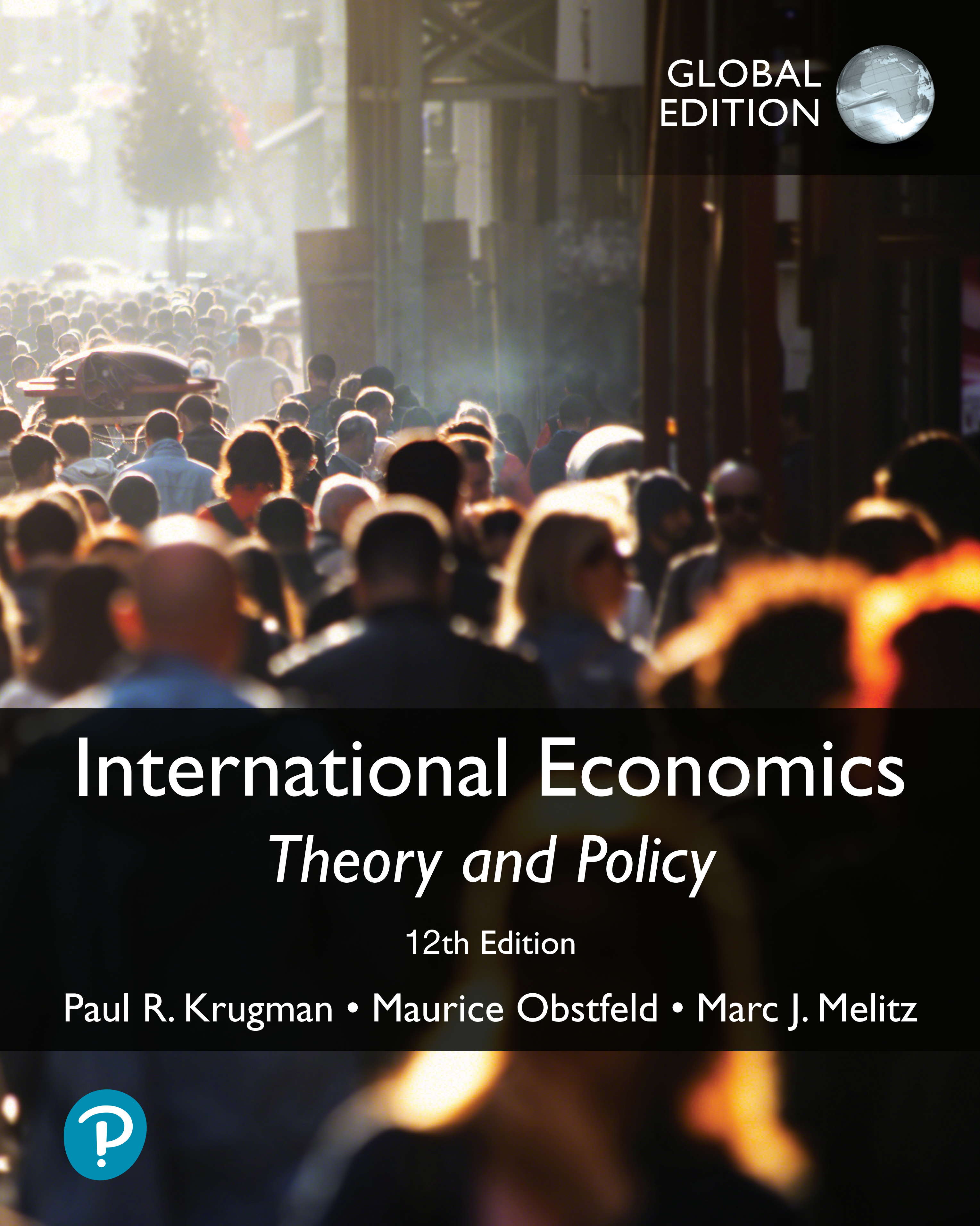

GLOBAL EDITION

International Economics

Theory and Policy

12th Edition

Paul R. Krugman • Maurice Obstfeld • Marc J. Melitz

International Economics

THEORY & POLICY

TWELFTH EDITION

GLOBAL EDITION

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Brief Contents

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Preface

Nothing illustrates better than the COVID-19 pandemic how movements of people, flows of data, and commerce connect our interdependent world. Because pathogens do not respect national borders, the SARS-CoV-2 virus caused a global economic shock and a worldwide downturn, sending governments throughout the world scrambling for policies to stop the spread of the disease while supporting their economies. As this book went to press, the crisis was still underway, with the arrival of several effective vaccines giving hope of a road back to normalcy. Many lessons will be drawn from the recent pandemic experience, but one is the importance of an international perspective for analyzing events of worldwide economic significance and countries' responses. The purpose of this book is to equip students with intellectual tools for understanding the economic implications of global interdependence.

What's New in the Twelfth Edition

We have thoroughly updated the content and extensively revised several chapters. These revisions respond both to users' suggestions and to some important developments on the theoretical and practical sides of international economics. The most far-reaching changes are the following:

- **Chapter 2, World Trade: An Overview** The world attained a high degree of economic interdependence by the eve of World War I over a century ago, but governments retreated behind trade barriers amid the Great Depression of the interwar period. A renewed trend toward economic opening—the "second great globalization"—commenced after World War II. This revised chapter uses new data to provide a better picture of long-term trends in globalization, highlighting how the world reached historically unprecedented levels of economic interconnection only after 1990.
- **Chapter 4, Specific Factors and Income Distribution** Import competition from developing countries—especially from China—is often singled out both in the press and by politicians as the main culprit for declines in manufacturing employment in the United States. This chapter updates our case study on the potential links between these two trends. It also updates our discussion of the politics of restrictions on trade in sugar. A new box introduces our coverage of the restrictive trade policies of the U.S. Trump administration starting in 2017—President Trump's trade war.
- **Chapter 6, The Standard Trade Model** The chapter includes a new case study on the gains to U.S. consumers from Chinese imports. A new box covers the impact of terms of trade shocks on developing countries and in particular the experience during the COVID-19 pandemic.
- **Chapter 7, External Economies of Scale and the International Location of Production** Featured in this revised chapter is a new emphasis on financial centers (notably New York and London), along with discussion of the impacts of Brexit and COVID-19.
- **Chapter 8, Firms in the Global Economy: Export and Foreign Sourcing Decisions, and Multinational Enterprises** Increasingly, the goods we consume are produced in "Global Value Chains" that stretch around the world. The chapter features an extended firm-level trade model that describes how firms make global sourcing decisions. A related new empirical box details the foreign sourcing decisions of U.S. manufacturing firms.

- **Chapter 9, The Instruments of Trade Policy** In the past few years, trade policy has received an inordinate amount of attention with the coverage of the evolving cycle of U.S. trade restrictions and retaliation by its trading partners during the Trump administration. A new case study details the evolution of this trade war and quantifies its impact on U.S. consumers and producers. A new box describes how the long-running dispute between the United States and Europe over export subsidies to Boeing and Airbus was finally resolved. The chapter also features an updated discussion of the new US-Mexico-Canada trade agreement (USMCA) that has replaced NAFTA, with a focus on the implications for North American automobile supply chains.
- **Chapter 10, The Political Economy of Trade Policy** Recent years have seen some significant setbacks to the march toward freer trade. A key arena of trade conflict, likely to continue in future years, has been in free market economies' relations with China. In line with that development, this chapter now includes added focus on U.S.–China trade tensions.
- **Chapter 12, Controversies in Trade Policy** In response to political tensions over the ways in which technological change and trade are affecting trade patterns, regional development within countries, and employment prospects across different labor skill groups, a new focus on the prospects for industrial policies has emerged in both the United States and Europe. This chapter updates our prior discussion of industrial policy by concentrating on R&D-intensive products, where most of the current debate centers.
- **Chapter 13, National Income Accounting and the Balance of Payments** A notable recent trend has been the movement of intellectual property and other intangible capital across borders for the purpose of minimizing corporate tax burdens. This chapter features a new box describing how Ireland's accommodative tax regime has led to anomalies in its GDP data. While the description of cross-border profit shifting will be of substantive interest to students, the Irish example also illustrates the limitations of GDP as a measure of national economic activity or welfare.
- **Chapter 14, Exchange Rates and the Foreign Exchange Market: An Asset Approach** A striking empirical regularity of the period since the global financial crisis of 2008–2009 has been the continuing failure of covered interest parity as an empirical regularity. This revised chapter moves the material on covered interest parity from an appendix to the main text, provides added emphasis on the distinction between uncovered and covered interest parity, and foreshadows a new discussion in Chapter 20 on the reasons behind recent departures from covered interest parity.
- **Chapter 15, Money, Interest Rates, and Exchange Rates** This chapter now uses the recent hyperinflation in Venezuela as an example to underscore the long-run relationship between money supply and prices.
- **Chapter 17, Output and the Exchange Rate in the Short Run** The chapter adds material on how global value chains influence exchange rate pass-through.
- **Chapter 19, International Monetary Systems: A Historical Overview** We extend the historical narrative to cover the effects of the Trump trade war on global trade and the COVID-19 pandemic. An important addition is a new box on the question of currency manipulation—a topic that draws on much of what students will have learned up to this point in the book and is likely to retain relevance in coming years.
- **Chapter 20, Financial Globalization: Opportunity and Crisis** We link ongoing deviations from covered interest parity to changing financial regulations, and we also introduce the exchange rate disconnect puzzle.
- **Chapter 21, Optimum Currency Areas and the Euro** The chapter updates the discussion of Brexit to cover the 11th-hour partial trade deal that the EU and United Kingdom reached in December 2020 as well as the prior withdrawal agreement and its implications for the Irish border. Also included is coverage of euro area policy innovations in response to the COVID-19 pandemic.

- **Chapter 22, Developing Countries: Growth, Crisis, and Reform** A new box highlights the key role of global financial conditions in driving emerging economies' growth—the global financial cycle. Key topics explored include the motivations for emerging market economies to manage their exchange rates and the benefits of exchange rate flexibility in the face of global financial forces.

Solving Learning and Teaching Challenges

The idea of writing this book came out of our experience in teaching international economics to undergraduates and business students since the late 1970s. We perceived two main challenges in teaching. The first was to communicate to students the exciting intellectual advances in this dynamic field. The second was to show how the development of international economic theory has traditionally been shaped by the need to understand the changing world economy and analyze actual problems in international economic policy.

We found that published textbooks did not adequately meet these challenges. Too often, international economics textbooks confront students with a bewildering array of special models and assumptions from which basic lessons are difficult to extract. Because many of these special models are outmoded, students are left puzzled about the real-world relevance of the analysis. As a result, many textbooks often leave a gap between the somewhat antiquated material to be covered in class and the exciting issues that dominate current research and policy debates. That gap has widened dramatically as the importance of international economic problems—and alongside that, enrollment in international economics courses—has grown.

This book is our attempt to provide an up-to-date and understandable analytical framework for illuminating current events and bringing the excitement of international economics into the classroom. In analyzing both the real and monetary sides of the subject, our approach has been to build up, step-by-step, a simple, unified framework for communicating the grand traditional insights as well as the newest findings and approaches. To help the student grasp and retain the underlying logic of international economics, we motivate the theoretical development at each stage by pertinent data and policy questions.

Students assimilate international economics most readily when it is presented as a method of analysis vitally linked to events in the world economy rather than as a body of abstract theorems about abstract models. Our goal has therefore been to stress concepts and their application rather than theoretical formalism. Accordingly, the book does not presuppose an extensive background in economics. Students who have had a course in economic principles will find the book accessible, but students who have taken further courses in microeconomics or macroeconomics will find an abundant supply of new material. Specialized appendices and mathematical postscripts have been included to challenge the most advanced students.

For use in a two-semester course, we follow the standard practice of dividing the book into two halves devoted to trade and to monetary questions. Although the trade and monetary portions of international economics are often treated as unrelated subjects, even within one textbook, similar themes and methods recur in both subfields. We have made it a point to illuminate connections between the trade and monetary areas when they arise. At the same time, we have made sure that the book's two halves are completely self-contained. Thus, a one-semester course on trade theory can be based on Chapters 2 through 12, and a one-semester course on international monetary economics can be based on Chapters 13 through 22.

Our Vision

Years after the global financial crisis of 2008–2009, the world economy is still afflicted by tepid economic growth and, for many people, stagnating incomes. This bleak picture has been accentuated by the economic shock dealt by the COVID-19 pandemic.

Extensive attempts by governments to support their economies, while successful in avoiding worst-case scenarios, will leave countries worldwide with legacies of sharply higher public debts, decimated service sectors, and deeply scarred labor forces. Emerging markets remain vulnerable to the ebb and flow of global capital and the ups and downs of world commodity prices. Uncertainty weighs on investment globally, driven not least by worries about the future of the liberal international trade regime built up so painstakingly after World War II.

This twelfth edition therefore comes out at a time when we are more aware than ever before of how events in the global economy influence each country's economic fortunes, policies, and political debates. The world that emerged from World War II was one in which trade, financial, and even communication links between countries were limited. Nearly two decades into the 21st century, however, the picture is very different. Globalization has arrived big-time. International trade in goods and services has expanded steadily over the past six decades thanks to declines in shipping and communication costs, globally negotiated reductions in government trade barriers, the widespread outsourcing of production activities, and a greater awareness of foreign cultures and products. New and better communications technologies, notably the Internet, have revolutionized the way people in all countries obtain and exchange information. International trade in financial assets such as currencies, stocks, and bonds has expanded at a much faster pace even than international product trade. This process brings benefits for owners of wealth but also creates risks of contagious financial instability. Those risks were realized during the recent global financial crisis, which spread quickly across national borders and has played out at huge cost to the world economy. Of all the changes on the international scene in recent decades, however, perhaps the biggest one remains the emergence of China—a development that is already redefining the international balance of economic and political power in the coming century.

Imagine how astonished the generation that lived through the depressed 1930s as adults would have been to see the shape of today's world economy! Nonetheless, the economic concerns that drive international debate have not changed that much from those that dominated the 1930s nor indeed since they were first analyzed by economists more than two centuries ago. What are the merits of free trade among nations compared with protectionism? What causes countries to run trade surpluses or deficits with their trading partners, and how are such imbalances resolved over time? What causes banking and currency crises in open economies, what causes financial contagion between economies, and how should governments handle international financial instability? How can governments avoid unemployment and inflation, what role do exchange rates play in their efforts, and how can countries best cooperate to achieve their economic goals? As always in international economics, the interplay of events and ideas has led to new modes of analysis. In turn, these analytical advances, however abstruse they may seem at first, ultimately do end up playing a major role in governmental policies, in international negotiations, and in people's everyday lives. Globalization has made citizens of all countries much more aware than ever before of the worldwide economic forces that influence their fortunes. Despite some predictions that the recent pandemic may put the brakes on globalization, it seems more likely that most aspects of globalization will survive once the COVID-19 virus is finally vanquished. As the book illustrates, globalization can be an engine of prosperity, but like any powerful machine, it can do damage if managed unwisely. The challenge for the global community is to get the most out of globalization while coping with the challenges that it raises for economic policy.

To help students explore this complex landscape, this book covers the most important recent developments in international economics without shortchanging the enduring theoretical and historical insights that have traditionally formed the core of the subject. We have achieved this comprehensiveness by stressing how recent theories have evolved from earlier findings in response to an evolving world economy. Both the real trade portion of the book (Chapters 2 through 12) and the monetary portion (Chapters 13 through 22) are divided into a core of chapters focused on theory, followed by chapters applying the theory to major policy questions, past and current.

In Chapter 1, we describe in some detail how this book addresses the major themes of international economics. Here we emphasize several of the topics that previous authors failed to treat in a systematic way.

Increasing Returns and Market Structure Even before discussing the role of comparative advantage in promoting international exchange and the associated welfare gains, we visit the forefront of theoretical and empirical research by setting out the gravity model of trade (Chapter 2). We return to the research frontier (in Chapters 7 and 8) by explaining how increasing returns and product differentiation affect trade and welfare. The models explored in this discussion capture significant aspects of reality, such as intraindustry trade and shifts in trade patterns due to dynamic scale economies. The models show, too, that mutually beneficial trade need not be based on comparative advantage.

Firms in International Trade Chapter 8 also summarizes exciting new research focused on the role of firms in international trade. The chapter emphasizes that different firms may fare differently in the face of globalization. The expansion of some and the contraction of others shift overall production toward more efficient producers within industrial sectors, raising overall productivity and thereby generating gains from trade. Those firms that expand in an environment of freer trade may have incentives to outsource some of their production activities abroad or take up multinational production, as we describe in the chapter.

Politics and Theory of Trade Policy Starting in Chapter 4, we stress the effect of trade on income distribution as the key political factor behind restrictions on free trade. This emphasis makes it clear to students why the prescriptions of the standard welfare analysis of trade policy seldom prevail in practice. Chapter 12 explores the popular notion that governments should adopt activist trade policies aimed at encouraging sectors of the economy seen as crucial. The chapter includes a theoretical discussion of such trade policy based on simple ideas from game theory.

Asset Market Approach to Exchange Rate Determination The modern foreign exchange market and the determination of exchange rates by national interest rates and expectations are at the center of our account of open-economy macroeconomics. The main ingredient of the macroeconomic model we develop is the interest parity relation, augmented later by risk premiums (Chapter 14). Among the topics we address using the model are exchange rate "overshooting," inflation targeting, behavior of real exchange rates, balance-of-payments crises under fixed exchange rates, and the causes and effects of central bank intervention in the foreign exchange market (Chapters 15 through 18).

International Macroeconomic Policy Coordination Our discussion of international monetary experience (Chapters 19 through 22) stresses the theme that different exchange rate systems have led to different policy coordination problems for their members. Just as the competitive gold scramble of the interwar years showed how beggar-thy-neighbor policies can be self-defeating, the current float challenges national policymakers to recognize their interdependence and formulate policies cooperatively.

The World Capital Market and Developing Countries A broad discussion of the world capital market is given in Chapter 20, which takes up the welfare implications of international portfolio diversification as well as problems of prudential supervision of internationally active banks and other financial institutions. Chapter 22 covers the long-term growth prospects and the specific macroeconomic stabilization and liberalization problems of industrializing and newly industrialized countries. The chapter reviews emerging market crises and places in historical perspective the interactions among developing country borrowers, developed country lenders, and official financial institutions such as the International Monetary Fund.

Features

This book incorporates a number of special learning features that will maintain students' interest in the presentation and help them master its lessons.

Case Studies Case studies that perform the threefold role of reinforcing material covered earlier, illustrating its applicability in the real world, and providing important historical information often accompany theoretical discussions.

Special Boxes Less central topics that nonetheless offer particularly vivid illustrations of points made in the text are treated in boxes.

Captioned Diagrams More than 200 diagrams are accompanied by descriptive captions that reinforce the discussion in the text and help the student in reviewing the material.

Learning Goals A list of essential concepts sets the stage for each chapter in the book. These learning goals help students assess their mastery of the material.

Summary and Key Terms Each chapter closes with a summary recapitulating the major points. Key terms and phrases appear in boldface type when they are introduced in the chapter and are listed at the end of each chapter. To further aid student review of the material, key terms are italicized when they appear in the chapter summary.

Problems Each chapter is followed by problems intended to test and solidify students' comprehension. The problems range from routine computational drills to "big picture" questions suitable for classroom discussion. In many problems we ask students to apply what they have learned to real-world data or policy questions.

Further Readings For instructors who prefer to supplement the textbook with outside readings and for students who wish to probe more deeply on their own, each chapter has an annotated bibliography that includes established classics as well as up-to-date examinations of recent issues.

Supplementary Resources A full range of additional supplementary materials to support teaching and learning accompanies this book.

- The Online Instructor's Manual—updated by Hisham Foad of San Diego State University and K. Michael Casey of University of Central Arkansas—includes chapter overviews and answers to end-of-chapter problems.
- The Online Test Bank offers a rich array of multiple-choice and essay questions, including some mathematical and graphing problems, for each textbook chapter. It is available in Word, PDF, and TestGen formats. This Test Bank was carefully revised and updated by Van Pham of Salem State University. Rafael Alfena Zago from the University of Oklahoma performed accuracy review of the Test Bank.
- The Accessible Online PowerPoint Presentation was updated by Amy Glass of Texas A&M University. This resource contains text figures and tables and can be used for in-class presentations.

For more information and resources, visit www.pearsonglobaleditions.com.

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Paul R. Krugman
Maurice Obstfeld
Marc J. Melitz
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CHAPTER 1

Introduction

You could say that the study of international trade and finance is where the discipline of economics as we know it began. Historians of economic thought often describe the essay "Of the Balance of Trade" by the Scottish philosopher David Hume as the first real exposition of an economic model. Hume published his essay in 1758, almost 20 years before his friend Adam Smith published *The Wealth of Nations*. And the debates over British trade policy in the early 19th century did much to convert economics from a discursive, informal field to the model-oriented subject it has been ever since.

Yet the study of international economics has never been as important as it is now. In the early 21st century, nations are more closely linked than ever before through trade in goods and services, flows of money, and investment in each other's economies. And the global economy created by these linkages is a turbulent place: Both policy makers and business leaders in every country must now pay attention to what are sometimes rapidly changing economic fortunes halfway around the world.

A look at some basic trade statistics gives us a sense of the unprecedented importance of international economic relations. Figure 1-1 shows the levels of U.S. exports and imports as shares of gross domestic product from 1960 to 2019. The most obvious feature of the figure is the long-term upward trend in both shares: International trade has roughly tripled in importance compared with the economy as a whole.

Almost as obvious is that, while both imports and exports have increased, imports have grown more, leading to a large excess of imports over exports. How is the United States able to pay for all those imported goods? The answer is that the money is supplied by large inflows of capital—money invested by foreigners willing to take a stake in the U.S. economy. Inflows of capital on that scale would once have been inconceivable; now they are taken for granted. And so the gap between imports and exports is an indicator of another aspect of growing international linkages—in this case the growing linkages between national capital markets.

Finally, notice that both imports and exports plunged temporarily in 2009, during the global economic crisis that began in 2008; they fell again in 2020, during the COVID-19 pandemic. These declines are reminders of the close links between world trade and the overall state of the world economy.

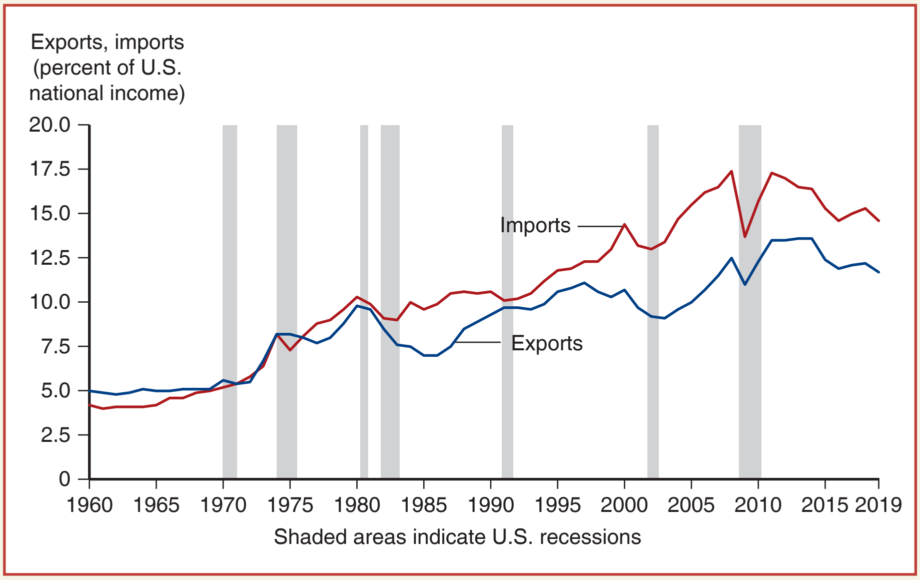

FIGURE 1-1

Exports and Imports as a Percentage of U.S. National Income (Shaded areas indicate U.S. recessions.)

Both imports and exports have risen as a share of the U.S. economy, but imports have risen more.

Source: U.S. Bureau of Economic Analysis. research.stlouisfed.org

If international economic relations have become crucial to the United States, they are even more crucial to other nations. Figure 1-2 shows the average of imports and exports as a share of GDP for a sample of countries. The United States, by virtue of its size and the diversity of its resources, relies less on international trade than almost any other country.

This text introduces the main concepts and methods of international economics and illustrates them with applications drawn from the real world. Much of the text is devoted to old ideas that are still as valid as ever: The 19th-century trade theory of David Ricardo and even the 18th-century monetary analysis of David Hume remain highly relevant to the 21st-century world economy. At the same time, we have made a special effort to bring the analysis up to date. In particular, the economic crisis that began in 2007 threw up major new challenges for the global economy. Economists were able to apply existing analyses to some of these challenges, but they were also forced to rethink some important concepts. Furthermore, new approaches have emerged to old questions, such as the impacts of changes in monetary and fiscal policy. We have attempted to convey the key ideas that have emerged in recent research while stressing the continuing usefulness of old ideas.

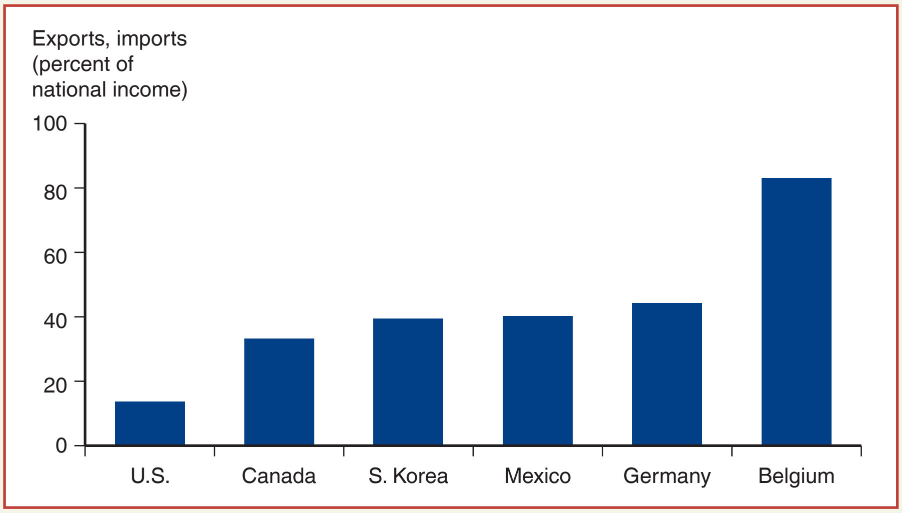

FIGURE 1-2

Average of Exports and Imports as Percentages of National Income in 2018

International trade is even more important to most other countries than it is to the United States.

Source: World Bank.

LEARNING GOALS

After reading this chapter, you will be able to:

- Distinguish between international and domestic economic issues.
- Explain why seven themes recur in international economics and discuss their significance.
- Distinguish between the trade and monetary aspects of international economics.

What Is International Economics About?

International economics uses the same fundamental methods of analysis as other branches of economics because the motives and behavior of individuals are the same in international trade as they are in domestic transactions. Gourmet food shops in Florida sell coffee beans from both Mexico and Hawaii; the sequence of events that brought those beans to the shop is not very different, and the imported beans traveled a much shorter distance than the beans shipped within the United States! Yet international economics involves new and different concerns because international trade and investment occur between independent nations. The United States and Mexico are sovereign states; Florida and Hawaii are not. Mexico's coffee shipments to Florida could be disrupted if the U.S. government imposed a quota that limits imports; Mexican coffee could suddenly become cheaper to U.S. buyers if the peso were to fall in value against the dollar. By contrast, neither of those events can happen in commerce within the United States because the Constitution forbids restraints on interstate trade and all U.S. states use the same currency.

The subject matter of international economics, then, consists of issues raised by the special problems of economic interaction between sovereign states. Seven themes recur throughout the study of international economics: (1) the gains from trade, (2) the pattern of trade, (3) protectionism, (4) the balance of payments, (5) exchange rate determination, (6) international policy coordination, and (7) the international capital market.

The Gains from Trade

Everybody knows that some international trade is beneficial—for example, nobody thinks that Norway should grow its own oranges. Many people are skeptical, however, about the benefits of trading for goods that a country could produce for itself. Shouldn't Americans buy American goods whenever possible to help create jobs in the United States?

Probably the most important single insight in all of international economics is that there are *gains from trade*—that is, when countries sell goods and services to each other, this exchange is almost always to their mutual benefit. The range of circumstances under which international trade is beneficial is much wider than most people imagine. For example, it is a common misconception that trade is harmful if large disparities exist between countries in productivity or wages. On one side, businesspeople in less technologically advanced countries, such as India, often worry that opening their economies to international trade will lead to disaster because their industries won't be able to compete. On the other side, people in technologically advanced nations where workers earn high wages often fear that trading with less advanced, lower-wage countries will drag their standard of living down—one presidential candidate memorably warned of a "giant sucking sound" if the United States were to conclude a free trade agreement with Mexico.

Yet the first model this text presents of the causes of trade (Chapter 3) demonstrates that two countries can trade to their mutual benefit even when one of them is more efficient than the other at producing everything and when producers in the less-efficient country can compete only by paying lower wages. We'll also see that trade provides benefits by allowing countries to export goods whose production makes relatively heavy use of resources that are locally abundant while importing goods whose production makes heavy use of resources that are locally scarce (Chapter 5). International trade also allows countries to specialize in producing narrower ranges of goods, giving them greater efficiencies of large-scale production.

Nor are the benefits of international trade limited to trade in tangible goods. International migration and international borrowing and lending are also forms of mutually beneficial trade—the first a trade of labor for goods and services (Chapter 4), the second a trade of current goods for the promise of future goods (Chapter 6). Finally, international exchanges of risky assets such as stocks and bonds can benefit all countries by allowing each country to diversify its wealth and reduce the variability of its income (Chapter 20). These invisible forms of trade yield gains as real as the trade that puts fresh fruit from Latin America in Toronto markets in February.

Although nations generally gain from international trade, it is quite possible that international trade may hurt particular groups *within* nations—in other words, that international trade will have strong effects on the distribution of income. The effects of