International Economics

DOMINICK SALVATORE

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Dominick Salvatore
Fordham University

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To Lucille

Preface

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

Significant International Developments

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

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

5. The deep poverty in many developing countries and the widening international inequalities pose serious moral, political, and developmental problems for the United States and other advanced countries.

6. Resource scarcity, environmental degradation, and climate change put at risk continued growth in the United States and other advanced countries, as well as sustainable development in emerging markets.

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

New to the Eleventh Edition

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

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

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

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

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

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

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

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

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

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

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

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

Audience and Level

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

Organization of the Book

The book is organized into four parts. Part One (Chapters 2–7) deals with trade theory (i.e., the basis and the gains from trade). Part Two (Chapters 8–12) deals with trade policy (i.e., obstructions to the flow of trade). Part Three (Chapter 13–15) deals with the measurement of a nation's balance of payments, foreign exchange markets, and exchange rate determination. Part Four (Chapters 16–21) examines open-economy macroeconomics or the macro relationships between the domestic economy and the rest of the world, as well as the operation of the present international monetary system.

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

For the Student

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

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

- **Appendices**—These develop in a more rigorous but careful and clear fashion certain material that is presented on an intuitive level in the chapter.
- **Selected Bibliography**—The most important references are included, along with specific notes indicating the topic they cover. A separate Author Index is included at the end of the book.
- **Internet**—A section at the end of each chapter provides relevant Internet site addresses or links to data sources, information, and analyses to show the student how to access and use the wealth of information available on the Internet.

- *Accompanying the text, there are also*:
  - **A Web Site**—Each chapter presents additional examples, cases, and theoretical points and questions as well as problems that can be answered or solved using the Internet. The web site is continuously updated to reflect important new developments in the international economy as they unfold.
  - **An Online Study Guide** prepared by Professor Arthur Raymond of Muhlenberg College is available for students. This provides extensive review of key concepts, numerous additional illustrative examples, and practice problems and exercise sets.
  - **A Schaum Outline** on the *Theory and Problems of International Economics* (4th edition, 1996), prepared by the author, can be purchased at a very low price in most bookstores. This provides a problem-solving approach to the topics presented in the traditional way in this and other international economics texts.

For the Instructor

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

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DOMINICK SALVATORE
Distinguished Professor of Economics
Fordham University
New York 10458
Tel. 718-817-4045
Fax 718-817-3518
e-mail: salvatore@fordham.edu

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Case Studies

chapter

1

Introduction

LEARNING GOALS:

After reading this chapter, you should be able to:

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

1.1 The Globalization of the World Economy

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

1.1A We Live in a Global Economy

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

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

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

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

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

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

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

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

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

CASE STUDY 1-2 What Is an "American" Car?

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

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

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

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

1.1B The Globalization Challenge

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

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

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

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

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

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

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

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

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

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

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

TABLE 1.2. Globalizing India

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

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

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

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

1.2 International Trade and the Nation's Standard of Living

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

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

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

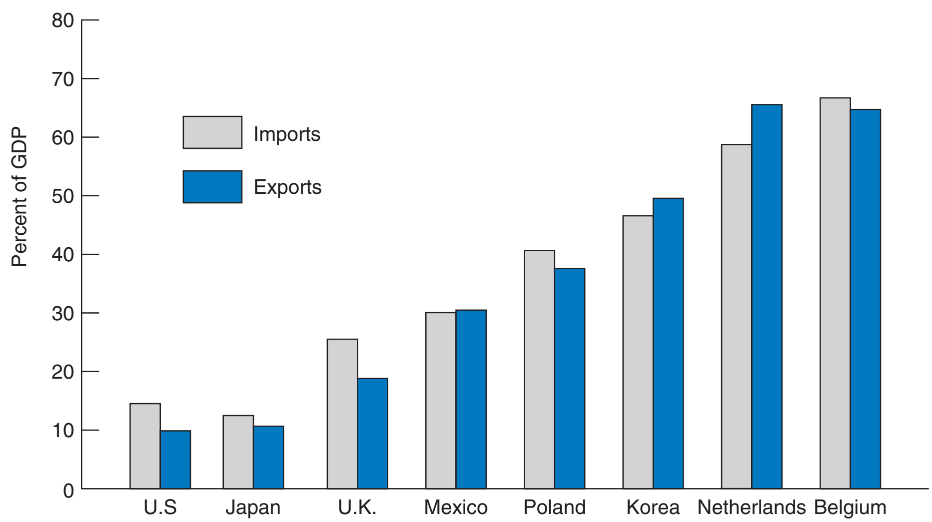

FIGURE 1.1. Imports and Exports as a Percentage of GDP in Various Countries in 2011.
International trade (imports and exports) is even more important to most other smaller industrial and developing countries than it is to the United States.
Source: International Monetary Fund, *International Financial Statistics*, Washington, D.C.: IMF, July 2012.

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

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

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

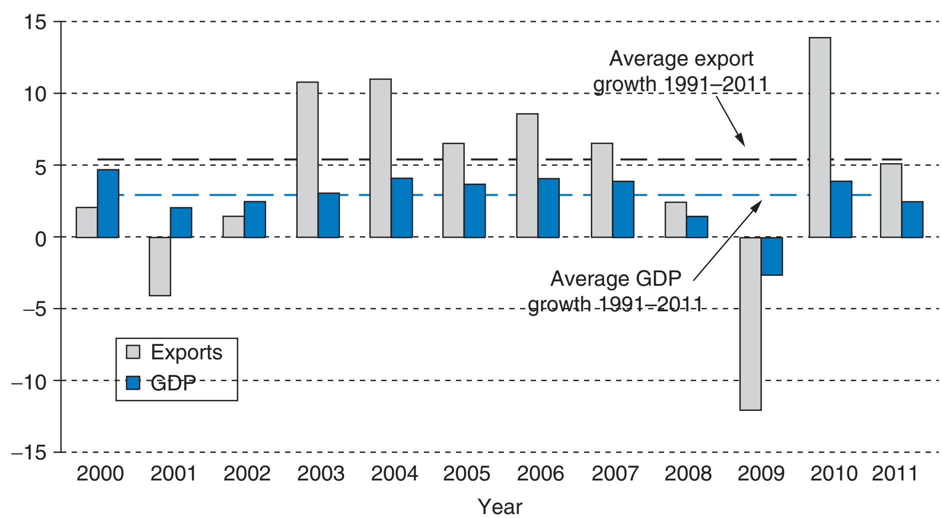

FIGURE 1.2. Growth of World Trade and GDP, 2000–2011 (annual percentage changes).
International trade grew much faster than world production from 2000 to 2011, except in 2001 and 2009.
Source: World Trade Organization, *World Trade Report*, Geneva: WTO, 2012, p. 18.

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

After remaining at between 4 and 5 percent during most of the 1960s, imports and exports of goods and services as percentages of gross domestic product (GDP) rose sharply in the United States during the 1970s. Figure 1.3 shows that imports as a percentage of U.S. GDP increased from about 5 percent during the late 1960s to more than 10 percent of GDP in 1980 and to a high of nearly 18 percent in 2008 before falling below 14 percent in 2009 as a result of the U.S. recession. Exports increased from about 5 percent in the late 1960s to about 10 percent in 1980 and to a high of nearly 13 percent of GDP in 2008, but it fell to 9.9 percent of GDP in 2011 because of recession or slow growth abroad. The figure shows that international trade has become more important to the United States (i.e., the United States has become more interdependent with the world economy) during the past four and one-half decades. Figure 1.3 also shows that the share of imports in GDP exceeded the share of exports since 1976 and the excess widened sharply during the first half of the 1980s and then again from 1996 to 2006. This led to huge U.S. trade deficits and persistent demands for protection of domestic markets and jobs against foreign competition by American industry and labor.

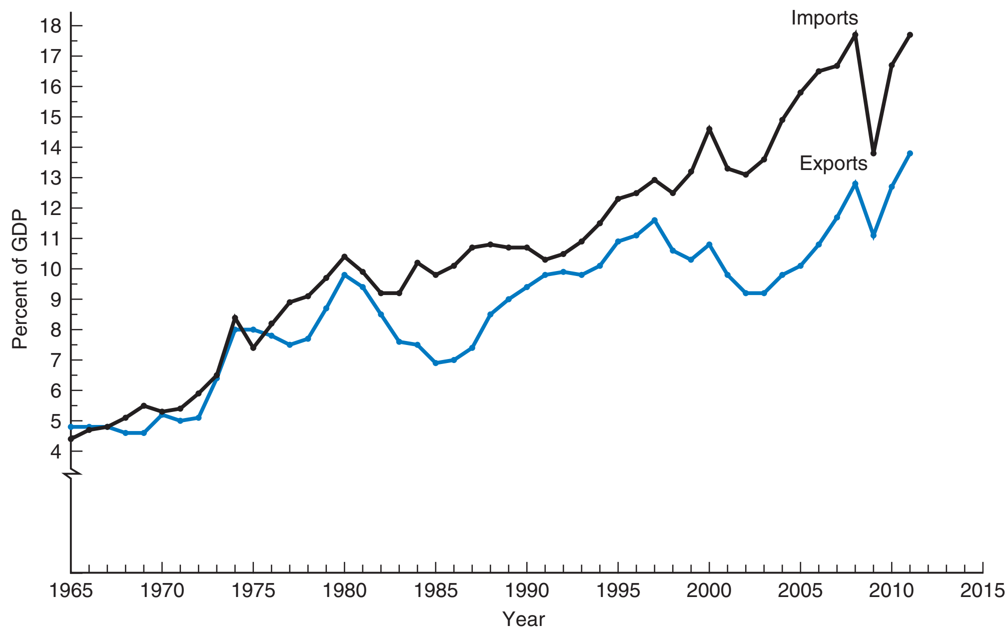

FIGURE 1.3. Imports and Exports as a Percentage of U.S. GDP, 1965–2011.
The share of imports and exports in U.S. GDP increased sharply since the early 1970s. Thus, international trade has become increasingly important to the United States. During the first half of the 1980s, and again from 1996 to 2006, U.S. imports greatly exceeded U.S. exports, resulting in huge trade deficits for the United States.
Source: International Monetary Fund, *International Financial Statistics Yearbook* (Washington, D.C., various issues).

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

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

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

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

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

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

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

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