10 Economic Integration: Customs Unions and Free Trade Areas 301

| | | |
|------|--|-----|
| 10.1 | Introduction | 301 |
| 10.2 | Trade-Creating Customs Union | 302 |
| | 10.2A Trade Creation | 302 |
| | 10.2B Illustration of a Trade-Creating Customs Union | 303 |
| 10.3 | Trade-Diverting Customs Unions | 304 |

| | | |
|-------|---|-----|
| 10.3A | Trade Diversion | 304 |
| 10.3B | Illustration of a Trade-Diverting Customs Union | 304 |
| 10.4 | The Theory of the Second Best and Other Static Welfare Effects of Customs Unions | 306 |
| 10.4A | The Theory of the Second Best | 306 |
| 10.4B | Conditions More Likely to Lead to Increased Welfare | 307 |
| 10.4C | Other Static Welfare Effects of Customs Unions | 307 |
| 10.5 | Dynamic Benefits from Customs Unions | 308 |
| 10.6 | History of Attempts at Economic Integration | 309 |
| 10.6A | The European Union | 309 |
| | ■ CASE STUDY 10-1 <i>Economic Profile of the EU, NAFTA, and Japan</i> | 310 |
| | ■ CASE STUDY 10-2 <i>Gains from the Single EU Market</i> | 311 |
| 10.6B | The European Free Trade Association | 312 |
| 10.6C | The North American and Other Free Trade Agreements | 313 |
| | ■ CASE STUDY 10-3 <i>Mexico's Gains from NAFTA—Expectations and Outcome</i> | 315 |
| 10.6D | Attempts at Economic Integration among Developing Countries | 316 |
| | ■ CASE STUDY 10-4 <i>Economic Profile of Mercosur</i> | 317 |
| 10.6E | Economic Integration in Central and Eastern Europe and in the Former Soviet Republics | 318 |
| | ■ CASE STUDY 10-5 <i>Changes in Trade Patterns with Economic Integration</i> | 319 |
| | Summary | 321 |
| | A Look Ahead | 322 |
| | Key Terms | 322 |
| | Questions for Review | 322 |
| | Problems | 323 |
| A10.1 | General Equilibrium Analysis of the Static Effects of a Trade-Diverting Customs Union | 324 |
| A10.2 | Regional Trade Agreements Around the World | 325 |
| | Selected Bibliography | 327 |
| | INTERNet | 330 |

11 International Trade and Economic Development

331

| | | |
|-------|---|-----|
| 11.1 | Introduction | 331 |
| 11.2 | The Importance of Trade to Development | 332 |
| 11.2A | Trade Theory and Economic Development | 332 |
| 11.2B | Trade as an Engine of Growth | 333 |
| 11.2C | The Contributions of Trade to Development | 335 |

| | |
|---|-----|
| 11.2D International Trade and Endogenous Growth Theory | 336 |
| ■ CASE STUDY 11-1 <i>The East Asian Miracle of Growth and Trade</i> | 337 |
| 11.3 The Terms of Trade and Economic Development | 338 |
| 11.3A The Various Terms of Trade | 338 |
| 11.3B Alleged Reasons for Deterioration in the Commodity Terms of Trade | 339 |
| 11.3C Historical Movement in the Commodity and Income Terms of Trade | 340 |
| ■ CASE STUDY 11-2 <i>Change in Commodity Prices over Time</i> | 342 |
| 11.4 Export Instability and Economic Development | 343 |
| 11.4A Cause and Effects of Export Instability | 343 |
| 11.4B Measurements of Export Instability and Its Effect on Development | 344 |
| 11.4C International Commodity Agreements | 345 |
| 11.5 Import Substitution versus Export Orientation | 346 |
| 11.5A Development through Import Substitution versus Exports | 346 |
| 11.5B Experience with Import Substitution | 348 |
| ■ CASE STUDY 11-3 <i>The Growth of GDP of Rich Countries, Globalizers, and Nonglobalizers</i> | 348 |
| 11.5C Trade Liberalization and Growth in Developing Countries | 349 |
| ■ CASE STUDY 11-4 <i>Manufactures in Total Exports of Selected Developing Countries</i> | 350 |
| 11.6 Current Problems Facing Developing Countries | 351 |
| 11.6A Poverty in Developing Countries | 351 |
| 11.6B The Foreign Debt Problem of Developing Countries | 353 |
| ■ CASE STUDY 11-5 <i>The Foreign Debt Burden of Developing Countries</i> | 353 |
| 11.6C Trade Problems of Developing Countries | 354 |
| ■ CASE STUDY 11-6 <i>Globalization and World Poverty</i> | 355 |
| Summary | 356 |
| A Look Ahead | 357 |
| Key Terms | 357 |
| Questions for Review | 357 |
| Problems | 358 |
| A11.1 Income Inequalities by Traditional and Purchasing-Power Parity (PPP) Measures | 359 |
| Selected Bibliography | 360 |
| INTERNet | 365 |

12 International Resource Movements and Multinational Corporations

367

-
- 12.1 Introduction 367
 - 12.2 Some Data on International Capital Flows 368
 - CASE STUDY 12-1 *Fluctuations in Foreign Direct Investment Flows to the United States* 370
 - 12.3 Motives for International Capital Flows 371
 - 12.3A Motives for International Portfolio Investments 371
 - 12.3B Motives for Direct Foreign Investments 373
 - 12.4 Welfare Effects of International Capital Flows 374
 - CASE STUDY 12-2 *The Stock of Foreign Direct Investments Around the World* 374
 - 12.4A Effects on the Investing and Host Countries 375
 - 12.4B Other Effects on the Investing and Host Countries 377
 - 12.5 Multinational Corporations 378
 - 12.5A Reasons for the Existence of Multinational Corporations 378
 - 12.5B Problems Created by Multinational Corporations in the Home Country 379
 - CASE STUDY 12-3 *The World's Largest Nonpetroleum, Industrial Corporations* 380
 - CASE STUDY 12-4 *Employment of U.S. MNCs Abroad* 381
 - 12.5C Problems Created by Multinational Corporations in the Host Country 382
 - 12.6 Motives for and Welfare Effects of International Labor Migration 383
 - 12.6A Motives for International Labor Migration 383
 - 12.6B Welfare Effects of International Labor Migration 384
 - 12.6C Other Welfare Effects of International Labor Migration 385
 - CASE STUDY 12-5 *U.S. Immigration and Debate over Immigration Policy* 387
 - Summary 388
 - A Look Ahead 389
 - Key Terms 389
 - Questions for Review 389
 - Problems 390
 - A12.1 The Transfer Problem 390
 - Selected Bibliography 391
 - INTERNet 393

Part 3 The Balance of Payments, Foreign Exchange Markets, and Exchange Rates

13 Balance of Payments 397

- 13.1 Introduction 397
- 13.2 Balance-of-Payments Accounting Principles 398
 - 13.2A Credits and Debits 398
 - 13.2B Double-Entry Bookkeeping 399
- 13.3 The International Transactions of the United States 401
 - CASE STUDY 13-1 *The Major Goods Exports and Imports of the United States* 403
- 13.4 Accounting Balances and the Balance of Payments 405
- 13.5 The Postwar Balance of Payments of the United States 407
 - CASE STUDY 13-2 *The Major Trade Partners of the United States* 409
 - CASE STUDY 13-3 *The U.S. Trade Deficit with Japan* 410
 - CASE STUDY 13-4 *The Exploding U.S. Trade Deficit with China* 411
- 13.6 The International Investment Position of the United States 412
 - CASE STUDY 13-5 *The United States as a Debtor Nation* 414
- Summary 415
- A Look Ahead 415
- Key Terms 416
- Questions for Review 416
- Problems 417
- A13.1 The IMF Method of Reporting International Transactions 418
- Selected Bibliography 421
- INTERNet 422

14 Foreign Exchange Markets and Exchange Rates 423

- 14.1 Introduction 423
- 14.2 Functions of the Foreign Exchange Markets 423
 - CASE STUDY 14-1 *The U.S. Dollar as the Dominant International Currency* 425
 - CASE STUDY 14-2 *The Birth of a New Currency: The Euro* 427
- 14.3 Foreign Exchange Rates 427
 - 14.3A Equilibrium Foreign Exchange Rates 427
 - CASE STUDY 14-3 *Foreign Exchange Quotations* 430
 - 14.3B Arbitrage 431

| | | |
|-------|---|-----|
| 14.3C | The Exchange Rate and the Balance of Payments | 432 |
| 14.4 | Spot and Forward Rates, Currency Swaps, Futures, and Options | 434 |
| 14.4A | Spot and Forward Rates | 434 |
| 14.4B | Foreign Exchange Swaps | 435 |
| 14.4C | Foreign Exchange Futures and Options | 436 |
| ■ | CASE STUDY 14-4 <i>Size, Currency, and Geographic Distribution of the Foreign Exchange Market</i> | 437 |
| 14.5 | Foreign Exchange Risks, Hedging, and Speculation | 438 |
| 14.5A | Foreign Exchange Risks | 438 |
| 14.5B | Hedging | 441 |
| 14.5C | Speculation | 442 |
| 14.6 | Interest Arbitrage and the Efficiency of Foreign Exchange Markets | 444 |
| 14.6A | Uncovered Interest Arbitrage | 444 |
| ■ | CASE STUDY 14-5 <i>Carry Trade</i> | 445 |
| 14.6B | Covered Interest Arbitrage | 446 |
| 14.6C | Covered Interest Arbitrage Parity | 447 |
| 14.6D | Covered Interest Arbitrage Margin | 449 |
| 14.6E | Efficiency of Foreign Exchange Markets | 450 |
| 14.7 | Eurocurrency or Offshore Financial Markets | 451 |
| 14.7A | Description and Size of the Eurocurrency Market | 451 |
| 14.7B | Reasons for the Development and Growth of the Eurocurrency Market | 452 |
| ■ | CASE STUDY 14-6 <i>Size and Growth of Eurocurrency Market</i> | 453 |
| 14.7C | Operation and Effects of the Eurocurrency Market | 454 |
| 14.7D | Eurobond and Euronote Markets | 455 |
| | Summary | 456 |
| | A Look Ahead | 457 |
| | Key Terms | 457 |
| | Questions for Review | 457 |
| | Problems | 458 |
| A14.1 | Derivation of the Formula for the Covered Interest Arbitrage Margin | 459 |
| | Selected Bibliography | 461 |
| | INTERNet | 462 |

15 Exchange Rate Determination

463

| | | |
|-------|---|-----|
| 15.1 | Introduction | 463 |
| 15.2 | Purchasing-Power Parity Theory | 464 |
| 15.2A | Absolute Purchasing-Power Parity Theory | 464 |

| | | |
|-------|--|-----|
| 15.2B | Relative Purchasing-Power Parity Theory | 465 |
| ■ | CASE STUDY 15-1 <i>Absolute Purchasing-Power Parity in the Real World</i> | 466 |
| ■ | CASE STUDY 15-2 <i>The Big Mac Index and the Law of One Price</i> | 467 |
| ■ | CASE STUDY 15-3 <i>Relative Purchasing-Power Parity in the Real World</i> | 469 |
| 15.2C | Empirical Tests of the Purchasing-Power Parity Theory | 470 |
| 15.3 | Monetary Approach to the Balance of Payments and Exchange Rates | 471 |
| 15.3A | Monetary Approach under Fixed Exchange Rates | 471 |
| 15.3B | Monetary Approach under Flexible Exchange Rates | 473 |
| 15.3C | Monetary Approach to Exchange Rate Determination | 475 |
| ■ | CASE STUDY 15-4 <i>Monetary Growth and Inflation</i> | 476 |
| ■ | CASE STUDY 15-5 <i>Nominal and Real Exchange Rates, and the Monetary Approach</i> | 477 |
| 15.3D | Expectations, Interest Differentials, and Exchange Rates | 478 |
| ■ | CASE STUDY 15-6 <i>Interest Differentials, Exchange Rates, and the Monetary Approach</i> | 480 |
| 15.4 | Portfolio Balance Model and Exchange Rates | 480 |
| 15.4A | Portfolio Balance Model | 481 |
| 15.4B | Extended Portfolio Balance Model | 482 |
| 15.4C | Portfolio Adjustments and Exchange Rates | 484 |
| 15.5 | Exchange Rate Dynamics | 486 |
| 15.5A | Exchange Rate Overshooting | 486 |
| 15.5B | Time Path to a New Equilibrium Exchange Rate | 487 |
| 15.6 | Empirical Tests of the Monetary and Portfolio Balance Models and Exchange Rate Forecasting | 489 |
| ■ | CASE STUDY 15-7 <i>Exchange Rate Overshooting of the U.S. Dollar</i> | 490 |
| ■ | CASE STUDY 15-8 <i>The Euro Exchange Rate Defies Forecasts</i> | 491 |
| | Summary | 493 |
| | A Look Ahead | 494 |
| | Key Terms | 494 |
| | Questions for Review | 494 |
| | Problems | 495 |
| A15.1 | Formal Monetary Approach Model | 497 |
| A15.2 | Formal Portfolio Balance Model and Exchange Rates | 498 |
| | Selected Bibliography | 500 |
| | INTERNet | 503 |

Part 4 Open-Economy Macroeconomics and the International Monetary System

16 The Price Adjustment Mechanism with Flexible and Fixed Exchange Rates

507

-
- 16.1 Introduction 507
 - 16.2 Adjustment with Flexible Exchange Rates 508
 - 16.2A Balance-of-Payments Adjustments with Exchange Rate Changes 508
 - 16.2B Derivation of the Demand Curve for Foreign Exchange 509
 - 16.2C Derivation of the Supply Curve for Foreign Exchange 511
 - 16.3 Effect of Exchange Rate Changes on Domestic Prices and the Terms of Trade 512
 - CASE STUDY 16-1 *Currency Depreciation and Inflation in Developing Countries during the 1997–1998 East Asian Crisis* 513
 - 16.4 Stability of Foreign Exchange Markets 514
 - 16.4A Stable and Unstable Foreign Exchange Markets 514
 - 16.4B The Marshall–Lerner Condition 516
 - 16.5 Elasticities in the Real World 517
 - 16.5A Elasticity Estimates 517
 - 16.5B The J-Curve Effect and Revised Elasticity Estimates 519
 - CASE STUDY 16-2 *Estimated Price Elasticities in International Trade* 520
 - CASE STUDY 16-3 *Other Estimated Price Elasticities in International Trade* 521
 - CASE STUDY 16-4 *Effective Exchange Rate of the Dollar and U.S. Current Account Balance* 521
 - CASE STUDY 16-5 *Dollar Depreciation and the U.S. Current Account Balance* 523
 - CASE STUDY 16-6 *Exchange Rates and Current Account Balances during the European Financial Crisis of the Early 1990s* 524
 - 16.5C Currency Pass-Through 524
 - CASE STUDY 16-7 *Exchange Rate Pass-Through to Import Prices in Industrial Countries* 525
 - 16.6 Adjustment under the Gold Standard 526
 - 16.6A The Gold Standard 526
 - 16.6B The Price-Specie-Flow Mechanism 527

| | |
|--|-----|
| Summary | 529 |
| A Look Ahead | 529 |
| Key Terms | 530 |
| Questions for Review | 530 |
| Problems | 530 |
| A16.1 The Effect of Exchange Rate Changes on Domestic Prices | 531 |
| A16.2 Derivation of the Marshall–Lerner Condition | 534 |
| A16.3 Derivation of the Gold Points and Gold Flows under the Gold Standard | 536 |
| Selected Bibliography | 537 |
| INTERNet | 539 |

17 The Income Adjustment Mechanism and Synthesis of Automatic Adjustments 541

| | |
|--|-----|
| 17.1 Introduction | 541 |
| 17.2 Income Determination in a Closed Economy | 542 |
| 17.2A Determination of the Equilibrium National Income in a Closed Economy | 542 |
| 17.2B Multiplier in a Closed Economy | 545 |
| 17.3 Income Determination in a Small Open Economy | 546 |
| 17.3A Import Function | 546 |
| ■ CASE STUDY 17-1 <i>Income Elasticity of Imports</i> | 547 |
| 17.3B Determination of the Equilibrium National Income in a Small Open Economy | 548 |
| ■ CASE STUDY 17-2 <i>Private Sector and Current Account Balances</i> | 549 |
| 17.3C Graphical Determination of the Equilibrium National Income | 549 |
| 17.3D Foreign Trade Multiplier | 551 |
| ■ CASE STUDY 17-3 <i>Growth in the United States and the World and U.S. Current Account Deficits</i> | 553 |
| ■ CASE STUDY 17-4 <i>Growth and Current Account Balance in Developing Economies</i> | 554 |
| 17.4 Foreign Repercussions | 555 |
| ■ CASE STUDY 17-5 <i>Effect of the Asian Financial Crisis of the Late 1990s on OECD Countries</i> | 557 |
| 17.5 Absorption Approach | 558 |
| 17.6 Monetary Adjustments and Synthesis of the Automatic Adjustments | 559 |
| 17.6A Monetary Adjustments | 559 |
| 17.6B Synthesis of Automatic Adjustments | 560 |
| ■ CASE STUDY 17-6 <i>Interdependence in the World Economy</i> | 561 |
| 17.6C Disadvantages of Automatic Adjustments | 562 |

| | |
|--|-----|
| Summary | 563 |
| A Look Ahead | 564 |
| Key Terms | 564 |
| Questions for Review | 565 |
| Problems | 565 |
| A17.1 Derivation of Foreign Trade Multipliers with Foreign Repercussions | 566 |
| A17.2 The Transfer Problem Once Again | 568 |
| Selected Bibliography | 570 |
| INTERNet | 572 |

18 Open-Economy Macroeconomics: Adjustment Policies

573

| | |
|--|-----|
| 18.1 Introduction | 573 |
| ■ CASE STUDY 18-1 <i>Government, Private-Sector, and Current Account Balances in the G-7 Countries</i> | 574 |
| 18.2 Internal and External Balance with Expenditure-Changing and Expenditure-Switching Policies | 576 |
| 18.3 Equilibrium in the Goods Market, in the Money Market, and in the Balance of Payments | 578 |
| 18.4 Fiscal and Monetary Policies for Internal and External Balance with Fixed Exchange Rates | 581 |
| 18.4A Fiscal and Monetary Policies from External Balance and Unemployment | 581 |
| 18.4B Fiscal and Monetary Policies from External Deficit and Unemployment | 583 |
| 18.4C Fiscal and Monetary Policies with Elastic Capital Flows | 584 |
| ■ CASE STUDY 18-2 <i>Relationship between U.S. Current Account and Budget Deficits</i> | 585 |
| 18.4D Fiscal and Monetary Policies with Perfect Capital Mobility | 586 |
| ■ CASE STUDY 18-3 <i>Effect of U.S. Fiscal Policy in the United States and Abroad</i> | 588 |
| 18.5 The <i>IS–LM–BP</i> Model with Flexible Exchange Rates | 589 |
| 18.5A The <i>IS–LM–BP</i> Model with Flexible Exchange Rates and Imperfect Capital Mobility | 589 |
| 18.5B The <i>IS–LM–BP</i> Model with Flexible Exchange Rates and Perfect Capital Mobility | 591 |
| ■ CASE STUDY 18-4 <i>Effect of Monetary Policy in the United States and Other OECD Countries</i> | 592 |
| 18.6 Policy Mix and Price Changes | 594 |
| 18.6A Policy Mix and Internal and External Balance | 594 |
| 18.6B Evaluation of the Policy Mix with Price Changes | 596 |
| 18.6C Policy Mix in the Real World | 597 |

| | | |
|-----------------------|--|-----|
| ■ CASE STUDY 18-5 | <i>U.S. Monetary and Fiscal Policies during the Past Decade</i> | 599 |
| ■ CASE STUDY 18-6 | <i>Deeper U.S. Recession without Strong Fiscal and Monetary Measures</i> | 600 |
| 18.7 | Direct Controls | 600 |
| 18.7A | Trade Controls | 601 |
| 18.7B | Exchange Controls | 601 |
| 18.7C | Other Direct Controls and International Cooperation | 602 |
| ■ CASE STUDY 18-7 | <i>Direct Controls on International Transactions Around the World</i> | 603 |
| Summary | | 604 |
| A Look Ahead | | 605 |
| Key Terms | | 605 |
| Questions for Review | | 605 |
| Problems | | 606 |
| A18.1 | Derivation of the <i>IS</i> Curve | 608 |
| A18.2 | Derivation of the <i>LM</i> Curve | 609 |
| A18.3 | Derivation of the <i>BP</i> Curve | 611 |
| A18.4 | Mathematical Summary | 611 |
| Selected Bibliography | | 613 |
| INTERNet | | 615 |

19 Prices and Output in an Open Economy: Aggregate Demand and Aggregate Supply

617

| | | |
|-------------------|---|-----|
| 19.1 | Introduction | 617 |
| 19.2 | Aggregate Demand, Aggregate Supply, and Equilibrium in a Closed Economy | 618 |
| 19.2A | Aggregate Demand in a Closed Economy | 618 |
| 19.2B | Aggregate Supply in the Long Run and in the Short Run | 619 |
| 19.2C | Short-Run and Long-Run Equilibrium in a Closed Economy | 621 |
| ■ CASE STUDY 19-1 | <i>Deviations of Short-Run Outputs from the Natural Level in the United States</i> | 623 |
| 19.3 | Aggregate Demand in an Open Economy under Fixed and Flexible Exchange Rates | 623 |
| 19.3A | Aggregate Demand in an Open Economy under Fixed Exchange Rates | 624 |
| 19.3B | Aggregate Demand in an Open Economy under Flexible Exchange Rates | 625 |
| 19.4 | Effect of Economic Shocks and Macroeconomic Policies on Aggregate Demand in Open Economies with Flexible Prices | 626 |
| 19.4A | Real-Sector Shocks and Aggregate Demand | 627 |

| | | |
|-------|---|-----|
| 19.4B | Monetary Shocks and Aggregate Demand | 628 |
| 19.4C | Fiscal and Monetary Policies and Aggregate Demand in Open Economies | 629 |
| 19.5 | Effect of Fiscal and Monetary Policies in Open Economies with Flexible Prices | 630 |
| | ■ CASE STUDY 19-2 <i>Central Bank Independence and Inflation in Industrial Countries</i> | 632 |
| | ■ CASE STUDY 19-3 <i>Inflation Targeting—A New Approach to Monetary Policy</i> | 633 |
| 19.6 | Macroeconomic Policies to Stimulate Growth and Adjust to Supply Shocks | 634 |
| 19.6A | Macroeconomic Policies for Growth | 634 |
| 19.6B | Macroeconomic Policies to Adjust to Supply Shocks | 635 |
| | ■ CASE STUDY 19-4 <i>Petroleum Shocks and Stagflation in the United States</i> | 637 |
| | ■ CASE STUDY 19-5 <i>Impact of an Increase in the Price of Petroleum</i> | 638 |
| | ■ CASE STUDY 19-6 <i>Actual and Natural Unemployment Rates and Inflation in the United States</i> | 639 |
| | Summary | 640 |
| | A Look Ahead | 641 |
| | Key Terms | 641 |
| | Questions for Review | 641 |
| | Problems | 642 |
| | Selected Bibliography | 642 |
| | INTERNET | 644 |

20 Flexible versus Fixed Exchange Rates, the European Monetary System, and Macroeconomic Policy Coordination

645

| | | |
|-------|---|-----|
| 20.1 | Introduction | 645 |
| 20.2 | The Case for Flexible Exchange Rates | 646 |
| | 20.2A Market Efficiency | 647 |
| | 20.2B Policy Advantages | 647 |
| 20.3 | The Case for Fixed Exchange Rates | 649 |
| | 20.3A Less Uncertainty | 649 |
| | 20.3B Stabilizing Speculation | 650 |
| | 20.3C Price Discipline | 652 |
| | ■ CASE STUDY 20-1 <i>Macroeconomic Performance under Fixed and Flexible Exchange Rate Regimes</i> | 653 |
| 20.3D | The Open-Economy Trilemma | 654 |

| | | |
|-------|--|-----|
| 20.4 | Optimum Currency Areas, the European Monetary System, and the European Monetary Union | 655 |
| 20.4A | Optimum Currency Areas | 656 |
| 20.4B | European Monetary System (1979–1998) | 657 |
| | ■ CASE STUDY 20-2 <i>The 1992–1993 Currency Crisis in the European Monetary System</i> | 658 |
| 20.4C | Transition to Monetary Union | 658 |
| 20.4D | Creation of the Euro | 660 |
| | ■ CASE STUDY 20-3 <i>Maastricht Convergence Indicators</i> | 660 |
| | ■ CASE STUDY 20-4 <i>Benefits and Costs of the Euro</i> | 663 |
| 20.4E | The European Central Bank and the Common Monetary Policy | 663 |
| | ■ CASE STUDY 20-5 <i>The Eurozone Crisis</i> | 664 |
| 20.5 | Currency Boards Arrangements and Dollarization | 665 |
| 20.5A | Currency Board Arrangements | 665 |
| 20.5B | Dollarization | 666 |
| | ■ CASE STUDY 20-6 <i>Argentina’s Currency Board Arrangements and Crisis</i> | 666 |
| 20.6 | Exchange Rate Bands, Adjustable Pegs, Crawling Pegs, and Managed Floating | 667 |
| 20.6A | Exchange Rate Bands | 667 |
| 20.6B | Adjustable Peg Systems | 668 |
| 20.6C | Crawling Pegs | 670 |
| 20.6D | Managed Floating | 670 |
| | ■ CASE STUDY 20-7 <i>Exchange Rate Arrangements of IMF Members</i> | 672 |
| 20.7 | International Macroeconomic Policy Coordination | 673 |
| | Summary | 675 |
| | A Look Ahead | 676 |
| | Key Terms | 676 |
| | Questions for Review | 676 |
| | Problems | 677 |
| A20.1 | Exchange Rate Arrangements | 678 |
| | Selected Bibliography | 683 |
| | INTERNet | 686 |

21 The International Monetary System: Past, Present, and Future 687

| | | |
|-------|---|-----|
| 21.1 | Introduction | 687 |
| 21.2 | The Gold Standard and the Interwar Experience | 688 |
| 21.2A | The Gold Standard Period (1880–1914) | 689 |
| 21.2B | The Interwar Experience | 690 |

| | | |
|-------|--|------------|
| 21.3 | The Bretton Woods System | 691 |
| 21.3A | The Gold-Exchange Standard (1947–1971) | 692 |
| 21.3B | Borrowing from the International Monetary Fund | 693 |
| 21.4 | Operation and Evolution of the Bretton Woods System | 694 |
| 21.4A | Operation of the Bretton Woods System | 694 |
| 21.4B | Evolution of the Bretton Woods System | 695 |
| | ■ CASE STUDY 21-1 <i>Macroeconomic Performance under Different Exchange Rate Regimes</i> | 697 |
| 21.5 | U.S. Balance-of-Payments Deficits and Collapse of the Bretton Woods System | 698 |
| 21.5A | U.S. Balance-of-Payments Deficits | 698 |
| 21.5B | Collapse of the Bretton Woods System | 700 |
| 21.6 | The International Monetary System: Present and Future | 702 |
| 21.6A | Operation of the Present System | 702 |
| 21.6B | Current IMF Operation | 703 |
| 21.6C | Problems with Present Exchange Rate Arrangements | 706 |
| 21.6D | Proposals for Reforming Present Exchange Rate Arrangements | 707 |
| 21.6E | Financial Crises in Emerging Market Economies | 709 |
| | ■ CASE STUDY 21-2 <i>The Anatomy of a Currency Crisis: The Collapse of the Mexican Peso</i> | 709 |
| | ■ CASE STUDY 21-3 <i>Chronology of Economic Crises in Emerging Markets: From Asia to Argentina</i> | 710 |
| | ■ CASE STUDY 21-4 <i>The Financial Crisis in the United States and Other Advanced Economies</i> | 713 |
| 21.6F | Other Current International Economic Problems | 714 |
| | ■ CASE STUDY 21-5 <i>Trade Imbalances of the Leading Industrial Nations</i> | 716 |
| | Summary | 718 |
| | Key Terms | 720 |
| | Questions for Review | 720 |
| | Problems | 721 |
| | A21.1 International Reserves: 1950–2011 | 722 |
| | Selected Bibliography | 724 |
| | INTERNet | 728 |
| | Glossary of Key Terms | 729 |
| | Name Index | 743 |
| | Subject Index | 751 |

Case Studies

| | | |
|----------------|---|-----|
| Case Study 1-1 | The Dell PCs, iPhones, and iPads Sold in the United States Are Anything but American! | 2 |
| Case Study 1-2 | What Is an “American” Car? | 3 |
| Case Study 1-3 | Is India’s Globalization Harming the United States? | 5 |
| Case Study 1-4 | Rising Importance of International Trade to the United States | 8 |
| Case Study 1-5 | Major Net Exporters and Importers of Capital | 11 |
| Case Study 2-1 | Munn’s Mercantilistic Views on Trade | 33 |
| Case Study 2-2 | Mercantilism Is Alive and Well in the Twenty-first Century | 33 |
| Case Study 2-3 | The Petition of the Candlemakers | 41 |
| Case Study 2-4 | Relative Unit Labor Costs and Relative Exports—United States and Japan | 49 |
| Case Study 3-1 | Comparative Advantage of the Largest Advanced and Emerging Economies | 64 |
| Case Study 3-2 | Specialization and Export Concentration in Selected Countries | 67 |
| Case Study 3-3 | Job Losses in High U.S. Import-Competing Industries | 70 |
| Case Study 3-4 | International Trade and Deindustrialization in the United States, the European Union, and Japan | 71 |
| Case Study 4-1 | Demand, Supply, and the International Price of Petroleum | 87 |
| Case Study 4-2 | The Index of Export to Import Prices for the United States | 88 |
| Case Study 4-3 | The Terms of Trade of the G-7 Countries | 95 |
| Case Study 4-4 | The Terms of Trade of Advanced and Developing Countries | 96 |
| Case Study 5-1 | Relative Resource Endowments of Various Countries | 116 |
| Case Study 5-2 | Capital–Labor Ratios of Selected Countries | 117 |
| Case Study 5-3 | Classification of Major Product Categories in Terms of Factor Intensity | 122 |
| Case Study 5-4 | The Factor Intensity of Trade of Various Countries | 122 |
| Case Study 5-5 | Has International Trade Increased U.S. Wage Inequalities? | 127 |

| | | |
|----------------|--|-----|
| Case Study 5-6 | Convergence of Real Wages among Industrial Countries | 130 |
| Case Study 5-7 | Capital and Labor Requirements in U.S. Trade | 132 |
| Case Study 5-8 | The H-O Model with Skills and Land | 135 |
| Case Study 6-1 | The New International Economies of Scale | 161 |
| Case Study 6-2 | Job Loss Rates in U.S. Industries and Globalization | 162 |
| Case Study 6-3 | U.S. Intra-Industry Trade in Automotive Products | 163 |
| Case Study 6-4 | Variety Gains with International Trade | 165 |
| Case Study 6-5 | Growth of Intra-Industry Trade | 167 |
| Case Study 6-6 | Intra-Industry Trade Indexes for G-20 Countries | 168 |
| Case Study 6-7 | The United States as the Most Competitive Economy | 175 |
| Case Study 6-8 | Environmental Performance Index | 179 |
| Case Study 7-1 | Growth in the Capital Stock per Worker of Selected Countries | 195 |
| Case Study 7-2 | Growth in Output per Worker from Capital Deepening, Technological Change, and Improvements in Efficiency | 200 |
| Case Study 7-3 | Growth and the Emergence of New Economic Giants | 205 |
| Case Study 7-4 | Growth, Trade, and Welfare in the Leading Industrial Countries | 208 |
| Case Study 8-1 | Average Tariff on Nonagricultural Products in Major Developed Countries | 222 |
| Case Study 8-2 | Average Tariffs on Nonagricultural Products in Some Major Developing Countries | 223 |
| Case Study 8-3 | The Welfare Effect of Liberalizing Trade on Some U.S. Products | 227 |
| Case Study 8-4 | The Welfare Effect of Liberalizing Trade on Some EU Products | 228 |
| Case Study 8-5 | Rising Tariff Rates with Degree of Domestic Processing | 232 |
| Case Study 8-6 | Structure of Tariffs on Industrial Products in the United States, the European Union, Japan, and Canada | 232 |
| Case Study 9-1 | The Economic Effects of the U.S. Quota on Sugar Imports | 259 |
| Case Study 9-2 | Voluntary Export Restraints (VERs) on Japanese Automobiles to the United States and Europe | 261 |
| Case Study 9-3 | Antidumping Investigations by G20 Members | 266 |
| Case Study 9-4 | Agricultural Subsidies in OECD Countries | 267 |
| Case Study 9-5 | Pervasiveness of Nontariff Barriers | 268 |

| | | |
|-----------------|--|-----|
| Case Study 9-6 | Benefits to the World Economy from Complete Trade Liberalization | 273 |
| Case Study 9-7 | Gains from the Uruguay Round | 285 |
| Case Study 9-8 | The Multilateral Rounds of Trade Negotiations | 286 |
| Case Study 9-9 | Benefits from a Likely Doha Scenario | 288 |
| Case Study 10-1 | Economic Profile of the EU, NAFTA, and Japan | 310 |
| Case Study 10-2 | Gains from the Single EU Market | 311 |
| Case Study 10-3 | Mexico's Gains from NAFTA—Expectations and Outcome | 315 |
| Case Study 10-4 | Economic Profile of Mercosur | 317 |
| Case Study 10-5 | Changes in Trade Patterns with Economic Integration | 319 |
| Case Study 11-1 | The East Asian Miracle of Growth and Trade | 337 |
| Case Study 11-2 | Change in Commodity Prices over Time | 342 |
| Case Study 11-3 | The Growth of GDP of Rich Countries, Globalizers, and Nonglobalizers | 348 |
| Case Study 11-4 | Manufactures in Total Exports of Selected Developing Countries | 350 |
| Case Study 11-5 | The Foreign Debt Burden of Developing Countries | 353 |
| Case Study 11-6 | Globalization and World Poverty | 355 |
| Case Study 12-1 | Fluctuations in Foreign Direct Investment Flows to the United States | 370 |
| Case Study 12-2 | The Stock of Foreign Direct Investments Around the World | 374 |
| Case Study 12-3 | The World's Largest Nonpetroleum, Industrial Corporations | 380 |
| Case Study 12-4 | Employment of U.S. MNCs Abroad | 381 |
| Case Study 12-5 | U.S. Immigration and Debate over Immigration Policy | 387 |
| Case Study 13-1 | The Major Goods Exports and Imports of the United States | 403 |
| Case Study 13-2 | The Major Trade Partners of the United States | 409 |
| Case Study 13-3 | The U.S. Trade Deficit with Japan | 410 |
| Case Study 13-4 | The Exploding U.S. Trade Deficit with China | 411 |
| Case Study 13-5 | The United States as a Debtor Nation | 414 |
| Case Study 14-1 | The U.S. Dollar as the Dominant International Currency | 425 |
| Case Study 14-2 | The Birth of a New Currency: The Euro | 427 |
| Case Study 14-3 | Foreign Exchange Quotations | 430 |

| | | |
|------------------------|---|-----|
| Case Study 14-4 | Size, Currency, and Geographic Distribution of the Foreign Exchange Market | 437 |
| Case Study 14-5 | Carry Trade | 445 |
| Case Study 14-6 | Size and Growth of Eurocurrency Market | 453 |
| Case Study 15-1 | Absolute Purchasing-Power Parity in the Real World | 466 |
| Case Study 15-2 | The Big Mac Index and the Law of One Price | 467 |
| Case Study 15-3 | Relative Purchasing-Power Parity in the Real World | 469 |
| Case Study 15-4 | Monetary Growth and Inflation | 476 |
| Case Study 15-5 | Nominal and Real Exchange Rates, and the Monetary Approach | 477 |
| Case Study 15-6 | Interest Differentials, Exchange Rates, and the Monetary Approach | 480 |
| Case Study 15-7 | Exchange Rate Overshooting of the U.S. Dollar | 490 |
| Case Study 15-8 | The Euro Exchange Rate Defies Forecasts | 491 |
| Case Study 16-1 | Currency Depreciation and Inflation in Developing Countries during the 1997–1998 East Asian Crisis | 513 |
| Case Study 16-2 | Estimated Price Elasticities in International Trade | 520 |
| Case Study 16-3 | Other Estimated Price Elasticities in International Trade | 521 |
| Case Study 16-4 | Effective Exchange Rate of the Dollar and U.S. Current Account Balance | 521 |
| Case Study 16-5 | Dollar Depreciation and the U.S. Current Account Balance | 523 |
| Case Study 16-6 | Exchange Rates and Current Account Balances during the European Financial Crisis of the Early 1990s | 524 |
| Case Study 16-7 | Exchange Rate Pass-Through to Import Prices in Industrial Countries | 525 |
| Case Study 17-1 | Income Elasticity of Imports | 547 |
| Case Study 17-2 | Private Sector and Current Account Balances | 549 |
| Case Study 17-3 | Growth in the United States and the World and U.S. Current Account Deficits | 553 |
| Case Study 17-4 | Growth and Current Account Balance in Developing Economies | 554 |
| Case Study 17-5 | Effect of the Asian Financial Crisis of the Late 1990s on OECD Countries | 557 |
| Case Study 17-6 | Interdependence in the World Economy | 561 |
| Case Study 18-1 | Government, Private-Sector, and Current Account Balances in the G-7 Countries | 574 |

| | | |
|------------------------|---|-----|
| Case Study 18-2 | Relationship between U.S. Current Account and Budget Deficits | 585 |
| Case Study 18-3 | Effect of U.S. Fiscal Policy in the United States and Abroad | 588 |
| Case Study 18-4 | Effect of Monetary Policy in the United States and Other OECD Countries | 592 |
| Case Study 18-5 | U.S. Monetary and Fiscal Policies during the Past Decade | 599 |
| Case Study 18-6 | Deeper U.S. Recession without Strong Fiscal and Monetary Measures | 600 |
| Case Study 18-7 | Direct Controls on International Transactions Around the World | 603 |
| Case Study 19-1 | Deviations of Short-Run Outputs from the Natural Level in the United States | 623 |
| Case Study 19-2 | Central Bank Independence and Inflation in Industrial Countries | 632 |
| Case Study 19-3 | Inflation Targeting—A New Approach to Monetary Policy | 633 |
| Case Study 19-4 | Petroleum Shocks and Stagflation in the United States | 637 |
| Case Study 19-5 | Impact of an Increase in the Price of Petroleum | 638 |
| Case Study 19-6 | Actual and Natural Unemployment Rates and Inflation in the United States | 639 |
| Case Study 20-1 | Macroeconomic Performance under Fixed and Flexible Exchange Rate Regimes | 653 |
| Case Study 20-2 | The 1992–1993 Currency Crisis in the European Monetary System | 658 |
| Case Study 20-3 | Maastricht Convergence Indicators | 660 |
| Case Study 20-4 | Benefits and Costs of the Euro | 663 |
| Case Study 20-5 | The Eurozone Crisis | 664 |
| Case Study 20-6 | Argentina’s Currency Board Arrangements and Crisis | 666 |
| Case Study 20-7 | Exchange Rate Arrangements of IMF Members | 672 |
| Case Study 21-1 | Macroeconomic Performance under Different Exchange Rate Regimes | 697 |
| Case Study 21-2 | The Anatomy of a Currency Crisis: The Collapse of the Mexican Peso | 709 |
| Case Study 21-3 | Chronology of Economic Crises in Emerging Markets: From Asia to Argentina | 710 |
| Case Study 21-4 | The Financial Crisis in the United States and Other Advanced Economies | 713 |
| Case Study 21-5 | Trade Imbalances of the Leading Industrial Nations | 716 |

Introduction

chapter

1

LEARNING GOALS:

After reading this chapter, you should be able to:

- Understand the meaning and importance of globalization
- Understand the relationship between international trade and the nation's standard of living
- Describe the subject matter (trade and monetary aspects) of international economics
- Identify the major international economic problems and challenges facing the United States and the world today

1.1 The Globalization of the World Economy

The world is rapidly globalizing and this is providing many opportunities and major challenges to the nations and people of the world. We begin our study of international economics with a brief overview of the globalization revolution taking place in the world today.

1.1A We Live in a Global Economy

We live in a globalized world. We can connect instantly with any corner of the world by cellular phone, e-mail, instant messaging, and teleconferencing, and we can travel anywhere incredibly fast. Tastes are converging (i.e., more and more people all over the world generally like the same things) and many goods we consume are either made abroad or have many imported parts and components. Many of the services we use are increasingly provided by foreigners as, for example, when a radiography taken in a New York hospital is evaluated across the world in Bangalore (India) and when H & R Block sends our tax returns abroad for processing. Even small companies that until a few decades ago faced only local or regional competition now must compete with firms from across the globe.

Although not as free as the flow of international trade in goods and services, millions of workers at all skill levels have migrated around the world, and thousands of jobs have moved from advanced countries to such emerging markets as India and China.

Finance has also globalized: We can invest in companies anywhere in the world and purchase financial instruments (stocks and bonds) from any company

from almost anywhere in the world. Many pension funds are in fact invested abroad and a financial crisis in one financial center quickly spreads across the world at the click of a mouse. We can exchange dollars for euros and most other currencies easily and quickly, but the rates at which we exchange our currency often change frequently and drastically. In short, tastes, production, competition, labor markets, and financial markets are rapidly globalizing, and this affects all of us deeply as consumers, workers, investors, and voters—yes, we live in a global economy (see Case Studies 1-1 and 1-2).

■ CASE STUDY 1-1 The Dell PCs, iPhones, and iPads Sold in the United States Are Anything but American!

Headquartered in Round Rock, Texas, Dell coordinates a global production network in 34 countries in the Americas, Europe, and Asia. For most of the PCs sold in the United States, Dell performs only the final assembly domestically and relies on outside suppliers and contract manufacturers for components, peripherals, printed circuit board (PCB) assemblies, and subassemblies (box builds). The reason is that most parts and components are cheaper to produce in other parts of the world and are thus imported (see Table 1.1). Neither high-value components nor very low-value components (such as power supplies or keyboards) have to be made close to Dell's assembly plants. Only some midlevel components (such as motherboards and other PCB assemblies), which are too expensive to ship by air to meet volatility in demand, as well as to risk holding in inventory, are produced locally, but even that is not always the case.

In 2009, more than 90 percent of all the parts and components going into HP's PCs were made outside the United States. The components of an Apple iPhone are almost entirely Asian: the screen is from Japan, the flash memory is from Korea—and it was assembled in China! Apple contributed the design and software, and it integrated the innovations of others. The iPad introduced by Apple is made from parts and components by Samsung and L.G Display (Korean); Toshiba (Japanese); Broadcom (U.S.); Catcher Technologies, Wintek, Simplo Technology, and Novateck Microelectronics (Taiwan), and STMicroelectronics (Italy and France) and assembled in China. Less than 30 percent of the parts and components of the brand new Boeing 787 Dreamliner jet that went into service in 2011 are made in the United States.

■ **TABLE 1.1.** Locations and Companies That Supply Specific Parts and Components for Dell's PCs

| Part/Component | Location | Company |
|----------------|------------------------------------|--------------------------------------|
| Monitors | Europe and Asia | Phillips, Nokia, Samsung, Sony, Acer |
| PCBs | Asia, Scotland, and Eastern Europe | SCI, Celestica |
| Drives | Asia, mainly Singapore | Seagate, Maxtor, Western Digital |
| Printers | Europe (Barcelona) | Acer |
| Box builds | Asia and Eastern Europe | Hon Hai/Foxteq |
| Chassis | Asia and Ireland | Hon Hai/Foxteq |

Sources: J. Dedrick and K. L. Kraemer, "Dell Computer: Organization of a Global Production Network" and "Globalization of the Personal Computer Industry: Trends and Implications," *Working Paper*, Irvine, CA: Center for Research on Information Technology and Organizations (CRITO), University of California, Irvine, 2002; "The Laptop Trail," *The Wall Street Journal*, June 9, 2005, p. 31; "Rising in the East," *The Economist*, January 3, 2009, p. 47; <http://www.ipadforums.net/apple-ipad-news/514-rumor-alert-ipad-release-date-likely-friday-march-26th-2.html>; and "Dreamliner Production Gets Closer Monitoring," *The Wall Street Journal*, October 7, 2009, p. B1.

■ CASE STUDY 1-2 What Is an “American” Car?

Strange as it may seem, the question of what is an American car may be difficult to answer. Should a Honda Accord produced in Ohio be considered American? What about a Chrysler minivan produced in Canada (especially when Chrysler was owned by Germany’s Daimler-Chrysler)? Is a Kentucky Toyota or Mazda that uses nearly 40 percent of imported Japanese parts American? Clearly, it is becoming more and more difficult to define what is American, and opinions differ widely.

For some, any vehicle assembled in North America (the United States, Canada, and Mexico) should be considered American because these vehicles use U.S.-made parts. But the United Auto Workers union views cars built in Canada and Mexico as taking away U.S. jobs. Some regard automobiles produced by Japanese-owned plants in the United States as American because they provide jobs for Americans. Others regard production by these Japanese “transplants” as foreign, because (1) the jobs they create were taken from the U.S. automakers, (2) they use nearly 40 percent imported Japanese parts, and (3) they remit profits to Japan. What if Japanese transplants increased their use of American parts to 75 percent or 90 percent? Was the Ford Probe, built for Ford by Mazda in Mazda’s Michigan plant, American?

It is difficult to decide exactly what is an American car—even after the American

Automobile Labeling Act of 1992, which requires all automobiles sold in the United States to indicate what percentage of the car’s parts are domestic or foreign. One could even ask if this question is relevant at all in a world growing more and more interdependent and globalized. In order to be competitive, automakers must purchase parts and components wherever they are cheaper and better made, and they must sell automobiles throughout the world to achieve economies of mass production. Ford designs its automobiles in six nations (the United States, the United Kingdom, Germany, Italy, Japan, and Australia), has production facilities in 30 locations (3 in North America, 3 in South America, 7 in Asia, and 17 in Europe), and employs more workers outside than in the United States. In fact, the automotive and many other industries are rapidly moving toward a handful of truly global, independent companies.

Sources: “Honda’s Nationality Proves Troublesome for Free-Trade Pact,” *The New York Times*, October 9, 1992, p. 1; “What Is a U.S. Car? Read the Label,” *The New York Times*, September 18, 1994, Section 3, p. 6; “Made in America? Not Exactly: Transplants Use Japanese Car Parts,” *The Wall Street Journal*, September 1, 1995, p. A3B; “And Then There Were Five,” *U.S. News & World Report*, March 4, 2000, p. 46; “What Is an American Car?” *The Wall Street Journal*, January 26, 2009, p. A5; and “One Ford for the Whole World,” *Businessweek*, May 15, 2009, pp. 58–59.

1.1B The Globalization Challenge

Globalization is a revolution which in terms of scope and significance is comparable to the Industrial Revolution, but whereas the Industrial Revolution took place over a century, today’s global revolution is taking place under our very eyes in a decade or two. Globalization, of course, is not new. Roman coins circulated throughout the empire two thousand years ago; Chinese currency was used in China even earlier. More recently, the world has experienced three periods of rapid globalization, 1870–1914, 1945–1980, and 1980 to the present.

Globalization in 1870–1914 resulted from the Industrial Revolution in Europe and the opening up of new, resource-rich, but sparsely populated lands in North America (the United States and Canada), South America (Argentina, Chile, and Uruguay), Australia and New

Zealand, and South Africa. These lands received millions of immigrants and vast amounts of foreign investments, principally from England, to open up new lands to food and raw material production. These so-called regions of recent settlement grew rapidly during this period by exporting increasing amounts of food and raw materials to Europe in exchange for manufactured goods. This period of modern globalization came to an end with the breakout of World War I in 1914.

The second period of rapid globalization started with the end of World War II in 1945 and extended to about 1980. It was characterized by the rapid increase of international trade as a result of the dismantling of the heavy trade protection that had been put in place during the Great Depression that started in the United States in 1929 and during World War II. What is different about the present globalization revolution (since 1980) is its speed, depth, and immediacy resulting from the tremendous improvements in telecommunications and transportation, massive international capital flows resulting from elimination of most restrictions on their flow across national boundaries, as well as by the participation of most countries of the world. This is what makes today's globalization that much more pervasive and dramatic than earlier periods of globalization. The recent (2008–2009) global financial and economic crisis, the deepest of the postwar period, only slowed down the march of globalization temporarily.

As all revolutions, however, today's globalization brings many benefits and advantages but also has some disadvantages or harmful side effects. In fact, there is a great deal of disagreement as to the extent and type of advantages and disadvantages. Does getting cheaper and/or better products and service from abroad justify sacrificing domestic jobs? Why are some people in some countries very rich and obese while others dimly poor and starving?

Although labor migration generally leads to the more efficient utilization of labor, it also leads to job losses and lower wages for less-skilled labor in advanced nations and harms (i.e., it is a "brain drain" for) the nations of emigration. Similarly, financial globalization and unrestricted capital flows lead to the more efficient use of capital throughout the world, as well as provide opportunities for higher returns and risk diversification for individuals and corporations. But they also seem to lead to periodic international financial crises, such as the ones that started in Asia in 1997 and affected most other developing countries, and the subprime housing mortgage crisis that started in the United States in 2007 and affected the entire world in 2008 and 2009. Finally, are we running out of resources such as petroleum, other minerals, water? Is the world headed for a climate disaster?

These disadvantages and negative aspects of globalization have given rise to a rethinking of the age-old belief in free trade and to a strong [antiglobalization movement](#), which blames globalization for many human and environmental problems throughout the world, and for sacrificing human and environmental well-being to the corporate profits of multinationals. Globalization is being blamed for world poverty and child labor in poor countries, job losses and lower wages in rich countries, as well as environmental pollution and climate change throughout the world. Although there is some truth in these accusations, an in-depth economic analysis will show that often the primary cause of many of the serious problems facing the world today lies elsewhere (see Case Study 1-3).

Globalization has many social, political, legal, and ethical aspects, and so economists need to work closely with other social and physical scientists, as well as with the entire

■ CASE STUDY 1-3 Is India's Globalization Harming the United States?

The outsourcing of low-skilled service industry jobs (such as answering customer inquiries) from advanced countries to low-wage countries, such as India, reduces costs and prices in advanced countries, and it does not create much concern. In recent years, however, many high-skill and high-pay jobs in such diverse fields as computing and aircraft engineering, investment banking, and pharmaceutical research have been transferred to India and other emerging markets, creating great concern in advanced nations, especially the United States. Table 1.2 shows the outsourcing of high-tech services and jobs to India by some U.S. multinationals in 2008.

Companies such as IBM, Citigroup, and Morgan Stanley point out that outsourcing high-skill

and high-wage jobs to India (and other emerging markets, especially China) where they can be done more cheaply keeps them internationally competitive, leads to lower prices for their products and services to American consumers, and is necessary for them to take advantage of fast-growing emerging markets. Transferring abroad many high-skill and high-paying jobs, as well as the crucial technologies on which they are based, however, inevitably causes great concern in the United States, not only for the loss of good U.S. jobs but also for the ability of the United States to remain the world's technological leader.

■ **TABLE 1.2.** Globalizing India

| U.S. Company | Global Work Force | Work Force in India | Percentage in India | Outsourced Services |
|--------------|-------------------|---------------------|---------------------|---|
| Accenture | 146,000 | 27,000 | 18.5 | By the end of 2008, the company had had more workers in India than in the United States |
| IBM | 356,000 | 52,000 | 14.6 | Independent development of software solutions for Indian and global clients |
| Citigroup | 327,000 | 22,000 | 6.7 | Analysis of U.S. stocks and evaluation of credit-worthiness of U.S. companies |

Sources: "India's Edge Goes Beyond Outsourcing," *The New York Times*, April 4, 2008, p. C1; "IBM to Cut U.S. Jobs, Expand in India," *The Wall Street Journal*, March 26, 2009, p. B1; and "Outsourced Forever," *Forbes*, September 26, 2011, pp. 38–39.

civil society, to give globalization a more human face (i.e., have all nations and people share its benefits). Globalization is important because it increases efficiency in the production of material things; it is inevitable because we cannot hide or run away from it. But we would like globalization also to be sustainable and humanizing and, ultimately, "fair." This requires a profound change in world governance. Such is the challenge facing humanity today and in this decade.

All these topics and many more are either directly or indirectly the subject matter of international economics that are covered in this text.

1.2 International Trade and the Nation's Standard of Living

The United States, stretching across a continent and rich in a variety of human and natural resources, can produce, relatively efficiently, most of the products it needs. Contrast this with the situation of small industrial countries, such as Switzerland or Austria, that have a few very specialized resources, and produce and export a much smaller range of products, and import all the rest. Even large industrial countries such as Japan, Germany, France, England, Italy, and Canada rely crucially on international trade. For developing nations, exports provide employment opportunities and earnings to pay for the many products that they cannot now produce at home and for the advanced technology that they need.

A rough measure of the economic relationship among nations, or their *interdependence*, is given by the ratio of their imports and exports of goods and services to their gross domestic product (GDP). The GDP refers to the total value of all goods and services produced in the nation in a year. Figure 1.1 shows that imports and exports as a percentage of GDP are much larger for smaller industrial and developing countries than they are for the United States. Thus, international trade is even more important to most other nations than it is to the United States.

Even though the United States relies to a relatively small extent on international trade, a great deal of its high standard of living depends on it. First of all, there are many commodities—coffee, bananas, cocoa, tea, scotch, cognac—that the country does not produce at all. In addition, the United States has no deposits of such minerals as tin, tungsten, and chromium, which are important to certain industrial processes, and it has only

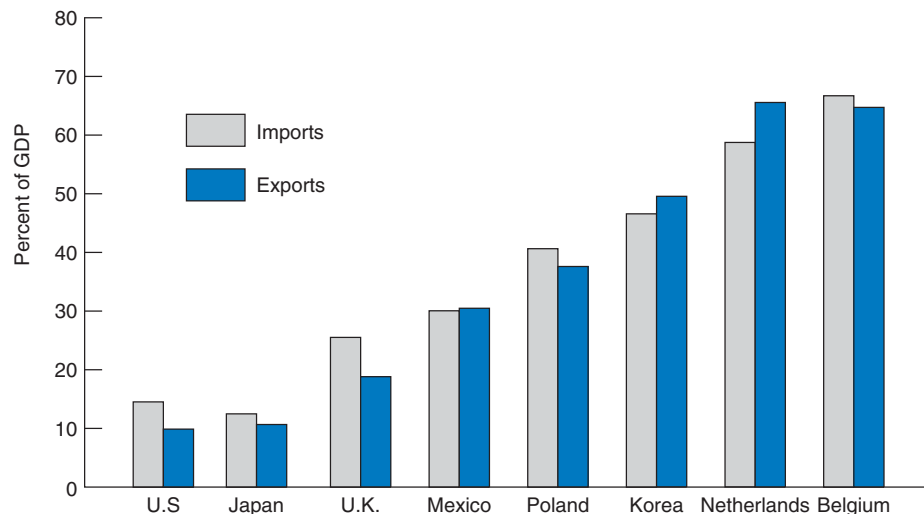


FIGURE 1.1. Imports and Exports as a Percentage of GDP in Various Countries in 2011.

International trade (imports and exports) is even more important to most other smaller industrial and developing countries than it is to the United States.

Source: International Monetary Fund, *International Financial Statistics*, Washington, D.C.: IMF, July 2012.

dwindling reserves of petroleum, copper, and many other minerals. Much more important *quantitatively* for the nation's standard of living are the many products that could be produced domestically but only at a higher cost than abroad. We will see later that these account for most of the *benefits or gains from trade*.

Nevertheless, the United States could probably withdraw from world trade and still survive without too drastic a decline in its standard of living. The same cannot be said of such nations as Japan, Germany, England, or Italy—not to speak of Switzerland or Austria. Even Russia and China, which for political and military reasons have valued self-sufficiency very highly in the past, have now come to acknowledge their need to import high-technology products, foreign capital, and even grains, soybeans, and other agricultural commodities, and at the same time be able to export large quantities of their goods and services in order to pay for all the imports they need.

In general, the economic interdependence among nations has been increasing over the years, as measured by the more rapid growth of world trade than world production (see Figure 1.2). This has certainly been the case for the United States during the past four decades (see Case Study 1-4). The only exception to world trade rising, and rising faster than world GDP, were in 2001 and 2009. In 2001, world GDP rose slightly but world trade declined slightly (the first such decline since 1982–1983). To a large extent this was due to the economic recession in the United States in 2001 and the fear of terrorism following the September 11, 2001, attack on the World Trade Center in New York City and the Pentagon in Washington, D.C. International trade also declined in 2009 as a result of the deepest recession of the postwar period triggered by the world financial crisis. In all likelihood, trade will continue to serve as a strong stimulus to world growth in the future.

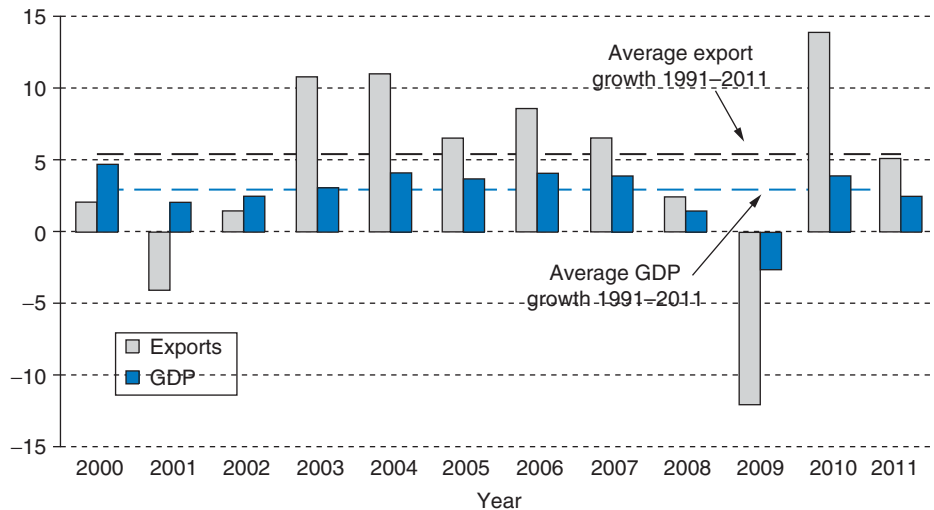


FIGURE 1.2. Growth of World Trade and GDP, 2000–2011 (annual percentage changes). International trade grew much faster than world production from 2000 to 2011, except in 2001 and 2009. Source: World Trade Organization, *World Trade Report*, Geneva: WTO, 2012, p. 18.

■ CASE STUDY 1-4 Rising Importance of International Trade to the United States

After remaining at between 4 and 5 percent during most of the 1960s, imports and exports of goods and services as percentages of gross domestic product (GDP) rose sharply in the United States during the 1970s. Figure 1.3 shows that imports as a percentage of U.S. GDP increased from about 5 percent during the late 1960s to more than 10 percent of GDP in 1980 and to a high of nearly 18 percent in 2008 before falling below 14 percent in 2009 as a result of the U.S. recession. Exports increased from about 5 percent in the late 1960s to about 10 percent in 1980 and to a high of nearly 13 percent of GDP in 2008, but it fell to 9.9 percent of

GDP in 2011 because of recession or slow growth abroad. The figure shows that international trade has become more important to the United States (i.e., the United States has become more interdependent with the world economy) during the past four and one-half decades. Figure 1.3 also shows that the share of imports in GDP exceeded the share of exports since 1976 and the excess widened sharply during the first half of the 1980s and then again from 1996 to 2006. This led to huge U.S. trade deficits and persistent demands for protection of domestic markets and jobs against foreign competition by American industry and labor.

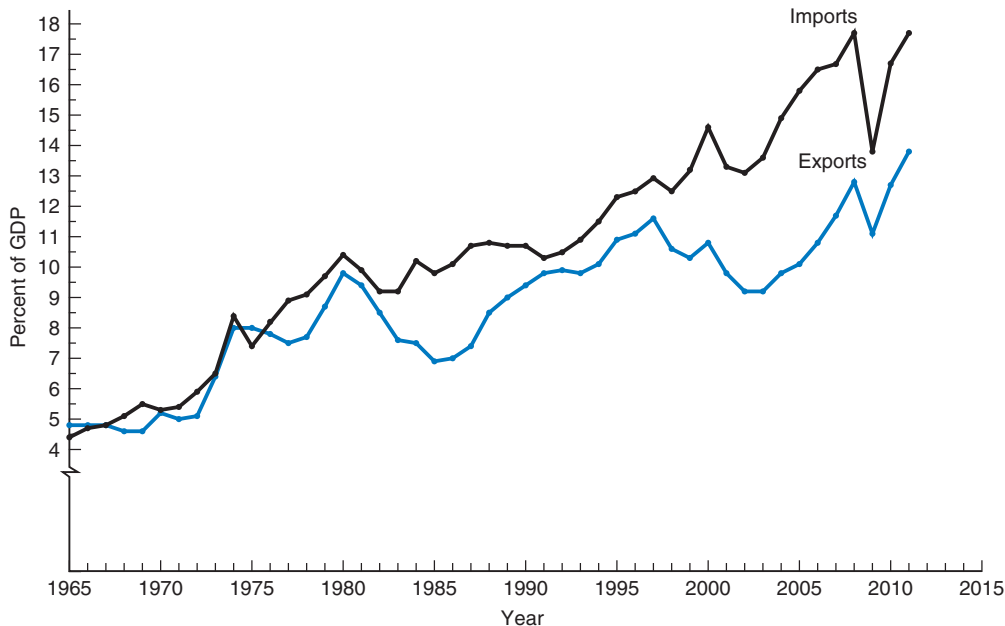


FIGURE 1.3. Imports and Exports as a Percentage of U.S. GDP, 1965–2011.

The share of imports and exports in U.S. GDP increased sharply since the early 1970s. Thus, international trade has become increasingly important to the United States. During the first half of the 1980s, and again from 1996 to 2006, U.S. imports greatly exceeded U.S. exports, resulting in huge trade deficits for the United States.

Source: International Monetary Fund, *International Financial Statistics Yearbook* (Washington, D.C., various issues).

But there are many other crucial ways in which nations are interdependent, so that economic events and policies in one nation significantly affect other nations (and vice versa). For example, if the United States stimulates its economy, part of the increased demand for goods and services by its citizens spills into imports, which stimulate the economies of other nations that export those commodities. On the other hand, an increase in interest rates in the United States is likely to attract funds (capital) from abroad and increase the international value of the dollar. This stimulates U.S. imports and discourages U.S. exports, thus dampening economic activity in the United States and stimulating it abroad.

Finally, trade negotiations that reduce trade barriers across nations may lead to an increase in the exports of high-technology goods (such as computers) and thus to an increase in employment and wages in those industries in the United States, but also to an increase in imports of shoes and textiles, thereby reducing employment and wages in those sectors. Thus, we see how closely linked, or interdependent, nations are in today's world and how government policies aimed at solving purely domestic problems can have significant international repercussions.

1.3 The International Flow of Goods, Services, Labor, and Capital

Interdependence in the world economy is reflected in the flow of goods, services, labor, and capital across national boundaries.

1.3A The International Flow of Goods and Services: The Gravity Model

We have seen that international trade is of growing importance to the nation's well-being. But which are the major U.S. trade partners and why? In general, we would expect nations to trade more with larger nations (i.e., with nations with larger GDPs) than with smaller ones, with nations that are geographically closer than with nations that are more distant (for which transportation costs would be greater), with nations with more open economic systems than with nations with less open systems, and with nations with similar language and cultural background than with nations that are more different.

In its simplest form, the **gravity model** postulates that (other things equal), the bilateral trade between two countries is proportional, or at least positively related, to the product of the two countries' GDPs and to be smaller the greater the distance between the two countries (just like in Newton's law of gravity in physics). That is, the larger (and the more equal in size) and the closer the two countries are, the larger the volume of trade between them is expected to be.

According to the gravity model, we expect the United States to trade more with its neighbors Canada and Mexico than with similar but more distant nations, and more with large economies such as China, Japan, and Germany than with smaller ones. This is exactly what Table 1.3 shows. That is, the largest trade partners of the United States are generally closer and/or larger. (The Appendix to this chapter provides detailed data on the commodity and geographic concentration of international trade, as well as on the world's leading exporters and importers of goods and services; Case Study 13-1 then gives the major commodity exports and imports of the United States.)