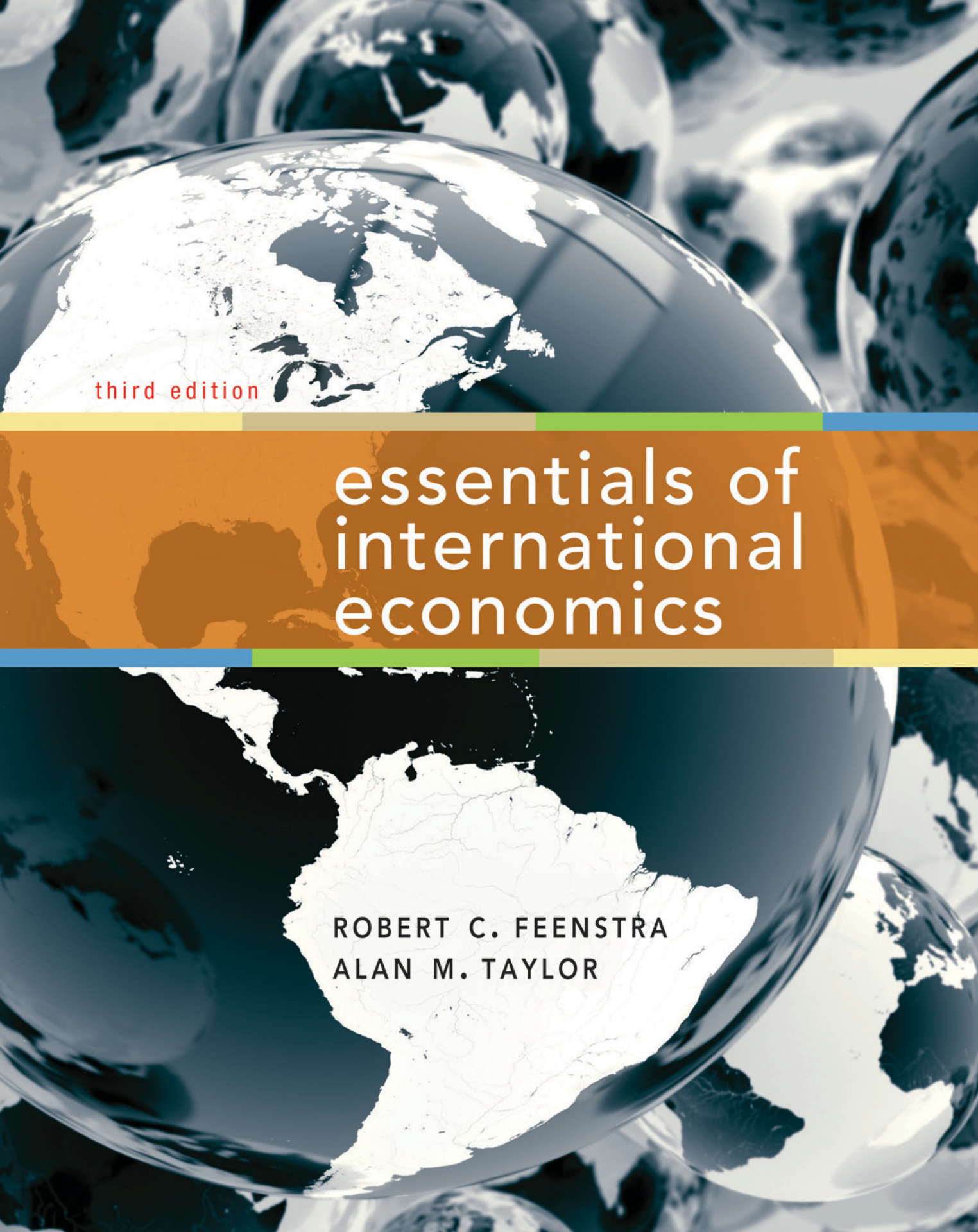
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MODERN TOPICS

Feenstra and Taylor's text shows why trade and capital flows have been liberalized and allowed to grow. The text focuses more attention on emerging markets and developing countries—regions that now carry substantial weight in the global economy.

In March 2012, the United States, the European Union, and Japan filed another WTO case against China charging that it applied unfair export restrictions on its rare earth minerals, as well as tungsten and molybdenum. The first step in such a case is for the parties involved (the United States, Europe, and Japan on one side; China on the other) to see whether the charges can be resolved through consultations at the WTO. Those consultations failed to satisfy either side, and in September 2012, the case went to a dispute settlement panel at the WTO. The Chinese government appealed to Article XX of the GATT, which allows for an exception to GATT rules in cases "relating to the conservation of exhaustible natural resources." But the WTO ruled against China, who is expected to appeal.

Regardless of the ultimate outcome of that case, it appears that China has already changed its policies on rare earth minerals. By the end of 2012, China realized that its policy of export quotas for rare earth minerals was not having the desired effect of maintaining high world prices. It therefore shifted away from a strict reliance on export quotas, and introduced subsidies to help producers who were losing money. These new policies are described in **Headlines: China Signals Support for Rare Earths.** The new subsidy policy might also lead to objections from the United States, the European Union, and Japan. But as we have seen earlier in this chapter, it is more difficult for the WTO to control subsidies (which are commonly used in agriculture) than to control export quotas.

A final feature of international trade in rare earth minerals is important to recognize: the mining and processing of these minerals poses an environmental risk, because rare earth minerals are frequently found with radioactive ores like thorium or uranium. Processing these minerals therefore leads to low-grade radioactive waste as a by-product. That aspect of rare earth minerals leads to protests against the establishment of new mines. The Lynas Corporation mine in Australia, mentioned in the Headlines article, processes the minerals obtained there in Malaysia. That processing facility was targeted by protesters in Malaysia, led by a retired math teacher named Tan Bun Teet. Although Mr. Tan and the other protestors did not succeed in preventing the processing facility from being opened, they did delay it and also put pressure on the company to ensure that the radioactive waste would be exported from Malaysia, in accordance with that country's laws. But where will this waste go? This environmental dilemma arises because of the exploding worldwide demand for high-tech products (including your own cell phone), whose manufacturing involves environmental risks. This case illustrates the potential interaction between international trade and the environment, a topic we examine in more detail in the next chapter. ■

TIM WIMBORNE/Reuters/Corbis

Protesters from the Save Malaysia Stop Lynas group demonstrating outside a hotel in Sydney, Australia.

7 High-Technology Export Subsidies

We turn now to consider high-technology final products. This sector of an economy also receives substantial assistance from government, with examples including subsidies to the aircraft industries in both the United States and Europe. In the United States, subsidies take the form of low-interest loans provided by the Export-Import

APPLICATION

China and the Multifibre Arrangement

One of the founding principles of GATT was that countries should not use quot to restrict imports (see Article XI of **Side Bar: Key Provisions of the GATT**). TH Multifibre Arrangement (MFA), organized under the auspices of the GATT in 197 was a major exception to that principle and allowed the industrial countries to restri imports of textile and apparel products from the developing countries. Importin countries could join the MFA and arrange quotas bilaterally (i.e., after negotiating with exporters) or unilaterally (on their own). In practice, the import quotas established under the MFA were very detailed and specified the amount of each textile and apparel product that each developing country could sell to countries including Canada, Europe, and the United States.

APPLICATIONS

Applications illuminate real-world policies, events, and empirical evidence.

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HEADLINES

Economic Crisis in Iceland

International macroeconomics can often seem like a dry and abstract subject, but it must be remembered that societies and individuals can be profoundly shaken by the issues we will study. This article was written just after the start of the severe economic crisis that engulfed Iceland in 2008, following the collapse of its exchange rate, a financial crisis, and a government fiscal crisis. Real output per person shrank by more than 10%, and unemployment rose from 1% to 9%. Five years later a recovery was just beginning to take shape.

HEADLINES

Headlines boxes offer insights into the global economy from international media sources.

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HALLDOR KOLBEINS/AFP/Getty Images

Protesters outside the Icelandic parliament in Reykjavik demand that the government do more to improve conditions for the recently poor.

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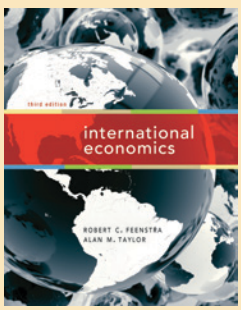

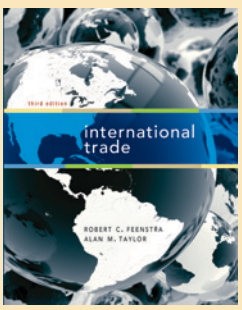

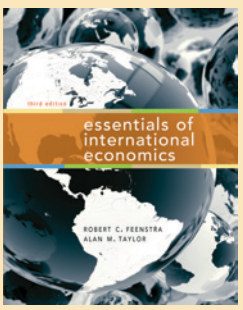

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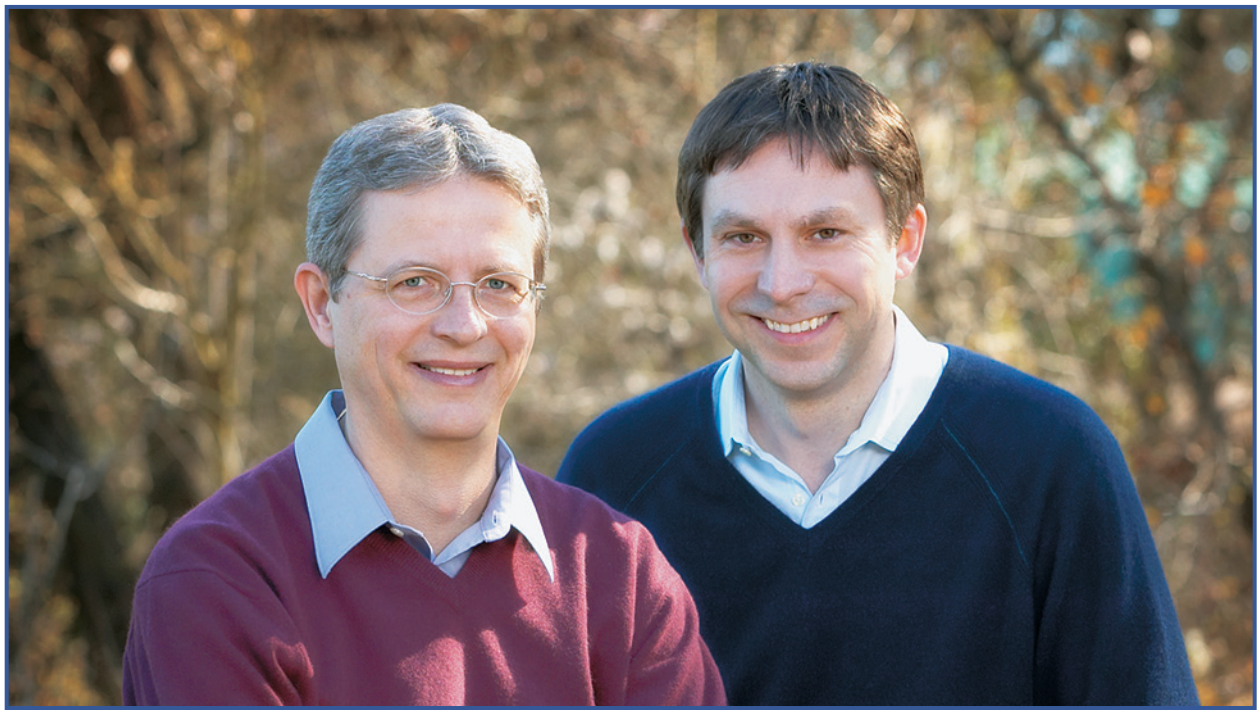

Bud Harmon

Robert C. Feenstra and **Alan M. Taylor** are Professors of Economics at the University of California, Davis. They each began their studies abroad: Feenstra received his B.A. in 1977 from the University of British Columbia, Canada, and Taylor received his B.A. in 1987 from King's College, Cambridge, U.K. They trained as professional economists in the United States, where Feenstra earned his Ph.D. in economics from the Massachusetts Institute of Technology in 1981 and Taylor earned his Ph.D. in economics from Harvard University in 1992. Feenstra has been teaching international trade at the undergraduate and graduate levels at UC Davis since 1986, where he holds the C. Bryan Cameron Distinguished Chair in International Economics. Taylor teaches international macroeconomics, growth, and economic history at UC Davis, where he also holds appointments as Director of the Center for the Evolution of the Global Economy and Professor of Finance in the Graduate School of Management.

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Feenstra lives in Davis, California, with his wife, Gail, and has two grown children: Heather, who is a genetics counselor; and Evan, who is a musician and entrepreneur. Taylor also lives in Davis, with his wife, Claire, and has two young children, Olivia and Sebastian.

To our parents

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Preface

The twenty-first century is an age of unprecedented globalization. In looking at existing texts, we saw that the dramatic economic developments of recent years had not been incorporated into a newly written undergraduate text, and felt the time was ripe to incorporate fresh perspectives, current topics, and up-to-date approaches into the study of international economics. With this book, we have expanded the vision of international economics to encompass the latest theories and events in the world today.

In decades past, international economics was taught differently. There was a much greater emphasis on theory and a strong focus on advanced countries. Policy analysis reflected the concerns of the time, whether strategic trade policy or the Bretton Woods system. Today, the concerns are not the same. In addition to new theoretical developments, there is a much greater emphasis on empirical studies. A wave of applied research in recent years has proved (or refuted) existing theories and taught us important new lessons about the determinants of trade, factor flows, exchange rates, and crises. Trade and capital flows have been liberalized and allowed to grow, and more attention is now devoted to emerging markets and developing countries, regions that now carry substantial weight in the global economy.

Covering new and expanding ground is part of the challenge and excitement of teaching and learning the international economics of the twenty-first century. Our goal is to provide new material that is rigorous enough to meet the challenge yet approachable enough to nurture the excitement. Many of the new topics stand apart from conventional textbook treatments and in the past had been bypassed in lectures or taught through supplementary readings. In our view they deserve a more prominent place in today's curriculum.

We have taught the chapters of this book ourselves several times, and have benefited from the feedback of professors at colleges and universities in the United States and throughout the world. Like us, they have been enthusiastic about the response from students to our fresh, accessible, and up-to-the-minute approach, and we hope that you will enjoy the book, too.

Features

Each chapter includes several features that bring the material alive for the students:

- **Applications,** which are integrated into the main text and use material that has been covered to illuminate real-world policies, events, and evidence.
- **Headlines,** which show how topics in the main text relate directly to media coverage of the global economy.
- **Side Bars,** which include topics that, although not essential, are nonetheless of interest.
- **Net Work boxes,** located at the end of the chapters with homework problems, provide an opportunity for the students to explore chapter concepts on the Internet.

The book is issued in a variety of formats that allows instructors greater flexibility in tailoring the content to their needs, and may help keep costs down for students.

- a combined edition (*International Economics*);
- two split editions (*International Trade* and *International Macroeconomics*); and
- a brief, combined edition with select chapters that cover international trade and macroeconomics, suitable for a one-semester course (*Essentials of International Economics*).

New in the Third Edition

In this third edition we have thoroughly updated the text, to include new data and Applications, as well as many new Headline features to reflect the rapid changes in international economic news during the last three years. (Chapter numbers in this section refer to the combined book; see later for details on the other editions.) We begin the volume with news of the opening of a Northern Sea route for international trade flows, made possible by the melting of ice in the Arctic Circle. The Northern Sea route reduces the shipping distance between Asia and Europe by about 4,000 nautical miles, as compared with the existing route through the Suez Canal. When this route becomes passable for much of the year, it will likely substantially alter international trade flows. Another item of news has been the migration of refugees from Africa to the Italian island of Lampedusa, covered in Chapter 5, which has created a humanitarian crisis there. In Chapter 8, we discuss the recently expired U.S. tariff against imports of Chinese tires, and argue that the structure of these tariffs led to substantial welfare losses before they expired. Trade policies adopted by the Chinese government receive increased attention, including: export subsidies to solar panels and the resulting antidumping tariffs in the United States (Chapter 9), and Chinese quotas on the export of "rare earth" minerals (Chapter 10). In international macroeconomics, we begin Chapter 12 with news and discussion focusing on the economic crisis in Iceland in 2008. Chapters 13 to 16 include updates to all key macroeconomic data and other revisions to streamline and simplify the presentation. Chapter 18 adds news from recent global macro policy issues (such as the "currency war" debate), retains an application on fiscal stimulus in the United States, and looks at Eurozone issues with news and analysis comparing Poland and Latvia's divergent paths since 2008. Chapter 21 on the euro has been rewritten and expanded to cover the dramatic developments since 2010, including the Greek debt restructuring, assistance programs in Spain, Ireland and Portugal, the Cyprus banking crisis, and the ongoing battle to avert the threats to the very existence of the currency union project.

Finally, in response to the needs and feedback of those instructors who teach a one-semester course that combines international trade and macroeconomics, our text comes in a shorter one-semester *Essentials* version. Again, we have learned from the experiences of faculty teaching this course, and we include 16 chapters most relevant to teaching the one-semester course. The third edition of *Essentials* now includes the chapter on the euro. There is more information on this one-semester version later in the Preface.

Topics and Approaches

Reviewers and class testers have been enthusiastically supportive of the topics we have included in our presentation. Topics covered in *International Economics* and *International Trade* include the offshoring of goods and services (Chapter 7); tariffs and quotas under imperfect competition (Chapter 9); and international agreements on trade, labor, and the environment (Chapter 11). These topics are in addition to core chapters on the Ricardian model (Chapter 2), the specific-factors model (Chapter 3), the Heckscher-Ohlin model (Chapter 4), trade with increasing returns to scale and imperfect competition (Chapter 6), import tariffs and quotas under perfect competition (Chapter 8), and export subsidies (Chapter 10).

Chapters in *International Economics* and *International Macroeconomics* include the gains from financial globalization (Chapter 17 in the combined edition, or Chapter 6 in the *International Macroeconomics* split edition), fixed versus floating regimes (Chapter 19/Chapter 8), exchange-rate crises (Chapter 20/Chapter 9), and the euro (Chapter 21/Chapter 10). These topics are in addition to core chapters on foreign exchange markets and exchange rates in the short run and the long run (Chapters 13–15/Chapters 2–4), the national and international accounts (Chapter 16/Chapter 5), the open economy IS-LM model (Chapter 18/Chapter 7), and a chapter on various applied topics of current interest (Chapter 22/Chapter 11).

In writing our chapters we have made every effort to link them analytically. For example, although immigration and foreign direct investment are sometimes treated as an afterthought in international economics books, we integrate these topics into the discussion of the trade models by covering the movement of labor and capital between countries in Chapter 5. Specifically, we analyze the movement of labor and capital between countries in the short run using the specific-factors model, and explore the long-run implications using the Heckscher-Ohlin model. Chapter 5 therefore builds on the models that the student has learned in Chapters 3 and 4, and applies them to issues at the forefront of policy discussion.

In the macroeconomics section from *International Economics* or *International Macroeconomics*, this analytical linking is seen in the parallel development of fixed and floating exchange rate regimes from the opening introductory tour in Chapter 12 (Chapter 1 in the split edition), through the workings of exchange rates in Chapters 13–15 (Chapters 2–4), the discussion of policy in the IS-LM model of Chapter 18 (Chapter 7), to the discussion of regime choice in Chapter 19 (Chapter 8). Many textbooks discuss fixed and floating regimes separately, with fixed regimes often treated as an afterthought. But given the widespread use of fixed rates in many countries, the rising macro weight of fixed regimes, and the collapse of fixed rates during crises, we think it is more helpful for the student to grapple with the different workings and cost-benefit trade-offs of the two regimes by studying them side by side. This approach also allows us to address numerous policy issues, such as the implications of the trilemma and the optimal choice of exchange rate regime.

In addition to expanding our coverage to include up-to-date theory and policy applications, our other major goal is to present all the material—both new and old—in the most teachable way. To do this, we ensure that all of the material presented rests on firm and up-to-the-minute empirical evidence. We believe this approach is the right way to study economics, and it is our experience, shared with many instructors, that teaching is more effective and more enlivened when students can see not just an elegant derivation in theory but, right next to it, some persuasive evidence of the economic mechanisms under investigation.

The Arrangement of Topics: International Trade

Part 1: Introduction to International Trade

The opening chapter sets the stage by discussing global flows of goods and services through international trade, of people through migration, and of capital through foreign direct investment. The chapter includes maps depicting these flows, so the student can get a feel for which countries have the greatest flows in each case. Historical examples of trade and barriers to trade are also provided. This chapter can serve as a full introductory lecture.

Part 2: Patterns of International Trade

The core models of international trade are presented here: the Ricardian model (Chapter 2), the specific-factors model (Chapter 3), and the Heckscher-Ohlin model (Chapter 4). Some of the topics conventionally included in the specific-factors and Heckscher-Ohlin model, like the effects of changing the endowments of labor or capital, are not covered in those chapters but are instead examined in Chapter 5, which deals with the movement of labor and capital between countries. For example, the "factor price insensitivity" result is deferred to Chapter 5, as is the Rybczynski theorem. By discussing those two results in Chapter 5, we keep the discussion of the Heckscher-Ohlin model more manageable in Chapter 4, which focuses on the Heckscher-Ohlin theorem, the Stolper-Samuelson theorem, and empirical testing of the model. In summary, the ordering of topics among Chapters 3, 4, and 5, and many applications, are new, and these chapters are linked together tightly in their pedagogical approach.

Part 3: New Explanations for International Trade

In this section we cover two relatively new explanations for international trade: increasing returns to scale (Chapter 6), and offshoring (Chapter 7).

Formal models of trade with increasing returns to scale and monopolistic competition have been popular since the early 1980s, but there is no standardized method for presenting this topic in undergraduate textbooks. In Chapter 6, we use the original, graphical discussion from Edward Chamberlin, who introduced the *DD* and *dd* curves (which we label in Chapter 6 as simply *D* and *d*). The *D* curve represents the share of the market going to each firm and traces out demand if all firms charge the same prices. In contrast, the *d* curve is the demand facing a firm when other firms keep their prices constant. The distinction between these two demands is crucial when analyzing the impact of trade liberalization: the *d* curve clearly shows the incentive for each individual firm to lower its price after trade liberalization, but the steeper *D* curve shows that when all firms lower prices, then losses occur and some firms must exit.

Chapter 7 is devoted to offshoring, and we have found that students enjoy learning and readily understand this new material. The model we use illustrates a piece of intuition that students grasp easily: the movement of one student from, say, a physics class to an economics class can raise the average grade in *both* classes. Likewise, offshoring can raise the relative wage of skilled workers in both countries. The chapter deals with Paul Samuelson's 2004 critique that offshoring to China or India might be harmful to the United States. That argument is shown to depend on how offshoring affects the U.S. terms of trade: if the terms of trade fall, the United States is worse off, though it still gains overall from international trade. In fact, we argue that the U.S. terms of trade have been rising in recent years, not falling, so Samuelson's argument is hypothetical so far.

Part 4: International Trade Policies

The concluding part of the trade portion of the book is devoted to trade policy: tariffs and quotas under perfect competition (Chapter 8), under imperfect competition (Chapter 9), export subsidies (Chapter 10), and a discussion of international agreements on trade, labor, and the environment (Chapter 11). Our goal is to present this material in a more systematic fashion than found elsewhere, using both very recent and historical applications.

Chapter 8, dealing with tariffs and quotas under perfect competition, is the "bread and butter" of trade policy. We adopt the partial-equilibrium approach, using import demand and export supply curves, along with consumer and producer surplus. Our experience is that students feel very comfortable with this approach from their microeconomics training (so they can usually label the consumer surplus region, for example, in each diagram before the labels are shown). The chapter uses the tariffs applied by President George W. Bush on U.S. steel imports and by President Barack Obama on imported tires from China as motivating cases, which we analyze from both a "small country" and a "large country" perspective.

Chapters 9 and 10 bring in some of the insights from the literature on the strategic role of trade policy, which was developed in the later 1980s and 1990s. Whereas that literature focused on oligopoly interactions between firms, we simplify the analysis in Chapter 9 by focusing on home or foreign monopoly cases. Chapter 10 then presents the duopoly case in the analysis of export subsidies. Most of the theory in these chapters is familiar, but the organization is new, as are many of the applications, including infant industry protection in Chapter 9 and a detailed discussion of export policies in high-technology and resource industries, including rare earth minerals in China, in Chapter 10.

Chapter 11 begins by drawing upon tariffs under perfect competition (from Chapter 8), and showing that large countries have a natural incentive to apply tariffs to move the terms of trade to their advantage. That creates a prisoner's dilemma situation that is overcome by rules in the World Trade Organization. The chapter then moves on to discuss international rules governing labor issues and the environment. Students are especially interested in the environmental applications.

The Arrangement of Topics: International Macroeconomics

Part 5 (Part 1 in *International Macroeconomics*): Introduction to International Macroeconomics

This part consists of Chapter 12 (Chapter 1 in the split edition), which sets the stage by explaining the field and major items of interest with a survey of the three main parts of the book: money and exchange rates, the balance of payments, and the role of policy.

Part 6 (Part 2): Exchange Rates

We depart from the traditional presentation by presenting exchange rates before balance of payments, an approach that we and our students find more logical and appealing. We begin the core macro material with exchange rates because (for macroeconomics) the exchange rate is the key difference between a closed economy and a world of open economies. Our approach, supported by our own experience and that

of our reviewers and users, first treats all price topics together in one part, and then moves on to quantity topics.

Chapter 13 (Chapter 2) introduces the basics of exchange rates and the foreign exchange (forex) market (including the principles of arbitrage) and exposes students to real-world data on exchange rate behavior. It describes how the forex market is structured and explains the principles of arbitrage in forex markets. It ends with interest parity conditions, which are then covered in more detail in Chapter 15 (Chapter 4).

Chapter 14 (Chapter 3) presents the monetary approach to the determination of exchange rates in the long run. We cover the long run before the short run because long-run expectations are assumed to be known in the short-run model. Topics include goods market arbitrage, the law of one price, and purchasing power parity. We first develop a simple monetary model (the quantity theory) and then look at the standard monetary model, the Fisher effect, and real interest parity. The chapter ends with discussion of nominal anchors and their relationship to monetary and exchange rate regimes.

Chapter 15 (Chapter 4) presents the asset approach to the determination of exchange rates in the short run. Uncovered interest parity, first introduced in Chapter 13 (Chapter 2), is the centerpiece of the asset approach, and the expected future exchange rate is assumed to be given by the long-run model. Short-run interest rates are explained using a money market model. We show how all the building blocks from the monetary and asset approaches fit together for a complete theory of exchange rate determination. Finally, we explain how the complete theory works for fixed as well as floating regimes, and demonstrate the trilemma.

Part 7 (Part 3): The Balance of Payments

Chapter 16 (Chapter 5 in the split edition) introduces the key macroeconomic quantities: the national and international accounts and the balance of payments (BOP). The BOP is explained as the need for balancing trade on goods, services, and assets (with allowances for transfers). We also introduce external wealth and valuation effects, which are of increasing importance in the world economy.

Chapter 17 (Chapter 6) links the balance of payments to the key question of the costs and benefits of financial globalization, an increasingly important topic. The chapter begins by explaining the significance of the long-run budget constraint and then examines the three key potential benefits of financial globalization: consumptions smoothing, efficient investment, and risk sharing. This chapter allows instructors to present a clear, simplified treatment of the real macroeconomic efficiency gains arising from international trade and payments, a subject often omitted from textbooks.

Chapter 18 (Chapter 7) presents the short-run open economy Keynesian model, which links the balance of payments to output, exchange rates, and macroeconomic policies. We use IS-LM and forex market diagrams, with the interest rate on a common axis. With this presentation, we use tools (IS-LM) that many students have already seen, and avoid inventing new ways to present the same model with new and challenging notation. In this chapter we also discuss fixed and floating rate regimes side by side, not in different chapters. We think it helpful throughout the book to study these regimes in parallel and at this point this presentation leads naturally to the next chapter.

The ordering of Part 7 (Part 3) echoes that of Part 6 (Part 2): we start with definitions, then cover long-run topics (the gains from financial globalization), then move

to short-run topics (IS-LM). This ordering of topics allows a smooth transition from some key definitions in Chapter 16 (Chapter 5) to their application at the start of Chapter 17 (Chapter 6), a link that would be impossible if the balance of payments chapter were placed before the coverage of exchange rates.

Part 8 (Part 4) Applications and Policy Issues

Chapter 19 (Chapter 8 in the split edition) confronts one of the major policy issues in international macroeconomics, the choice of fixed versus floating exchange rates. The analysis begins with the two classic criteria for two regions to adopt a fixed exchange rate—high levels of integration and symmetry of economic shocks. The chapter then goes on to consider other factors that could make a fixed exchange rate desirable, especially in developing countries—a need for a credible nominal anchor and the "fear of floating" that results from significant liability dollarization. Empirical evidence is provided for all of these influences. A brief section summarizes the debate over the desirability and possibility of coordination in larger exchange rate systems. Finally, a historical survey uses the tools at hand to understand the evolution of international monetary arrangements since the nineteenth century.

Chapter 20 (Chapter 9) studies exchange rate crises. Before explaining how pegs break, we spend some time studying how pegs work. We begin by focusing on reserve management and the central bank balance sheet, when an economy faces shocks to output, interest rates, and risk premiums. We then extend the framework to consider lender of last resort actions, a structure that allows for more realism. This presentation allows us to discuss recent controversies over reserve accumulation in China and other emerging markets, and also suggests how pegs can fail. The chapter concludes by looking at two models of crises: a first-generation model with ongoing monetized deficits with fixed output and flexible prices, applying the logic of the flexible-price model of Chapter 14 (Chapter 3); and a second-generation model featuring an adverse shock with flexible output and fixed prices, applying the IS-LM-FX model of Chapter 18 (Chapter 7).

Chapter 21 (Chapter 10) discusses common currencies, with particular focus on the euro. We develop the basic optimum currency area (OCA) criteria as an extension of the fixed versus floating analysis of Chapter 19 (Chapter 8). This framework allows us to consider additional economic and political reasons why countries might join a common currency area. We then present empirical evidence to show the differences between the United States and the Eurozone with respect to the OCA criteria and to explain why so many economists believe that the Eurozone currently is not an OCA. A complete explanation of the euro project requires an examination of other forces, which are considered in the remainder of the chapter: the possible endogeneity of the OCA criteria and the role of noneconomic factors. Thus, we examine the essential history, politics, and institutional details of the euro.

Chapter 22 (Chapter 11) is a collection of four "mini chapters" that tackle important topics in macroeconomics. In this edition, these topics are the failure of uncovered interest parity and exchange rate puzzles in the short run (including the carry trade and limits to arbitrage); the failure of purchasing power parity and exchange rates in the long run (including transaction costs and the Balassa-Samuelson effect); the debate over global imbalances (including the savings glut hypothesis and the role of exchange rate adjustments); the problem of default (including a simple model of default as insurance and a discussion of triple crises). We present each of these topics in a self-contained

block that can be taught as is or in conjunction with earlier material. The UIP material could be covered with Chapter 13 or 15 (Chapter 2 or 4). The PPP material would nicely augment Chapter 14 (Chapter 3). The global imbalances material could be presented with Chapter 16, 17, or 18 (Chapter 5, 6, or 7). The default topic could be paired with the discussion of currency crises in Chapter 20 (Chapter 9).

Alternative Routes through the Text

Because this book is available as a combined edition and as split volumes, it can be used for several types of courses, as summarized below and in the accompanying table.

A semester-length course in international trade (say, 15 weeks) would start at Chapter 1, but for a shorter, quarter-length course (say, 10 weeks), we suggest skipping Chapter 1 and going straight to the Ricardian model (Chapter 2). Chapters 2, 3 (the specific-factors model), and 4 (the Heckscher-Ohlin model) form the core of trade theory. The movement of labor and capital between countries (Chapter 5) builds on these chapters theoretically, and summarizes the empirical evidence on immigration and foreign direct investment.

The new approaches to international trade covered in Chapters 6 (economies of scale and imperfect competition) and 7 (offshoring) can be taught independently of each other. (A quarter course in international trade may not have time for both chapters.) The final four chapters in international trade deal with trade policy. Chapter 8 (tariffs and quotas under perfect competition) should be discussed in any course regardless of its length. Tariffs and quotas under imperfect competition (Chapter 9) dig more deeply into the effects of trade policy, and are followed by a discussion of export subsidies (Chapter 10). Some or all topics in the final chapter on international agreements can be covered as time permits.

A semester course in international macroeconomics (say, 15 weeks) would start at Chapter 12 in the combined edition (Chapter 1 in the *International Macroeconomics* split edition), but for a shorter quarter-length course (say, 10 weeks), we recommend skipping Chapter 12 (Chapter 1) and going straight to the foreign exchange market presented in Chapter 13 (Chapter 2). Core material on exchange rate theory then follows, with the long run in Chapter 14 (Chapter 3) followed by the short run in Chapter 15 (Chapter 4). Next, come the core definitions of the national and international accounts and the balance of payments, presented in Chapter 16 (Chapter 5). After this point a course with a macro emphasis would cover the costs and benefits of globalization in Chapter 17 (Chapter 6) and IS-LM in Chapter 18 (Chapter 7). To allow time to cover the analysis of crises in Chapter 20 (Chapter 9), the treatment of regime choice in Chapter 19 (Chapter 8) might be combined with a discussion of the euro in Chapter 21 (Chapter 10). Topics from Chapter 22 (Chapter 11) can be selected as time permits: a more finance-oriented course might focus on the first two exchange rate topics; a more macro-oriented course might focus on global imbalances and default. In a semester-length course, there should be time for almost all the topics to be covered.

We recognize that many schools also offer a combined one-semester course in international trade and macroeconomics, sometimes to students outside the economics major. Because of its wealth of applications, this book will serve those students very well. The one-semester *Essentials of International Economics* edition brings together the chapters that are the most important for such a course. The one-semester edition has an introduction in Chapter 1 that incorporates both international trade and

Suggested Course Outlines

Chapter Titles	Course Type and Length: Trade or Macroeconomics in one term — Chapter numbers from *International Trade* version: 10 week quarter	Trade or Macroeconomics in one term — Chapter numbers from *International Trade* version: 13–15 week semester	International Economics in two terms — Chapter numbers from *International Economics*	International Economics in one term — Chapter numbers from *Essentials of International Economics*
Trade in the Global Economy (*Essentials:* The Global Economy)	—	1	1	1 (introduces trade and macroeconomics)
Trade and Technology: The Ricardian Model	2	2	2	2
Gains and Losses from Trade in the Specific-Factors Model	3	3	3	3
Trade and Resources: The Heckscher-Ohlin Model	4	4	4	4
Movement of Labor and Capital between Countries	Choose two from 5, 6, 7	5	5	5
Increasing Returns to Scale and Monopolistic Competition		6	6	6
Offshoring of Goods and Services		7	7	—
Import Tariffs and Quotas under Perfect Competition	8	8	8	7
Import Tariffs and Quotas under Imperfect Competition	9	9	9	8
Export Subsidies in Agriculture and High-Technology Industries	10	10	10	—
International Agreements: Trade, Labor, and the Environment	As time permits	11	11	9
	Chapter numbers from *International Macroeconomics* version			
	10 week quarter	**13–15 week semester**		
The Global Macroeconomy	—	1	12	—
Introduction to Exchange Rates and the Foreign Exchange Market	2	2	13	10
Exchange Rates I: The Monetary Approach in the Long Run	3	3	14	11
Exchange Rates II: The Asset Approach in the Short Run	4	4	15	12
National and International Accounts: Income, Wealth, and the Balance of Payments	5	5	16	13
The Balance of Payments I: The Gains from Financial Globalization	6	6	17	—
The Balance of Payments II: Output, Exchange Rates, and Macroeconomic Policies in the Short Run	7	7	18	14
Fixed Versus Floating: International Monetary Experience	Combine with Chapter 8	8	19	15
Exchange Rate Crises: How Pegs Work and How They Break	9	9	20	—
The Euro	Combine with Chapter 10	10	21	16
Topics in International Macroeconomics	1 or 2 topics (as time permits)	3 or 4 topics (as time permits)	22	—

macroeconomic issues. It then moves to Chapters 2–6 the basic trade chapters, followed by two chapters on tariffs and quotas under perfect competition and under imperfect competition. The international trade section concludes with the chapter on trade agreements and the environment. Those eight chapters (plus the introduction) offer the students a solid perspective on international trade and trade policy. These chapters are followed in the one-semester edition by seven chapters dealing with the core concepts and models in international macroeconomics: the foreign exchange market, the monetary and asset approach to exchange rates, national income accounting, macroeconomic policy, fixed and floating exchange rates, and the euro. This coverage will give students a basic grounding in international macroeconomics.

Supplements and Media

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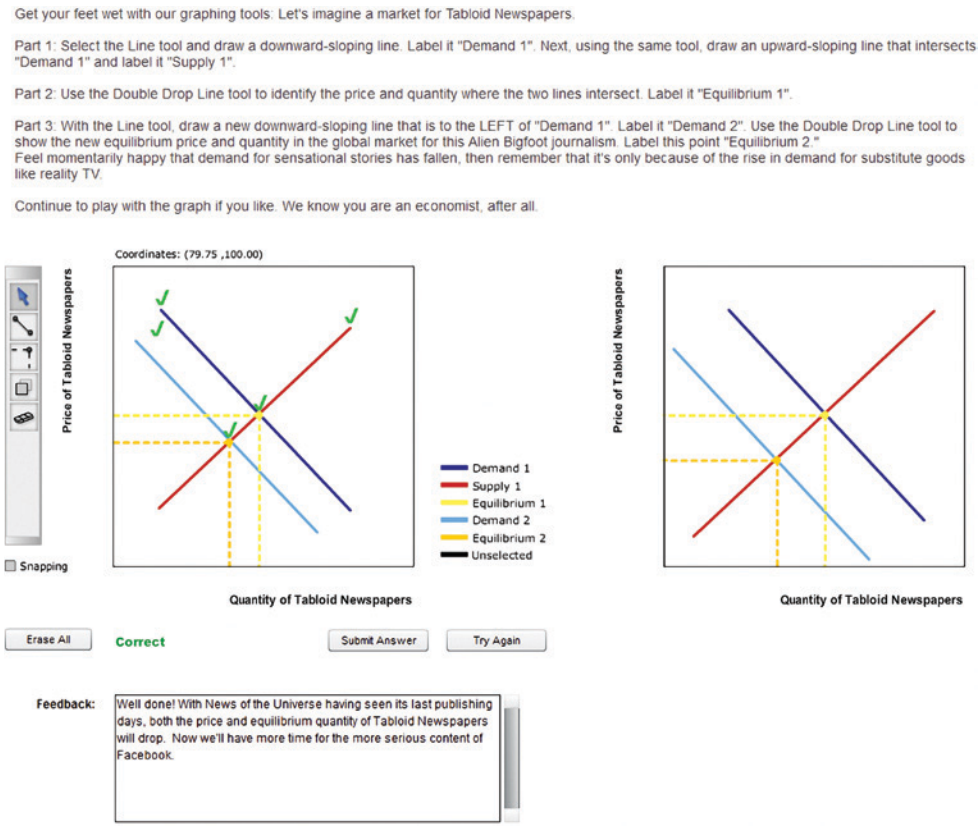

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Acknowledgments

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ROBERT C. FEENSTRA

ALAN M. TAYLOR

Davis, California
December 2013

James Hall

Sixth-grade class with their teacher in La Carreta #2 school in Ciudad Darío, Nicaragua.

third edition

essentials of international economics

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1

The Global Economy

The main losers in today's very unequal world are not those who are too much exposed to globalization. They are those who have been left out.

Kofi Annan, former secretary general of the United Nations, 2000

So much of barbarism, however, still remains in the transactions of most civilized nations, that almost all independent countries choose to assert their nationality by having, to their inconvenience and that of their neighbors, a peculiar currency of their own.

John Stuart Mill

1 International Trade
2 Migration and Foreign Direct Investment
3 International Macroeconomics
4 Conclusions

In 2007–08, a worldwide financial crisis marked the start of the most painful global recession since the Great Depression of the 1930s. There was a 13% decline in industrial output from its peak, and an alarming 25% drop in world goods exports. Six years later, output and employment remain below potential in many countries, with very disappointing growth in the advanced economies, and especially deep ongoing slumps in large parts of the Eurozone. Trade has recovered, and protectionist policies have so far been largely avoided, despite occasional rhetoric to the contrary. Exchange rates fluctuated dramatically during the crisis and international flows of capital were disrupted, adding to international tensions. During the recession many countries ran up large public debts, and several began to be regarded by financial markets as being at risk of insolvency. Even with signs of a recovery, the events of the world economic crisis have demonstrated more than ever the importance of the economic forces linking countries of the world. In this book we endeavor to explain how countries are linked by trade and finance.

In the first part of this book, we develop a number of models that help us understand the reasons that countries trade goods and services, that people move from one country to another, and that firms own companies in other countries. All three types of flows between countries—of products (goods and services), people, and capital—are so common today that we take them for granted. When you go into a store to purchase an item, for example, it is possible that it was made in another

country, the store itself might be foreign-owned, and the salesperson who assists you may be an immigrant. Why are these international flows so common? What are the consequences of these flows for the countries involved? And what actions do governments take to make their countries more or less open to trade, migration, and foreign direct investment? These are the questions we address in the first part of the book.

In the second part of this book, we study the global macroeconomy and how it is defined by integrated markets for goods, services, and capital. To effectively study macroeconomic outcomes, we must understand how countries are linked to one another through their currencies, their trade, and their capital flows. Why do so many countries have their own currency? How do exchange rates affect output and flows of trade and capital? Why do so many countries choose to open up to economic interaction with other nations? And what costs and benefits do these and other macroeconomic policy decisions impose on a nation's economic well-being? These are the questions we answer in the second half of this book.

1 International Trade

In August 2009, the ships *Beluga Fraternity* and *Beluga Foresight* made a historic voyage through the Northern Sea Route of the Arctic Ocean, accompanied by a Russian nuclear icebreaker. These ships carried power-plant components from South Korea, around the top of Russia, to the Siberian port of Novy, where the cargo was unloaded. The ships continued westward to the city of Rotterdam in the Netherlands. This was one of the first times that commercial ships had successfully navigated this northern route through the Arctic Circle, and it was made possible by the shrinkage of Arctic ice in recent years. It is believed that global warming is causing the Arctic ice to melt, which will open up new shipping lanes through the Arctic Ocean.

In this historical milestone, we see that global climate change can have important consequences for **international trade,** by which we mean the movement of goods (such as cargo) and services (such as the shipping of the cargo) across borders. To move goods from South Korea (or elsewhere in Asia) to Europe would normally involve a trip through the Suez Canal (in the Middle East) at much greater cost. The Northern Sea Route is shorter than the Suez Canal route by about 4,000 nautical miles. If the Northern Sea Route becomes passable for much of the year, then we would expect the amount of trade from Asia to Europe to increase.

In this book, we study international trade in goods and services and learn about the economic forces that determine what that trade looks like: what products are traded, who trades them, at what quantities and prices they are traded, and the benefits and costs of trade. We also learn about the policies that governments use to shape trade patterns among countries.

Why should we care about international trade? Many people believe that international trade creates opportunities for countries to grow and thrive. The manufacture of goods exported from China, for example, creates employment for many millions of workers there. The same is true for exports from the United States and European countries. It is not just large countries that potentially benefit from trade; smaller countries, too, are affected. In Greenland, for example, higher temperatures due

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Melting icebergs in Disko Bay, Greenland

to global warming have exposed deposits of "rare earth" minerals, such as lanthanum and neodymium, which are used in cell phones and other high-tech devices. Because of international trade, Greenland is expected to benefit from exporting these rare earth minerals to meet global demand. But such benefits can also bring difficult social change and challenges to Greenland, as the traditional lifestyle of fishing becomes less crucial to Greenland's economy. In this book we explore both the opportunities and challenges created by international trade for different groups in society.

Let's begin by looking at a very broad picture of international trade. What country was the world's largest exporter of goods in 2012? If you guessed China, you are right: in 2009, China overtook Germany as the world's top exporter, and has occupied the top spot ever since. In 2012, China sold around $2.0 trillion in goods to other countries, ahead of the $1.6 trillion exported by the second-place country, the United States. The third largest exporter of goods was Germany, which exported $1.5 trillion in goods.

These numbers reveal only part of the trade picture, however, because in addition to exporting goods, countries also export services. In 2012, the United States exported $0.6 trillion in services (including business services, education of foreign students, travel by foreigners, and so forth). If we combine exports in goods and services, then in 2012 the world's largest exporter was the United States at $2.2 trillion, followed by China, Germany, the United Kingdom, and Japan.

The Basics of World Trade

This section begins our study of international economics by defining some important terms and summarizing the overall trends in world trade.

Countries buy and sell goods and services from one another constantly. An **export** is a product sold from one country to another, and an **import** is a product bought by one country from another. We normally think of exports and imports as goods that are shipped between countries, but for services that is not necessarily the case. Construction services, for example, are performed on-site in the importing country rather than being shipped. Travel and tourism are large categories of service exports that also occur on-site: the money spent by a U.S. visitor to the Eiffel Tower is a service export of France, and a Chinese visitor to the Grand Canyon adds to U.S. service exports.

A country's **trade balance** is the difference between its total value of exports and its total value of imports (usually including both goods and services). Countries that export more than they import, such as China in recent years, run a **trade surplus,** whereas countries that import more than they export, such as the United States, run a **trade deficit.** In addition to keeping track of the overall trade balance for a country with the rest of the world, we often see reported in the newspaper the **bilateral trade balance,** meaning the difference between exports and imports between two countries. The U.S. trade deficit with China, for example, was more than $200 billion every year between 2005 and 2012.

In the models we develop to understand trade, we are not concerned with whether a country has a trade deficit or surplus but just assume that each country has balanced trade, with exports equal to imports. There are two reasons why we make this assumption. First, economists believe that an overall trade deficit or surplus arises from macroeconomic conditions, such as the overall levels of spending and savings in an economy—countries with high spending and low savings will run a trade deficit. Macroeconomic conditions are studied in the second half of this book, which deals with international macroeconomics.

Second, the interpretation of a trade deficit or surplus is problematic when we focus on the bilateral trade balance between two countries, such as the United States and China. To see what the problem is, think about the U.S. import of a particular good from China, such as the iPhone (see **Headlines: Sum of iPhone Parts: Trade Distortion).**

In 2010, the iPhone 3GS was valued at about $179 when it was shipped from China to the United States, and it sold for about $500 in the United States. However only $6.50 of that amount reflects the value of Chinese labor used in the assembly.[1] The rest of the $172.50 export value was actually imported into China from other countries, including: $60 for the flash memory, display module, and touch screen from Toshiba in Japan; $23 for the processor chip and memory from Samsung in Korea; $29 for the camera and transmitting and receiving devices from Infineon in Germany, and so on. Nevertheless, the entire $179 is counted as an

[1] See Yuqing Xing and Neal Detert, "How the iPhone Widens the United States Trade Deficit with the People's Republic of China," Asian Development Bank Institute, Working Paper no. 257, December 2010 (revised May 2011), from which the estimates in this paragraph are drawn. They cite: A. Rassweiler, "iPhone 3G S Carries $178.96 BOM and Manufacturing Cost, *iSuppli* Teardown Reveals," *iSuppli*, 24 June 2009.

HEADLINES

Sum of iPhone Parts: Trade Distortion

Although the iPhone sold in the United States is assembled in China, most of its value comes from parts made in other countries. Counting its full value as a U.S. import from China therefore exaggerates the size of the U.S. trade deficit with China.

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Products like the Apple iPhone are often assembled in China from components made in many other countries.

One widely touted solution for current U.S. economic woes is for America to come up with more of the high-tech gadgets that the rest of the world craves. Yet two academic researchers have found that Apple Inc.'s iPhone—one of the most iconic U.S. technology products—actually added $19 billion to the U.S. trade deficit with China last year. How is this possible?

. . . Though the iPhone is entirely designed and owned by a U.S. company, and is made largely of parts produced in other countries, it is physically assembled in China. Both countries' trade statistics therefore consider the iPhone a Chinese export to the U.S. So a U.S. consumer who buys what is often considered an American product will add to the U.S. trade deficit with China. The result is that according to official statistics, "even high-tech products invented by U.S. companies will not increase U.S. exports,". . . . This isn't a problem with high-tech products, but with how exports and imports are measured . . .

The new research adds to a growing technical debate about traditional trade statistics that could have big real-world consequences. Conventional trade figures are the basis for political battles waging in Washington and Brussels over what to do about China's currency policies and its allegedly unfair trading practices. But there is a growing belief that the practice of assuming every product shipped from one country is entirely produced by that country may need to be adjusted. "What we call 'Made in China' is indeed assembled in China, but what makes up the commercial value of the product comes from the numerous countries that preceded its assembly in China in the global value chain," Pascal Lamy, the director-general of the World Trade Organization, said in a speech in October. "The concept of country of origin for manufactured goods has gradually become obsolete." Mr. Lamy said that if trade statistics were adjusted to reflect the actual value contributed to a product by different countries, the size of the U.S. trade deficit with China—$226.88 billion, according to U.S. figures—would be cut in half. That means, he argued, that political tensions over trade deficits are probably larger than they should be.

Source: Excerpted from Andrew Batson, "Sum of iPhone Parts: Trade Distortion," The Wall Street Journal, *December 16, 2010, p. 3. Reprinted with permission of The Wall Street Journal, Copyright © 2010 Dow Jones & Company, Inc. All Rights Reserved Worldwide.*

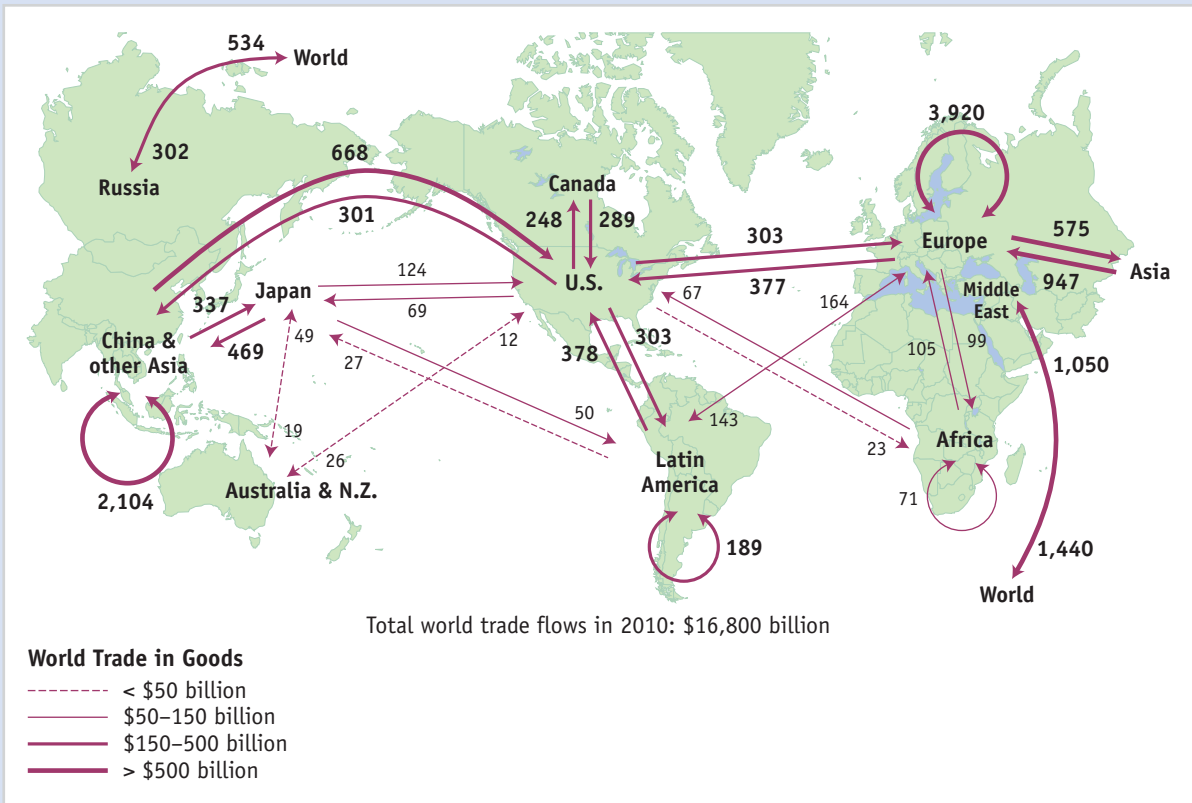
export from China to the United States. This example shows that the bilateral trade deficit or surplus between countries is a slippery concept. It doesn't really make sense to count the entire $179 iPhone as a Chinese export to the United States, as is done in official trade statistics, when only $6.50 is the **value-added** in China; that is, the difference between the value of the iPhone when it leaves China and the cost of parts and materials purchased in China and imported from other countries. That shortcoming of official statistics gives us a good reason to not focus on the bilateral trade deficit or surplus between countries, even though that number is often reported in the media.

The iPhone example illustrates how the manufacturing required for a single final product is often spread across many countries. That so many countries can be involved in manufacturing a final product and its components is a new phenomenon that illustrates the drop in transportation and communication costs in the modern world economy. In the past, trade occurred in more standardized goods (such as raw materials) that were shipped long distances, but were not shipped back-and-forth between countries during the manufacturing process. This new feature of world trade and production is often called **offshoring.**

Map of World Trade

To show the flow of exports and imports around the world, we use the map in Figure 1-1, which shows trade in billions of dollars for 2010. That year about $16.8 trillion in goods crossed international borders. (Because trade in services is harder to measure between countries, we do not include it in Figure 1-1.) The amount of trade

FIGURE 1-1



World Trade in Goods, 2010 ($ billions) This figure shows the trade in merchandise goods between selected countries and regions of the world for 2010 in billions of dollars. The amount of trade in goods is illustrated by the width of the lines, with the largest trade flows having the heaviest lines and the smallest having dashed lines.

Source: United Nations trade data.

in goods is illustrated by the width of the lines, with the largest trade flows having the heaviest lines and the smallest having dashed lines. For large trade flows, we usually draw two lines indicating the direction of each trade flow. For smaller amounts of trade, we draw a single dashed line, with the amount of the trade flows shown on each arrow. The trade flows within certain regions, such as Europe, are described by a circle, with the total amount of trade shown.

Factors That Explain Trade Patterns Figure 1-1 shows that the amount of trade that occurs among nations ranges from the huge flows we see in Europe to the very small flows between Europe and Africa. What factors determine the amount of trade that occurs between nations and regions?

1. **Low Tariffs** The largest amount of trade shown in Figure 1-1 is the flow of goods within Europe, which was $3.9 trillion in 2010, or almost one-quarter (23%) of world trade! The amount of trade among European countries is large because there are so many countries located there and because it is easy to ship from one country to another. Furthermore, trade is high because **import tariffs** (taxes on international trade) are low. Most of the European countries are members of the European Union, a group of countries that trade with each other at zero tariffs.
2. **Trade Between Similar Countries** In addition to large trade flows among the European countries, there are also large trade flows between the United States and Europe. The United States exported $303 billion of goods to Europe in 2010 and imported $377 billion of goods from Europe. This fact shows that a large amount of world trade occurs between countries that are similar in their levels of advanced industrialization and great wealth. Why do these countries trade so much with each other?

   The many differences among European countries and between Europe and the United States explain, in part, the trade between them. The first model of trade we study, called the Ricardian model, was initially used to explain trade between England and Portugal based on the difference in their climates. Despite their differences, industrialized countries like the United Kingdom and the United States have many similarities in their consumption patterns and in their ability to produce goods and services. Even very similar countries have enough variety in the goods they produce (such as different models of cars or types of cheese) that it is natural for them to trade with one another.
3. **Labor, Capital, and Natural Resources** Why does Asia trade so much? There are many answers to this question. One answer is that wages in many Asian countries are much lower than in the industrialized world. China's low wages allow it to produce goods cheaply and then export them. But why are Chinese wages so low? One explanation is that Chinese workers are less productive. Low wages cannot explain why Japan exports so much, however. Japan's wages are very high because its workers are very productive; it exports a great deal to Europe and the United States because its highly skilled workforce and large amount of capital (factories and machines) make it possible for Japan to produce high-quality goods in abundance. Conversely, its scarcity of raw materials explains why it imports

those goods from resource-rich countries such as Australia, Canada, and the United States. Trade patterns based on the amounts of labor, capital, and natural resources found in each country are explained by the Heckscher-Ohlin trade model.

Trade Compared with GDP

So far, we have discussed the value of trade crossing international borders. But there is a second way that trade is often reported, and that is as a ratio of trade to a country's **gross domestic product (GDP),** the value of all final goods produced in a year. For the United States, the average value of imports and exports of goods and services expressed relative to GDP was 15% in 2012. Most other countries have a higher ratio of trade to GDP, as shown in Table 1-1.

At the top of the list are Hong Kong (China) and Singapore, where the amount of trade exceeds their GDP![2] These two countries are important shipping and processing centers, so they are importing goods, processing them, and then exporting the final product to other countries. As in our iPhone example, the value-added involved in the exports ($6.50 for each iPhone) can be much less than the total value of exports ($179). That explains why the total amount that countries trade can be greater than their GDP. At the bottom of the list are the United States and Japan, which are very large in economic size; Pakistan, which is only starting to engage in international trade; and Brazil and Argentina, which are far away from other importing countries.

So even though the United States is among the world's largest exporters and importers, it is nearly the smallest trading nation of the countries shown in Table 1-1 when trade is measured as a percent of a country's GDP. What is the reason for this inverse relationship? Very large countries tend to have a lot of trade among states or provinces *within* their borders, but that trade is not counted as part of international trade. Other countries that are not quite as large as the United States but are close to their major trading partners, such as Germany, the United Kingdom, Italy, and Spain, and Canada and Mexico, tend to appear in the middle of the list in Table 1-1. Smaller countries with close neighbors, such as Hong Kong, Singapore, Malaysia, and the smaller European nations, will have more trade spilling across their borders and have the highest ratios of trade to GDP.

TABLE 1-1

Trade/GDP Ratio in 2010 This table shows the ratio of total trade to GDP for each country, where trade is calculated as (Imports + Exports)/2, including both merchandise goods and services. Countries with the highest ratios of trade to GDP tend to be small in economic size and are often important centers for shipping goods, like Hong Kong (China) and Singapore. Countries with the lowest ratios of trade to GDP tend to be very large in economic size, like Japan and the United States, or are not very open to trade because of trade barriers or their distance from other countries.

Country	Trade/GDP (%)	GDP ($ billion)
Hong Kong (China)	216	229
Singapore	193	213
Malaysia	85	247
Hungary	83	129
Thailand	68	319
Austria	52	377
Denmark	48	313
Sweden	46	463
Switzerland	46	552
Germany	44	3,284
Norway	35	418
United Kingdom	32	2,256
Mexico	31	1,035
Canada	30	1,577
China	29	5,931
Spain	28	1,380
Italy	28	2,044
South Africa	27	364
Greece	27	292
France	27	2,549
Russian Federation	26	1,488
India	25	1,684
Turkey	24	731
Indonesia	24	708
Venezuela	23	394
Argentina	20	369
Pakistan	17	176
Japan	15	5,488
United States	15	14,419
Brazil	11	2,143

Source: World Development Indicators, The World Bank.

[2] Hong Kong (China) has been a part of the People's Republic of China since July 1, 1997, but its trade statistics are measured separately, so we list Hong Kong in Table 1-1 as a distinct region.

Barriers to Trade

Table 1-1 shows the differences across countries in the amount of trade relative to GDP, but this ratio changes over time. There are many reasons for the amount of trade to change. Those reasons include "import tariffs," taxes that countries charge on imported goods; transportation costs of shipping from one country to another; events, such as wars and natural disasters, that lead to reduced trade; and so on. The term **trade barriers** refers to all factors that influence the amount of goods and services shipped across international borders.

APPLICATION

Tariffs in the Interwar Period

In the aftermath of World War I, the ratio of trade to GDP fell in all countries, a decline that was made worse by the Great Depression, which began in 1929, and World War II, which began in Europe in 1939. During the Great Depression, the United States adopted high tariffs called the Smoot-Hawley tariffs, named after Senator Reed Smoot from Utah and Representative Willis C. Hawley from Oregon. Signed into law in June 1930, the Smoot-Hawley Tariff Act raised tariffs to as high as 60% on many categories of imports.

These tariffs were applied by the United States to protect farmers and other industries, but they backfired by causing other countries to retaliate. Canada retaliated by applying high tariffs of its own against the United States; France used **import quotas,** a limitation on the quantity of an imported good allowed into a country, to restrict imports from the United States; Britain gave preferences to goods available from its former colonies; and other countries reacted, too. As reported by one economic historian:[3]

> A groundswell of resentment spread around the world and quickly led to retaliation. Italy objected to duties on hats and bonnets of straw, wool-felt hats, and olive oil; Spain reacted sharply to increases on cork and onions; Canada took umbrage at increases on maple sugar and syrup, potatoes, cream, butter, buttermilk, and skimmed milk. Switzerland was moved to boycott American typewriters, fountain pens, motor cars, and films because of increased duties on watches, clocks, embroidery, cheese, and shoes. . . . Retaliation was begun long before the [Smoot-Hawley] bill was enacted into law in June 1930.

The response of these countries, initially against the United States and then against one another, led to a dramatic increase in worldwide tariffs during the interwar period. The average worldwide tariff for 35 countries from 1860 to 2010 is shown in Figure 1-2. We see that the average tariff fluctuated around 15% from 1860 to 1914. After World War I, however, the average tariff rose because of the Smoot-Hawley Tariff Act and the reaction by other countries, reaching about 25% by 1933. The high tariffs led to a dramatic fall in world trade in the interwar period, with large costs to the United States and the world economy. These costs are one reason that the Allied countries met together after World War II to develop

[3] Charles Kindleberger, 1989, "Commercial Policy between the Wars." In P. Mathias and S. Pollard, eds., *The Cambridge Economic History of Europe*, Vol. VIII (Cambridge, UK: Cambridge University Press), p. 170.