

Chapter 1

INTRODUCTION: GLOBALIZATION AND INTERNATIONAL TRADE

We live in a world that is highly interconnected by a bewildering array of complex economic transactions, social and environmental problems, and international political collaborations and conflicts. Examples from global economics are found in the news everyday. A decision by American policymakers to subsidize the production of ethanol, a form of gasoline containing an additive produced from corn, is seen by many as a key reason that grain prices are high around the world. The spectacular emergence of China as a major exporter of manufactured goods has affected wages in both rich and poor countries. As large corporations, such as Microsoft, Intel, Toyota, General Electric, and Siemens have expanded their investments in affiliates in many nations around the world, they have built global production networks that share technological knowledge across locations to produce increasingly complex goods that could be sold anywhere. Today, a major cultural product, such as a Hollywood movie or a jazz band's latest compact disk, is likely to employ creative personnel from around the world, with various components of the product recorded, mixed or edited in different locations.

The importance of international connections in trade, investment, and skilled services can be illustrated by considering the apparently simple act of making and bringing to market an item of apparel, say a fashionable woolen men's suit. The initial task is to design the suit, a highly creative activity that generally takes place in the headquarters of a major fashion label, such as Armani or Hugo Boss. Beyond that, the firm must locate reliable suppliers of raw wool, which could be farmers in New Zealand, Argentina, Scotland, or elsewhere. The wool needs to be spun into yarn and then woven into finished fabrics, tasks that are likely to be done in low-wage economies with abundant labor, such as Vietnam or Bangladesh, both major centers of fabric manufacture. The fabrics then are shipped to locations where they are combined with such other materials as buttons and zippers into high-quality sewn garments. These locations are most likely to be in somewhat higher-productivity economies, such as China, Malaysia or Mexico and the firms involved typically work as independent sub-contractors to many retailers rather than affiliates of one. The garments are then shipped to brand-name apparel companies, who sell them to high-end department stores and specialty retailers, and to generic trading companies that may ultimately sell them in discount or outlet stores.

This simple story illustrates a number of key factors in global trade and investment. The brand-name firms generally do not engage in actual production. Rather, their role is to design products that will entice consumers to pay for quality and fashion. Indeed, they are rarely involved in managing the international supply chain because their focus is on original design. Thus, there are specialized outsourcing firms that take on this supply management task, becoming an important middle actor in the act of getting suits from raw wool to consumer apparel. One prominent example is Li & Fung Limited, a Hong Kong-based sourcing company with offices in dozens of rich and poor countries and global revenues in 2008 of more than \$14

billion.¹ Its business is to work with thousands of sub-contractors across the world in many industries to have products assembled according to the originating firms' specifications. As such, it is an excellent example of a multinational enterprise, even if unfamiliar to most Americans, Canadians and Europeans. Finally, there are several international trade flows described in this example, with wool moving from New Zealand to Vietnam, yarn moving from Vietnam to Mexico, and garments being transported from Mexico to the United States and Canada for final purchase.

This textbook explains the fundamental determinants and impacts of this extensive international organization of economic activities into trade, investment, outsourcing, and the global use of knowledge. To begin this journey, consider how modern-day globalization came about.

1.1 Sources of Globalization

The concept of globalization has numerous definitions, depending on the subject matter being explained. To international economists it has a simple definition, albeit one with powerful implications. Specifically, globalization occurs when the markets of different countries become more integrated and interconnected through economic transactions that cross national borders. These transactions can be in real merchandise, various forms of services, financial instruments, investments in local production facilities by multinational firms (a process called foreign direct investment, or FDI), temporary and permanent labor migration, and technological information. They can involve individuals, trade between unrelated firms, transactions within international enterprises, and governments. What drives these transactions and how they are organized is endlessly fascinating, and the subject of this book.

It is useful to distinguish among the *sources* of globalization, the *channels* through which transactions occur, and the *effects* such integration seems to have on national economies. Consider first the sources: what causes economies to become more integrated over time? Economists generally focus on three major factors, all of which have been important in spurring more interconnected global markets in the last 60 years.

An obvious first factor is that countries have chosen to become more integrated through successively reducing their restrictions on international trade in goods and services and barriers to foreign investment. Beginning in the late 1940s, a small number of richer countries began jointly to bring down their taxes on imports, called tariffs, through negotiation and renegotiations

¹See Gereffi and Memedovic (2003) for a primer on global production chains in apparel, while the Li & Fung company is described at http://www.lifung.com/eng/business/service_chain.php.

of a treaty called the General Agreement on Tariffs and Trade (GATT).² This process continued through nearly five decades until 1994 when the current World Trade Organization (WTO) was founded. Currently the WTO membership comprises nearly every country in the world and each member must commit to limits on its tariffs while engaging in periodic negotiations to reduce trade restrictions. The GATT and WTO also were instrumental in liberalizing various quantitative barriers to trade, such as import quotas and favoritism in government procurement programs.

More recently, WTO member countries have begun opening their markets to international suppliers of particular services, such as transportation, retailing, insurance, and banking. Even more, both developed and many developing nations have greatly liberalized their rules under which international enterprises are permitted to invest in their markets. It is now easy for firms to locate their affiliates in countries that offer the best combinations of labor skills, public infrastructure, natural resources, and other factors that encourage FDI. Indeed, where 30 years ago many developing countries preferred to make it difficult for FDI to come into their markets, or tried to control it through various requirements imposed on the multinational firms, now nations are more likely to offer various inducements and subsidies to attract such flows. The reason is that FDI frequently brings with it new jobs and improved technology.

The WTO is by no means the only forum through which trade and investment restrictions have been reduced. Many countries chose to liberalize their barriers unilaterally, recognizing that doing so could achieve significant economic efficiency gains and improve consumer welfare and prospects for growth. Others did so under pressure from international institutions, such as the International Monetary Fund and the World Bank, which often attach their lending programs to economic liberalization and trade reforms. Yet another major force toward lower trade restrictions is the proliferation in the 1990s and 2000s of regional preferential trade accords, such as the North American Free Trade Agreement involving the United States, Canada and Mexico, and MERCOSUR, involving Brazil, Argentina, Paraguay and Uruguay. These agreements generally eliminate tariffs on trade within the region and also require relaxation of specific investment barriers.

A second important factor is the remarkable reduction in certain transportation costs in international commerce since the 1950s.³ There are many costs involved in getting products from a factory in one country to customers in another. There are the within-exporter surface transportation costs by railroad or truck to ocean port facilities or airports. These costs have fallen considerably in countries that invested in roads and other transport infrastructure. Similarly, the efficiency of the transit ports, whether by sea or air, matters considerably for

²We discuss trade barriers in chapters 18-20 and the international institutions governing trade and investment in chapters 21-23.

³The importance of transportation costs and other trade costs will be discussed in detail in Chapter 13.

shipping costs. The increasing use of large containers for shipping massive quantities packed tightly has increased this efficiency and encouraged more trade by ocean vessel. Similarly, the powerful jet engines on today's large cargo jets make it capable to ship considerable quantities of goods through the air, especially those products where rapid delivery is crucial.

In addition to these physical factors, transport costs depend on the prices charged for freight services by shipping companies and the premiums paid to insurance firms to cover losses if goods are damaged or destroyed in transit. It is interesting to note that the cost savings from containerization have been considerably offset by limited competition and high charges in the shipping industry over the last few decades.⁴ As a result, a far larger share of world trade now takes place via air freight than was the case 20 years ago, meaning in turn that the speed at which goods are traded has increased considerably.

Shipping costs also depend on access to loans from banks, called trade credits, which are used to pay the short-term charges and then repaid after exporting concerns are paid for the goods they send to importing firms. In the global credit crunch that emerged in 2008 and 2009, the volume of trade credits fell sharply, diminishing what was already a significant decline in foreign trade. For example, a report in March 2009 found that 47 percent of banks surveyed had decreased the amount of letters of credit (short-term loans) for exports between the end of 2007 and the end of 2008, with a marked increase in fees for originating such loans.⁵ A rapid recovery in trade finance is important to avoid a sustained slump in global merchandise trade.

Reductions in shipping costs are an example of the third great source of globalization, changes in technologies that bind international economies closer together. Examples surround us every day. Improvements in telecommunications make it possible for customers in Toronto to talk to technical assistants at a call center in Mumbai to answer questions about the functioning of a computer designed in Texas and assembled in Kuala Lumpur. Powerful computer programs permit consumers to locate desirable products and services that are available over the internet from companies down the block and around the world. A family can now purchase airplane tickets to go abroad and reserve hotels in which to stay on line in a matter of minutes at nearly zero transactions costs, a process that used to take much time and involve a costly travel agent. The same is true for firms looking for high-quality industrial inputs and supplies, which use complex business-to-business information networks to locate global sources.

Important technological improvements also arrive from sources far beyond telecommunications and software. Companies continually invest in research and development (R&D) to improve the quality of their products and make them more distinctive. Just as consumers like to choose from a greater range of products made within their home economies,

⁴See Hummels (2007) for an extensive review of ocean and air freight costs.

⁵International Chamber of Commerce Banking Commission, *Rethinking Trade Finance 2009: an ICC Global Survey*, Paris, March 31, 2009.

they enjoy more variety from international product differentiation and quality improvements. We need only to think of the dramatic expansion in the number and types of wines that are traded among countries now, with varieties from Europe, the United States, Australia, New Zealand, Chile, South Africa and many other locations available in local retail outlets.

Similarly, manufacturing firms and service providers find their costs reduced, or profits increased, as they take advantage of better and more distinctive input supplies from multiple global sources. Consider, for example, the construction of a Boeing 747 passenger aircraft. To assemble this plane Boeing procures inputs from over 200 suppliers of materials, components, airframe systems, avionics, engines, power systems, and production equipment, with many of these companies headquartered in different nations. All are engaged in R&D programs to develop new products, as is Boeing. This symbiosis between technical change and product variety is a critical element in the growth of world trade, as we will see later in the book.

As the Boeing case indicates, a fundamentally important means of efficiently organizing production is to engage in *outsourcing*, or the procurement of inputs and services from firms outside the final producer. Outsourcing refers to contracting with other firms to provide inputs and a specific form contributing to globalization is *offshoring*, or the use of suppliers and sub-contractors from countries other than the headquarters location of the originator firm. In essence, offshoring is the fragmentation of production of a good into different stages across unrelated firms around the globe.

1.2 Channels of Globalization

Falling trade barriers and increasing access to new forms of technology have expanded the possibilities for international transactions of all kinds. In this section we examine trends in the major forms of transactions: international trade in goods and services, portfolio capital flows, foreign direct investment, contracts for technology and labor migration. These are the fundamental means by which citizens and firms of different nations interact with each other economically. They are, therefore, the basic conduits through which integration of markets ties countries more closely together.

Before that consider recent trends in economic growth in selected countries. In Table 1.1 we show, first, that the period from 1980 to 2007, roughly the most recent era of major globalization, saw significant increases in nominal per-capita gross national income (GNI). These figures are stated at so-called purchasing power parity (PPP) exchange rates, which adjust each country's currency value relative to the U.S. dollar to reflect underlying costs of consuming a particular basket of goods and services.⁶ For example, because of high land costs and wages in

⁶ A crude, but effective, annual attempt at computing PPP exchange rates may be found in *The Economist* magazine, which attempts to standardize the consumer cost of a Big Mac hamburger. The most recent Big Mac Index is in the July 16, 2009 edition. For a technical analysis and review, read Rogoff (1996).

western Europe, the costs of living, especially for local services that are not subject to much import competition, tend to be higher than in other nations and the PPP rate adjusts the per-capita GNI downward for those countries. Just the opposite is true in most developing economies, where local services are cheap due to low wages and land prices. In these economies the PPP rate adjusts the per-capita GNI upward.

As noted in the first two data columns of the table, average income in the United States more than tripled in this period, rising from \$12,150 in 1980 to \$45,840 in 2007. This corresponds to about a 4.8 percent annual increase in nominal incomes and purchasing power. The other developed economies in the table experienced somewhat similar percentage increases also, as did Mexico, Brazil and South Africa. However, there were astonishing income expansions in the Asian developing economies, including Singapore, South Korea, China and India. Singapore and South Korea both saw nine-fold increases in their average gross national incomes, rising to \$47,950 in the former case. Indeed, it is no longer sensible to refer to these countries as “developing”; they are both global leaders in finance, innovation and high-technology production. China’s PPP-adjusted nominal average income rose by a factor of 22 in this period, surely the largest such increase for a large economy in recorded history over a 27-year period. India’s rose by a factor of nearly seven.

While increases in nominal incomes are instructive, we should consider also the expansion of real, inflation-adjusted gross domestic product (GDP), which is a measure of how much domestic production capacity grows over time. In the next column of Table 1.1 we see that output growth averaged 3.1 percent in the United States, highest among the developed economies. Japan average 2.3 percent, though this was the result of rapid growth in the 1980s and quite low growth in the so-called “lost decades” of the 1990s and 2000s. As for the developing economies, again there was a sharp distinction between the slower-growing countries (Mexico, Brazil, and South Africa) and the Asian economies, who grew much more rapidly. Indeed, China has averaged 10 percent real economic growth over 27 years, again a historically high figure. South Korea, Singapore and India were not far behind.

These data raise a number of points worth making here. First, countries vary widely in their growth performances. In general, developing economies may be expected to grow faster than richer economies as they catch up in terms of access to technology and capital and as they educate larger shares of their populations. All of these factors raise the productivity and incomes of the catching-up economies, leading to a *convergence* of incomes over time. However, this convergence can arrive at radically different rates, as the incredible growth of the East Asian economies attests. Second, while such data can not establish any linkage between globalization and economic growth, they do pose a fundamental question. Is it possible that those countries that become more rapidly engaged in international trade and investment tend to grow faster? Our overview of trends in international activity should shed some light on this issue.

International Trade

Much of this textbook is concerned with explaining theories of how countries and firms

trade, what types of goods they exchange, and the effects of those activities. To motivate this analysis, consider some basic data on the foreign trade volumes and patterns for selected countries. Continuing with Table 1.1, the fourth and fifth data columns show merchandise trade, which is the sum of all commodity exports plus imports, divided by GDP. This is a common measure of “openness” to international trade, for it indicates how important international trade is relative to the size of the economy. In general, countries that lower their trade barriers would expect to see this ratio rise over time, though there are many other determinants of the relative size of international trade exposure.

These figures demonstrate that for most countries the last three decades have been a period of substantial growth in the importance of international trade. In the United States, for instance, commodity trade grew from 17 percent to 23 percent of GDP. In turn we can conclude that considerably larger shares of employment, income and consumption are now associated with foreign commerce than was true in 1980. In Canada this ratio rose from 48 to 61 percent. The difference in these two countries is easily explained in terms of *market size*, which is a key factor in explaining trade volumes. Canada is a much smaller economy than is the United States. Smaller economies tend to rely more on exports to support production and imports to provide consumption varieties, while larger economies are more diverse. As might be expected, the United States is Canada’s largest trade partner and the sheer size of the U.S. economy supports significant amounts of Canadian trade. This situation holds also for Mexico, which saw its ratio of trade to GDP rise by a factor of 2.7 in this period. Both Canada and Mexico have seen large increases in trade volumes in the period since 1995 when the North American Free Trade Agreement was launched.

Although the UK trade share fell in this period, in Germany it rose from 48 percent to 72 percent. This increase reflects in part the close proximity of that country to its major trading partners in the European Union. Thus, *distance* from markets is another important determinant of international trade prominence. We can see this factor again in Japan, which is a large economy but its significant distance from major markets in North America and Europe imply relatively small trade shares. Australia’s trade is also strongly affected by large distances.

An interesting economy in this context is Singapore, where the value of merchandise exports and imports together are over three times the size of GDP. This is possible because Singapore has long been a center of *entrepot* trade, meaning that goods often come there and are quickly transhipped elsewhere after some local processing. Singapore is a major regional port through which goods are shipped from a source country, such as Indonesia or Malaysia, to a destination country such as the United States or Japan. Both sides of these transactions constitute trade flows for Singapore. Hong Kong, a special administrative region of China, is similar and acts as a transshipment point for Chinese trade.

The data for China again are remarkable. China began its economic modernization reforms in 1978 and has continuously opened its markets to trade, most significantly when it joined the World Trade Organization in 2001. In the 30-year period since 1980 China has seen the ratio of merchandise trade to GDP rise from 20 percent to 68 percent. Given the very rapid

growth of output, this implies a far faster expansion of trade. India has also seen a marked increase, with its ratio of trade to output more than doubling. Both of these economies have greatly reduced their restrictions on trade in this period and both have seen massive increases in international economic activity. Without doubt the entrance of these two countries, with extremely large labor forces engaged in export production, represents one of the most important shifts in world competition in recent times.

The final four data columns of Table 1.1 provide the values of exports and imports in 2007, broken down into merchandise, including agriculture, mining, and manufacturing, and services. In economics services are often referred to as *non-traded goods*, reflecting the notion that many of them are locally provided and do not cross borders. However, trade in such services as transport, tourism, business and engineering services, and electronic offshoring to call centers are all becoming increasingly important. Even medical services, where patients in one country may travel to another for a cheaper surgical procedure or specialized therapy, have grown rapidly since the 1990s. Another example is higher education: tuition payments from foreigner students to American universities amount to tens of billions of dollars each year.

In 2007 the United States exported \$1.162 trillion in merchandise, while importing \$2.020 trillion, leaving a sizeable trade deficit of \$858 billion. While trade imbalances like this are widely discussed in the media, economists point out that trade in services is also important to consider. Thus, the United States had a surplus of \$120 billion in services, leaving an overall *current account* deficit of \$738 billion, still a large figure. In 2007 Germany was the largest single merchandise-exporting country in the world and ran a sizeable trade surplus, though its services trade was nearly balanced. China also exported more goods by value than did the United States, reflecting again its massive labor force and production capacities. Less well-known is that China is a major importer of both goods and services.

To demonstrate that there has been a substantial growth in trade in the first decade of the 21st century, we show the evolution of merchandise exports, imports and the trade balance for the United States, Japan and China in Figures 1A, 1B, and 1C, respectively. China's trade was essentially balanced at around \$250 billion of both imports and exports in 2000. By 2008 it was exporting around \$1.4 trillion and importing \$1.1 trillion.

While aggregate figures are interesting, a key subject for our study is the determination of which products countries tend to export and import. As we shall see, this issue depends essentially on the concept of *comparative advantage*, which arises from the fact that countries are relatively more efficient at producing some goods than others, depending on technology, factor endowments, consumer preferences, and other variables.

The entries in Table 1.2 provide a basic accounting of the major export and import industries for our country sample as a crude measure of comparative advantage as revealed by

trade data.⁷ For example, the data suggest that the United States tends to specialize its exports in crude materials, scientific equipment, industrial machinery, and chemicals. The first industry reflects an abundance of natural resources and forest land, while the others reflect significant endowments of capital, engineering and technology. In contrast, the US import bundle emphasizes petroleum, apparel and textiles, and beverages and tobacco. Clearly, high American wages make it uneconomic to produce labor-intensive textiles and clothing and, indeed, much of that industry has migrated to developing economies.

Similar comments apply to the trade patterns of other countries. Canada and Australia are large net exporters of primary commodities, such as raw materials, food, and petroleum. Japan, Germany and the United Kingdom have export bundles much like that of the United States, while all the developed economies import apparel. Japan imports petroleum and food, reflecting its scarcity of minerals and agricultural land. In contrast, Mexico, Brazil, India and China all are significant apparel exporters, while China also specializes in such miscellaneous manufactures as toys and video games. In general, developed economies tend to export machinery, transport equipment, scientific equipment and other capital-intensive and technology-oriented goods, while developing economies export relatively labor-intensive goods, such as apparel and textiles. This fact suggests there are substantial gains from this sector-based trade among countries to move products from lower-cost locations to higher-cost locations.

Readers should recognize, however, that these calculations are made at a high level of industry aggregation. There are many sub-industries within transport equipment or industrial machinery, for example, and countries export some variants of these goods while importing others. Thus, there is substantial two-way, or *intra-industry* trade masked by these figures. We analyze this important phenomenon in Chapters 12 and 13.

Foreign Direct Investment and Technology

While the growth in international trade since 1980 is impressive, the expansion of foreign direct investment through the global operations of multinational enterprises is what really stands out. Consider the figures in Table 1.3, which show the ratios of FDI stocks to GDP in 1980 and

⁷ In this case revealed comparative advantage (RCA) is calculated as the ratio of a nation's sectoral exports, such as transport equipment, divided by total exports, with that ratio divided by the similar ratio of sectoral imports to total imports. This adjustment essentially neutralizes the fact that if an economy has a large overall trade deficit, for example, that fact will tend to reduce exports relative to imports in all sectors. Thus, a simple comparison across industries of the export-import ratio will be misleading. If the RCA exceeds unity it indicates that in that sector the economy has larger than average net exports, suggesting the economy has an export specialization in the industry. If it is less than unity the sector displays larger than average net imports, or comparative disadvantage. The industry titles in Table 1.2 reflect ratios that are much larger than one as export sectors and ratios much smaller than one as import sectors.

2005.⁸ The inward stock refers to investments in affiliates and subsidiaries in a country owned by foreign enterprises, while the outward stock is just the opposite. For example, Honda Motor Company, a Japanese enterprise, owns a number of assembly factories in the United States and the capital stock in those factories is included in the inward calculation. Microsoft, a U.S.-owned enterprise with headquarters in Seattle, owns many research and distribution facilities abroad.

It is clear from Table 1.3 that the period 1980-2005 saw tremendous growth in globalization through FDI. In the United States, for example, the inward FDI stock rose from three percent of GDP to 13 percent, signaling a very large expansion of MNE operations in that nation. Indeed, in 2005 almost 5.7 million people worked for affiliates of foreign enterprises in the United States.⁹ On the other side, the outward FDI stock rose from 7.8 percent of U.S. GDP to 16.4 percent, while direct employment of American affiliates abroad in 2005 amounted to nearly 11 million jobs. The United States was not alone in this growth. Canada's outward FDI stock nearly quadrupled as a proportion of national output, while Mexico's inward relative stock rose by a factor of 7.6, reflecting a massive shift of production from domestic firms to foreign-affiliated firms. Much of these increases in Canada and Mexico may be attributed to the impacts of NAFTA, which has encouraged rationalization of production throughout North America via international investment.

All of the three European economies saw large increases in their FDI ratios as well. While these trends reflect, in part, globalization of production both into and outside of Europe, to a large extent they are the result of reduced barriers to investment within the European Union and the accession of Eastern European countries to that association. Thus, just as the United States and Canada have expanded FDI into Mexico in search of lower costs, so have companies from the UK, Germany, France and Switzerland shifted production toward the lower-cost east. Switzerland's situation is especially interesting because its outward FDI stock amounts to more than its annual GDP. Switzerland is the classic example of a small, wealthy, and highly skill-abundant nation which is home to design-intensive and technology-intensive companies that shift much of their production activities abroad. Singapore has become an intriguing variant of this case. Its inward FDI stock is 59 percent larger than its GDP. While home to many domestic MNEs, this fact largely is due to global companies from the United States, Japan and Europe locating regional headquarters in Singapore, which then becomes a base for further investments in Asia.

⁸ A "stock" means the accumulated value of past investments, with those investments made further back in the past being discounted due to depreciation. For purposes of understanding the impacts of FDI a stock measure is better than the "flow" measure of the current year's investment, since past expenditures affect current production and employment.

⁹ Detailed data on both U.S. inward and outward FDI and the operations of MNEs may be found at the Bureau of Economic Analysis website:
<http://www.bea.gov/international/di1fdiop.htm>

Japan is unusual among developed economies in still having a fairly small representation of inward FDI. Indeed, the relatively low penetration of global MNEs into the Japanese market has long been a characteristic of that economy and a source of contention between Japanese and U.S. policymakers.¹⁰ It is not entirely clear what explains this fact, though barriers to international investment and takeovers are high. While the figures are higher in South Korea, its inward stock is also small in relation to its economic characteristics.

In contrast the relative expansion of inward FDI in China and India has been extraordinary in this period. From a period of virtually no international ownership in 1980, both countries have greatly reduced their formal restrictions on ownership, at least in certain industries and regions.¹¹ In China a substantial share of this incoming investment is from Taiwan, Malaysia, Canada, Australia and other locations where there are significant populations of Chinese ancestry. These people have successfully established networks of production facilities throughout East Asia, centered on Chinese production.

Also presented in Table 1.3 are figures on technology payments and receipts, which are royalties and license fees charged on intellectual property rights, such as patents, trademarks, copyrights and trade secrets. Thus, for example, the Siemens Corporation, a German-based high-technology firm, earns significant international royalties from selling and licensing rights to use technologies in machinery, electronics, and wind power. As may be seen, these flows have greatly expanded in the period as well, reflecting increasing amounts of global technology transfer, both within MNEs and among unaffiliated firms. The United States is a major net recipient of such revenues because it remains the largest source of newly innovated technologies.

International Labor Migration

The period since 1980 has also seen a substantial increase in global labor migration. In Table 1.4 we present figures for four major destination countries on a standard measure of the international integration of people: the share of population that was born elsewhere. We see immediately the effect of significant inward migration in the United States, with the foreign-born population share rising from 6.2 percent to 12.6 percent. These people come from all over the world but in recent decades the largest shares have come from Central America and the Caribbean, Eastern Europe, East Asia and South Asia. They differ in their characteristics, ranging from relatively unskilled workers entering construction, agricultural and retail jobs, to highly trained medical personnel and software engineers. Most enter legally under certain visa categories, while many illegal entrants may cross the border multiple times during a year. Nearly all seek higher incomes than they earn at home, though some migrants are political

¹⁰ See Prestowitz (1988). This book, written by a former U.S. government official, was alarmist about Japanese growth, which seems quaint in light of that country's subsequent economic problems.

¹¹ Bergsten, et al (2008) discuss the case of China.

refugees and some come to join family members.¹²

All countries have rigorous controls on immigration, though the United States and Canada are among the most open in legal terms. Australia has a long tradition of permitting migration, with recent flows entering primarily from Asian developing economies. Thus, its share of foreign-born in the population rose slightly, from 21.1 percent to 23.8 percent. The UK and Germany tend to be more restrictive than the United States, at least as regards legal immigration from outside the EU. However, the UK has long permitted significant immigration from former colonies, while migrants from Turkey and Southern Europe for many years have entered Germany through guest-worker programs. More recently, members of the European Union have agreed to liberalize restrictions on immigration from anywhere within the EU, resulting in large inflows to the wealthier nations. Thus, as noted in Table 1.4, both the UK and Germany registered significantly higher shares of foreign born in 2005 than 1990.

In an important sense Table 1.4 is misleading for it suggests that labor migration happens generally from poor countries to rich countries. In fact, there are massive migration flows among developing nations also, though again because the migrants hope for better pay and living conditions. Thus, there are large numbers of workers from Bangladesh in India, from the Philippines in the Persian Gulf nations, from Zimbabwe and Lesotho in South Africa, and from Central Asian countries in Russia. International labor migration is truly a global phenomenon.

1.3 Effects of Globalization

This major expansion in the exposure of economies to international transactions is highly controversial precisely because it has substantial impacts on both the well-being of countries and the welfare of individuals within nations. It also fundamentally alters the ways in which societies use resources and make decisions. In this section we highlight some of these impacts in broad terms, leaving analytical treatments to later chapters.

Economists profess almost universal support for free trade, or the complete opening of markets to foreign competition through trade and investment. This attitude comes from the basic logic of competition: free and open trade pushes countries to specialize their resources in those industries and goods where they are relatively most productive. In turn, this specialization generates greater national output and income through trade than would be possible for countries that remain isolated. Just think, for example, how much poorer the United States would be if each individual state were walled off from trading with other states. Florida would have to produce its own wheat and Nebraska its own oranges, or else they would go without. Similarly in Europe: if investors in Italy were prevented from using brokers in Switzerland the financial sector would be fragmented and unproductive rather than concentrated and efficient. Indeed, this simple but powerful concept of specialization is the foundation on which international economists build their essential claim: globalization tends to raise aggregate incomes and overall

¹² The economics of labor migration are discussed in Chapter 18.

living standards in all countries. Countries become more productive because they concentrate their production in areas of true advantage.

As we shall see in the text, there are numerous other reasons why we might generally expect globalization to generate aggregate benefits to a country that embraces open trade. First, being open to trade permits consumers to take advantage of the greater variety of goods available than would exist in a closed domestic market. This process permits more choice regarding qualities and prices, while reducing the cost to households of achieving a given level of consumption benefits. Similarly, domestic enterprise gain access to a wider variety and quality range of inputs they can put into their production processes, thereby raising productivity.

Second, globalization expands the size of markets into which domestic producers can sell their goods as exports, giving them more opportunities to benefit. A recent study of the impacts of Vietnam's 1993 decision to eliminate its restrictions on exporting rice found substantial income gains for that country's rice producers, with a significant reduction in rural poverty and reduction in the use of child labor.¹³ Third, foreign competition often breaks down inefficient domestic monopolies, bringing prices down closer to the cost of production and making consumers better off.¹⁴ For example, in numerous developing countries the decision in the 1990s to open their telecommunications industries to international entry has dramatically expanded the range of services for domestic consumers. A related outcome is that greater exposure to global competition often forces inefficient domestic firms to reduce their output or even shut down if they cannot invest sufficiently in greater productivity to compete. Economists think of this *rationalization* of production as a benefit, for it releases labor and capital from inefficient use into more productive firms or new investments.¹⁵ It is the globalization equivalent to the familiar concept of *creative destruction* through competition and innovation.

A further form of significant gains from globalization arrives from the information content of imports, FDI and licensing. Imported capital goods may be more efficient than those produced domestically. Multinational enterprises and licensed joint ventures typically bring with them more advanced technologies or superior means of production that often result in higher productivity in domestic firms. These "spillovers" may happen in a variety of ways, including simple copying of technologies and products, the leaking of such information as engineers change jobs, and the sharing of technical standards between the multinational firm and its input suppliers.¹⁶

¹³ See Edmonds and Pavcnik (2005).

¹⁴ This idea finds significant support in a famous study of Turkish trade liberalization by James Levinsohn (1993).

¹⁵ A good example is a recent study of how Tunisia's proposed liberalization of its closed service sectors would generate large welfare gains of this kind. See Konan and Maskus (2005).

¹⁶ Keller (2004) provides an extensive review of this question.

Finally, economists often note the large economic gains that are realized through international labor migration. The most obvious winners are the migrants themselves, who typically make far higher incomes in the countries to which they move, such as the United States and Germany, than they could at home in Mexico, Central America, Africa and South Asia.¹⁷ These migrants send billions of dollars or euros back to their home families in the form of *remittances*, which form a major source of income there and help poor households save and accumulate productive assets. For example, a recent study found that global value of workers remittances exceeded \$100 billion by 2005, which far exceeded the entire flow of financial aid from rich to poor countries.¹⁸ In five countries in Latin America, these remittances accounted for more than 10 percent of gross national income. Another benefit of migration is that skilled workers bring technical expertise that may be needed in destination countries. In the United States, for example, foreign software engineers are in high demand among firms in the information technology sector.

Benefits of this kind from openness to trade and investment are significant and well documented across a wide range of country experiences. They are sufficiently powerful that a number of economists write spirited defenses of globalization and strongly resist attempts to reduce the momentum toward tariff cuts and investment liberalization.¹⁹

This positive view of international trade surely cannot be the entire story, however, since there are frequent news items about people losing their jobs to import competition or outsourcing and entire towns being devastated by the closure of manufacturing plants that were primary employers. Many analysts at certain non-governmental organizations (NGOs) argue that because farmers in poor countries cannot compete with subsidized agriculture in Europe and the United States, greater trade exposure forces them to leave their land and raises rural poverty. Others note that the increased economic activity caused by expanding flows of trade and investment places excessive stress on the use of natural resources, generates more pollution and contributes to climate change. Indeed, a number of prominent economists now wonder if a global policy of free trade is causing more harm than good.²⁰

¹⁷ For example, Winters (2004) calculates that if governments in the developed countries would increase their quotas on the inward migration of both skilled and unskilled temporary workers up to three percent of their labor forces, the global welfare gains would be more than \$150 billion per year. The effects of migration are discussed in detail in Chapter 18.

¹⁸ See Jennings and Clarke (2005).

¹⁹ Two excellent examples are the books *In Defense of Globalization* by Jagdish Bhagwati (2004) and *Why Globalization Works* by Martin Wolf (2004)..

²⁰ Two important books along this line are *Has Globalization Gone Too Far?* by Dani Rodrik (1997) and *Fair Trade for All: How Trade Can Promote Development* by Joseph E. Stiglitz and Andrew Charlton (2005).

Globalization, therefore, is an extraordinarily powerful and complex phenomenon with multiple sources, carriers, and impacts. Our goal in this text is to provide a consistent and advanced analytical treatment of international trade and factor flows in order to provide a sound framework within which to study this complexity. For example, trade and technological change can have substantial effects on the distribution of income across types of workers, regions within countries, and across countries. In general, openness favors workers, land and capital that are capable of producing high-quality goods for export. It tends to worsen the lot of individuals and regions that produce goods and services competing closely with imports, inward FDI, and immigrants. In many countries in both the developed and developing world these impacts seem to make the distribution of income more unequal over time.

Furthermore, globalization is heavily criticized because greater international integration can interfere with the attainment of deeply held social preferences. A country or village, for example, may find its culture being changed to be more like international practices that appeal to the bulk of consumers but are disliked by some. Thus, France and Canada have specific policies in place to prevent foreign media such as Hollywood movies and American television programs from overwhelming their cultural industries. Peru, India, and other developing nations recently have adopted legislation to protect their plant resources, traditional folklore and cultural traditions from unwanted use by international firms.²¹

Others are concerned because globalization, despite the economic opportunities it provides, brings people in different countries into closer contact and that can spread problems around the world more rapidly. The H1N1 “swine flu” virus is a good example. Perhaps more relevant is the economic contagion that is associated with financial crises. The global downturn of 2008-2009 was launched by the bursting of the housing bubble in the United States but diffused rapidly into the rest of the world through integrated investment markets. Finally, countries may worry that globalization pressures governments to choose policies that are not necessarily perceived to be in the national interest. Such changes may be mandated by the rules of the World Trade Organization or other international institutions, for example. Or they may be adopted by governments competitively in order to attract multinational enterprises looking to reduce production costs. A “race to the bottom” in tax policy and environmental regulations is often alleged to accompany globalization of investment, though evidence of it is elusive.²²

1.4 Can Globalization Be Reversed?

These are powerful objections to the idea that free trade is the most beneficial policy a country can pursue. They underlie the fact that, even though economists overwhelmingly prefer open markets, other people are reluctant to embrace that idea and sometimes actively oppose it.

²¹ *Mulan* is a Disney movie based on an ancient Chinese story – should anyone in China have been able to prevent this movie from being made or to demand compensation?:

²² See Basinger and Hallerberg (2004) and Dasgupta et al. (2002).

For instance, consider the following question asked in a *Wall Street Journal* poll late in 2007:

“Do you think the fact that the U.S. economy has become increasingly global is good because it has opened up new markets for American products and resulted in more jobs, or bad because it has subjected American companies and employees to unfair competition and cheap labor?”

In June of 2007 42 percent of Americans surveyed thought globalization was good while 48 percent answered that it was bad. By December of that year, in the wake of extensive media coverage of job offshoring, manufacturing plants shutting, rising income inequality and emerging uncertainty about the economy, only 28 percent answered that it was good and 58 percent said globalization was harmful.²³ Attitudes can change quickly.

In this context, we might wonder whether recent globalization is sustainable or might actually be reversed as political pressures mount against it. To consider this question it is interesting to delve into a bit of history. The current era of rapid international integration is unprecedented in its scale and scope, primarily because of the role of information technologies and the entry of vast new populations from China, India and other developing economies into global competition. But it has important historical roots.

Indeed, the period from 1980 to now is sometimes referred to as the Third Wave of globalization.²⁴ The First Wave happened from 1870 to around 1915 and was in many ways just as remarkable as the current epoch. It largely involved the industrialized economies of Western Europe and the “new world” agricultural economies of the United States, Canada, Australia, and Argentina. In this era vast new tracts of farmland were opened in the new world, with the commodities being exported in great volumes to Europe. One effect was a steady decline in crop prices and farm incomes in Europe, pushing rural workers off the land. At the same time, the United States was becoming an industrial power because its low wages encouraged production of textiles, apparel, footwear, and other labor-intensive goods. Millions of workers in the “old world” of Europe were forced off the land and out of factories in Germany, Italy, Greece, Ireland, Scandinavia and elsewhere. Many of them migrated across the ocean. Further, the abundant land in North America and Australia attracted large capital flows from Europe to finance the construction of railroads, ports, and factories.

²³ “Americans’ Anti-Global Turn May Stir Race for President,” *Wall Street Journal* December 20, 2007.

²⁴ For detailed discussion, see World Bank (2002) and Bordo, Taylor and Williamson (2003).

These flows were sizeable in every dimension. Thus, for example, by 1910 the ratio of world merchandise exports to global output reached about 35 percent, approximately the same as it is today. The foreign capital stock mounted to nearly nine percent of GDP of the then-developing economies, such as the United States, Canada, and Australia. And the number of immigrants who became legal permanent residents in the United States averaged nearly 1 million persons per year in the decade 1905-1914, peaking at 1,285,349 in 1907.²⁵ These figures are quite comparable to the approximately 1 million new legal residents per year since 2000, but represented a far-higher proportion of the labor force in the early 20th century.

Thus, the period 1870-1915 was also a remarkable era of globalization, with similar effects: rising incomes overall, rapidly increasing inequality, particularly harming the unskilled workers in Europe, and a shift of manufacturing capacity from high-wage to low-wage locations. This epoch was critical for the industrial development of the United States and Canada.

However, this first wave was rapidly reversed after 1915 and subsequently global integration collapsed. By 1932 world exports had fallen to just five percent of GDP, while legal immigration into the United States collapsed to just 23,068 persons in 1933. The reasons were straightforward. World War I (1914-1918) greatly disrupted normal trade relations and many of the European economies never really recovered in the 1920s. The onset of the Great Depression of the early 1930s induced massive increases in barriers to trade, investment and migration. The most notorious episode was the passage into law in the United States of the Tariff Act of 1930, widely known as the Smoot-Hawley Tariff Act. This bill sharply raised tariffs on 200,000 imported goods as the United States attempted to push rising unemployment onto foreign labor markets. Other major trading partners quickly retaliated with their own tariff increases, a process that some think contributed markedly to bringing on global depression.²⁶ At the same time, major countries greatly restricted the number of visas available for migration. Protectionism was the watchword of the day, with declining integration the result.

This was a lesson painfully learned. After World War II (1938-1945), several countries in Western Europe joined the now-developed United States, Canada, Australia and other economies to establish a global system for integration that might preclude another episode like it. Thus was established the International Monetary Fund, the World Bank and, most significantly for this course, the General Agreement on Tariffs and Trade (GATT), which became the World Trade Organization in 1995. The GATT engineered several rounds of tariff cuts among the developed countries and reduced some barriers to investment flows. Under this cooperative approach trade and investment again expanded,

²⁵ Immigration data are from Migration Policy Institute.

²⁶ See Kindleberger (1973) for an insightful history.

generating the Second Wave of globalization from 1950 to 1980, although the figures were modest compared to those in the current Third Wave.

Given this history, can modern globalization be reversed? Much depends on how politicians react to the economic downturn of 2008-2010, the impacts of higher unemployment, and popular resentment of income inequality. By 2009 there were unmistakable signs of an increasing tendency toward protectionism, including higher tariffs in many developing economies, government purchasing laws that favored domestic production, and restrictions on the ability of international firms to take over domestic enterprises in particular countries.²⁷ Perhaps the most worrying sign is the chronic inability of the WTO member countries to conclude the long-standing Doha Round of trade negotiations.

At the same time, there are three major differences in the world of today compared to that of the early 20th century, all of which argue that globalization is sustainable. First, modern globalization is, for the first time, truly global. With the exception of parts of sub-Saharan Africa, most of the developing world has engineered significant trade and investment liberalization. As a result their economies have become more dependent on export markets and imported technologies. This global integration makes it less likely that countries will reverse course. Second, the major growth of global production networks through multinational enterprises and the use of information technology and telecommunications means that large companies are more global than national in character now. As a result, they are more likely to oppose protectionism than support it, for political attempts to preserve jobs in one country are likely to raise costs of operations in others. Finally, virtually all nations of the world are members of the WTO, which places restrictions on their ability to raise trade and investment barriers unilaterally, as we discuss in Chapter 24. Unless that institution collapses there is unlikely to be a significant reversal into protectionism.

1.5 Summary

With this background, we begin our exploration of international trade theory and policy. We will illuminate and deepen the understanding students have of the trends discussed in this chapter by relying on a strongly analytical approach, backed up by a review of important empirical evidence. By the end of the textbook students should have a solid grasp of the modern analytics of international trade, investment, and global policymaking.

²⁷ These trends are documented by an association called Global Trade Alert, with updates available at <http://www.globaltradealert.org>.

References

Basinger, Scott J. and Mark Hallerberg, 2004, "Remodeling the Competition for Capital: How Domestic Politics Erases the Race to the Bottom," *American Political Science Review*, vol. 98, 261-276.

Bergsten, C. Fred, Charles Freeman, Nicholas R. Lardy and Derek J. Mitchell, 2008, *China's Rise: Challenges and Opportunities*, (Washington DC: Peterson Institute for International Economics).

Bhagwati, Jagdish, 2004, *In Defense of Globalization*, (Oxford: Oxford University Press).

Bordo, Michael D., Alan M. Taylor and Jeffrey G. Williamson, editors, 2003, *Globalization in Historical Perspective*, (Chicago: University of Chicago Press).

Dasgupta, Susmita, Benoit Laplante, Hua Wang and David Wheeler, 2002, "Confronting the Environmental Kuznets Curve," *Journal of Economic Perspectives*, vol. 16, 146-168.

Edmonds, Eric and Nina Pavcnik, 2005, "The Effect of Trade Liberalization on Child Labor," *Journal of International Economics*, vol. 65, 401-441.

Gereffi, Gary and Olga Memedovic, 2003, *The Global Apparel Value Chain* (Vienna: United Nations Industrial Development Organization).

Hummels, David, 2007, "Transportation Costs and International Trade in the Second Era of Globalization," *Journal of Economic Perspectives*, vol. 21, 131-154.

Jennings, Allen and Matthew Clarke, 2005, "The Development Impact of Remittances to Nicaragua," *Development in Practice*, vol. 15, 685-691.

Keller, Wolfgang, 2004, "International Technology Diffusion," *Journal of Economic Literature*, vol. 42, 752-782.

Kindleberger, Charles P., 1973, *The World in Depression, 1929-1939*, (Berkeley: University of California Press).

Konan, Denise and Keith E. Maskus, 2006, "Quantifying the Impact of Services Liberalization in a Developing Country," *Journal of Development Economics*, vol. 81, 142-162.

Levinsohn, James, 1993, "Testing the Imports as Market Discipline Hypothesis," *Journal of International Economics*, vol. 35, 1-22.

Prestowitz, Clyde, 1988, *Trading Places: How We Are Giving Our Future to Japan and How to Reclaim It*, (New York: Basic Books).

Rogoff, Kenneth, 1996. "The Purchasing Power Parity Puzzle," *Journal of Economic Literature*, vol. 34, 647-668.

Rodrik, Dani, 1997, *Has Globalization Gone Too Far?* (Washington, DC: Institute for International Economics).

Stiglitz, Joseph E. and Andrew Charlton, 2005, *Fair Trade for All: How Trade Can Promote Development*, (Oxford: Oxford University Press).

Wolf, Martin, 2004, *Why Globalization Works*, (New Haven: Yale University Press).

Winters, L. Alan, 2004, "The Economic Implications of Liberalizing Mode 4 Trade," in Aaditya Mattoo and Antonia Carzaniga, editors, *Moving People to Deliver Services*, World Bank and Oxford University Press.

World Bank, 2002, *Globalization, Growth and Poverty: Building an Inclusive World Economy* (Oxford: Oxford University Press).

Figure 1A. USA Exports, Imports, and Trade Balance

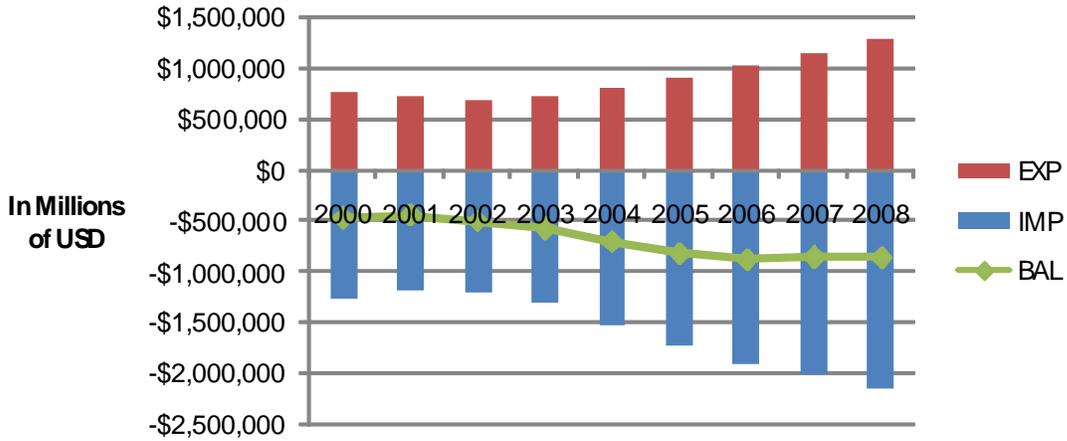


Figure 1B. Japan Exports, Imports, and Trade Balance

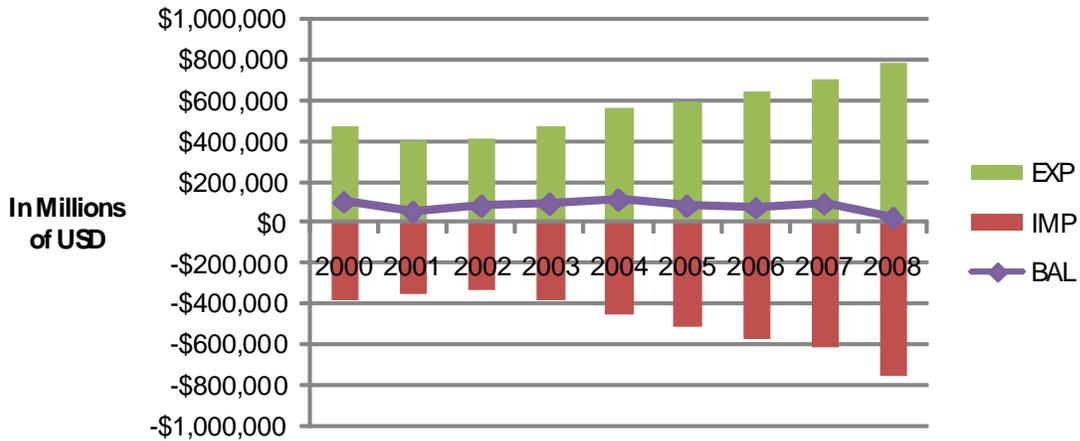


Figure 1C. China Exports, Imports, and Trade Balance

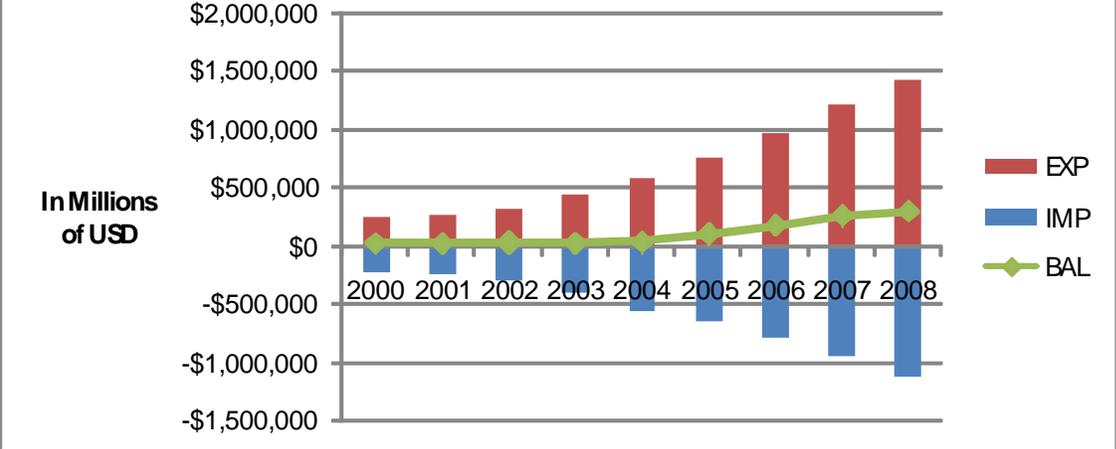


Table 1.1 Figures on International Trade									
	GNI per capita (PPP)		Average	Total Merchandise		Exports (\$billion)		Imports (\$billion)	
	1980	2007	Real GDP	Trade (% of GDP)		Goods	Services	Goods	Services
Country	1980	2007	Growth %	1980	2007	2007	2007	2007	2007
United States	\$ 12,150	\$ 45,840	3.1	17	23	\$ 1,162	\$ 456	\$ 2,020	\$ 336
Canada	\$ 10,770	\$ 35,500	2.8	48	61	\$ 419	\$ 61	\$ 390	\$ 80
Mexico	\$ 3,830	\$ 13,910	2.6	21	56	\$ 272	\$ 18	\$ 296	\$ 24
United Kingdom	\$ 8,210	\$ 34,250	2.5	42	38	\$ 438	\$ 273	\$ 620	\$ 194
Germany	\$ 9,870	\$ 34,740	2.0	48	72	\$ 1,326	\$ 206	\$ 1,059	\$ 250
Australia	\$ 8,990	\$ 33,400	3.3	30	37	\$ 141	\$ 40	\$ 165	\$ 38
Japan	\$ 8,920	\$ 34,750	2.3	26	30	\$ 713	\$ 127	\$ 621	\$ 149
South Korea	\$ 2,600	\$ 24,840	6.7	62	75	\$ 371	\$ 62	\$ 357	\$ 83
Singapore	\$ 6,720	\$ 47,950	7.0	370	349	\$ 299	\$ 67	\$ 263	\$ 70
China	\$ 250	\$ 5,420	10.0	20	68	\$ 1,218	\$ 122	\$ 956	\$ 129
India	\$ 420	\$ 2,740	6.1	13	31	\$ 145	\$ 90	\$ 217	\$ 77
Brazil	\$ 3,500	\$ 9,270	2.4	19	22	\$ 161	\$ 23	\$ 127	\$ 35
South Africa	\$ 3,930	\$ 9,450	2.4	56	57	\$ 70	\$ 13	\$ 91	\$ 16

Sources: World Bank, *World Development Indicators*, World Trade Organization, *Trade Statistics*.

Table 1.2 Indicators of Comparative Advantage, 2007		
Country	Major Net Export Goods	Major Net Import Goods
United States	MATERIALS; SCI EQUIP; IND MACH; CHEMICALS	PETROLEUM; APPAREL; BEVERAGES
Canada	MATERIALS; PETROLEUM; EDIBLE OILS	APPAREL; ELECTRICAL MACHINERY; BEVERAGES
Mexico	BEVERAGES; PETROLEUM; APPAREL; TRANSP	EDIBLE OILS; CHEMICALS; SCI EQUIP; IND MACH
United Kingdom	IND MACH; CHEMICALS; BEVERAGES	APPAREL; FOOD; EDIBLE OILS
Germany	TRANSP; IND MACH; SCI EQUIP	PETROLEUM; EDIBLE OILS; APPAREL
Australia	MATERIALS; FOOD; BEVERAGES	APPAREL; TRANSP; IND MACH; ELEC MACH
Japan	TRANSP; IND MACH; SCI EQUIP	PETROLEUM; APPAREL; FOOD; BEVERAGES
Korea, Rep.	TRANSP; SCI EQUIP; ELEC MACH	EDIBLE OILS; FOOD; MATERIALS; PETROLEUM
Singapore	CHEMICALS; MISC. MFG.	FOOD; TRANSP; APPAREL
China	APPAREL; MISC. MFG; FOOD	MATERIALS; PETROLEUM; EDIBLE OILS
India	APPAREL; MISC. MFG; FOOD; BEVERAGES	EDIBLE OILS; PETROLEUM; IND MACH; SCI EQUIP
Brazil	MATERIALS; FOOD; BEVERAGES; APPAREL	SCI EQUIP; ELEC MACH; CHEMICALS; PETROLEUM
South Africa	MATERIALS; BEVERAGES; FOOD	EDIBLE OILS; ELEC MACH; SCI EQUIP

Source: United Nations Conference on Trade and Development, *Comtrade Country Profiles*, 2-digit SITC Revision 3.
Apparel = textiles, apparel and footwear; Beverages = beverages and tobacco; Chemicals = chemical products and pharmaceuticals; Edible Oils = animal and vegetable fats and oils; Elec Mach = electrical machinery and computers; Food = agricultural and manufactured food products; Ind Mach = industrial machinery; Materials = crude materials; Misc Mft = miscellaneous manufactured products; Petroleum = oil and natural gas; Sci Equip = scientific and photographic equipment; Transp = transportation equipment and motor vehicles.

Table 1.3 Foreign Direct Investment Stocks and Technology Payments and Receipts								
	Inward Stock/ GPD		Outward Stock/ GDP		Technology Receipts (\$m)		Technology Payments (\$m)	
Country	1980	2005	1980	2005	1981	2005	1981	2005
United States	3	13	7.8	16.4	\$ 7,284	\$ 74,826	\$ 650	\$ 31,851
Canada	20.4	31.6	8.9	35.3	\$ 157	\$ 2,474	\$ 416	\$ 1,222
Mexico	3.6	27.3	0.1	3.6	\$ 33	\$ 180	\$ 274	\$ 2,094
UK	11.8	37.1	15	56.2	\$ 965	\$ 30,676	\$ 798	\$ 14,867
Germany	3.9	18	4.6	34.6	\$ 934	\$ 34,307	\$ 1,479	\$ 29,756
Switzerland	7.9	46.9	20	107.4	na	\$ 9,799	na	\$ 10,900
Australia	7.9	29.8	1.4	22.5	\$ 14	\$ 2,578	\$ 143	\$ 3,566
Japan	0.3	2.2	1.8	8.5	\$ 794	\$ 18,403	\$ 1,177	\$ 6,385
RoK Korea	2.1	8	0.2	4.6	na	\$ 1,625	na	\$ 4,525
Singapore	52.9	158.6	31.7	94.1	na	na	na	na
China	0.5	14.3	0	2.1	na	na	na	na
India	0.2	5.8	0	1.2	na	na	na	na
Brazil	7.4	25.4	16.4	9	na	na	na	na
South Africa	20.5	29	7.1	16.1	na	\$ 45	na	\$ 1,071

Sources: United Nations Conference on Trade and Development, *World Investment Report*, 2004 and 2006 editions; Organization for Economic Cooperation and Development, *Technology Balance of Payments*.

Table 1.4 Foreign-Born as Percentage of Population				
Country	1980	1990	2000	2005
United States	6.2	7.9	11	12.6
Germany	9.5	10.1	12.5	12.9
United Kingdom	6.2	6.7	7.9	9.7
Australia	21.1	22.8	23.0	23.8

Source: Organization for Economic Cooperation and Development