INTERNATIONAL EDITION

International Economics

NINTH EDITION

Steven Husted • Michael Melvin

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Groups of Economies

For this map, economies are classified by income group. Low-income economies are those with a GNP per capita of US$995 or less in 2009; lower middle-income, US$996–$3,945; upper middle-income, $3,946–$12,195; and high-income, US$12,196 or more.

Map created based on data and classifications from page 341 of the 2011 World Development Report. The World Bank: World Development Indicators (WDI) 2010: World Development Report 2011. http://wdr2011.worldbank.org/sites/default/files/WDR2011_Indicators.pdf.

Russian Federation
Sweden
Finland
Norway
Estonia
Latvia
Lithuania
Poland
Belarus
Germany
Czech Rep.
Ukraine
Slovak Rep.
Austria
Hungary
Moldova
Slovenia
Croatia
Romania
Bosnia
& Herz.
Serb./Mont.
Italy
Macedonia
Albania
Greece
Turkey
Georgia
Armenia
Azerbaijan
Kazakhstan
Mongolia
Uzbekistan
Kyrgyzstan
Turkmenistan
Tajikistan
North Korea
South Korea
Japan
China
Tunisia
Cyprus
Syria
Lebanon
Israel
Iraq
Iran
Afghanistan
Jordan
Kuwait
Libya
Eygpt
Bahrain
Saudi
Arabia
United
Arab Emirates
Pakistan
Nepal
Bhutan
India
Bangladesh
Myanmar
Macau
Hong Kong
Taiwan
Laos
Oman
Niger
Chad
Sudan
Eritrea
Yemen
Thailand
Philippines
Cambodia
Vietnam
Nigeria
Somalia
Ethiopia
Central African
Republic
Sri Lanka
Cameroon
Dem. Rep.
of Congo
Uganda
Malaysia
Brunei
Singapore
Rep. of
Congo
Gabon
Kenya
Rwanda
Burundi
Papua
New Guinea
Indonesia
Tanzania
Angola
Malawi
Zambia
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Zimbabwe
Botswana
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To Marie and Bettina

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PREFACE

As we have stated in previous editions of this book, our goal in writing this text is simple: We hope to provide the student with a guide to the study of international economics that is accessible, comprehensive, relevant, and up-to-date. Judging by the many favorable reviews we have received from students and professors who have used this book, we feel that we have been generally successful in accomplishing our goal. Our purpose remains unchanged. To that end, we have substantially revised this edition in order to cover all of the basics as well as many other topics that have recently been the subject of substantial debate.

New to This Edition

In addition to updating data and examples, we have made a number of revisions to this edition. The most substantial revisions to the first half of the book are as follows:

- In Chapter 1 we have added discussion of the collapse of international trade in 2009 and its subsequent rebound. Also in this chapter we focus in greater detail on the rise of China as a major participant in international trade flows.
- In Chapter 8 we have updated U.S. commercial policy initiatives and added a trade policy case study on a dispute between the United States and China over tire imports into the United States.
- In Chapter 9 we have provided details on newly concluded and approved free-trade agreements between the United States and several countries. We have also provided a discussion of a recent initiative between the United States and a number of Pacific region countries, known as the TransPacific Partnership.

Changes in the second half of the book represent the most extensive revisions in the history of this manuscript. The overriding goal of these changes is to improve the consistency of voice between the first and second halves of the text. The revisions include the following:

- A reorganization of the material, with the elimination of the introductory chapter found in earlier editions and the movement of the chapter on the international monetary system to an earlier spot in the text. In addition, the two chapters on exchange rates and interest rates found in earlier editions have been combined into a single chapter in this edition. In addition, the chapter on open economy macroeconomics has been simplified to make the material more accessible to students with limited exposure to macroeconomic modeling, and the presentation of the Mundell-Fleming model has been moved to an appendix.
- Chapter 13 of this text covers the international monetary system, past and present. Included in this discussion is a much expanded treatment of the gold standard and the Bretton Woods system.
- Chapter 14 provides a discussion of and develops a model to understand short-run exchange behavior. At the center of this discussion is uncovered interest rate parity. Chapter 15 focuses on longer-run exchange rate behavior, offering extensive treatment of purchasing power parity and the monetary approach to exchange rates.
- Chapter 16 deals with theories of the current account balance, including a discussion of the elasticities model as well as an introduction to the intertemporal model.
- Chapter 17 is devoted to open economy macroeconomics. The body of this chapter shows how a simple open economy Keynesian model can be used to understand some

of impacts of the recent financial crisis on economic activity and on the current account balance.

- Chapter 18 concludes with a treatment of international debt. Included in this chapter is a new Global Insight on the eurozone crisis.

Level of Presentation

We have sought to write a text that covers current developments in international economics but at the same time is accessible to students who may have had only one or two courses in the principles of economics. To that end, we have minimized mathematics and relegated more difficult extensions to appendixes. The book contains a wide range of helpful learning aids, including a marginal glossary that defines new concepts, boxed Global Insights and case studies that present "real-world" counterparts to the ideas being developed in the main text, and a set of exercises at the end of each chapter. Going beyond the text presentation, we have incorporated interesting and timely material from Internet Web sites into exercises that build upon chapter material. At the end of each chapter a WWW icon identifies a reference to the *International Economics* companion Web site, where Internet exercises may be found. The exercises allow a dynamic relevancy not possible in standard textbook approaches. In addition to these features, a *Study Guide* is available to accompany the book. This guide offers a variety of problems and questions aimed at helping the student explore and learn the text material.

Coverage and Emphasis

To give the student a better feel for the issues discussed in the text, we have incorporated an extensive amount of data from the real world. For instance, Chapter 1 is devoted almost entirely to describing national economies and the patterns and directions of international trade. Other tables appear throughout the book. To every extent possible, we have sought to provide the most up-to-date statistics currently available.

Chapter 2 is one of the more unusual chapters to be found in a textbook on international economics. Its purpose is to provide a review of basic general equilibrium analysis, and, in particular, to introduce students to the logic and method of economic model building. The chapter begins with a straightforward analysis of the general equilibrium of a closed economy, using simple production possibility frontier diagrams. It then proceeds to the first description of what it means for an economy to engage in international trade. The next two chapters of the text detail the classical and Heckscher-Ohlin (HO) models of trade, using production possibility frontiers as the chief analytical tool.

Chapter 5 is devoted to empirical tests of the classical and HO trade models. It then goes on to deal briefly with new trade theories, including models involving imperfect competition and increasing returns to scale. Chapter 6 introduces a four-chapter sequence of material on commercial policy with a discussion of tariffs. Strategic trade policy and protection of the environment as justifications for trade protection are discussed in Chapter 7. Chapter 8 provides considerable detail on U.S. trade policy, including trade policy case studies that deal with environmental issues, the recent trade dispute with the European Union (EU) over bananas, and the recent imposition of tariffs on tire imports from China. Also in this chapter is an extended discussion of the WTO and the collapse of the Doha Round talks.

Chapter 9 is devoted entirely to the economics of regional trade agreements. The chapter begins with a standard discussion of the costs and benefits of such arrangements. It then turns to consider both NAFTA and the EU. Chapter 10 completes this section of the book with a treatment of trade and growth and international flows of factors of production.

Chapter 11 covers the balance of payments and uses the national income accounts to illustrate the links between national saving, investment, and the current account. The description of the foreign-exchange market in Chapter 12 goes well beyond the traditional detail found in other texts. A description of the 24-hour nature of the market, including local trading times and trading volumes, is included. Chapter 13 is devoted to a discussion of the international monetary system,

past, present, and future. Chapters 14 and 15 provide solid grounding in the fundamentals with links between between interest rates and exchange rates and between prices and exchange rates discussed in the context of current examples and data. Chapter 16 covers theories of the balance of payments. Chapter 17 focuses on using a simple open economy macro model to understand the impacts of various macroeconomic policies on output and the balance of payments. Chapter 18 covers international banking, sovereign debt, and country risk analysis.

It is our hope that these changes will contribute to a further enhancement of the learning process for our readers. International economics is a dynamic field, and the world is rapidly changing. Our duty as authors is to ensure that our text incorporates all relevant changes at a level suitable for the student.

Alternative Course Emphases

The text is designed to provide sufficient flexibility to be used for a one-term survey of international economics or two separate terms devoted to a more comprehensive study of international trade and international finance. Realizing that individual instructors may have unique preferences regarding material to be presented, we offer the following suggestions:

- For a one-term overview of international economics: Chapters 1–4, 6–9, 11–13, and 17
- For a one-term course in international trade theory: Chapters 1–10
- For a one-term course in international finance: Chapters 11–18

An online *Instructor's Manual* is available to accompany the text, and it provides suggested answers to the end-of-chapter questions. An online *Test Bank* and a *Computerized* Test Bank offer a variety of testing material. The *PowerPoint* presentations incorporate lecture outlines with figures and tables from the book. These resources are available for download from the Instructor's Resource Center at www.pearsoninternationaleditions.com/husted.

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Chapter

1

An Introduction to International Trade

Topics to Be Covered

Characteristics of National Economies
The Direction of International Trade
What Goods Do Countries Trade?

Key Words

Gross national product (GNP)
Gross domestic product (GDP)
Exports
Imports
Index of openness
Trade deficits
Trade surpluses

International economists study fascinating questions. What impact will the global financial crisis have on world trade? Has the recent growth of world trade exacerbated the impact of the crisis? Does growing reliance on international trade lead to a loss of "good" jobs for Americans? Can U.S. firms compete against firms in low-wage countries? What influence does the World Trade Organization (WTO) have over U.S. policy? Why does the United States have such a large trade deficit, and is this deficit harmful to the economy? What is the appropriate value of the dollar? In other words, international economists are concerned with a variety of real-world topics that appear in the news almost every day.

This book provides a comprehensive introduction to international economics. We discuss all of the issues just mentioned. We show you how economists go about investigating these issues. We provide you with a large amount of information on the extent and nature of international commercial transactions. Along the way we attempt to relate the many issues and concepts we encounter to real-world events. Finally, and most important, we attempt to provide you with a simple analytical tool kit that will allow you to study issues such as those mentioned in the preceding paragraph and to weigh future events as they occur.

Recall that when you took Principles of Economics, the course material was divided into two main parts: microeconomics and macroeconomics. In international economics in general, and in this

book in particular, there is a similar division of material. The first ten chapters of this book deal with the theory of international trade (international microeconomics). Of central importance in these chapters is the international exchange of goods and services. Questions of particular interest include the following: Why do nations engage in international trade? What goods do nations trade? How does international trade affect the amount and distribution of jobs and the level of earnings in the economy? Should international trade be regulated by tariffs, quotas, or other barriers, and, if so, to what extent should the regulation occur? And how are countries affected by international flows of labor and capital? In addition to these questions, this part of the book discusses how trade policies are formulated in the United States and elsewhere and describes the various currently existing forms of trading arrangements between countries.

Chapters 11 through 18 are concerned with international finance (or international macroeconomics). The subject matter in these chapters tends to focus on the international exchange of financial assets. Issues that are studied include the balance of payments; the determination of exchange rates; the relationships among exchange rates, prices, and interest rates; international banking, debt, and risk; and the interaction of macroeconomic policies between various nations. Also discussed in these chapters are the evolution of the world's international monetary system and the role of international organizations, such as the International Monetary Fund, in today's international economy.

The purpose of economics is to develop an understanding of the patterns of commercial transactions as well as many of the personal and social interactions that we observe in the real world. International economics focuses its analysis on the commercial interactions between the countries of the world. The goal of international economics is to fashion a theoretical framework that is sufficiently general to allow one to offer explanations of phenomena and to make predictions about the likely outcome of changes in the international environment. Thus, much of the discussion in this book is devoted to developing theories about economic behavior. But theorizing should not be done in a vacuum. It is important to know the facts before we begin. How important is international trade to the nations of the world? Which countries trade with which other countries? What goods do countries trade? The remainder of this chapter is devoted to presenting the factual answers to questions such as these.

CHARACTERISTICS OF NATIONAL ECONOMIES

There are more than 190 countries in the world today. They come in all shapes and sizes. There are large countries with large populations (China, India) and large countries with small populations (Australia, Canada). There are small countries with large populations (Japan) and small countries with small populations (Jamaica, Singapore). No matter what their size, however, there are certain characteristics that are common to all. In each, for instance, there is economic activity. Goods and services are produced, exchanged, and consumed.

Gross national product (GNP)

The value of final goods and services produced by domestic factors of production.

Gross domestic product (GDP)

The value of final goods and services produced within a country.

The extent of economic activity in a country can be measured in many ways. The two most common measures are the **gross national product (GNP)** and the **gross domestic product (GDP)** of a country.* Both GNP and GDP provide estimates of the total value of sales of final goods and services for a given country. And, because sales of goods and services constitute income to those selling these products, GNP and GDP can also be thought of as indicators of total national income. The difference between GNP and GDP has to do with who is producing the goods, and where. GDP refers to production within a country, no matter whether the factors of production (e.g., labor and capital) are domestic or foreign. GNP refers to production by domestic factors, no matter where they are located. Thus, goods produced by Canadians working in factories in the United States would count as part of U.S. GDP but would also be part of Canadian GNP. For most countries there are only very small differences between GNP and GDP.

* World Bank publications now refer to GNP as gross national income (GNI).

That there is any difference at all is because some factors of production (e.g., labor, capital) are internationally mobile. In Chapter 10 we discuss some of the economic implications of international factor mobility.

A crude measure of the standard of living in a country is obtained by the ratio of that country's GNP (or GDP) to its population. This measure is known as the country's *income per capita,* or *per capita GNP (or GDP).* In essence, it tells us how much each resident of a country would have if the value of that country's production was equally divided among all members of society. By this standard, some countries are low or middle income (even though some residents may be rich) while other countries are high income (even though some residents may be poor). In this book countries classified as low or middle income are referred to as *developing or emerging market countries.* Richer countries are identified as *developed* or *industrialized.*

All countries participate in international trade. That is, some goods and services produced within every country are sold to economic agents (e.g., individuals, firms, governments) in other countries; these products are known as **exports**. Some goods and services consumed within a country have been purchased from economic agents in other countries; these goods are known as **imports**.

Exports

Goods sold by economic agents located in one country to economic agents located in another.

Imports

Goods purchased by economic agents located in one country from economic agents located in another.

Countries differ in how much they participate in international trade. A measure of this participation (again, a very crude measure) is given by the ratio of exports to GDP (or GNP) multiplied by 100. This measure is known as the **index of openness**. In general, this number will vary between 0 and 100, although values greater than 100 are possible.* Countries with high values of this index trade a lot with the rest of the world and are said to be relatively *open.* Countries with low values of the index are said to be relatively *closed,* because international trade is only a small part of their economic activity.

Index of openness

A measure of the importance of international trade to an economy, calculated as the ratio of exports over total domestic production.

To understand better the concepts we have presented so far, let's consider some numbers from the real world. Table 1.1 shows the data for a large set of countries. Information is presented on country size in terms of population and area. Also shown are data on GNP per capita (measured in two ways), indexes of openness (exports of goods and services as a percentage of GDP) for 1980 and 2009, and merchandise trade figures (imports and exports for 2009).

Let's explore some of the facts contained in the table. First, note that for each country category, the data are arranged by ascending order of GNP per capita. The poorest countries of the world tend to be located in Africa and Asia. The richest countries tend to be the industrialized countries of Western Europe, North America, and the Pacific Rim. Except for China and India, physical size (land area) and population size appear to have little role in explaining income per capita.

According to the numbers in column 3 of the table, most of the low- and middle-income countries are desperately poor. GNP per capita in some of these countries is less than $500, compared with an average GNP per capita in excess of $34,000 in the high-income countries. In India, for instance, per capita GNP was calculated to be $1,180 in 2009. You may wonder how anyone could survive for one year with such a low income level. Part of the answer to this question lies in the fact that differences in productivity levels and government policies mean that individuals in these countries pay much lower prices for many of the goods and services they consume than people pay in the United States or other developed countries. For example, middle-income citizens of India currently pay about $100 per month to rent an apartment in most cities, and the average man pays between 50¢ and $1.00 for a haircut. Both of these prices are significantly lower than the prevailing prices in the United States. Because standard measures of GNP are based on valuing goods in terms of prevailing market prices, there will be a tendency for GNP measures to be biased downward in countries where prices measured in dollar terms are so low.

* A value greater than 100 means that the country's exports are bigger than its overall level of production (GDP or GNP). Such a situation could occur if much of the economic activity of the country in question involved the assembly and export of final products made from imported raw or partially assembled materials. The value in excess of 100 comes about from the fact that output is (always) measured in terms of value added—the value of capital and labor services devoted in this case to the assembly of goods—while exports are measured in terms of the total value of goods—including the value of the imported parts. Clearly, in such circumstances it is quite likely for exports to be greater than value added.

TABLE 1.1 Basic Characteristics of Selected Countries

			GNP per capita			Index of Openness		Goods & Services	
	2009 Population (millions)	Area (1,000s sq. km.)	2009 ($)	PPP Estimate	Avg. Yearly % Growth 2000–2009	1980	2009	Exports 2009 (millions of $)	Imports 2009
Low-income Economies									
Burundi	8.0	28	150	390	0.2	9.0	4.9	65	410
Malawi	15.0	118	280	760	2.1	25.0	19.3	960	1,600
Ethiopia	83.0	1,104	330	930	5.9	11.0	5.2	1,490	7,310
Niger	15.0	1,267	340	660	0.8	25.0	16.7	900	1,550
Sierra Leone	6.0	72	340	790	6.2	18.0	10.6	205	505
Guinea	10.6	246	370	940	0.5	n.a.	23.9	980	1,400
Madagascar	20.0	587	420	1,050	1.1	13.0	12.7	1,150	2,900
Mozambique	23.0	802	440	880	5.4	11.0	19.9	1,950	3,750
Nepal	29.0	147	440	1,180	1.7	12.0	5.4	680	3,550
Togo	7.0	57	440	850	−0.1	51.0	27.3	780	1,400
Central African Republic	4.0	623	450	750	−1	25.0	5.5	110	300
Rwanda	10.0	26	460	1,060	4.3	14.0	4.0	205	1,750
Uganda	33.0	241	460	1,190	4.3	19.0	22.6	3,560	4,410
Tanzania	44.0	945	500	1,350	4	n.a.	13.7	2,970	6,347
Burkina Faso	16.7	274	510	1,170	2.1	10.0	9.8	800	1,900
Bangladesh	159.0	144	590	1,580	4.3	4.0	16.9	15,081	21,833
Chad	11.0	1,284	610	1,230	7.2	17.0	40.4	2,700	2,100
Mali	13.0	1,240	680	1,190	2.9	15.0	23.3	2,100	2,600
Ghana	24.8	239	700	1,480	3.4	8.0	35.4	5,530	8,140
Benin	9.0	113	750	1,510	0.7	23.0	15.0	1,000	1,800
Kenya	40.0	580	770	1,570	1.8	28.0	14.4	4,335	9,670
Mauritania	3.0	1,026	960	1,960	2.1	37.0	44.9	1,360	1,410
Group Average			**500**	**1,112**	**2.7**	**18.8**	**17.8**	**2,223**	**3,938**
Middle-income Economies									
Pakistan	170.0	796	1,020	2,710	3	12.0	10.6	17,695	31,720
Senegal	13.0	197	1,030	1,790	1.6	27.0	16.7	2,180	5,210
Côte d'Ivoire	21.0	322	1,060	1,640	−1.4	35.0	40.4	9,300	6,500
Nigeria	155.0	924	1,140	1,980	4	29.0	31.1	52,500	3,900
Cameroon	20.0	475	1,170	2,200	1.1	28.0	14.2	3,100	3,800
India	1,155.0	3,288	1,180	3,260	6.4	6.0	11.8	155,249	243,636
Papua New Guinea	7.0	463	1,180	2,270	0.9	43.0	57.4	4,530	3,480
Bolivia	10.0	1,099	1,620	4,260	2.2	25.0	28.0	4,850	4,410
Philippines	92.0	300	1,790	3,540	3	24.0	23.9	38,335	45,802
Honduras	7.0	112	1,820	3,730	2.9	36.0	35.8	5,235	7,830
Congo, Rep.	4.0	342	1,830	2,940	1.7	60.0	65.6	5,700	2,700
Sri Lanka	20.0	66	1,990	4,720	4.6	32.0	17.5	7,360	9,883
Egypt	82.0	1,001	2,070	5,690	3	31.0	11.2	21,150	44,946
Indonesia	230.0	1,905	2,230	4,060	4	34.0	22.2	119,776	91,720
Paraguay	6.0	407	2,270	4,430	1.5	15.0	21.3	3,191	6,940
Guatemala	14.0	109	2,620	4,590	1.3	22.0	20.0	7,360	11,521
Morocco	32.0	447	2,790	4,450	3.8	17.0	15.2	13,848	32,804
El Salvador	6.0	21	3,370	6,360	2.2	34.0	17.1	3,797	7,255
China	1,336.0	9,597	3,590	6,770	10.3	6.0	24.1	1,201,534	1,005,688
Tunisia	10.0	164	3,720	7,820	3.9	40.0	36.5	14,449	19,100
Jordan	6.0	89	3,740	5,840	4.7	40.0	27.9	6,366	14,075
Thailand	68.0	513	3,760	7,640	3.7	24.0	57.8	152,498	133,801
Ecuador	15.0	284	3,920	8,040	3.9	25.0	24.0	13,724	15,093
Peru	29.0	1,285	4,150	8,140	4.7	22.0	21.2	26,885	21,706
Algeria	35.0	2,382	4,420	8,130	2.5	34.0	31.1	43,689	39,103
Dominican Republic	10.0	49	4,510	8,100	4	19.0	11.7	5,460	12,230

	2009 Population (millions)	Area (1,000s sq. km.)	GNP per capita 2009 ($)	GNP per capita PPP Estimate	GNP per capita Avg. Yearly % Growth 2000–2009	Index of Openness 1980	Index of Openness 2009	Goods & Services Exports 2009 (millions of $)	Goods & Services Imports 2009 (millions of $)
Colombia	45.0	1,139	4,930	8,500	3.2	16.0	14.2	32,853	32,898
Bulgaria	8.0	111	5,770	12,290	6	36.0	34.9	16,435	23,300
South Africa	49.0	1,221	5,770	10,060	2.8	36.0	21.9	62,627	71,950
Costa Rica	5.0	51	6,230	10,940	3.4	26.0	30.0	8,777	11,395
Panama	3.0	76	6,710	12,530	5.2	51.0	3.6	885	7,785
Malaysia	27.0	330	7,230	13,530	3.3	58.0	82.2	157,433	123,832
Argentina	40.0	2,780	7,570	14,120	4.4	5.0	18.1	55,750	38,771
Brazil	203.0	8,547	8,040	10,260	2.4	9.0	9.7	152,995	133,609
Romania	21.0	238	8,330	14,460	6.1	35.0	25.1	40,500	54,075
Turkey	75.0	775	8,730	13,730	3.6	5.0	16.6	102,139	140,869
Mexico	107.0	1,958	8,920	14,110	1.2	11.0	26.3	229,707	241,515
Uruguay	3.0	177	9,360	12,910	4	15.0	14.9	5,386	6,907
Russia	142.0	17,075	9,370	18,390	6.2	n.a.	24.7	303,978	191,868
Chile	17.0	757	9,420	13,430	3	23.0	32.4	53,024	42,378
Venezuela	28.0	912	10,150	12,370	3.2	29.0	17.6	57,595	42,220
Group Average			**4,403**	**7,725**	**3.5**	**26.9**	**26.0**	**78,533**	**72,884**
High-income Economies									
Poland	38.0	323	12,260	18,440	4.5	28.0	31.3	134,452	146,626
Hungary	10.0	93	12,980	18,570	3.1	39.0	65.1	83,965	77,550
Slovak Republic	5.0	49	16,130	21,600	5.7	n.a.	63.8	55,933	55,186
Czech Republic	10.0	79	17,310	23,610	3.9	n.a.	59.6	113,319	104,982
Korea	49.0	99	19,830	27,310	3.7	34.0	43.7	363,534	323,085
Portugal	11.0	92	20,940	22,870	0.3	25.0	19.0	43,192	69,238
Israel	7.0	21	25,740	27,040	1.6	44.0	24.5	47,670	49,150
Greece	11.0	132	28,630	28,440	3.2	16.0	6.0	19,886	59,398
New Zealand	4.0	271	28,830	26,430	1.7	30.0	19.9	24,936	25,583
Hong Kong	7.0	1	31,420	44,070	4.6	90.0	153.1	329,739	352,688
Spain	46.0	506	31,870	31,630	1.3	16.0	14.9	218,027	290,240
Italy	59.0	301	35,080	31,330	−0.1	22.0	19.2	404,653	410,385
Singapore	5.0	1	37,220	49,850	4.1	215.0	148.1	269,832	245,785
Japan	128.0	378	37,870	33,280	1	14.0	11.5	580,845	550,679
United Kingdom	62.0	245	41,520	37,360	1.4	27.0	16.1	350,728	479,890
Canada	34.0	9,971	42,170	37,590	1.5	28.0	23.6	315,552	330,268
Germany	82.0	357	42,560	36,960	0.9	n.a.	33.5	1,120,927	931,434
France	63.0	552	42,680	33,980	0.8	22.0	17.9	474,972	551,092
Australia	22.0	7,741	43,770	38,210	1.8	19.0	16.7	154,043	165,471
Ireland	4.0	70	44,310	33,280	2.3	48.0	50.5	114,662	61,871
Belgium	11.0	33	45,310	36,520	1.1	57.0	78.9	369,760	351,035
Finland	5.0	338	45,680	34,430	2.2	33.0	26.4	62,586	60,037
Austria	8.0	84	46,850	38,850	1.5	36.0	35.6	137,217	143,527
United States	307.0	9,364	47,240	46,730	1.2	10.0	7.4	1,056,895	1,603,768
Sweden	9.0	321	48,930	38,560	1.8	29.0	32.2	130,742	118,758
Netherlands	17.0	41	49,350	40,510	1.3	51.0	63.0	498,648	445,802
Switzerland	8.0	41	56,370	41,830	1.2	35.0	34.5	172,742	155,595
Denmark	6.0	43	58,930	37,720	0.8	33.0	30.0	93,102	82,893
Norway	5.0	324	86,440	56,050	1.3	43.0	31.6	120,710	68,506
Group Average			**37,870**	**34,243**	**2.1**	**40.2**	**40.6**	**271,147**	**286,570**

Source: World Bank, *World Development Report 2011* (Washington, D.C.: World Bank) various tables.

Over the past several decades, several international agencies have begun publishing new measures of standards of living that take into account international differences in prices paid for goods and services. In essence, what these numbers do is answer the question, How many dollars would it take in the United States to buy what the average citizen of a country can buy in his or her country at prevailing local prices? At the heart of these measures is an exchange rate concept known as purchasing power parity (PPP); 2009 values of per capita GNP based on PPP exchange rates appear in column 4.* Notice that for the poorest countries in the table, the numbers in column 4 tend to be substantially larger than those in column 3. This indicates that international differences in average standards of living, while still quite large, are not as extreme as the column 3 numbers would seem to indicate. For instance, the conventional measure of India's per capita GNP is $1,180 per year. Using the PPP measure, the standard of living of the typical Indian citizen is $3,260.

Economic Growth

The Great Recession began in the United States in late 2007 and ended in 2009, although unemployment has remained at abnormally high levels into 2012. Since 2007 a number of other countries, primarily in Europe, have also seen economic downturns. Despite this, for most of the countries in Table 1.1, the period 2000–2009 represented an era of relatively strong growth in standards of living. The low-income countries in the table averaged an annual increase in per capita GNP of 2.7 percent (see column 5).† Within this group, growth rates varied considerably, with both negative average annual rates (as low as −1 percent in the Central African Republic) and large positive rates (7.2 percent in Chad, 6.2 percent in Sierra Leone, and 5.9 percent in Ethiopia). Indeed, the most highly populated of the low-income countries (Bangladesh, Ethiopia, and Kenya) all experienced positive annual average growth over the decade. During this period, middle-income countries had the strongest growth rates, averaging 3.5 percent, almost twice the average per capita growth rate in the high-income countries.

Among the low-income and middle-income economies, the most severe negative annual growth rates over the period between 2000 and 2009 occurred in Côte d'Ivoire and the Central African Republic, where per capita GNP fell at rates of 1 percent or more per year. None of the high-income countries experienced negative growth rates over this period, although late in the decade many of the high-income countries in the world saw per capita income levels fall for a year or more. Negative growth in per capita income means that, on average, each individual in society has less income than he or she had in the previous year.

A variety of factors can produce sustained periods of declining standards of living. In 2008, the downturn in the world economy was brought on by a financial crisis that originated in the United States and rapidly spread to many other countries of the world as banks and other financial institutions cut back on lending to businesses and households. With the fall in lending, households reduced purchases and businesses found it increasingly difficult to continue normal activities. In the end, this led to a downward spiral in economic activity, a rise in unemployment, and a loss in income. The slump in the United States began to reverse in 2010 and per capita incomes there have been rising, albeit at a relatively slow pace ever since. As of early 2012, however, many European economies, especially those in the eurozone,

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* For more on the concept of purchasing power parity, see Chapter 15. For more on the use of PPP exchange rates to measure income, see Paul Schreyer and Francette Koechlin, "Purchasing Power Parities—Measurement and Uses," OECD Statistics Brief, March 2002. Available online at www.oecd.org/dataoecd/32/34/2078177.pdf.

† Column 5 reports percentage changes in the ratio of GNP to population. Throughout this text, we will use the notation "^" to denote the percentage change in a variable. For instance, $\hat{x}$ denotes the percentage change in x. If x equals the ratio of two numbers such as per capita GNP (i.e., $x = y/z$ where y = GNP and z = population), a simple approximation rule allows one to determine the rate of growth of x:$\hat{x} = \hat{y} - \hat{z}$. We will make use of this approximation from time to time. In this particular circumstance, the formula states that growth in per capita GNP depends positively on GNP growth but negatively on population growth. If, for instance, GNP is rising by 1 percent but population is growing at 3 percent, then per capita GNP will be falling at 2 percent.

appear to be heading into recession. It is too early to determine whether or not a European recession will spread to the rest of the world.

In some countries, falling per capita GNP is brought on by war (or civil war) in which factories and economic infrastructure (e.g., harbors, public utilities, railroads, airports) are destroyed. In other countries, it may result from declining prices for the commodities (e.g., coffee, copper, cocoa, sugar) on which these economies depend, possibly coupled with misguided government policies aimed at encouraging rapid industrialization. In some countries, negative growth may simply reflect a stagnant economy combined with rapid population growth. No matter the cause, negative growth—especially over long periods—is symptomatic of terrible economic distress.

In contrast, other countries exhibited strong growth over the 2000–2009 period. Several of these countries are located in Eastern Europe, including Bulgaria, Russia, Romania, Poland, and the Slovak Republic. Over the past 20 years, these countries have undergone a remarkable transition, as economic systems that relied on central planning of the production have been dismantled and replaced with private-sector firms. Other countries with strong growth (in excess of 4 percent per year) over this period include Algeria, Argentina, China, Greece, Hong Kong, India, Jordan, Korea, Panama, Peru, Singapore, Sri Lanka, and Thailand.

Why is there a difference in growth rates both within various country groups and between low-income developing economies and high-income developed economies? Economies grow over time because their endowments of factors of production (e.g., labor, capital, and technology) grow, not only in number but in quality. Many economists argue that the main engine of growth is the accumulation of knowledge and skills by workers.* This growth in human capital takes place in schools, in laboratories, and on the job. Investment in plant and equipment that increases physical capital is also important. But what appears to be crucial is that workers function in an environment that requires them to face new challenges and thus to acquire new skills. Such an environment is provided in countries where exports represent a large share of output. The twin challenges of producing goods that will be desired in the global market and competing with producers from other countries for this market place a premium on growth in inventiveness and the continuing acquisition of entrepreneurial, managerial, and technical skills. Without the pressure from outside competitive forces, acquisition of human capital, and thus overall economic growth, may be slow. Hence, it is no surprise that a number of the faster-growing countries in Table 1.1 tend to be more open.

International Trade

International trade has become increasingly important for the world economy. Consider Figure 1.1. There we plot total exports and commodity output (world GDP), measured in real (volume) terms, between 1950 and 2010.† To preserve space, each series of values has been converted into an index number equal to 100 in 1950. As the plot shows, output and exports expanded at roughly the same rates between 1950 and 1960. Beginning in the early 1960s, world exports began to rise much more rapidly than output. In 1973, world exports had risen 500 percent over their level in 1950, while world output was about 200 percent higher. By 1989, world exports were 1,000 percent higher than in 1950, while world output had risen more than 400 percent. As the figure shows, world trade exploded in the 1990s. Between 1990 and 2007, world exports more than doubled. During the same period, world output rose by 56 percent.

What has caused this explosion of world trade? There is no simple answer to the question. One factor that has certainly played an important role has been the reduction in barriers to international trade that has occurred during this period. Barriers to trade include transportation and communication costs. With improvements in technology in these areas, such as

* The argument presented in the remainder of this paragraph is developed more completely in Robert E. Lucas, Jr., "Making a Miracle," *Econometrica* (1993).

† Not included in the export statistics are levels of international trade in commercial services.

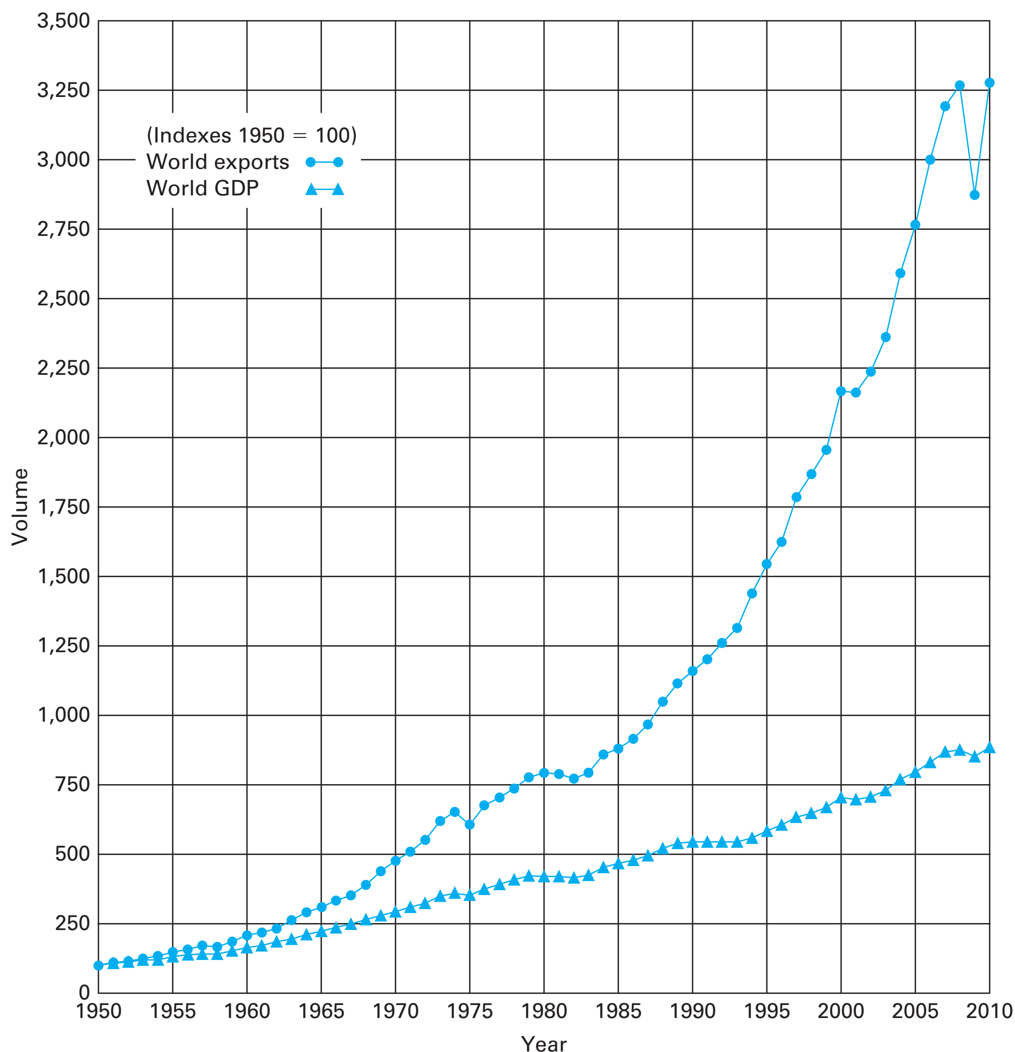

FIGURE 1.1 World Exports and Output in Real Terms: 1950–2010 *Source*: World Trade Organization, *International Trade Statistics 2011*, Table A1.

container ships, supertankers, and satellite telecommunications networks, it is now much easier for sellers in one country to contact consumers in another and to deliver goods to them in a timely fashion.

Barriers to trade also include government-imposed limits on trade, including tariffs and quotas on imports and exports. During the past 40 years, governments around the world, especially in industrialized economies, have entered into a series of multilateral agreements to lower government-imposed barriers to trade. Some of these agreements have been between small groups of countries, such as the formation in 1957 of what is now called the European Union (EU), which has brought virtual free trade across most of Europe. Other agreements, such as the tariff reduction agreements that were reached in the Kennedy Round talks held in the 1960s, the Tokyo Round talks held in the 1970s, and the Uruguay Round talks of the 1980s and early 1990s, have been between a much broader set of countries. These agreements resulted in three successive cuts of over 40 percent in tariff levels of the major industrialized countries. In Chapters 6 and 7 we discuss how tariffs and other policies affect international trade. In Chapters 8 and 9 we