INTERNATIONAL FACTOR MOVEMENTS

LEARNING OBJECTIVES

LO1   Identify the different types of foreign investment and the welfare effects of capital movements.

LO2   Summarize the determinants of foreign direct investment and the associated costs and benefits.

LO3   Explain the motivation for labor migration and its effects on participating countries.

LO4   Describe the size and importance of international remittances.

INTRODUCTION

In this chapter, we step away from international trade in goods and services to examine the international movements of factors of production—capital and labor. The theoretical literature has long assumed that factors of production are mobile within countries, but it has also traditionally assumed that factors of production do not move between countries. This second assumption is patently false in today's world, as we are constantly made aware of the movement of investment and labor from one country to another. We need only to note, for example, that the alleged threat of domination of the Canadian economy by American firms operating within Canada has been an issue in Canadian parliamentary elections, or that controversies continue on the effect on U.S. workers of capital flows from the United States to Mexico following the 1994 implementation of the North American Free Trade Agreement (NAFTA). In addition, the constant concern in the United States about illegal immigrants from Mexico reflects the anticipated impact of large-scale labor mobility. Further, developing countries are seeking ways to restrain the outflow of skilled labor (the "brain drain"). This chapter seeks to provide an economic overview of causes and consequences of capital and labor flows. We first describe the current nature of international capital movements, discuss the principal factors that influence international investment decisions, and analyze the various effects of such investment. This is followed by a discussion of the causes and impacts of labor migration between countries.

INTERNATIONAL CAPITAL MOVEMENTS THROUGH FOREIGN DIRECT INVESTMENT AND MULTINATIONAL CORPORATIONS

Foreign Investors in China: "Good" or "Bad" from the Chinese Perspective?[1]

Few, if any, countries have ever experienced the kind of rapid economic growth that China has achieved from the end of the 1970s until the present time. World Bank data indicate that the annual average rate of increase in gross domestic product was 10.6 percent from 1990 to 2000 and 10.9 percent from 2000 to 2009. The growth rate in 2010 was 10.4 percent. These are growth rates that yield a doubling of GDP in every seven years! While China's 2010 per capita income level of $4,270 was still very low compared with that in high-income countries (e.g., per capita income in the United States in 2010 was $47,390), the growth rate was extraordinarily impressive. When allowance is made for the actual internal purchasing power of the Chinese yuan in terms of goods and services and then converting to dollars, China's per capita income in 2010 was $7,640 rather than $4,270 and the country's *total* GDP in 2010 was $10.2 trillion. This total GDP was the second largest in the world, after the $14.6 trillion GDP of the United States. (Note: The data refer to mainland China, exclusive of Taiwan and also exclusive of the separate high-income administrative region of Hong Kong.)

While there have been many causes of this rapid growth, the general emphasis by economists has been placed on the liberalization of the economy that began in 1978 and featured the continuous introduction of market-oriented reforms, including greater participation in international trade. Also included in the liberalization has been the permitted entry of more foreign investors into manufacturing; such foreign direct investment has increased dramatically. The foreign investment has been especially important in the emergence of the strong export sector—China has become the top merchandise exporting country in the world in recent years—because about one-half of Chinese exports come from firms in which foreign investors have at least some ownership share.

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[1]This discussion draws on material from the following sources: Lee G. Branstetter and Robert C. Feenstra, "Trade and Foreign Direct Investment in China: A Political Economy Approach," *Journal of International Economics* 58, no. 2 (December 2002), pp. 335–38; "Out of Puff: A Survey of China," *The Economist,* June 15, 2002, p. 13 (survey follows p. 54); "The Real Leap Forward," *The Economist,* November 20, 1999, pp. 25–26, 28; "Troubles Ahead for the New Leaders," *The Economist,* November 16, 2002, pp. 35–36; World Bank, *World Development Indicators 2011* (Washington, DC: World Bank, 2011), p. 194; World Bank website, http://data.worldbank.org.

Should China have allowed foreign investment to come into the country in such large volume? In this chapter we analyze general economic causes and consequences of flows of capital and labor across country borders, but the Chinese case has an unusual twist that illustrates that the decision to allow foreign investment cannot be entirely economic. In an article entitled "Trade and Foreign Investment in China: A Political Economy Approach" in the December 2002 *Journal of International Economics,* economists Lee Branstetter and Robert Feenstra examined determinants of foreign direct investment (FDI) into China during the years 1984–1995. Policies played a critical role in attracting FDI, and the policies varied by province (of which China has 30). In 1979, Guangdong and Fujian provinces on the southeast coast became sites of "special economic zones" that gave favorable tax and administrative treatment to foreign firms (more favorable treatment than to domestic Chinese firms). This favorable treatment successfully enticed foreign investors but, because the authorities did not want to endanger already-existing Chinese heavy industry, these zones were not located in China's developed industrial areas of that time. In 1984, other areas along the coast were also permitted to give special treatment to foreign investors. In 1986, further rules permitting special tax treatment throughout China were adopted, although local regions still had regulatory powers of their own.

Branstetter and Feenstra were concerned with ascertaining the factors that influenced the Chinese, by province, in their decisions regarding the allowance of greater foreign investment. In particular, the Chinese planners were hypothesized to be trading off the benefits of increased foreign direct investment (as well as increased international trade) against the losses that would be incurred by state-owned enterprises (SOEs) if foreign investment entered and, by competition against the SOEs, made the latter nonviable. To test the relevant determinants of FDI in this context, Branstetter and Feenstra looked at the provincial consumption levels of products that are provided by multinational firms who had undertaken FDI. They related the consumption levels of these FDI products to the consumption levels of similar goods produced by SOEs as well as to the levels of goods supplied as imports. An additional determinant in their testing equation was a term incorporating the wage premium paid by foreign investors, with the hypothesis being that if foreign investors pay higher wages than domestic firms, this would be an enticement for the authorities to permit more FDI so that Chinese workers would be better off. There was also a tariff revenue term, which was comprised of tariff rates (which were and still are high) times the value of imports—if tariff revenue is high, it means that potential foreign investors are supplying the Chinese market by sending in imports rather than by producing within China.

What seemed to be the relationships between these various terms and production by foreign investors? The general results were that less spending on the output of Chinese state enterprises was associated with greater spending on the output of foreign investors (there was a trade-off between the two types of output), as was a higher wage premium. Higher tariff revenue collections, as expected, were associated with less foreign investor output (because foreign investors would, other things equal, be supplying from outside rather than within the country). Thus, there was a clear threat posed by FDI to production by state firms, and FDI was "bad" in that sense. Further, the fact that higher imports and consequently higher tariff revenues were associated with lower FDI meant that the government got the revenues ("good" from the state's standpoint), but the presence of high tariffs was "bad" for consumer welfare. The higher wages paid by the foreign firms constituted "good" results from the standpoint of worker/consumer welfare.

Branstetter and Feenstra then tried, in a complicated way, to integrate these results into a mathematical function that would express the government's relative desires to promote consumer utility (by raising consumption levels and promoting higher wages), collect

revenues from multinational firms (such as by imposing taxes and various fees), earn profits from production by state firms, and collect tariff revenues for the government's coffers. The most significant finding was that, although the authorities wanted to promote both state-owned production and consumer welfare, they seemed to place four to seven times as much weight on encouraging output by the state-owned enterprises as they did on promoting consumer utility. There was indeed a trading off of benefits from foreign investment against the threat of loss of viability of the state-owned production units. The politics of communism clearly played a role in this result; the populace gained in the roles of consumers and workers from having foreign investment present, but the government greatly worried that state-owned firms would take a hit from the presence of the foreign competitors. Thus, in the 1980–1995 period, China seemed to want foreign investors, but there were strong political restraining forces.

Definitions

When speaking of the international movement of "capital," we need to distinguish two types of capital movements: **foreign direct investment** and **foreign portfolio investment.** This chapter covers foreign direct investment; foreign portfolio investment is covered in international monetary economics. Foreign direct investment (FDI) refers to a movement of capital that involves ownership and control, as in the preceding Chinese example, where foreign ownership of production facilities took place. For example, when U.S. citizens purchase common stock in a foreign firm, say, in France, the U.S. citizens become owners and have an element of control because common stockholders have voting rights. For classification purposes, this type of purchase is recorded as FDI if the stock involves more than 10 percent of the outstanding common stock of the French firm. If a U.S. company purchases more than 50 percent of the shares outstanding, it has a controlling interest and the "French" firm becomes a **foreign subsidiary.** The building of a plant in Sweden by a U.S. company is also FDI, because clearly there is ownership and control of the new facility—a **branch plant**—by the U.S. company. Foreign direct investment is usually discussed in the context of the **multinational corporation (MNC),** sometimes referred to as the **multinational enterprise (MNE),** the **transnational corporation (TNC),** or the **transnational enterprise (TNE).** These terms all refer to the same phenomenon—production is taking place in plants located in two or more countries but under the supervision and general direction of the headquarters located in one country.

Foreign portfolio investment does not involve ownership or control but the flow of what economists call "financial capital" rather than "real capital." Examples of foreign portfolio investment are the deposit of funds in a U.S. bank by a British company or the purchase of a bond (a certificate of indebtedness, not a certificate of ownership) of a Swiss company or the Swiss government by a citizen or company based in Italy. These flows of financial capital have their immediate effects on balances of payments or exchange rates rather than on production or income generation.

Some Data on Foreign Direct Investment and Multinational Corporations

The United Nations Conference on Trade and Development (UNCTAD), an organization that studies various international economic issues, has indicated that the stock of accumulated FDI inflow to countries of the world was $19,141 billion as of 2010. This $19.1 trillion stock reflected rather rapid growth in the previous two decades; the stock had grown at an average annual rate of 9.4 percent from 1991 to 1995, 18.8 percent from 1996 to 2000, and 13.4 percent from 2001 to 2005. After 2005, considerable variability set in—the growth rates were 23.4 percent in 2006, 26.2 percent in 2007, and a *negative* 4.8 percent in 2008 (amid recession conditions in many countries), followed by positive increases of 17.4 percent in 2009 and 6.6 percent in 2010. Overall, the stock of inward foreign capital

of \$19,141 billion in 2010 was more than nine times larger than the stock that had been in place in 1990.[2]

To get a general picture of the size of foreign direct investment with respect to the United States, we present information on the amount of U.S. foreign direct investment in other countries in Table 1 and on the size of foreign direct investment in the United States in Table 2. These figures represent the total book value of accumulated FDI at the end of 2010; they are *stock* figures and not the *flow* of new investment that occurred in 2010 alone. *Book value* means that the numbers are basically the balance sheet figures recorded when the investments were made. Older investments are thus substantially understated relative to current value because of inflation since the time of purchase.

TABLE 1   U.S. Direct Investment Position Abroad, December 31, 2010 (Historical-Cost Basis)

	Value (\$, billions)	Share (%)
(a) By Industry		
Finance (except depository institutions) and insurance	\$ 803.0	20.5%
Manufacturing (chemicals \$140.9; computers and electronic products \$82.0; transportation equipment \$50.3; food \$46.4; machinery \$43.9 electrical equipment, appliances, and components \$23.6; primary and fabricated metals \$22.1)	585.8	15.0
Wholesale trade	193.5	5.0
Mining	175.5	4.5
Information	161.7	4.1
Depository institutions	133.6	3.4
Professional, scientific, and technical services	84.7	2.2
Holding companies (nonbank)	1,538.6	39.4
Other industries	231.8	5.9
Total	\$3,908.2	100.0%
(b) By Region or Country		
Europe (Netherlands \$521.4; United Kingdom \$508.4; Luxembourg \$274.9; Ireland \$190.5; Switzerland \$143.6; Germany \$105.8; France \$92.8; Belgium \$73.5; Spain \$58.1)	\$2,185.9	55.9%
Latin America and other Western Hemisphere (Bermuda \$264.4; United Kingdom islands in the Caribbean \$149.0; Mexico \$90.3; Brazil \$66.0)	724.4	18.5
Asia and Pacific (Australia \$134.0; Japan \$113.3; Singapore \$106.0; China \$60.5; Hong Kong \$54.0)	611.1	15.6
Canada	296.7	7.6
Africa	53.5	1.4
Middle East	36.6	0.9
Total	\$3,908.2	100.0%

Note: Major components may not sum to totals because of rounding.

Source: Elena L. Nguyen, "The International Investment Position of the United States at Yearend 2010," U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* July 2011, p. 139, obtained from www.bea.gov.

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[2]UNCTAD, *World Investment Report 2009,* p. 18, and *World Investment Report 2011,* p. 24; obtained from www.unctad.org.

TABLE 2   Foreign Direct Investment Position in the United States, December 31, 2010 (Historical-Cost Basis)

	Value ($, billions)	Share (%)
(a) By Industry		
Manufacturing (chemicals $175.4; transportation equipment $93.6; machinery $79.4; computers and electronic products $56.8; primary and fabricated metals $51.3; food $41.4; electrical equipment, appliances, and components $19.2)	$ 748.3	31.9%
Finance (except depository institutions) and insurance	356.8	15.2
Wholesale trade	330.9	14.1
Information	156.5	6.7
Depository institutions	111.3	4.8
Professional, scientific, and technical services	79.3	3.4
Real estate and rental and leasing	49.1	2.1
Retail trade	40.0	1.7
Other industries	470.8	20.1
Total	$2,342.8	100.0%
(b) By Region or Country		
Europe (United Kingdom $432.5; Netherlands $217.1; Germany $212.9; Switzerland $192.2; France $184.8; Luxembourg $181.2)	$1,697.2	72.4%
Asia and Pacific (Japan $257.3)	362.0	15.5
Canada	206.1	8.8
Latin America and other Western Hemisphere	60.1	2.6
Middle East	15.4	0.7
Africa	2.0	0.1
Total	$2,342.8	100.0%

Note: Major components may not sum to totals because of rounding.

Source: Elena L. Nguyen, "The International Investment Position of the United States at Yearend 2010," U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business,* July 2011, p. 141, obtained from www.bea.gov.

The data indicate that the largest portion of U.S. direct investments abroad is in finance and insurance (20.5 percent) and manufacturing (15.0 percent). Geographically, European countries are the **host countries** (i.e., recipients) of more than one-half of U.S. FDI. Overall, the three largest recipients of U.S. direct investment in the world are the Netherlands (13.3 percent), the United Kingdom (13.0 percent), and Canada (7.6 percent).

For foreign investments in the United States in Table 2, note that investments held by foreign citizens or institutions in the United States ($2,342.8 billion) are $1,565.4 billion less than investments held abroad by U.S. citizens and institutions in Table 1 ($3,908.2 billion). The manufacturing sector easily accounts for the largest portion of FDI in the United States. Over 70 percent of the investments have been made by Europeans. By country, the United Kingdom is the largest source of the FDI (18.5 percent), followed by Japan (11.0 percent), the Netherlands (9.3 percent), Germany (9.1 percent), and Canada (8.8 percent).

Table 3 lists the 10 largest corporations in the world (measured by dollar value of revenues as of the start of 2011). Table 4 then lists the 10 largest banks in the world (measured by total assets at the start of 2011), a type of corporation of special interest to us because of banks' involvement in the financing of international trade and payments. The home country or "nationality" of each firm is given in both tables following the name of the firm.

TABLE 3   **World's Largest Corporations by Revenues, 2011 (millions of dollars)**

Company	Home Country	Revenues ($, millions)
1. Wal-Mart Stores	United States	$421,849
2. Royal Dutch Shell	Netherlands	378,152
3. Exxon Mobil	United States	354,674
4. BP	United Kingdom	308,928
5. Sinopec Group	China	273,422
6. China National Petroleum	China	240,192
7. State Grid	China	226,294
8. Toyota Motor	Japan	221,760
9. Japan Post Holdings	Japan	203,958
10. Chevron	United States	196,337

Source: "Global 500," *Fortune,* obtained from http://money.cnn.com/magazines/fortune/global500/.

TABLE 4   **World's Largest Banks by Total Assets, 2011 (millions of dollars)**

Bank	Home Country	Value of Assets ($, millions)
1. BNP Paribas	France	$2,669,906
2. Deutsche Bank	Germany	2,546,272
3. HSBC Holdings	United Kingdom	2,454,689
4. Barclays	United Kingdom	2,331,943
5. Royal Bank of Scotland Group	United Kingdom	2,275,479
6. Bank of America	United States	2,268,347
7. Crédit Agricole	France	2,129,248
8. JPMorgan Chase	United States	2,117,605
9. Industrial and Commercial Bank of China	China	2,032,131
10. Citigroup	United States	1,913,902

Source: *Global Finance* magazine rankings provided in "Global Finance Ranks the 50 Biggest Banks: China Breaks into the Top 10," obtained from www.gfmag.com/.

U.S. firms represent 3 of the largest 10 companies. China also has 3 firms in the top 10 (a very recent development), and Japan has 2 firms. If the table were extended further, the United States would be found to have 17 of the top 50 firms, Japan 7, France 6, and Germany 5 of the 50. Some large multinational companies have "parentage" in developing countries—China has 3 firms in the top 50 (the ones in the top 10), and Brazil, South Korea, and Mexico each have 1 firm in the 50. In banking, the United States and the United Kingdom each have 3 banks in the top 10, and France has 2 banks (including the largest one).

Reasons for International Movement of Capital

It should be clear that there is considerable mobility of capital across country borders in the world economy today. We cannot make a full examination of the reasons for this mobility, but brief mention can be made of possible causes. Above all, economists view the movement of capital between countries as fundamentally no different from movement between regions of a country (or between industries), because the capital is moved *in response to the expectation of a higher rate of return* in the new location than it earned in the old location. Economic agents seek to maximize their well-being. Although many reasons for capital movements have been suggested, all imply the seeking of a higher rate of return on capital over time. We list and comment briefly on several hypotheses, many of which have found empirical support.

1. Firms will invest abroad in response to large and rapidly growing *markets* for their products. Empirical studies have attempted to support this general hypothesis at the aggregative level by seeking a positive correlation between the gross domestic product (and its rate of growth) of a recipient country and the amount of foreign direct investment flowing into that country.

2. Similarly, because manufacturing and services production in developed countries is catering increasingly to high-income tastes and wants (recall the product cycle theory from Chapter 10), it can be hypothesized that developed-country firms will invest overseas if the recipient country has a *high per capita income.* This suggestion leads us to expect that there would be little manufacturing investment flowing from developed countries to developing countries. However, per capita income must be kept distinct from total income (GDP), because firms in developed countries are eager to move into China because of its sheer market size and growth and despite its relatively low per capita income.

3. Another reason for direct investment in a country is that the foreign firm can secure access to *mineral or raw material deposits* located there and can then process the raw materials and sell them in more finished form. Examples would be FDI in petroleum and copper.

4. *Tariffs and nontariff barriers* in the host country also can induce an inflow of foreign direct investment. If trade restrictions make it difficult for the foreign firm to sell in the host-country market, then an alternative strategy for the firm is to "get behind the tariff wall" and produce within the host country itself. It has been argued that U.S. companies built such **tariff factories** in Europe in the 1960s shortly after the European Economic Community (Common Market) was formed, with its common external tariff on imports from the outside world. Such U.S. investment continued in the 1990s as Europe pressed for even closer economic integration and adopted a common currency for 11 countries in 1999 (now 17 countries).

5. A foreign firm may consider investment in a host country if there are *low relative wages* in the host country, although studies indicate that low wages per se are not as much an enticement for FDI as envisioned by the general public. Clearly, the existence of low wages because of relative labor abundance in the recipient country is an attraction when the production process is labor intensive. In fact, the production process often can be broken up so that capital-intensive or technology-intensive production of components takes place within developed countries while labor-intensive assembly operations that use the components take place in developing countries. This division of labor is facilitated by offshore assembly provisions in the tariff schedules of developed countries (see Chapter 13).

6. Firms also argue that they need to invest abroad *to protect foreign market share.* Firm A, for instance reasons that it needs to begin production in the foreign market location in order to preserve its competitive position because its competitors are establishing plants in the foreign market currently served by A's exports or because firms in the host country are producing in larger volume and competing with A's goods. A recent example is Toyota Motors, which completed building production facilities abroad because the high value of the yen had reduced its competitiveness in foreign markets.[3]

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[3]Chester Dawson, "For Toyota, Patriotism and Profits May Not Mix," *The Wall Street Journal,* November 29, 2011, pp. A1, A16.

7. It has also been suggested that firms may want to invest abroad as a means of *risk diversification.* Just as investors prefer to have a diversified financial portfolio instead of holding their assets in the stock of a single company, so firms may wish to distribute their real investment assets across industries or countries. If a recession or downturn occurs in one market or industry, it will be beneficial for a firm not to have all its eggs in one basket. Some of the firm's investments in other industries or countries may not experience the downturn or may at least experience it with reduced severity.

8. Finally, foreign firms may find investment in a host country to be profitable because of some firm-specific knowledge or assets that enable the foreign firm to outperform the host country's domestic firms (see Graham and Krugman, 1995, chap. 2; and Markusen, 1995). Superior management skills or an important patent might be involved. At any rate, the opportunity to generate a profit by exploiting this advantage in a new setting entices the foreign firm to make the investment.

IN THE REAL WORLD:

DETERMINANTS OF FOREIGN DIRECT INVESTMENT

Numerous econometric studies have attempted to ascertain the factors that cause foreign direct investment flows between countries. Reinhilde Veugelers (1991) examined data for 1980 on FDI from developed countries to other developed countries to determine why some recipient countries were chosen over others. The dependent variable in Veugelers's regression analysis was the number of foreign affiliates (plants abroad with at least some home firm control) of any country *i* located in recipient country *j* as a percentage of the total foreign affiliates of country *i.* With respect to the independent variables, a statistically significant positive relationship was found with the GDP of the recipient country, weighted by the degree of openness of the recipient. This finding reflects the importance of market size and possible economies of scale. The weight for openness was included in recognition of the engagement of foreign affiliates in export and in recognition that a recipient country's greater openness to trade would permit greater exports from any affiliate. Veugelers also found a positive relationship with FDI when the sending and receiving countries shared a common language or common boundaries. However, a negative relationship was found with the ratio of fixed investment to GDP in the recipient country; this was surprising because Veugelers had expected that a high fixed-investment ratio would mean a relatively large amount of infrastructure and thus an inducement for foreign investors. Finally, labor productivity in the recipient country, distance between the sending and receiving countries, and tariff rates in both sets of countries had insignificant impacts.

In an earlier study, Franklin Root and Ahmed Ahmed (1979) examined possible influences on the inflow of FDI into the manufacturing sector in a sample of 58 developing countries. Six variables seemed to be most important. Other things being equal, the amount of FDI was greater: *(a)* the higher the per capita GDP of the host country; *(b)* the greater the growth rate in total GDP of the host country; *(c)* the greater the degree of recipient country participation in economic integration projects such as customs unions and free-trade areas; *(d)* the greater the availability of infrastructure facilities (e.g., transport and communication networks) in the recipient country; *(e)* the greater the extent of urbanization of the recipient country; and *(f)* the greater the degree of political stability in the host country.

A later study by Ray Barrell and Nigel Pain (1996) examined possible determinants of U.S. direct investment abroad during the 1970s and 1980s. In their econometric work, they found that world market size (as measured by the combined GNPs of the seven largest industrialized countries) was a stimulant to U.S. FDI, with a 1 percent rise in the combined GNPs leading to an increase of 0.83 percent in the stock of U.S. investment facilities abroad. In addition, they found a positive relationship between U.S. FDI and the level of U.S. labor costs relative to labor costs in Canada, Japan, Germany, France, and the United Kingdom. The statistical estimate

IN THE REAL WORLD: *(continued)*

DETERMINANTS OF FOREIGN DIRECT INVESTMENT

was that an increase of 1 percent in relative U.S. labor costs raised U.S. FDI by 0.49 percent. A positive association was also evident between U.S. FDI and U.S. relative capital costs. Further, there was some positive relation between U.S. FDI and domestic profits in the United States—suggesting an "availability of funds" cause. Besides these findings regarding the role of market size, relative labor and capital costs, and profits, an interesting result pertained to the exchange rate. An expected rise in the value of the dollar relative to other currencies led to some temporary postponement of U.S. foreign direct investment, suggesting that payments abroad associated with making the investment are delayed in anticipation of the greater command over foreign currencies that the dollar will have when the appreciation eventually takes place.

A 2002 paper by Romita Biswas examined econometrically the determinants of U.S. foreign direct investment in 44 countries from 1983 to 1990. In particular, Biswas focused on the influence of compensation paid per employee, infrastructure in the receiving country (with infrastructure being measured by installed capacity of electric generating plants per capita and by the number of main telephone lines per capita), and total GNP. Further, political variables such as type of regime in place (autocracy or democracy), regime duration, rule of law, property rights (such as extent of protection from expropriation by the government), and amount of corruption in government were also included in the empirical analysis. (Obviously, some of these variables would be difficult to measure!) In general, infrastructure was found to contribute positively and significantly to the receipt of FDI, higher wages meant less FDI (although not in all tests), and democracies were more attractive to FDI than were autocracies. Greater protection of property rights also enhanced FDI. Curiously, a longer duration of a regime significantly reduced FDI. Biswas hypothesizes that this result might have occurred because the longer a regime is in place, the greater the chance that interest groups will form—groups that decrease the flexibility and efficiency of government.

Finally, an interesting recent paper by Judith Dean, Mary Lovely, and Hua Wang (2009) addressed the question of whether environmental regulations have an impact on incoming FDI. A standard hypothesis is that firms in high-income countries will, other things equal, tend to locate their production facilities in low-income countries rather than in their own home countries because of the stricter environmental standards in place in the high-income countries (often called a "race to the bottom" with respect to environmental protection). Dean, Lovely, and Wang focused on China in the 1990s, using a data set that contained almost 3,000 FDI joint-venture manufacturing facilities. (The joint-venture enterprise involves combined ownership by the foreign investor and a host country firm/government and was the common type of FDI in China during the time period.) Because environmental standards differed across provinces in China, the study attempted to determine whether these different standards, after allowing for other influences on FDI, were a factor in foreign investors' choosing to locate in low-standard provinces rather than in high-standard provinces. Environmental regulations were represented by the Chinese water pollution levy system, in which firms faced a tax if certain types of pollutants were discharged or if specified volume and concentration levels of pollution were exceeded. The tax rate varied considerably across the provinces. In the paper, the authors concluded that FDI in high-pollution industries from ethnically Chinese sources (which included Hong Kong, Macao, and Taiwan) was significantly deterred from going into the provinces with the higher environmental standards. However, the provincial location of FDI from origins that were not ethnically Chinese did not appear to be affected by the differing levels of environmental regulation.

In overview, there are clearly many different possible factors leading to foreign direct investment. Important attention is being paid, and rightfully so, to noneconomic variables as well as to traditional economic variables. ●

A considerable amount of further empirical research is needed to determine the most important causes of international capital mobility, and different reasons will apply to different industries, different periods, and different investors.

**Analytical Effects of International Capital Movements**

The existence of substantial international capital mobility in the real world has various implications for the output of the countries involved, for world output, and for rates of return to capital and other factors of production. Economists employ a straightforward microeconomic apparatus to examine these effects, and this section presents this analytical

approach. We return to this apparatus in our discussion of the international movement of labor later in the chapter.

Figure 1 portrays the marginal physical product of capital (MPP_K) schedules for countries I and II. The analysis assumes that they are the only two countries in the world, that there are only two factors of production—capital and labor—and that both countries produce a single, homogeneous good that represents the aggregate of all goods produced in the countries. In microeconomic theory, a marginal physical product of capital schedule plots the additions to output that result from adding 1 more unit of capital to production when all other inputs are held constant. With constant prices, this schedule constitutes the demand for capital inputs derived from the demand for the product. Schedule AB shows the MPP_K in country I ($MPP_{K\,I}$) for various levels of capital stock measured in a rightward direction from origin 0. Analogously, schedule $A'B'$ indicates the $MPPK$ in country II ($MPPK_{\,II}$), with the levels of capital stock measured *leftward* from origin $0'$.

Assume in the initial (pre-international-capital-flow) situation that the capital stock in country I is measured by the distance $0k_1$ and capital in country II is measured (in the leftward direction) by the distance $0'k_1$. The total world capital stock is fixed and equal to the distance $00'$, or the sum of $0k_1$ and $0'k_1$. With the standard assumption of perfect competition, capital in country I will be paid at the rate equal to its marginal product ($0r_1$), which is associated with point C on schedule AB. Similarly, capital in country II will be paid at the rate equal to its marginal product ($0'r'_1$), which is associated with point C' on schedule $A'B'$. Remembering that total product is equal to the area under the marginal product curve at the relevant size of capital stock, the total output (or GDP) in country I is equal to area $0ACk_1$ and the total output (GDP) in country II is equal to area $0'A'C'k_1$.

FIGURE 1   **Capital Market Equilibrium—The Two-Country Case**
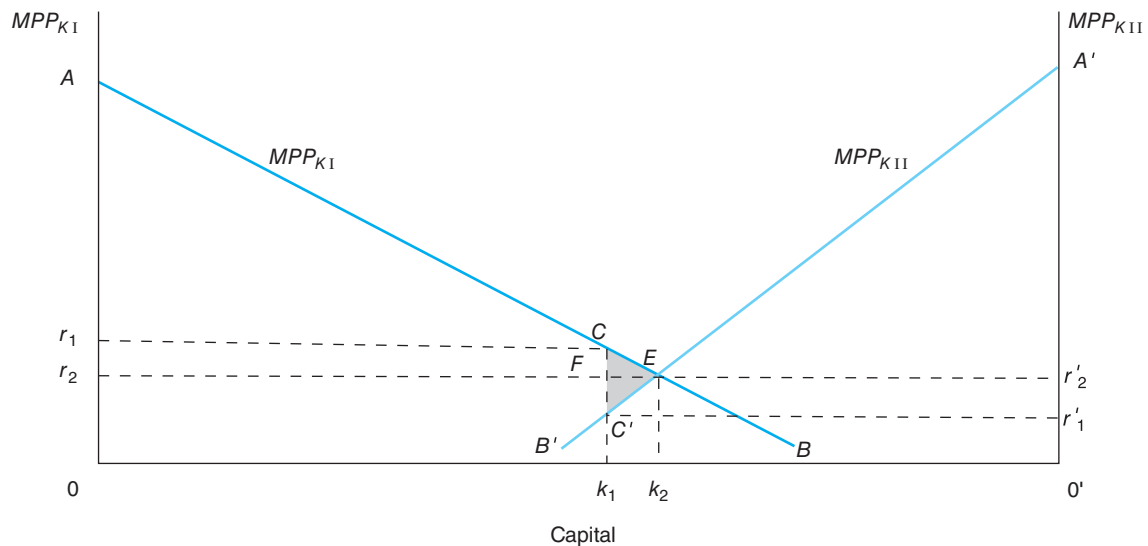
The demand ($MPPK_1$) for capital in country I is plotted from the left, and the demand for capital in country II ($MPPK_{\,II}$) is plotted from the right. The total available supply of capital in the two countries is demonstrated by the length of the horizontal axis from 0 to $0'$. If markets are working perfectly, the productivity of capital (and thus the return) should be equal in both countries. Otherwise, there will be an incentive to shift capital from lower- to higher-productivity uses. The equality condition occurs where the two demand curves intersect (point E). If E is attained, the return to capital is the same in both countries ($0r_2 = 0'r'_2$) and $0k_2$ capital is employed in country I and $0'k_2$ capital is employed in country II, exhausting the total supply of capital jointly available.

IN THE REAL WORLD:

HOST-COUNTRY DETERMINANTS OF FOREIGN DIRECT INVESTMENT INFLOWS

The United Nations Conference on Trade and Development (UNCTAD), in its *World Investment Report 1998,* categorized types of FDI and the general characteristics of host countries that are considered by investors deciding whether to undertake a project in any given country. These factors have also been elaborated on in the context of developing countries in a 1999 article in *Finance and Development* (Mallampally and Sauvant, 1999).

The particular economic determinants of FDI, according to the UNCTAD staff, depend on whether the FDI project falls into one of three categories: (1) *market-seeking FDI,* that is, firms that are attempting to locate facilities near large markets for their goods and services; (2) *resource-seeking and asset-seeking FDI,* that is, firms that are in search of particular natural resources (e.g., copper in Chile) or particular human skills (e.g., computer literacy and skills in Bangalore, a city in southern India often referred to as the "Second Silicon Valley"); and (3) *efficiency-seeking FDI,* that is, firms that can sell their products worldwide and are in search of the location where production costs are the lowest. These general economic determinants are listed in the left-hand column of Table 5.

Beyond economic factors, foreign firms considering investment in any given country will also be influenced by various policies and attitudes of the host country's government. In addition, broader, more general characteristics of the business environment (called "business facilitation" by UNCTAD) will play a role in the investment decision. These policy and business environment considerations, as presented by UNCTAD, are listed in the right-hand column of Table 5. In general, the table gives us a framework for viewing the decision to undertake FDI in any given case. Of course, the weights to be applied to each factor will differ from potential host country to potential host country, and different weights will also be applied by different foreign firms.

Source: Padma Mallampally and Karl P. Sauvant, "Foreign Direct Investment in Developing Countries," *Finance and Development* 36, no. 1 (March 1999), p. 36. Originally appeared in United Nations Conference on Trade and Development, *World Investment Report 1998: Trends and Determinants* (Geneva: UNCTAD, 1998), p. 91.

TABLE 5   Host-Country Determinants of Foreign Direct Investment

Economic Determinants

Market-seeking FDI:

   Market size and per capita income

   Market growth

   Access to regional and global markets

   Country-specific consumer preferences

   Structure of markets

Resource- or asset-seeking FDI:

   Raw materials

   Low-cost unskilled labor

   Availability of skilled labor

   Technological, innovative, and other created assets (e.g., brand names)

    Physical infrastructure

Efficiency-seeking FDI:

   Costs of above physical and human resources and assets (including an adjustment for productivity)

   Other input costs (e.g., intermediate products, transport costs)

   Membership of country in a regional integration agreement, which could be conducive to forming regional corporate networks

Policy Framework

Economic, political, and social stability

Rules regarding entry and operations

Standards of treatment of foreign affiliates

Policies on functioning and structure of markets (e.g., regarding competition, mergers)

International agreements on FDI

Privatization policy

Trade policies and coherence of FDI and trade policies

Tax policy

Business Facilitation

Investment promotion (including image-building and investment-generating activities and investment-facilitation services)

Investment incentives

"Hassle costs" (related to corruption and administrative efficiency)

Social amenities (e.g., bilingual schools, quality of life)

After-investment services

(World output is of course equal to the sum of these two areas.) The total output in country I is divided between the two factors such that the rectangle $0r_1Ck_1$ is the total return (or profit) of capital (i.e., the rate of return $0r_1$ multiplied by the amount of capital $0k_1$), and workers receive the remaining output (or income) consisting of triangle r_1AC. In country II, by similar reasoning, capital receives total return (or profit) of area $0'r'_1C'k_1$ and labor receives the area of triangle $r'_1A'C'$.

This situation will change if capital is permitted to move between countries because the rate of return to capital in country I ($0r_1$) exceeds that in country II ($0'r'_1$). If capital mobility exists between the two countries, then capital will move *from* country II *to* country I as long as the return to capital is greater in country I than in country II. (We are assuming that the same degree of risk attaches to investments in each country or that the rates of return have been adjusted for risk. We are also assuming that there is no international movement of labor.) In Figure 1, the amount of capital k_2k_1 in country II moves to country I to take advantage of the higher rate of return. This foreign direct investment by country II in country I bids down the rate of return in country I to $0r_2$. On the other hand, because capital is leaving country II, the rate of return in country II rises from $0'r'_1$ to $0'r'_2$. In equilibrium, the MPP_K in the two countries is equal, and this is represented by point E, where the two marginal physical product of capital schedules intersect. At this equilibrium, the rate of return to capital is equalized between the countries (at $0r_2 = 0'r'_2$), and there is no further incentive for capital to move between the countries.

What has been the effect of capital flow k_2k_1 from country II to country I on output in the two countries and on total world output? As expected, total output has risen in country I because additional capital has come into the country to be used in the production process. Before the capital flow, output in country I was area $0ACk_1$, but output has now increased to area $0AEk_2$. Thus, output in country I has gone up by the area k_1CEk_2. In country II, there has been a decline in output. The before-capital-flow output of $0'A'C'k_1$ has been reduced to the after-capital-flow output of $0'A'Ek_2$, a decrease by the amount $k_1C'Ek_2$. However, *world output and thus efficiency of world resource use has increased* because of the free movement of capital. World output has increased because the increase in output in country I (area k_1CEk_2) is greater than the decrease in output in country II (area $k_1C'Ek_2$). The extent to which world output has increased is indicated by the triangular shaded area $C'CE$. Thus, just as free international *trade* in goods and services increases the efficiency of resource use in the world economy, so does the free movement of capital—and of factors of production in general. In addition, free movement of factors can equalize returns to factors in the two countries, just as free international trade in the Heckscher-Ohlin model could lead to factor price equalization between the countries. In recognition of these parallel implications of trade and factor mobility for efficiency of resource use and returns to factors, economists often stress that free trade and free factor mobility are substitutes for each other.

Some comments also can be made about the total return to each of the factors of production in the two countries. The total return to country I's owners of capital was $0r_1Ck_1$ before the capital movement, but it has now fallen to the amount $0r_2Fk_1$ (a decline by the amount r_2r_1CF). The return to country II's owners of capital has increased from $0'r'_1C'k_1$ to $0'r'_2Fk_1$, an increase by the amount $r'_1r'_2FC'$. While we know that owners of capital in country I have been injured and those in country II have gained from the capital flow, we cannot say anything about the sum of the two returns (and thus of world profits) unless more information is available on the slopes of the MPP_K schedules and the size of the capital flow. However, because world output has increased, it is theoretically possible to redistribute income so that both sets of capital owners *could* be better off than they were prior to the capital movement. A similar conclusion applies to labor. Workers in country I have received an increase in their total wages, because before-capital-flow wages consisted of area r_1AC

while after-capital-flow wages are indicated by area r_2AE (an increase in wages by the amount r_2r_1CE). In country II, wages have fallen because workers now have less capital with which to work. The wage bill in country II prior to the capital flow was area $r'_1A'C'$, and it has decreased to $r'_2A'E$ after the capital flow(a decrease by the amount $r'_1r'_2EC'$). Again, no a priori statement can be made about the impact of the capital flow on total wages in the world without more information, but the increase in world output (and income) suggests that all workers *could* be made better off by income redistribution policies.

Finally, we can make unambiguous statements about the impact of the capital flow on national income [or gross national product (GNP)—the product of a country's nationals or citizens] in both countries. The income of country I's citizens consists of total wages plus total profits. We have seen that the capital flow has increased total wages by area r_2r_1CE and has decreased the returns to the owners of capital by area r_2r_1CF. Comparison of these two areas indicates that the income of workers rises by *more* than the income of capital owners falls in country I; we conclude that national income or GNP—the income of the factors of production— in country I increases because of the capital inflow (by triangular area FCE). (GDP—the total output produced within a country—for country I has risen by k_1CEk_2. However, area k_1FEk_2 of that amount accrues to country II's investors.) Analogously, the capital outflow in country II causes total wages to fall by area $r'_1r'_2EC'$ and the total returns to owners of capital to rise by area $r'_1r'_2FC'$. National income (GNP) in country II thus increases by amount $C'FE$. Country II has higher income (GNP) despite the fact that the output produced in II (its GDP) has fallen from area $0'A'C'k_1$ to area $0'A'Ek_2$. Hence, both countries gain from international capital mobility. Restrictions on the flow of foreign direct investment have an economic cost of lost efficiency in the world economy and lost income in each of the countries.

Potential Benefits and Costs of Foreign Direct Investment to a Host Country

In this section, we cover some of the alleged benefits and costs of a direct capital inflow to a host country. (For an expanded discussion of many of these points, see Meier, 1968, 1995.) While there are also benefits and costs to the home country from capital outflow, we focus only on host-country effects. The focus on impacts to the host country particularly permits us to discuss developing countries more prominently.

Potential Benefits of Foreign Direct Investment

A wide variety of benefits may result from an inflow of foreign direct investment. These gains do not occur in all cases, nor do they occur in the same magnitude. Several of the potential gains are listed here.

Increased output.   This impact was discussed earlier. The provision of increased capital to work with labor and other resources can enhance the total output (as well as output per unit of input) flowing from the factors of production.

Increased wages.   This was also discussed earlier. Note that some of the increase in wages arises as a redistribution from the profits of domestic capital.

Increased employment.   This impact is particularly important if the recipient country is a developing country with an excess supply of labor caused by population pressure.

Increased exports.   If the foreign capital produces goods with export potential, the host country is in a position to generate scarce foreign exchange. In a development context, the additional foreign currency can be used to import needed capital equipment or materials to assist in achieving the country's development plan, or the foreign exchange can be used to pay interest or repay some principal on the country's external debt.

Increased tax revenues.   If the host country is in a position to implement effective tax measures, the profits and other increased incomes flowing from the foreign investment project can provide a source of new tax revenue to be used for development projects. However, the country must spend such revenue wisely and refrain from imposing too high

a rate of taxation on the foreign firm, as this high taxation might cause the firm to leave the country.

Realization of scale economies.   The foreign firm might enter into an industry in which scale economies can be realized because of the industry's market size and technological features. Home firms might not be able to generate the necessary capital to achieve the cost reductions associated with large-scale production. If the foreign investor's activities realize economies of scale, consumer prices might be lowered.

Provision of technical and managerial skills and of new technology.   Many econo-mists judge that these skills are among the scarcest resources in developing countries. If so, then a crucial bottleneck is broken when foreign capital brings in critical human capital skills in the form of managers and technicians. In addition, the new technology can clearly enhance the recipient country's production possibilities.

Weakening of power of domestic monopoly.   This situation could result if, prior to the foreign capital inflow, a domestic firm or a small number of firms dominated a particular industry in the host country. With the inflow of the direct investment, a new competitor is provided, resulting in a possible increase in output and fall in prices in the industry. Thus, international capital mobility can operate as a form of antitrust policy. A recent example of the potential for this is the effort by U.S. telecommunications firms to gain greater access to the Japanese market. The difficulties associated with competition from foreign investors were illustrated in 2011 when the Indian government decided to permit foreign investors in the retail sector to form joint ventures with local retailers whereby the foreign investor could have majority ownership. Domestic protests resulted in the government rescinding this decision. The only foreign-investor-dominated joint ventures then permitted were for single-brand retailers (e.g., Starbucks, Nike). However, it was decided in 2012 that many-brand retailers (e.g., Walmart, Target) could also enter.

Potential Costs of Foreign Direct Investment

Some alleged disadvantages to the host country from a foreign capital inflow are listed and briefly discussed.

Adverse impact on the host country's commodity terms of trade.   As you will recall, a country's commodity terms of trade are defined as the price of a country's exports divided by the price of its imports. In the context of FDI, the allegation is sometimes made that the terms of trade will deteriorate because of the inflow of foreign capital. This could occur if the investment goes into production of export goods and the country is a large country in the sale of its exports. Thus, increased exports drive down the price of exports relative to the price of imports.

Transfer pricing is another mechanism by which the host country's terms of trade could deteriorate. The term *transfer prices* refers to the recorded prices on *intra*firm inter-national trade. If one subsidiary or branch plant of a multinational company sells inputs to another subsidiary or branch plant of the same firm in another country, no market price exists; the firm arbitrarily records a price for the transaction on the books of the two subsid-iaries, leaving room for manipulation of the prices. If a subsidiary in a developing country is prevented from sending profits home directly or is subject to high taxes on its profits, then the subsidiary can reduce its *recorded* profits in the developing country by understat-ing the value of its exports to other subsidiaries in other countries and by overstating the value of its imports from other subsidiaries. What happens is that the country's recorded terms of trade are worse than they would have been if a true market price were used for these transactions.

Decreased domestic saving.   The allegation, in the context of a developing country, is that the inflow of foreign capital may cause the domestic government to relax its efforts to generate greater domestic saving. If tax mechanisms are difficult to put into place, the local

government may decide there is no need to collect more taxes from a low-income population for the financing of investment projects if a foreign firm is providing investment capital. The forgone tax revenues can be used for consumption rather than saving. This is only one of several possible mechanisms for achieving the same result.

Decreased domestic investment. Often the foreign firm may partly finance the direct investment by borrowing funds in the host country's capital market. This action can drive up interest rates in the host country and lead to a decline in *domestic* investment through a "crowding-out" effect. In a related argument, suppliers of funds in the developing country may provide financial capital to the MNC rather than to local enterprise because of perceived lower risk. This shift of funds may divert capital from uses that could be more valuable to the developing countries.

Instability in the balance of payments and the exchange rate. When the foreign direct investment comes into the country, it usually provides foreign exchange, thus improving the balance of payments or raising the value of the host country's currency in exchange markets. However, when imported inputs need to be obtained or when profits are sent home to the country originating the investment, a strain is placed on the host country's balance of payments and the home currency can then depreciate in value. A certain degree of instability will exist that makes it difficult to engage in long-term economic planning.

Loss of control over domestic policy. This is probably the most emotional of the various charges levied against foreign direct investment. The argument is that a large foreign investment sector can exert enough power in a variety of ways so that the host country is no longer truly sovereign. For example, this charge was levied forcefully against U.S. direct investment in western Europe in the 1960s and it has often been raised against U.S. FDI into developing countries. Also, the U.S. government has in place a Committee on Foreign Investment in the United States (CFIUS) that examines proposed FDI projects in the United States with respect to their impact on national security. If security is likely to be endangered, the FDI will not be permitted.

Increased unemployment. This argument is usually made in the context of developing countries. The foreign firm may bring its own capital-intensive techniques into the host country; however, these techniques may be inappropriate for a labor-abundant country. The result is that the foreign firm hires relatively few workers and displaces many others because it drives local firms out of business.

Establishment of local monopoly. This is the converse of the presumed "benefit" that FDI would break up a local monopoly. On the "cost" side, a large foreign firm may undercut a competitive local industry because of some particular advantage (such as in technology) and drive domestic firms from the industry. Then the foreign firm will exist as a monopolist, with all the accompanying disadvantages of a monopoly.

Inadequate attention to the development of local education and skills. First propounded by Stephen Hymer (1972), this argument has the multinational company reserving the jobs that require expertise and entrepreneurial skills for the head office in the home country. Jobs at the subsidiary operations in the host country are at lower levels of skill and ability (e.g., routine management operations rather than creative decision making). The labor force and the managers in the host country do not acquire new skills.

Overview of Benefits and Costs of Foreign Direct Investment

No general assessment can be made regarding whether the benefits outweigh the costs. Each country's situation and each firm's investment must be examined in light of these various considerations, and a judgment about the desirability of the investment can be clearly positive in some instances and negative in others. These considerations get us beyond the simple analytical model discussed earlier in this chapter, where the capital flow was always beneficial in its impact.

Developed and developing countries often try to institute policies that will improve the ratio of benefits to costs connected with a foreign capital inflow. Thus, **performance requirements** are frequently placed on the foreign firm, such as stipulating a minimum percent of local employees, a maximum percent of profits that can be repatriated to the home country, and a minimum percent of output that must be exported to earn scarce foreign exchange. In addition, the output of the firm may be subject to domestic content requirements on inputs, or foreign firms may be banned altogether from certain key industries. Some progress toward eliminating such distortionary performance requirements was made in the Uruguay round of trade negotiations in the 1990s.

Finally, brief mention can be made of the fact that clearly there are impacts of FDI on the sending or home country of the investment as well as on the receiving or host country. As noted in the discussion of Figure 1, the sending country (country II in the figure) experiences a reduction in its GDP (although an increase in its national income or gross *national* product), a reduction in total wages, and an increase in the total return to its investors. The country could also undergo such effects as a loss of tax revenue from the investing firms (depending on tax treaty arrangements between the sending and the receiving country of the FDI) and a loss of jobs. International trade could also be affected—for example, exports from the FDI-sending country could rise if the new plants abroad obtained inputs from home sources. Alternatively, exports from the sending country could fall if the new plant was set up abroad to supply the foreign market from the foreign country itself rather than through export from the home country (as in the product cycle theory in Chapter 10). On the import side, imports into the home country could increase if the new FDI plant assembles or produces relatively labor-intensive products in a relatively labor-abundant host country and the home country is a relatively capital-abundant country. Other effects in practice, of course, depend on the particular investment project being considered.

CONCEPT CHECK

1. What is the difference between foreign direct investment and foreign portfolio investment?
2. Suppose that there is an increase in the productivity of capital in country II. What happens to the location of capital between country I and country II?
3. What are the principal costs and benefits of foreign direct investment to the host country? What might be the principal costs and benefits of foreign direct investment to the investing country?

LABOR MOVEMENTS BETWEEN COUNTRIES

Seasonal Workers in Germany[4]

The Winkelmann farming group, headed by two brothers, grew, in a relatively short time, from a local asparagus farm in Germany to a position as one of the top 10 white asparagus suppliers in the country. The firm relies heavily on temporary immigrant workers for harvesting its crops—from a situation of owning 2.5 acres and using two migrant workers in 1989, the Winkelmanns expanded into the former Democratic Republic of Germany (East Germany) after German reunification in 1990 and, in 2002, owned 2,500 acres of land and employed almost 4,000 migrant workers. Workers, 80 percent of whom are Polish, are hired after a thorough recruitment process

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[4]This discussion as well as the next one, "Permanent Migration: A Greek in Germany," are drawn from chapter 4 of Scott Reid, "Germany and the Gastarbeiterfrage: A Study of Migration's Legacy in Germany, 1815–2003," senior thesis, Center for Interdisciplinary Studies, Davidson College, April 2003. We thank Scott Reid for permission to utilize his material.

that includes extensive background checks and training in the workers' home country. The work-ers are employed for three months per year, and they are then sent home, with transportation for the trip home paid for by the Winkelmanns. (The Winkelmanns employ only workers who have a job at home, a job to which they can return after the three months' employment in Germany has been completed.) While in Germany, the temporary migrants receive housing and insurance from the Winkelmanns, and Polish workers can earn wages in the three months that are equivalent to 150 percent of a year's pay in Poland.

This temporary migration system is of considerable value to the Winkelmanns and to other farms like theirs, but it also appears to benefit Germany in its agricultural production. Germany gains because it has been difficult to recruit Germans to harvest the asparagus, apparently because the work is physically demanding and pays relatively low wages (relatively low for the Germans but not for the Poles).

Permanent Migration: A Greek in Germany

Hasan Touzlatzi is a Muslim from West Thrace, Greece, who lives in Espelkamp, a small town in Germany. He grew up in a poor family in Greece, and he left West Thrace at age 20 in 1970 to go to Germany for temporary work. Hasan traveled to Germany with other temporary "guest workers," and the trip had been organized by the German government. He was provided with a job in a firm in Espelkamp, and, at least partly because he began learning the German language as soon as he arrived in the country, he advanced quickly with the firm. When the firm later folded, Hasan decided on several successive occasions, although planning only for a short extension on each occasion, to stay on in his new country. His wife joined him and, after children were born, the Touzlatzis became permanent residents so that their children could benefit from the German education system.

Hasan Touzlatzi has become a respected and prominent member of the Espelkamp commu-nity, where he has lived for more than 30 years. He owns a flower shop, is active in a local club of immigrants from West Thrace, and participates regularly in the Espelkamp Muslim prayer room and mosque. He and his family and other fellow migrants are solid parts of the German com-munity and economy, although ties continue with their homeland. (For example, two of Hasan's sons went to Greece to serve in the Greek army, and Hasan has kept his Greek citizenship.) The Touzlatzis are permanent immigrants who have become integrated into their host country, although they retain identification with their homeland.

These two vignettes offer examples of temporary migration and permanent migration between countries. Just as capital moves in large volume across country borders, so too does labor. The World Bank has estimated that about 216 million people, or about 3 per-cent of the world's population, no longer reside in the countries in which they were born.[5] On an individual country basis, as examples, 23.9 percent of Australia's population were foreign-born in 2006, 9.7 percent of the United Kingdom's population in 2005 had been born in another country, and, for Spain, the figure was 13.1 percent in 2008.[6] For the United States in 2010, 37.6 million people were foreign-born,[7] which constituted a little over 12 percent of the population. In addition, of course, there has been, over the past few decades, considerable illegal as well as legal migration into the United States, with the ille-gal immigration having been extremely controversial. Indeed, the U.S. Census Bureau esti-mated that the number of illegal immigrants in the country in 2010 was 10.8 million.[8] This number is lower than other estimates, but it is also likely that the size of the illegal immi-grant population had fallen since 2007 and 2008, when recession conditions dampened the job prospects for immigrants and led to a reduced inflow and perhaps a net outflow leading

[5]The World Bank, *Migration and Remittances Factbook,* 2nd ed. (Washington, DC: World Bank, 2011), obtained from www.worldbank.org.

[6]Obtained from www.migrationinformation.org/datahub.

[7]U.S. Census Bureau, *Statistical Abstract of the United States: 2012,* p. 45. Obtained from www.census.gov.

[8]Ibid., p. 46.

IN THE REAL WORLD:

MIGRATION FLOWS INTO THE UNITED STATES, 1986 AND 2010

As is well known and has been the source of considerable controversy, the number of annual migrants into the United States has been increasing rapidly in recent years. Table 6 gives data on the total number of immigrants and their sources* for 1986 and 2010. In 1986 there were 601,708 immigrants; in 2006 the annual inflow had more than doubled to 1,266,264, but declined by 2010 to 1,042,625. (Note, of course, that there is likely to be some understatement in the totals because it is very difficult to get a precise count of all immigrants.)

Beyond these totals, Table 6 also indicates the regions of origin of the migrants, as well as the leading countries of origin. As can be seen, the two largest regional sources are the Americas and Asia. Asian immigrants in 1986 constituted 44.6 percent of the total flow, while migrants from Latin America and the Caribbean accounted for 41.5 percent. These two regions continued to dominate in 2010, with the number of immigrants from the Americas falling slightly to 40.6 percent and those from Asia falling to 40.5 percent. Whereas the large majority of U.S. immigrants in the late 19th and early 20th centuries came from Europe, the European countries sent only 10.4 percent of the total U.S. immigrants in 1986 and only 8.5 percent in 2010.

Looking at the countries of origin, Mexico was the leading source country in both years, with 11.1 percent in 1986 and 13.3 percent in 2010. The absolute number of Mexican immigrants in 2010 was more than twice the number of Mexican immigrants in 1986, although declining in number in very recent years. China was the second-largest source country in 2010 (6.8 percent of the total), while it had been eighth-largest in 1986. The number of Chinese immigrants in the annual flow nearly tripled between the two years. The Philippines, which had been the second-largest source in 1986, was fourth-largest in 2010. India sent 69,162 migrants (third-largest source at 6.6 percent) in 2010 (many of them entering the United States under the H-1 skilled-labor visa program), compared with 26,227 in 1986 (sixth-largest source at 4.4 percent). Finally, the Republic of Korea, which had been the third-largest source country in 1986, dropped out of the top eight countries in 2006.

*Inflow of new legal permanent residents by country of birth.

Source: Migration Policy Institute, "MPI Data Hub," obtained from www.migrationinformation.org/DataHub/countrydata/data.cfm.

TABLE 6   U.S. Inflow of Foreign Population, 1986 and 2010

Region of Origin	Number, 1986	Percentage of Total	Number, 2010	Percentage of Total
Africa	17,463	2.9%	101,351	9.7 %
The Americas	249,588	41.5	423,784	40.6
Asia	268,248	44.6	422,058	40.5
Europe	62,512	10.4	88,730	8.5
Other/Unknown	389	0.6	10,705	0.02
Total	601,708		1,042,625	

Largest Countries of Origin	Number, 1986	Percentage of Total	Largest Countries of Origin	Number, 2010	Percentage of Total
Mexico	66,533	11.1%	Mexico	139,120	13.3%
Philippines	52,558	8.7	China	70,863	6.8
Korea, Republic of	35,776	5.9	India	69,162	6.6
Cuba	33,114	5.5	Philippines	58,173	5.6
Vietnam	29,993	5.0	Dominican Republic	53,870	5.2
India	26,227	4.4	Cuba	33,573	3.2
Dominican Republic	26,175	4.4	Vietnam	30,632	2.9
China	25,106	4.2	Haiti	22,582	2.5

Source: Migration Policy Institute, "MPI Data Hub," obtained from www.migrationinformation.org/DataHub/countrydata/data.cfm.

up to 2010. While there are many different reasons for such large-scale migration, including economic, political, and familial ones, we focus mainly on the economic causes and consequences in this chapter.

Technically, the desire to migrate on the part of an individual depends on the expected costs and benefits of the move. Expected income differences between the old and new location, costs of the move, cost-of-living differences between the two locations, and other nonpecuniary net benefits in the new location such as health facilities, educational opportunities, or greater political or religious freedom figure into the decision to migrate. Even within this more general framework, expected wage or income differences are an important factor. At the same time, the movement of labor can influence the average wage in both the old and the new locations. For both countries, the movement of labor thus has welfare implications similar to capital movements and trade in goods and services.

Economic Effects of Labor Movements

The economic implications of labor movements between countries can be observed most readily by using a figure similar to that used for capital. Assuming that labor is homogeneous in the two countries and mobile, labor should move from areas of abundance and lower wages to areas of scarcity and higher wages. This movement of labor causes the wage rate to rise in the area of out-migration and to fall in the area of in-migration. In the absence of moving costs, labor continues to move until the wage rate is equalized between the two regions (see Figure 2). The labor force of both countries is represented by the length of the horizontal axis. The demand (the marginal physical product) for labor in each country is denoted by demand curves D_I and D_{II}. If markets are working perfectly and labor is mobile, the wage in both countries should settle at $0W_{eq}$, and $0L_1$ labor will be employed in country I and L_10' in country II. Suppose that the markets have not jointly cleared and that the wage in country I remains below that of country II. This would be the result if $0L_2$ existed in country I and country II had only L_20' labor. If labor now responds to the wage difference, labor should move from country I to country II. As this takes place, the wage in country I

**FIGURE 2**   **Labor Market Equilibrium—The Two-Country Case**
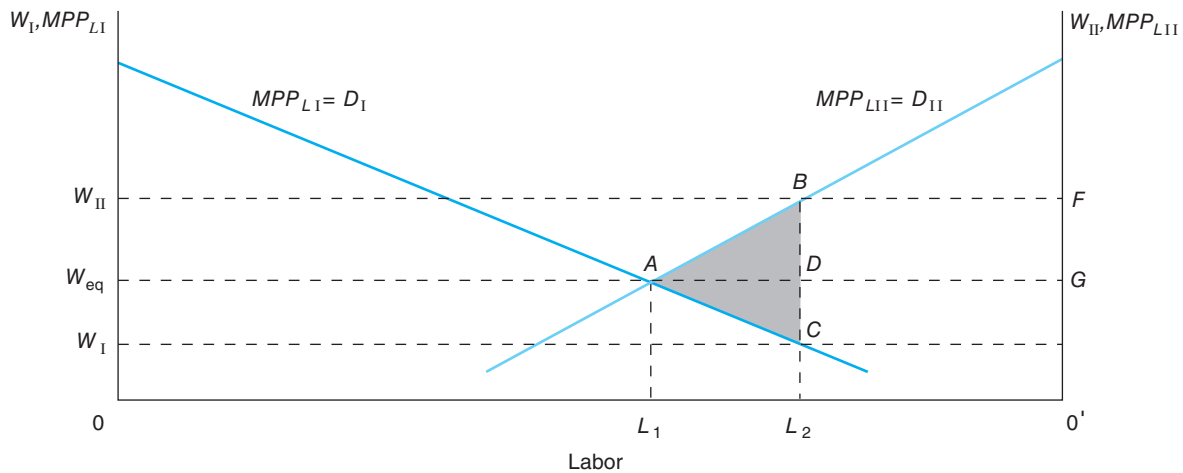
The demand for labor in country I (the $MPPL_I = D_I$) is graphed from the left, and the demand for labor in country II (the $MPPL_{II} = D_{II}$) is graphed from the right. The total supply of labor available in both countries is indicated by the length of horizontal axis $00'$. If labor markets are working perfectly and there are no barriers to labor movements, labor will move between countries until the MPP of labor (and thus the wage) is everywhere the same. This occurs at point A with the resulting equilibrium wage, $0W_{eq}$; $0L_1$ labor is employed in country I, and L_10' labor is employed in country II.

should rise while that in country II should fall until $0W_{eq}$ exists in both countries. As these adjustments occur, output falls in country I and rises in country II. The remaining laborers in country I are better off both absolutely (due to the higher wage) and relatively, as the productivity of the other factors falls with the reduced labor supply. In country II, the opposite takes place. With the fall in the wage rate in country II, labor is less well-off. Productivity of the other factors, however, has risen with the increased use of labor, so owners of these factors are better off. The other factors in country II gain area *ABFGD,* while country II's labor loses area *DBFG.* The amount of income earned by the new migrants is L_1ADL_2.

What can be said about the change in overall well-being in country I, country II, and the world as a result of the labor movement? Given the existence of diminishing marginal productivity of labor in production, other things being equal, output (GDP) in country I falls at a slower rate than the decrease in the labor force, leading to an increase in per capita output. In country II, output (GDP) grows more slowly than the increase in the labor force, leading to a decrease in per capita output. Finally, the world as a whole gains from this migration since the fall in total output in country I (area L_1ACL_2) is more than offset by the increase in output in country II (area L_1ABL_2) by the shaded area *ABC*.

An even clearer case of world gains from migration occurs if it is assumed that market imperfections within country I lead to an initial excess supply of labor. Now not only do wages differ between country I and country II, but some labor remains unemployed in country I at the institutional (traditional) wage rate. This above-equilibrium wage could be the result of minimum wage laws and labor union–induced downward wage rigidity in manufacturing or of the existence of an agricultural sector where families simply divide up farm output among all members (workers thus receive their average product, not their marginal product). This excess supply is often called **surplus labor** in the economic development literature. Figure 3 shows distance L_20' as the amount of labor available in country II, and

FIGURE 3   The Effect of Labor Migration in the Case of Surplus Labor
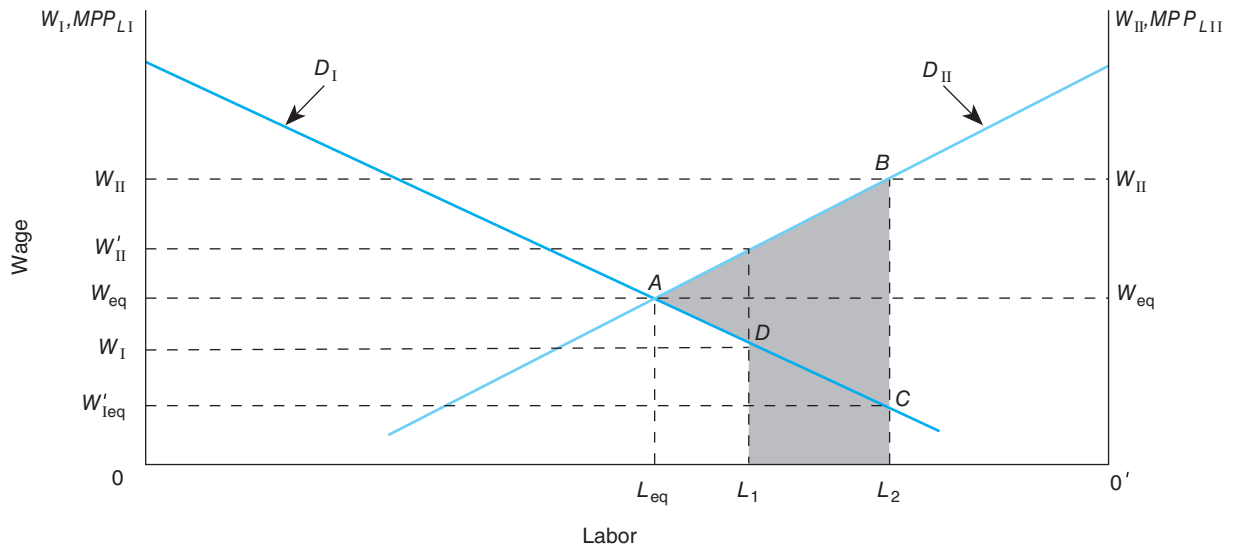

An initial state of market disequilibrium exists with a wage rate of $0'W_{II}$ in country II and of $0W_I$ in country I. The wage difference is accompanied by unemployment of L_1L_2 workers in country I (I's initial labor force is $0L_2$). The movement of these unemployed workers to country II causes output to increase in country II and the wage in country II to decline to $0W'_{II}$ Because these workers were not employed in country I prior to migrating, output in country I remains unchanged, and per capita income increases. Complete market adjustment (equalization of labor productivity and wages) requires that $L_{eq}L_1$ additional workers migrate from country I to country II. This movement causes the wage in country II to fall even further (to $0W_{eq}$) while at the same time causing the wage in country I to increase to $0W_{eq}$.

distance $0L_2$ as the amount of labor in country I. The labor in country II is employed at the domestic equilibrium wage of $0'W_{II}$ while in country I the prevailing wage rate is $0W_I$ (instead of the lower, market-clearing $0W'_{Ieq}$), leading to only $0L_1$ people being employed. L_1L_2 people are thus currently unemployed at the prevailing wage rate. Migration of unemployed workers L_1L_2 from country I to country II in this case leads to an expansion of output in country II without any reduction in output in country I. Complete equalization of wages requires that additional $L_{eq}L_1$ workers move from country I to country II so that $L_{eq}0'$ workers are employed in country II. If this additional migration occurs, output in country I declines because previously employed labor, $L_{eq}L_1$, leaves the country. The effect of migration resulting from surplus labor, while similar in direction to that in the earlier full-employment case, produces different magnitudes of results. The gain in per capita output in country I caused by the migration is clearly greater because the loss of unemployed workers, L_1L_2, does not affect country I's total output. The increase in total output and the decline in per capita output in country II is the same as before (see Figure 2), and the net world gain (area ABC plus area L_1DCL_2—the shaded area) is larger by L_1DCL_2, that is, the value of production forgone in country I as a result of the unemployment. This example points out that the greater the number of market imperfections—in this case a domestic market distortion (failure of the domestic labor market in country I to clear) and an international distortion (differential wage rates across countries)—the greater the potential gains from removing these distortions.

Migration of labor (or capital) also affects the composition of output and structure of trade in the countries involved. The inflow of labor into country II is similar in effect to growth in the labor force discussed in Chapter 11 (see Figure 4). Given full employment, at constant international prices the increase in the labor force in country II leads, according

FIGURE 4   **The Growth Effects of Labor Market Adjustment and Migration**
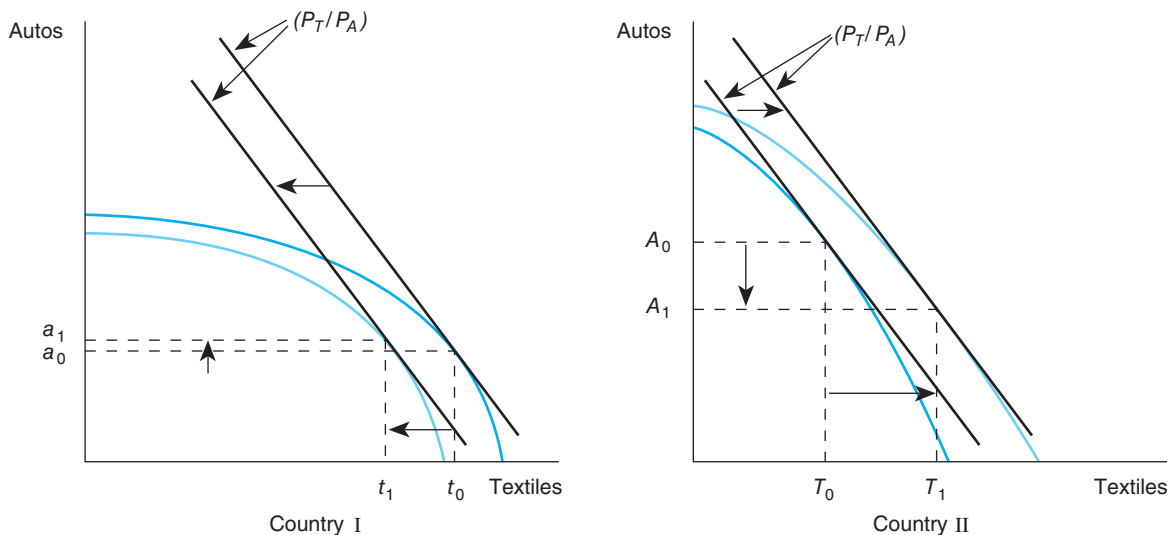
The movement of labor from country I to country II is indicated by the outward shift of the PPF for country II and the inward shift of the PPF for country I. Assume that country I is the labor-abundant country exporting the labor-intensive good (textiles) and importing the capital-intensive good (autos) prior to the labor migration and that the two countries in question are small countries. The Rybczynski theorem indicates that this change in relative labor supplies will lead country I to contract production of textiles (the labor-intensive good) from t_0 to t_1 and expand production of autos from a_0 to a_1. Country II, on the other hand, will expand production of textiles from T_0 to T_1 with the newly acquired labor and reduce the production of autos from A_0 to A_1. Both production adjustments are ultra-antitrade in nature since factor flows have in effect substituted for trade flows.

to the Rybczynski theorem, to an expansion of output of the labor-intensive good (textiles) and a contraction in output of the capital-intensive good (autos). Assuming that country I is the labor-abundant country, that country II is the capital-abundant country, and that trade between the two follows the Heckscher-Ohlin pattern, the effect of the labor movement between the two can be examined. Output of the export good in country II declines and output of the import good increases. Thus, the production trade effect is an *ultra-antitrade effect.*

In a similar fashion, the reduction in labor in country I causes production of the labor-intensive good to fall and production of the capital-intensive good to rise. The production effects in both countries are symmetric and are ultra-antitrade in nature. The total effect of the labor movement on the volume and structure of trade will ultimately depend not only on the production effects but also on the consumption effects, which reflect the income changes and the income elasticity of demand for the two products in both countries. Finally, this analysis assumes the absence of any price distortions in either country and assumes that international prices do not change as a result of the factor movements. Price distortions and changes in international prices could alter these conclusions. The analysis of factor movements with price distortions and world price changes is beyond the scope of this text.

Additional Consitderations Pertaining to International Migration

The previous models help us understand some of the basic issues that affect the politics of labor migration. It is not surprising that labor in country II wants restrictions against immigration because new workers lower the wage rate. For example, in early 2009, strikes occurred in the United Kingdom as workers protested that the French oil firm Total had awarded a U.K. construction contract to a company that would bring in foreign workers for use in production in the United Kingdom.[9] On the other hand, owners of other resources such as capital favor immigration because it increases their returns. At the same time, labor in country I favors out-migration (emigration), while capital owners tend to discourage the labor movement. While the simple models are useful in providing an understanding of the basic economics involved, several extensions of this analysis are important to discuss briefly.

First, the new immigrant might transfer some income back to the home country. When this happens, the reduction in income (from home production) in country I is at least partly offset by the amount of the transfer, while the increase in income resulting from the increased employment in country II is reduced by the amount of the transfer. Assuming that the transfer is between labor in the two countries, labor income in country I is enhanced and total income (and per capita income) available to the labor force in country II is further reduced. In fact, a study of remittances submitted by Greek emigrants indicated that the income, employment, and capital formation benefits to Greece from these remittances were substantial, while the costs of the emigration itself to Greece were limited (see Glytsos, 1993). More recently, the top four remittance-receiving countries in 2010 were India (estimated to have received $55.0 billion), China ($51.0 billion), Mexico ($22.6 billion), and the Philippines ($21.3 billion). In 2010, the estimate in total was that developing countries received $325.5 billion in remittances; for comparison purposes, this amount was annually about 2.5 times the amount of foreign aid received by these countries. Developed countries also, of course, receive immigrant remittances ($115 billion in 2010).[10]

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[9] Neil King, Jr., Alistair MacDonald, and Marcus Walker, "Crisis Fuels Backlash on Trade," *The Wall Street Journal,* January 31–February 1, 2009, pp. A1, A6.

[10] The World Bank, *Migration and Remittances Factbook 2011,* 2nd ed., p. 21, obtained from www.worldbank.org.

IN THE REAL WORLD:

IMMIGRANT REMITTANCES

A neglected economic feature in the immigration debate (both with respect to legal immigration and illegal immigration) is the flow of funds that occurs from the immigrants to their relatives back in their home countries. These flows can have significant effects on the countries from which the migrants originated.

A recent set of estimates of the World Bank suggests the magnitude and impact of these flows. Immigrant remittances were estimated to be $416 billion during 2009, with $307 billion of that amount going to developing countries. However, these were only the recorded flows. In fact, unrecorded flows to the developing countries were thought to be at least 50 percent larger than the recorded flows, which implies a total annual flow of about three-quarters of a *trillion* dollars [$307 billion + (1.50)($307 billion) = $768 billion]. In fact, even using only the recorded flows, the remittances were the second largest item in external funds received by developing countries (behind foreign direct investment). The funds were more than 2.5 the amount of foreign aid received from developed countries. For specific countries as examples, data indicate that in 2008, Bangladesh received $9.0 billion in remittances and $2.1 billion in aid, Brazil received $5.1 billion in remittances and $500 million in aid, and the Dominican Republic received $3.6 billion in remittances and only $200 million in aid. It has also been estimated that remittances to Mexico were equivalent to 2.8 percent of Mexico's GDP in 2008. Research suggests that remittance flows from the United States to Mexico are influenced by a number of factors including social capital, exchange rates, interest rate differentials, income, and proximity of migrants to Mexico. Interestingly, illegal immigrants to the United States from Mexico seemed more likely to send funds back to their families than did legal immigrants to the United States from Mexico.

Remittances of this size can clearly benefit the recipient countries. An estimate by the World Bank is that such remittances have reduced the poverty rate by almost 11 percentage points in Uganda, 6 percentage points in Bangladesh, and 5 percentage points in Ghana. Such funds help the recipients purchase consumer goods, housing, education, and health care. The effect also seems to be countercyclical—when the fund-receiving countries go into recession, for example, the inflow of remittances seems to increase (in contrast to regular private capital flows, which would decrease in that instance). In addition, when substantial labor migrates abroad, this out-migration can relieve some of a labor surplus in the sending country and put upward pressure on wage rates.

The sizable level of remittances does not necessarily imply that the migrant outflow from the home countries is therefore a positive force for those countries, however. When the migrants leave, they often take substantial human capital with them because the migrants can be high-skilled workers. The tax base in the labor-sending countries is also being eroded when the workers leave—one estimate was that in 2001, immigrant Indians in the United States were equivalent to 0.1 percent of India's population but equivalent to 10 percent of the national income of India. This fact meant that India's lost tax revenue was perhaps equal to 0.5 percent of its GDP. In addition, large remittances into a country can lead to a rise in the value of that country's currency and thus to a reduction in the country's ability to export. Further, the inflow of funds may have an adverse impact on the work effort of the family members receiving the funds and thus reduce economic growth.

In summary, the size of immigrant remittances presently being transmitted is substantial. There are positive and negative effects associated with the migration flow and with the remittances, and the net impacts on the home countries receiving the funds will vary from case to case. In any event, in today's world, these flows and their impacts clearly need to be included in any analysis of labor migration.

Sources: Dilip Ratha, "Remittances: A Lifeline for Development," *Finance and Development* 42, no. 4 (December 2005), pp. 42–43; "Sending Money Home: Trends in Migrant Remittances," *Finance and Development* 42, no. 4 (December 2005), pp. 44–45; Gordon H. Hanson, "Illegal Migration from Mexico to the United States," *Journal of Economic Literature* 44, no. 4 (December 2006), p. 872; Kasey Q. Maggard, "The Role of Social Capital in the Remittance Decisions of Mexican Migrants from 1969 to 2000," Federal Reserve Bank of Atlanta Working Paper 2004–29, November 2004; The World Bank, *Migration and Remittances Factbook 2011*, 2nd ed., obtained from www.worldbank.org.

A second issue is the nature of the immigration. We have assumed so far that the immigration is permanent, not temporary. A temporary worker, such as a Polish asparagus worker in Germany in the earlier vignette, is often called a **guest worker.** In the preceding analysis, all workers were assumed to be identical and the new immigrant thus received the same wage-benefit package as the domestic worker. This is not an unrealistic assumption because many countries do not permit employers to discriminate against permanent

immigrants. A two-tier wage structure is thus not possible. However, these restrictions do not often hold for guest workers or seasonal migrants.

If migrant labor is not perceived as homogeneous with domestic labor, it is possible for the owners of capital in the recipient country to gain without reducing the income of domestic labor (see Figure 5). If employers can discriminate against the migrant worker, they will hire L_1L_2 short-term guest workers at the new market-clearing wage, $0W_2$, subsidize the initial level of domestic workers by the amount of the total wage difference, $W_2W_1AB,$ and gain area ABC. In this instance, country II clearly benefits because the permanent domestic labor force is no worse off and the owners of capital are clearly better off. It is not surprising that there is less opposition to temporary immigration than permanent migration, and there seemed to be none in the earlier asparagus example. It also is not surprising to see home labor discourage even seasonal labor immigration if it perceives that short-term migration keeps average wage rates fixed in the presence of rising production and product prices.

We need to make some final observations about the nature of the migrant and the implications of migrant characteristics on both countries. The assumption that workers are homogeneous is certainly not true in the real world, and the welfare implications that accompany migration can vary as a result. The labor force in each country possesses an array of labor skills ranging from the untrained or unskilled to the highly trained or skilled. For this discussion, let us assume that each country has only two types of labor, skilled and unskilled. The implications of out-migration on the home country vary according to the level of skill of the migrants.

The traditional migrant responding to economic forces tends to be the low-skilled worker who is unemployed or underemployed in the home country and who seeks employment in the labor-scarce country with the higher wage. The motive for the migration is not only the higher wage in the host country but also the greater probability of obtaining full-time work,

FIGURE 5   The Effects of Migrant Wage Discrimination
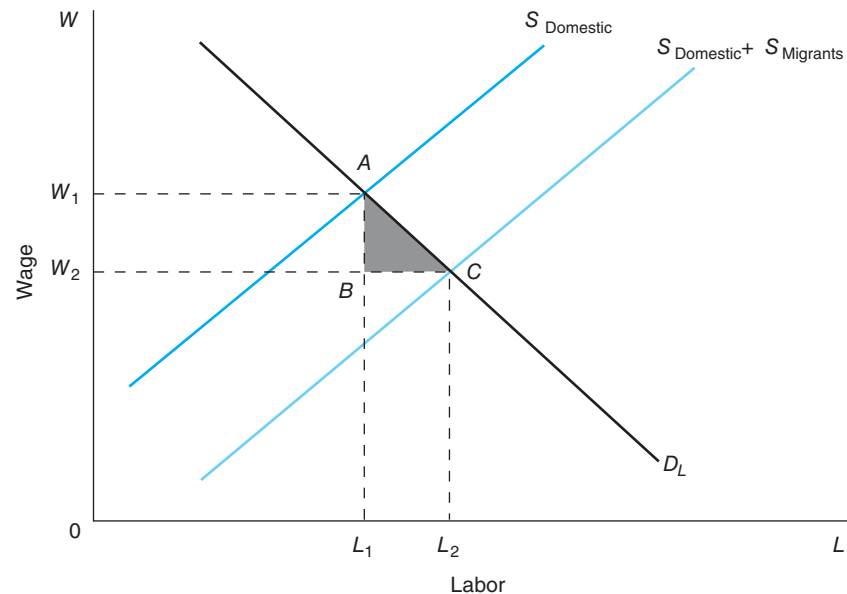
The immigration of labor leads to a rightward shift in the labor supply curve, producing a new equilibrium wage, $0W_2$. By paying all labor the market wage $0W_2$ and then subsidizing each of the initial $0L_1$ domestic workers by amount W_1W_2, domestic labor is left no worse off and the producer gains a net surplus of area ABC. This gain can take place only if the producer can effectively discriminate between domestic and guest workers.

along with other considerations. The movement of low-skilled workers based on expected income differentials has effects on the two countries that are consistent with our previous analysis. Total world output rises, output falls and average low-skilled labor income rises both absolutely and relatively in the home country, and output rises and average income of low-skilled labor falls both absolutely and relatively in the host country. It is important to note that the return to skilled labor in the host country, like capital, is likely to rise.

The host country may also experience increased social costs through larger expenditures for human safety-net programs (unemployment transfers, education, housing and health subsidies, etc.) as the number of unskilled workers increases relatively and absolutely. Because the unskilled worker tends to suffer greater employment instability, an increase in the relative number of unskilled workers is generally linked to higher social maintenance costs. An increase in these indirect costs results in higher taxes, therefore reducing the net gain for owners of other factors such as capital. The reduction in average low-skilled wages, including the concomitant increased taxes, is thus greater than suggested by the fall in the market wage alone. It is not surprising that most countries attempt to control the inmigration of low-skilled workers. In an attempt to avoid some of the indirect social costs of this immigration, several European countries such as Switzerland have in the past adopted guest worker policies that allow low-skilled labor to immigrate for short periods of time, but the workers do not qualify for citizenship and can be required to leave the country at the government's request.

The movement of skilled labor, especially between developing and industrialized countries, is a relatively recent phenomenon. However, an increasing number of highly educated people [economists(?), physicians, research scientists, university professors, and other skilled professionals] are leaving the developing countries for the United States, Canada, and western Europe—a movement often referred to as the **brain drain.** Higher salaries, lower taxes, greater professional and personal freedom, better laboratory conditions, and access to newer technologies, professional colleagues, and the material goods and services found in these countries explain this movement of labor. In many cases, the person had received formal training in the industrialized country and found it difficult to readjust, at least professionally, to life in the home country.

From an economic standpoint, if markets are working and labor is paid its marginal product in both countries, the analysis of skilled-labor movements is similar to that of unskilled labor, except for the differences in magnitude connected to the difference in marginal products. It is possible, however, that skilled labor is in such short supply in the home country that the loss of these workers leads to a fall in per capita income, not an increase. The opportunity cost to the home country may be even larger than indicated by the market wage if the skilled worker generates other positive benefits (externalities) for the home country such as a general improvement in the level of technology. In addition, to the extent that the home country has subsidized the education of these people (i.e., invested in their accumulation of human capital) the out-migration represents a loss of scarce capital on which a reasonable social rate of return was expected. Finally, the cost to the home country is even greater if markets are distorted by government regulation in a way that the individual was receiving something less than the free-market wage. In that event, the wage formerly received by the worker understated the true market value of the worker.

The opposite is true in the recipient country. The productivity of the immigrant skilled worker is relatively higher, the possibility of positive externalities is greater, and expected indirect social costs are lower than with the low-skilled migrant. In addition, the inflow of the skilled professional reduces the domestic price of nontraded services such as medical care. In this case, the pressure against immigration will come from professional labor groups, not from the overall labor force. In general, however, most industrialized countries have done little to restrict the immigration of skilled workers, and in some cases have made it easier for skilled workers to obtain work visas than is the case for unskilled workers.

The developing countries are in a quandary. The migration of skilled labor often represents a substantial static and dynamic cost to them. Because the combination of externalities, market wage distortions, and the opportunity cost of the human capital investment frequently exceeds the income paid to the skilled worker, countries are often inclined to restrict the out-migration of skilled labor. Until recently, for example, restrictions of this kind were common in eastern Europe. However, the loss in personal freedom associated with labor movement restrictions makes such restrictions unappealing. Restriction of personal freedoms may also lead to lower productivity and a loss of professional leadership and entrepreneurship, which is important to these countries as they undergo economic reforms. Several policies can be directed toward removing market imperfections: (1) paying skilled labor its marginal product, (2) subsidizing professionals so that their income reflects their true social value including externalities, (3) taxing out-migrants or requiring remittances from them to cover at least part of the investment in human capital, (4) guaranteeing employment and high-quality jobs to those who return home following training abroad, and (5) appealing to the nationalism of the skilled worker. These policies may be more attractive than the restriction of free movement between countries.

While the movement of skilled labor from developing countries to the industrialized countries may lead to an increase in efficiency and world output in the static sense, it contributes to increased divergence of income between low-income and high-income countries. In addition, the loss of this very scarce resource alters the dynamics of change in the developing countries. Thus, the correct policy response is not clear. The answer to the question, Which is larger?—the social cost reflected in the loss in personal freedoms caused by emigration restrictions or the social cost associated with free outward movement of labor—must be sought beyond economic paradigms. In the end, individual freedom of movement may well dominate any economic considerations.

Immigration and the United States— Recent Perspectives

We cannot leave this analysis of international labor movements without a brief discussion of the large volume of research related to the economic impact of immigration on host countries in general and the United States in particular.[11] Inasmuch as this research is directed toward an examination of immigrant performance, impact on host-country labor markets, and the likely impact of immigration policy, a brief presentation of some key findings is a fitting way to conclude our discussion of the economic implications of international labor movements. What emerges very clearly in the case of the United States is that the economic characteristics of immigration have been changing in recent years both with respect to initial migrant earning performance and the broader, longer-term implications for the economy in general. Up through the 1970s, based on the stylized facts regarding immigration in the first half of the century, it was widely accepted that although immigrants as a group were initially in an economically disadvantaged position, their earnings soon caught up with the earnings of those domestic workers with similar socioeconomic backgrounds and *eventually surpassed them.* What was interesting was that this adjustment took place in a relatively short time, within 10 to 20 years on average, and appeared to have little or no adverse impact on the domestic labor market. Much of this shift can be traced to the fact that U.S. immigration laws were changed in 1965 toward favoring immigrants with existing family ties to residents of the United States and away from a focus on the skill levels of the immigrants. Only about 15 percent of new green cards recently issued were awarded for work reasons, rather than for family relationships, humanitarian causes, and other reasons.[12]

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[11]Much of this research is nicely summarized in Borjas (1994).

[12]Federal Reserve Bank of Dallas, *2010 Annual Report—From Brawn to Brains: How Immigration Works for America,* p. 14.

Research by George Borjas (1992; 1994, p. 1686) also indicated that the origin of U.S. immigrants had changed, with a marked increase in the proportion coming from developing countries. Concomitant with this change in country of origin, there was a decline in the immigrants' skill levels over much of the postwar period. Borjas therefore concluded that it is not likely that the more recent wave of immigrants will continue to obtain wage parity with domestic workers of similar socioeconomic backgrounds.[13] This suggests not only that they will likely have a heavier participation rate in U.S. welfare programs but also that this differential will carry over into second-generation wage and skill differences, which will be reflected in widening ethnic income differences within the overall labor market.[14] In fact, some research suggests that immigrants with less than a high school education are a net cost to the United States, in the sense that the value of the public services they use exceeds the taxes they pay. For high-skilled immigrants, the reverse is true, in that the taxes paid exceed the cost of the services used.[15] There is also weak evidence that the increasing numbers and declining skill levels of immigrants may have contributed to the relative decline of domestic unskilled wages in the 1980s. For example, Borjas, Richard Freeman, and Lawrence Katz (1992) concluded that perhaps one-third of the 10 percent decline in the relative wage of high school dropouts from 1980 to 1988 could be explained by immigration flows. If these trends are indeed the case and continue into the 21st century, there will likely be far-reaching and long-lasting effects on the labor force, net welfare costs, and income distribution in the United States. Countries that are able to effectively control the skill characteristics of the new migrants will be able to negate some of the aforementioned negative effects. It is thus not surprising that immigration policy is a "hot topic" in government circles in Washington, DC. Adding to the discussion is the emerging view that, without continued immigration, the United States may soon see a marked slowdown in the growth of its labor force as its population gets older.

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[13]Similar results have been observed by Wright and Maxim (1993) for Canada.

[14]See Borjas (1993) for analysis of intergenerational characteristics of migrants.

[15]Federal Reserve Bank of Dallas, *Annual Report 2010—From Brawn to Brains: How Immigration Works for America,* p. 12.

IN THE REAL WORLD

IMMIGRATION AND TRADE

Some recent literature has been concerned with the links that may exist between the stock of immigrants in a country and the trading and other relationships of the host country with the home countries of the immigrants. This literature makes the broader point that labor movements between countries affect not only labor markets *per se* in the receiving and sending countries of the labor but also have secondary impacts on a range of other economic variables.

An example of work that links immigration to trade is provided in a paper by Roger White (2007). In this paper

White employed a gravity model (see the earlier discussion in Chapter 10, pp. 195–96) in an attempt to explain various influences on U.S. trade. He empirically investigated the trade of the United States with 73 trading partners for the time period 1980–2001. Gravity model equations were run with the dependent variables alternately being U.S. total trade, U.S. exports, and U.S. imports. Standard independent variables for the gravity model such as the GDP of the United States and the GDPs of partner countries were included, as were exchange rates and distance. Two of the other independent

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IMMIGRATION AND TRADE

variables were (1) whether or not there existed a free-trade agreement between the United States and any given partner (which would, other things being equal, increase the amount of trade) and (2) whether or not English was an official language of the partner (which would also increase trade).

The independent variable of prime interest was the number of immigrants from the given partner country who were living in the United States. The central hypothesis in this immigrant-trade literature is that trade will be enhanced between the sending country of the migrants and the host country because of, for example, the desire of the immigrants to consume products to which they are specifically accustomed and that might not be produced with identical characteristics in the host country. In addition, social and business contacts and networks between the immigrants and residents/firms in the home country may make it easier and less costly to continue operating within those established relationships than to develop a whole new set of relationships (that is, transaction costs may be kept lower than otherwise would be the case).

The regressions that were run by White generally produced no surprises for the traditional variables. Of importance for this chapter was the finding that trade volume was indeed increased by the presence of immigrants. For the full sample of 73 countries, White estimated that, other things being equal and on average, a 10 percent increase in the stock of immigrants in the United States from any given trading-partner country would increase U.S. imports from that country by 1.3 percent and would increase U.S. exports to that country by 1.1 percent. Further, a new finding—one that had not been uncovered in previous studies—emerged when White disaggregated the sample into high-income, medium-income, and low-income partner countries. For the low-income partners, a 10 percent increase in the stock of immigrants from any given country would increase U.S. imports from that country by 4.66 percent and would increase exports to that country by 1.47 percent. Stated in more concrete terms, for example, he estimated that the average U.S. immigrant from China adds $11,442 annually to the U.S.–China total trade, while examples of corresponding numbers for other countries' immigrants to the United States are $10,724 for Bangladesh, $6,252 for Nigeria, $718 for Nicaragua, and $164 for Vietnam. However, and importantly, there did *not* appear to be any trade-increasing effects of increased immigration from high-income and medium-income trading partners. Thus, the overall impact of the stock of immigrants on trade was in effect accounted for by immigrants from low-income countries and not by

immigrants from the medium- and high-income countries. These are intriguing findings that clearly call for more investigation as to the reasons for their occurrence.

An extension of this work into the broader area of culture and values has been explored by White and Bedassa Tadesse (2008). They investigated what they labeled as the "cultural distance" between countries and the effects of that distance on trade flows, and they employed data from World Values Surveys and European Values Surveys to do so. These surveys involve the completion of questionnaires by representative samples of the population in many countries.* In the White/Tadesse paper, the survey results used were from the 1998–2001 time period, and they contained information on politics, religion, gender roles, ethical considerations, and other such matters. White and Tadesse constructed two indexes for the United States and for each of 54 trading partners, and, for each index, a greater difference in the given index between any two countries indicated greater "cultural distance."

Using these indexes and 1997–2004 trade data and other relevant economic information, White and Tadesse then ran gravity model regressions with U.S. exports and U.S. imports used alternately as the dependent variable. Normal results were generally obtained for the signs of traditional independent variables, such as GDP and the existence of a trade agreement. The independent variable of the stock of immigrants in the United States from any given country yielded statistically significant positive signs regarding trade, as in the White study discussed in the previous paragraphs. With respect to the cultural indexes, both the export and the import regression yielded statistically significant negative signs for one of the two indexes, meaning that a greater cultural difference between the United States and any given trading partner resulted in, other things being equal, less trade between the United States and that partner. However, for the other cultural index, the expected negative sign occurred for U.S. imports but not for U.S. exports to the given partner (in fact, that latter result was a positive sign). Hence, although cultural distance does seem to play a role in some way with regard to the volume of trade, further empirical (as well as theoretical) investigation appears to be necessary.

*Further information on these surveys is available at www.worldvaluessurvey.org.

Sources: Roger White, "Immigrant-Trade Links, Transplanted Home Bias and Network Effects," *Applied Economics* 39, no. 7 (April 20, 2007), pp. 839–52; Roger White and Bedassa Tadesse, "Cultural Distance and the U.S. Immigrant-Trade Link," *The World Economy* 31, no. 8 (August 2008), pp. 1078–96.

IN THE REAL WORLD:

IMMIGRATION INTO THE UNITED STATES AND THE BRAIN DRAIN FROM DEVELOPING COUNTRIES

Several recent studies have shed light on the type of labor that decides to emigrate to the United States and the impact of immigrants on the U.S. economy. While there is considerable debate regarding the Borjas claim that current U.S. immigrants are relatively less skilled than their earlier counterparts (and thus that current migrants are less likely to have a positive impact on the economy than their predecessors),* it appears clear that the typical person who has emigrated from most developing countries in the past is relatively skilled.

In 1999 William J. Carrington and Enrica Detragiache presented the results, using 1990 census data, of an examination of the educational background of the *stock* of developing-country emigrants (not the *flow* of migrants, which Borjas was examining) over 25 years of age who now reside in the United States.[†] The first striking result in the study was that individuals with no more than a primary education (zero to eight years of schooling) accounted for only about 7 percent of the total immigrants (i.e., about 500,000 of the total of 7 million immigrants). Approximately 53 percent (3.7 million of the 7 million) were persons from other North American countries (which included Central American and Caribbean countries in the Carrington and Detragiache definition) who had at most a secondary education. Most of these individuals were from Mexico. Almost 1.5 million immigrants (21 percent) were highly educated individuals with a tertiary level of schooling (more than 12 years) from Asia and Pacific countries. (Note: this "highly educated" measure does not include international students in the United States, who were excluded from the "immigrant" definition.) In addition, although small in number (128,000), 75 percent of immigrants into the United States from Africa consisted of highly educated individuals. More than 60 percent of migrants from Egypt, Ghana, and South Africa had a tertiary education, as did 75 percent of migrants to the United States from India. Immigrants from China and South American countries were about equally divided between the secondary and tertiary education levels. Mexico and Central American countries thus appeared to be an exception in that most of the migrants from those countries had education only through the secondary level.

An important point to make is that, in general, individuals who emigrate to the United States tend to be better educated than the average person in their home countries. Further, the migrants often represent a sizable portion of the similarly skilled workforce in their own countries. Carrington and Detragiache present some truly startling statistics in this regard. They calculated the stock of immigrants of a given education level in the United States from any given country and then divided that number by the size of the population of the same education level who remained in the home country. For example, at the tertiary-education level, the number of Jamaican immigrants in the United States divided by the size of the Jamaican population with tertiary education gave a figure of *70 percent.* While the number of Jamaican immigrants is relatively small in absolute terms and the percentage of the Jamaican population with tertiary education is likewise small, this figure gives concrete force to the notion of brain drain from developing countries. Other (small) developing countries also had high numbers with regard to the tertiary-education level—Guyana (70 to 80 percent), The Gambia (60 percent), and Trinidad and Tobago (50 to 60 percent). El Salvador, Fiji, and Sierra Leone had ratios greater than 20 percent. For many countries in Latin America, the ratios that were the highest were those with respect to secondary education rather than tertiary education [e.g., Mexico (20 percent), Nicaragua (30 percent)], but, even so, their magnitude indicates a substantial outflow of skill.

This loss of tertiary-level (and secondary-level) individuals cannot help but impede the economic and social progress of source countries spread throughout the world. However, recent research suggests some mitigating factors. For example, brain drain scientific personnel appear to interact with peers in their home countries, sharing ideas and increasing the flow of innovation from developed to developing countries.

*See George Borjas, *Heaven's Door* (Princeton, NJ: Princeton University Press, 1999); Jagdish Bhagwati, "Bookshelf: A Close Look at the Newest Newcomers," *The Wall Street Journal,* September 28, 1999, p. A24; Spencer Abraham, "Immigrants Bring Prosperity," *The Wall Street Journal,* November 11, 1997, p. A18; "Immigrants to U.S. May Add $10 Billion Annually to Economy," *The Wall Street Journal,* May 19, 1997, p. A5; "The Longest Journey: A Survey of Migration," *The Economist,* November 2, 2002, p. 13 (where an estimate is presented that first-generation migrants to the United States impose an average net fiscal loss of $3,000 per person while the second generation yields an $80,000 net fiscal gain per person); "Give Me Your Scientists," *The Economist,* March 7, 2009, p. 84.

[†]William J. Carrington and Enrica Detragiache, "How Extensive Is the Brain Drain?" *Finance and Development* 36, no. 2 (June 1999), pp. 46–49.

CONCEPT CHECK

1. Could labor movements between countries ever have a protrade effect? If so, under what circumstances?
2. How could temporary migration movements be encouraged by producers and not be objected to by domestic workers?
3. From the standpoint of country per capita income, does it make a difference whether a high-skilled or a low-skilled person migrates? Why or why not?

SUMMARY

This chapter discussed various aspects of international factor movements between countries. Causes and consequences of international mobility of capital and of labor have been examined, and particular attention has been devoted to some implications for international trade and relative factor prices. Movements of factors of production have received relatively little attention in the literature on international economics compared with movements of goods and services, and a systematic and comprehensive framework incorporating the many facets of these movements remains to be formulated. In addition, judgments on the welfare and development implications of factor flows differ according to who is making the assessment and to the weights placed on various objectives. As capital and labor mobility become more prominent in the world economy in the future, it will increasingly become necessary to investigate further the causes, the consequences, and the policy implications of the international movements of factors of production.

KEY TERMS

brain drain
branch plant
foreign direct investment
foreign portfolio investment
foreign subsidiary
guest worker

host countries
multinational corporation (MNC)
   [or multinational enterprise
   (MNE), transnational corporation
   (TNC), or transnational
   enterprise (TNE)]

performance requirements
surplus labor
tariff factories
transfer pricing

QUESTIONS AND PROBLEMS

1. Describe the current net direct investment position of the United States. In which countries is U.S. investment the greatest? In which industries? What are the five largest investor countries in the United States? In what industries is foreign investment concentrated?
2. Compare and contrast the country ownership of the largest industrial corporations with that of the largest banking firms.
3. What are principal reasons often cited for foreign direct investment?
4. Explain how real capital investment in a developing country affects trade, using the Heckscher-Ohlin model and the Rybczynski theorem.
5. What happens to output and the relative sizes of capital stock if controls over foreign ownership keep the marginal productivity of capital from equalizing between two countries?
6. Would the migration of highly skilled labor from a developing country to the United States have the same trade impact as the migration of less-skilled production workers? Why or why not?

7. Why might voters have a very different economic perspective on the immigration of skilled labor such as physicians than would professional groups such as the American Medical Association? What should the role of Congress be in this dispute?
8. If two countries form a common market (no trade barriers or barriers to factor movements), why is it difficult to predict the nature and level of trade between them in the long run?
9. During the heated discussions in the United States about the North American Free Trade Agreement (NAFTA), many observers stated that adoption of the agreement would lead to a surge of investment from the United States into Mexico because of Mexico's much lower wages. From the standpoint of tariff elimination alone, how might NAFTA *reduce* the amount of U.S. investment in Mexico?
10. Briefly explain why there is increasing concern about immigration policy in the United States in recent years. What effects might reducing the inflow of migrants, both legal and illegal, have on the economy?