Investment and Savings

In Chapter 4 we learned that economic growth occurs because of increases in a country's capital stock and in its employed labor force together with increases in the productivity of those two factors of production. In this section of the book we go in depth into the mechanisms that lead to increases in the capital stock and to the increases in productivity that are embodied in capital. Capital increases because individuals and companies decide to invest their funds in the purchase of machinery, buildings, and other capital equipment. If they invest wisely, their production and profits increase. If they invest poorly the capital stock and profits may not increase at all. A farmer in Kenya will plant coffee trees and expect to reap a return when the coffee beans are ripe several years in the future. A large corporation in China will invest in furnaces and rolling mills to produce finished steel products.

To invest, however, the farmer or corporation must first obtain the funds and other resources that make their investments possible. The Kenyan farmer must have money to buy coffee seedlings and to hire labor to help in the preparation of the land. The Chinese steel corporation must find the funds to pay workers to build the furnaces and rolling mills and to purchase the best steel-rolling technology from abroad or from another corporation in China. The funds required may come from savings from the farmer's own income, may be borrowed from members of his or her extended family, or may be a loan from a microcredit institution. The large corporation may sell ownership shares in the company, use its own retained earnings, or borrow from a major bank. All of these sources of funds require that some person or business first save at least part of their income. If all income is consumed for food by the farmer or spent on an expensive limousine for the steel plant manager, there will

be nothing left over to invest. Both the farmer and the steel corporation, however, can borrow from someone else who has saved and use the money to invest, paying it back at some future time.

In this chapter, we start first with the fundamentals of what constitutes good investments—what leads to investments that promote growth either of the individual farmer, the large corporation, or the country as a whole? The principles of good investments from a country's point of view apply equally to investments made by individuals, by private companies, or by governments. However, differences in ownership, in who is making the investment decisions, have a powerful influence on whether the investor applies the principles of good investment correctly. Government officials do not have the same objectives as private companies, and large corporations can pursue goals quite different from a small farmer or proprietor of a five person factory. Foreign investors may have different incentives and goals from domestic investors. As already noted, no one can invest either well or poorly unless someone or some company or government agency first saves. We will briefly explore why households, corporations, and governments save. Of particular interest is that some of the saving done for many developing countries is done by foreigners, not just by citizens of the country itself.

In some cases investors save and invest their own money, but more commonly those who invest are different from those who save. The gap between the savers and investors is filled by a wide variety of financial institutions ranging from banks and the stock market to the government itself. This separation of investors and savers makes possible much higher rates of investment than would otherwise be the case, but it also depends on institutions and government policies that can behave in ways that lead to economic crises, as occurred throughout much of the world in 2008–09. There is, of course, much more to the role of the government in managing the economy than just what it can accomplish through a central bank. Government is both an investor itself and a spender of funds in a wide variety of areas, ranging from income transfers to the poor to paying the salaries of civil servants and the military, that have little to do with investment. In Chapter 11 we explore how the government raises the revenue it needs to make these expenditures and how it uses these resources to help cope with economic crises as they occur.

Chapter 12 deals with the role of the financial sector first in its role as the intermediary that mobilizes savings from individuals and then allocates savings to investors. Efficient management of the financial sector, however, can be undermined by inflation and thus control of inflation is a critical component of any effective growth strategy. The chapter reviews how developing countries have tried to control inflation and avoid financial crises and how their success or failure in these efforts has fostered or undermined the development of the intermediation role of the sector. Chapter 13 explores in greater depth the central role of developing country debt in triggering many financial crises. Developing country debt that leads to crises also involves foreign savings, both private and government, that is then lent to developing countries by international

banks and other financial institutions including multilateral agencies, such as the International Monetary Fund (IMF) and World Bank. Chapter 14 focuses on the role of foreign aid to developing countries (a major form of foreign savings made by aid-giving governments that is transferred to developing countries).

USING INVESTMENT PRODUCTIVELY: COST-BENEFIT ANALYSIS

In many low-income countries, there appear to be abundant opportunities for increased investment that could have significant economic and social benefits, but these investments do not happen. Roads are absent or of poor quality, electricity and telecommunications facilities are in short supply and unreliable, and there seem to be many workers with few factories to employ them. Sometimes, this is because investment funds are not always available, but it is also because the investments that do take place are not always particularly productive. But this in itself is a puzzle: The Solow growth model discussed in Chapter 4 suggests that, in low-income countries where capital is scarce, new investment has the *potential* to be highly productive but that potential is not always realized. Questions about the quantity and productivity of investment become more complicated when foreigners make the investments. Although foreign capital appears to be a ready source of additional investment funds, foreign investment does not always have a good reputation, and in some cases, even where it is productive, it is not always welcomed.

How does one judge whether an investment is likely to be productive or not? One of the most powerful tools for answering this question is **cost–benefit analysis**, which is also referred to as **project appraisal**. This tool is applicable to both private and public investment and to investment made by foreign firms as well. Public or government investors, however, should use the tool somewhat differently from private investors because their objectives are different.

PRESENT VALUE

The investor's calculation normally involves four steps. First, the firm will forecast the **net cash flow** of an investment, measuring the difference between the cash revenues from the sale of the product and the cash outlays on investment, material inputs, salaries and wages, purchased services, and other items.

Second, investors have to adjust their valuation of costs and benefits, depending on whether they happen soon or far into the future. Investors recognize that cash received in the future is less valuable than cash received immediately because in the interim they could earn interest (or profits) on these funds by investing them in

bonds or savings accounts (or in additional, revenue-earning production facilities). Any firm or individual asked to choose between $1,000 today or $1,000 next year would take the money now and place it in a savings account earning, say, 2 percent a year. Then, after one year, the interest payment would boost the savings account balance to $1,020. Equivalently, the prospect of $1,000 a year from now should be evaluated as equivalent today to only $1,000/1.02 = $980. This process of reducing the value of future flows is called **discounting**. Because the interest rate provides a first approximation of the rate at which future cash flows must be discounted, it is usually called the **discount rate**. Discounting takes place over several years, so the discount rate must be compounded over time. In the second year another 2 percent would be earned on the balance of $1,020, and increase it to $1,040.40. The payment of $1,000 two years from now then would be discounted to yield a present value of only $1,000/1.040 = $961. A general expression for the present value, P, is

$$P = F/(1 + i)^t \qquad [10\text{-}1]$$

where F is the value in the future, i is the discount rate, and t is time, usually represented by the number of years. As the interest rate or the number of years increases, the present value of the future cash flow decreases. Note that because project appraisals are most conveniently done at **constant prices**, netting out inflation, the discount rate is a **real rate of interest**, net of inflation.

Investment projects usually have negative cash flows in the early years, when there are large expenditures, then generate positive cash flows in later years, as the new facilities begin to earn revenues. Tree crops such as palm oil and rubber take several years before they become productive and must be cut down and replanted when production falls off because of aging. Such a **time profile** of net cash flow is depicted in Figure 10-1; it is the most common of several possible profiles. To summarize the value of this net cash flow in a single number, each year's net cash flow is divided by the respective discount factor, and the resulting present values are added to give the **net present value (NPV)**:

$$NPV = \sum(B_t - C_t)/(1 + i)^t \qquad [10\text{-}2]$$

where B_t and C_t are the benefits (revenue) and costs in each year t, and i is the discount rate. For a firm, the correct discount rate is the average cost at which additional funds may be obtained from all sources (that is, the firm's cost of capital).

If the NPV of a project happens to equal 0, the project will yield a net cash flow just large enough to cover all the projects costs. In that case, when NPV = 0, the discount rate has a special name, the internal rate of return (IRR), a term we introduced in the discussion of education as an investment in Chapter 8. If the net present value is positive, then the project can cover all its financial costs with some profit left over for the firm. If negative, the project cannot cover its financial costs and should not be undertaken. The higher the net present value, the better the project's financial

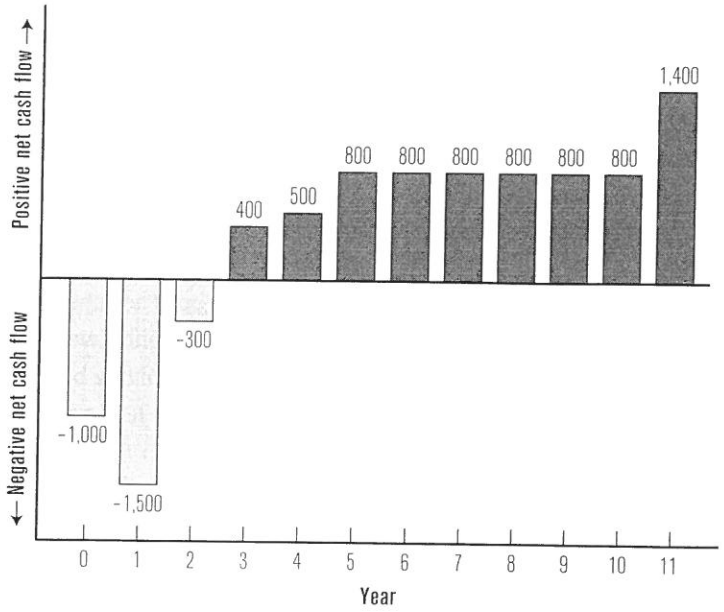

FIGURE 10-1 Time Profile for Investment: Net Cash Flow

The cash flow of a project can be represented by a bar diagram. Cash outflows are shown by bars below the horizontal axis; inflows, by bars above the axis. Year 0 and 1 show investment in construction and equipment, hence the negative cash flows. Year 2 is the startup period, years 3 and 4 show gradually increasing output and cash inflows, and years 5 through 10 show steady output and cash inflows. The project is assumed to end in year 11, when the salvage value of equipment swells the cash inflow.

profile. If the cash flow of Figure 10-1 is discounted at a rate of 8 percent,[1] the net present value is a positive $1,358 (Table 10-1). This calculation indicates that the investment will earn enough to repay the total costs ($2,500 over years 0 and 1) with a (discounted) surplus of $1,358.

Third, investors must consider the risks to both the costs and the benefits of their investments. Simple NPV analysis such as that in Table 10-1 can be misleading because it generates a single summary number for the answer, giving a false sense of precision. In reality, investors cannot be sure in advance of all the costs or the cash flows their investment might generate. Fuel prices might skyrocket or electricity supplies might be cut off, forcing the investor either to buy a new generator or to curtail production. The prices for their products might be either much higher or much lower than the original projections. Political instability might increase costs and disrupt

[1]The return on investment in developing countries can be much higher and much lower than 8 percent, depending on circumstances. We have used 8 percent in our example because it is a common rate of return for such investments.

TABLE 10-1 Net Present Value

YEAR	CASH FLOW FROM FIGURE 10-1 (DOLLARS)	DISCOUNT FACTOR AT 8%*	PRESENT VALUE† (DOLLARS)
0	−1,000	1	−1,000
1	−1,500	0.926	−1,389
2	−300	0.857	−257
3	400	0.794	318
4	500	0.735	368
5	800	0.681	544
6	800	0.63	504
7	800	0.583	467
8	800	0.54	432
9	800	0.5	400
10	800	0.463	371
11	1,400	0.429	600
Net Present Value‡			1,358

*Calculated as $1/(1 + i)^t$ from equation 10–2.
†Calculated as the cash flow times the discount factor.
‡Sum of the present value of each year.

the firm's ability to purchase supplies or sell its products. Therefore, prudent investors calculate a range of NPVs for their investment based on best case and worse case scenarios, testing the sensitivity of the outcome to changes in specific costs or benefits. An investor may decide not to make an investment even if it generates a positive NPV under baseline calculations if the risks around actually achieving that outcome are too great.

Fourth, investors must compare across projects. Just because a project generates a positive NPV does not mean it is the best possible use of investment funds, especially if the firm has a set of alternative projects to consider and a budget that can accommodate several but not all of them. Under these circumstances, investors should select the set of projects that will yield the highest total net present value for the entire investment budget.

Up to this point the methodology is the same for both private and public investors. The next steps calculate the costs and benefits from an economywide perspective. Private investors are typically only interested in whether a project provides an adequate rate of return or profit to themselves. Governments, in contrast, should be concerned with whether a project contributes to the growth of the economy as a whole or to social welfare more broadly. This concern of governments applies both to public investment undertaken by the government itself and to the impact of private investments. Governments are often called on to support private investments in various ways, and their decisions in this regard need to be based on the economy-wide impact of the project, not just on whether the private investors will make a profit or not.

OPPORTUNITY COSTS

Every investment uses goods and services that could otherwise be used for other purposes. In evaluating the investment from an economywide perspective, these goods and services should be valued in terms of the net benefits they would have provided if used in some alternative project—that is, they have **opportunity costs**. An investment in a dam requires saving that otherwise could be invested in a rural road or in elementary schools. Cotton used in a textile factory otherwise could have been exported and sold abroad. The labor used to build a road might have otherwise been used to sink water wells or grow millet. For a private firm, the cost is the market value that it pays for wages, goods, and services. For society at large, the cost is the value of the resources in terms of their next best use. Public sector investments, in particular, should be evaluated using opportunity costs rather than market costs where the two differ.

The opportunity cost to society might differ from the market wage rate if the government pays wages higher than the market clearing value. If 10 farm workers take jobs building a new highway, their opportunity cost is the value of the lost agricultural output due to their leaving the farm, net of the nonlabor recurrent costs of producing that output. This reduction in net output is the value of the **marginal revenue product** and, in this situation, is equal to the opportunity cost of labor.[2] Similarly, if the highway project means that savings will be drawn away from other projects that on average would have earned a return of 5 percent, then the opportunity cost of capital is 5 percent, and this should be used as the discount rate in evaluating the project, even if the government borrows money at 2 percent.

In some countries, the market price of foreign exchange might differ from the opportunity cost, especially in countries where governments manipulate or control the exchange rate. Cotton used in a textile mill otherwise might have been exported; if so, its opportunity cost would be the foreign currency it would have earned as an export. If the cloth produced by the mill would have been imported in the absence of the project, its opportunity cost (a benefit in this case) would be the foreign exchange that otherwise would have been spent on cloth imports.

SHADOW PRICES

The opportunity costs of goods and services for the economy as a whole are called **shadow prices** or **economic opportunity costs**. The first approximation of a shadow price (for land, labor, capital, and foreign exchange) is the price paid by private participants in the market. Interference in the market distorts market prices from their economic opportunity cost: taxes and subsidies of all kinds, monopoly power, minimum wages, interest rate controls, tariffs and import quotas, price controls, and

[2]The value of the marginal product of a factor of production can be calculated as the price of a commodity multiplied by the additional physical output that results when one unit of the factor is added to the production process with all other factors held constant (e.g., that factor's marginal product).

so forth. When a private firm undertakes investment analysis, it conducts a **commercial project appraisal** based on market prices and focusing on profitability. When governments consider public investments, they want to measure the full economic impact of the investment on the country. To do so, they must use shadow prices when market prices do not fully reflect true scarcity values. This kind of evaluation is called **economic project appraisal**. To estimate shadow prices, market prices must be adjusted to reflect full opportunity costs.

Estimating shadow prices is not easy and requires intimate knowledge of the workings of an economy, both its macroeconomic relationships and the microeconomic behavior of its factor markets. But such adjustment can be important. In many countries, the shadow foreign exchange rate is higher than the official rate in terms of local currency per dollar. In most cases, this reflects the impact of import duties and quotas or intervention by central banks in establishing or modifying the exchange rate. As a consequence, any export project that earns more foreign exchange than it uses or any import-substituting project that saves more than it uses gets a boost from the shadow exchange rate. Although the salaries and wages of skilled employees usually require no adjustment from market to shadow prices, frequently the opportunity cost of unskilled workers is lower than the wage in formal urban labor markets. Therefore, any project using unskilled labor, especially if it is located in a rural area, gets a boost because the shadow wage reduces costs without changing benefits.

Discount rates might also be adjusted from market interest rates to shadow discount rates if a government treats capital as a very scarce factor of production or if it has a strong preference for projects that realize their benefits relatively quickly. This approach would tend to discourage any public investment project with high initial investment costs, long gestation periods, and low net cash flows. A higher shadow discount rate would favor projects that generate their net benefits early because these can be reinvested in other productive projects for continued growth and projects that use relatively abundant factors of production, especially labor, instead of scarce ones, like capital.

An illustration of the power of shadow pricing is contained in Table 10–2, which depicts two projects with identical cash flows. One project (the textile mill) earns more foreign exchange but uses more labor. Because the shadow wage rate is below the market rate, the economic NPV of both projects is raised, but the more labor-intensive textile project benefits more (shown in Part 2 of the table). When the shadow exchange rate is applied, the NPV of the textile mill is raised considerably, and that of the telecommunications system becomes negative (Part 3).

WELFARE WEIGHTS

Under some circumstances, governments want to incorporate broader social goals into the evaluation of public sector projects, such as the impact on income distribution, poverty alleviation, or environmental degradation. To do so, governments can use welfare weights to further adjust shadow prices in a project analysis. This process

TABLE 10-2 Effects of Shadow Pricing on Cost–Benefit Analysis

PROJECT	INVESTMENT (FIRST YEAR)	NET ANNUAL CASH FLOW (NEXT 5 YEARS)	NET PRESENT VALUE (10%)
1. Take two projects with identical cash flows. Project A earns more net foreign exchange and uses more labor than project B:			
A. Textile mill, of which	−1,000	+300	+137
Net foreign exchanged earned	−500	+400	
Wages paid	−350	−100	
B. Telecommunications system, of which	−1,000	+300	+137
Net foreign exchange earned	−800	0	
Wages paid	−100	−50	
2. The shadow wage is 75% of market wage, so all wage costs are reduced by 25%. This results in the following net cash flows:			
A. Textile mill	−913	+325	+319
B. Telecommunications system	−975	+313	+212
3. The shadow exchange rate is 20% above official rate, so the net foreign exchange flow is raised by 20%. This results in the following net cash flows:			
A. Textile mill	−1,100	+380	+340
B. Telecommunication system	−1,160	+300	−23

might place a higher value on net additional income to certain target groups, such as the very poor. Then projects generating more income for these groups have higher NPVs than otherwise and tend to be selected more frequently. Similarly, it might adjust benefits to capture environmental goals or further reduce the shadow wage rate if it was particularly interested in creating new jobs. When welfare weights are introduced or shadow prices are further adjusted to reflect social goals, the process is called **social project appraisal**.

The method is potentially powerful but has its dangers. Welfare weights are arbitrary, subject to policy makers' or politicians' judgment. This, in itself, is not bad, but these weights can so overwhelm economically based shadow prices that project selection comes down to a choice based almost entirely on arbitrary weights. This gives a false sense of precision and sometimes can be misused. In most cases, it is best to do the calculations without these weights and then look separately at the welfare implications of the project.

BARRIERS TO PRODUCTIVE PUBLIC AND PRIVATE INVESTMENT

In Chapter 3 we explored at a macro level many of the variables that influence the rate of growth of gross domestic product (GDP) in a country. Many of these same variables have an influence on the productivity of investment, both public and private.

Political instability can lower the rate of return and increase the risk, particularly to private investors but to government investors as well. Macroeconomic instability can distort investment decisions away from investments that promote long-term growth and toward investments that protect the investor from inflation. Excessive investment in high-income housing and office buildings often characterized the high inflation period that characterized some South American countries in the 1950s through the 1980s. Investment by governments and the private sector in education and health increase the quality of the labor force and that in turn raises the rate of return on investment in projects other than the investments in education and health themselves. More open economies provide opportunities for high return investments not only for exporters but also for any investment that needs to use imported inputs. In closed economies imported inputs are often very expensive if they are available at all.

Our focus here, however, is on what in the macroeconomic analysis in Chapter 3 is referred to as effective governance and institutions. There are a wide range of elements that are included under the rubric of good governance and effective institutions. We focus here at the micro level on two: the extent and nature of government intervention in the economy and on corruption. The two are closely related. As we have indicated in many chapters in this book, government regulation is often necessary to correct for market failures that could do damage to the environment, to health, or to growth. In all countries, however, government intervention can create opportunities for private investors and public officials alike to seek what economists call rents. **Rent-seeking** behavior refers to activities by private and public officials to extract value from a project without providing any compensation in return or contributing any increased productivity to the project. An example would be for an investor in a cement plant to negotiate with the government to provide high tariffs on imported cement so that the investor could raise the domestic price on cement, thus earning a higher level of profit. The cement producer in this case has done nothing to raise the quality of the cement or to increase the efficiency with which the cement is produced. The increase in profits is due solely to this investor's ability to persuade the government to raise the cement tariff and hence the domestic cement price. Purchasers of the cement then must pay more money to the producer without getting any increased value for themselves. Not only can rent-seeking behavior lead to poor policy choices, but the rent-seeking behavior itself entails the diversion of potentially substantial resources from productive uses.

The relevance of these concepts to this chapter is that excessive or inappropriate kinds of regulation together with high levels of corruption are a major reason public investment projects in low- and middle-income countries often have a low rate of economywide return. They can also explain why many private investors also face a low rate of return on their investments despite trying to provide a badly needed product or service that under more normal circumstances would provide the investor with a substantial profit. The World Bank has compiled quantitative indicators of how government interventions affect the ease of doing business in individual countries. Transparency International, a nongovernmental organization (NGO), also

has carried out and collected surveys of perceptions of the level of corruption in most of these same countries. We take up each of these two efforts in turn.

BARRIERS TO DOING BUSINESS

Starting and running a business is often described as an individual coming up with a good idea (a new or better product, an old product in a new location, or a new way to produce a good), building a factory, hiring workers to produce the good, and creating a marketing office to sell it to customers. In most countries that individual must first get a license to open that business and in many countries it takes a large number of such licenses. In Malaysia, for example, in the early years of the twenty-first century, it took 70 licenses or permits to open a new hotel. The business must then hire labor, and typically there are many regulations governing the hiring of labor. Many of these regulations make good sense in the right context. Employers in many countries, including the United States, are not allowed to discriminate in hiring based on gender, race, or religion. More problematic are the rules in countries that make it extremely difficult to dismiss employees even if their performance is subpar or an economic downturn limits the work that is available. This new business, early on and throughout its existence, must enter into numerous contracts with suppliers, with clients, and with its own employees. The question then becomes who if anyone will enforce these contracts. In a high-income country it is typically the legal system and the judiciary that is responsible for deciding whether a contract should be enforced or not, and these decisions are made according to rules typically written into law by the legislature. In many low- and middle-income countries, however, the judiciary is poorly trained, has little power, and is often corrupt. Enforcement of contracts tends to depend more on the power and influence of the company seeking (or trying to avoid) enforcement.

The World Bank has measured the degree to which these many government interventions affect the ability to open a new business or carry on an existing one. They report on a number of government interventions that are widely believed to affect the ease of doing business in a country. For each of these indicators, they measure the time it took to get the necessary permits, the number of permits or procedures required, the cost of getting these permits, and a variety of other indicators in areas such as the employment of labor or obtaining credit. The full list of categories is as follows: Starting a Business, Dealing with Construction Permits, Employing Workers, Registering Property, Getting Credit, Protecting Investors, Paying Taxes, Trading across Borders, Enforcing Contracts, and Closing a Business.[3] Table 10–3 presents data for a number of economies on their overall ranking as a place where it is easy or difficult to do business.

[3]World Bank, *Doing Business 2010: Reforming through Difficult Times* (Washington, DC: World Bank, 2010).

TABLE 10-3 The Business Environment

COUNTRY	DOING BUSINESS RANK, 2011	CORRUPTION PERCEPTION RANK, 2011
Singapore	**1**	**5**
United States	**4**	**24**
Georgia	16	64
Thailand	17	80
Japan	**20**	**14**
Mauritius	23	46
Latvia	21	61
South Africa	35	64
Taiwan	**25**	**32**
Chile	39	22
Spain	**44**	**31**
Turkey	71	61
Jamaica	88	86
Pakistan	*105*	*134*
China	91	75
Vietnam	98	112
Kenya	109	154
Egypt	110	112
Greece	**100**	**80**
Bangladesh	*122*	*120*
Russia	120	143
Nigeria	133	143
Brazil	126	73
India	132	95
Iran	144	120
Philippines	136	129
Haiti	*174*	*175*
Afghanistan	*160*	*180*
Bolivia	153	118
Venezuela	177	172
Chad	*183*	*168*
Central African Republic	*182*	*154*

Bold, high-income economies; italics, low-income economies.

Sources: The World Bank, *Doing Business 2011*,4 (Washington, DC: The World Bank) available at www.doingbusiness.org/Rankings. Transparency International, *Corruption Perception Index 2011* (Berlin: Transparency International) available at www.transparency.org/policy_research/surveys_indices/cpi/2011.

Virtually all the high-income countries are ranked among the top 30 (out of 183) in the overall ease of doing business, with Singapore occupying the top spot. Six middle-income nations also made it into the top 30 in 2010: Georgia, Thailand, Mauritius, Malaysia, Lithuania, and Latvia. We find some poor performers among the high-income nations: Taiwan, Spain, Italy, Brunei, and Greece. Most middle-income countries rank in the top half of this index but there are notable exceptions, such as Russia, Brazil, India, and Iran. The bottom 20 countries are 17 sub-Saharan African countries, some of them plagued by war (Chad, Congo), plus Timor-Leste, Laos, and Venezuela.

Most of these countries are among the poorest in the world, although Venezuela is a major oil exporter. The Central African Republic ranked as the most difficult nation in the world with which to do business in 2010, according to this index.

The reasons for the differences in these rankings between the highly and lowly ranked can be best understood by looking at the specific categories measured. In Singapore, only 3 procedures were required to start a business, and it took only 3 days to complete those procedures, there were no restrictions on firing unwanted employees (rated 0 out of 100, with 0 indicating no difficulty), and the fired employee was entitled to only 4 weeks of severance pay. Registering property involved 3 procedures and took a mere 5 days. In Kenya, a country ranked close to the middle on ease of doing business, 12 procedures were required to start a business and it took 34 days to complete them; the difficulty of firing workers was rated 30 out of 100 and 47 *weeks* of severance pay was required. In addition, there were 8 procedures to register property, which took 64 days to complete. In the bottom quarter was Bolivia, where the 15 procedures involved in starting a business took 50 days; the difficulty of firing an employee was rated 100 out of 100, meaning you could not fire an employee so severance pay was not relevant. Registering property in Bolivia involved 8 procedures that took 2 months to complete. For these and other countries, the money cost of completing all the necessary procedures was a relatively low share of per capita income in high-ranked countries and a much larger share of per capita income in low ranked countries.

Time is also money for an investor, thus the more procedures that exist and the longer they take, the less likely the investor will go ahead with the investment. The result is that in countries with an unfriendly business climate, investments are lower, the costs of doing business are higher, and the rate of return on investments is lower. All of this translates at the macro level into a lower rate of growth.

Excessive regulation that creates any number of obstacles to doing business is not just a matter of lost time or the direct legal costs of the procedures. Large numbers of procedures involving licenses and permits also create broad opportunities for rent seeking and outright **corruption**. The difference between corruption and rent seeking is that corruption involves rent seeking that is illegal, whereas many forms of rent seeking are perfectly legal even though they damage the productivity of the economy. Large numbers of regulatory procedures are not the only cause of widespread corruption. Construction, especially public construction, often involves large elements of rent seeking and corruption. Road construction and the building of government offices involve costs that are difficult to measure for someone not involved directly in the business, making it easier for a construction contract to include hidden costs needed to bribe politicians to provide the necessary project funding and to pay off those in charge of granting construction permits.

Data on perceptions of corruption in countries around the world estimated by Transparency International, a non-profit organization based in Berlin but with a global network, are presented in Table 10-3. Even a casual comparison of the two

columns in the table reveals the rough correlation between the ease of doing business and the perception of corruption. Countries with friendly business procedures typically have low levels of corruption, and the reverse is equally true.

Complete elimination of corruption from public construction and from government business relations is virtually impossible. Even the wealthiest countries regularly discover that an official has taken a bribe to issue a permit and a politician has received illegal payments so that a vote to fund a public investment project would go forward. It is often assumed that the solution to the problem of corruption is to increase the number of police investigating corruption and raising the penalties for being caught. Certainly law enforcement has a role in curbing corruption, but law enforcement alone cannot accomplish much if the opportunities for corruption are pervasive (or if law enforcement is itself corrupt). In China, the death penalty has frequently been applied to cases of corruption, but there is little evidence that corruption has declined as a result.

Key elements in the fight against corruption are similar to what it takes to improve the climate for doing business. The number of regulations should be kept to the minimum necessary to control fundamental violations of public health, the environment, or other important social goals. The officials administering those regulations should have as little discretion as possible on whether to grant a permit. The more discretion they have, the more opportunity they have to delay and obfuscate the procedures until they receive illegal payments to do what they should be doing without payment. The process should be fully transparent with clear deadlines for the officials making the decisions. Putting the whole process online where all applicants can go to find out the status of their application has proved to be a powerful tool in countries where computer literacy is the norm. For public construction contracts the key is to have competitive bidding with controls to ensure that the companies bidding do not collude with each other or with the official contract awarding agency. If all of these steps are taken, the amount of corruption that remains will be less, and the anticorruption law enforcement agencies will not be overwhelmed and will be able to root out much of the corruption that remains. That, in essence, is the Singapore story, and Singapore is ranked 3 on Transparency International's 2009 Corruption Perception Index. Central African Republic is ranked 158.

Overcoming corruption becomes almost impossible if the corruption starts not at lower levels of government, such as in the customs office where those issuing import permits work, but instead at the highest levels of government, including those closest to the president or prime minister of the country. The motive for high-level corruption is partly personal greed, as the family of Ferdinand Marcos in the Philippines demonstrated, but it is also a result of the difficulties most countries have in finding legal and transparent ways of funding the political organization needed to win elections or hold on to power in more authoritarian situations. Raising money for a political organization is easy if the politician can offer favored access to government decisions in exchange. Two presidents of the Republic of Korea and the son of

another were convicted of receiving hundreds of millions of dollars in this way. More than a few low-income countries have a serious problem in this regard, and even the American political process has yet to find a way to fund elections in a way in which buying political influence is minimal.

FOREIGN DIRECT INVESTMENT

The vast majority of investment in developing countries is undertaken by local citizens, either through small individual projects, larger investments by local firms, or by the government. But in some countries, an increasingly larger share of investment is made by foreign individuals or firms. Since 1990, **foreign direct investment (FDI)** has been the largest of all international capital flows to middle-income developing countries, larger than either cross-border bank lending or foreign aid (in low-income countries, FDI is smaller). FDI is defined as a long-term investment in which a nonresident entity exerts significant management control (usually at least 10 percent of voting stock) over an enterprise in the host country. A second type of cross-border investment is **portfolio equity**, in which an investor takes a smaller stake in an enterprise, either through a direct purchase or through a stock exchange. Portfolio equity flows to developing countries, starting from a low base, grew rapidly in the early 1990s, but then fell sharply following the financial crises of 1997 and 1998. A similar pattern occurred in the last decade. Portfolio equity increased 10-fold between 2000 and 2007, only to turn *negative* in 2008 as investors withdrew their investments. With the end of the most recent financial crisis such flows have resumed, and by the end of 2009 were approaching 2007 levels. Even at their peak, however, portfolio flows were still only one-quarter the size of FDI and about half the size of long-term international commercial bank loans.

In the 1960s and 1970s, many developing countries were suspicious of FDI and often took steps to actively discourage it. At the time, because of the colonial history in many countries and the sometimes offensive behavior of certain foreign investors in taking advantage of weak political and legal systems to gain monopoly rights, make huge profits, and influence domestic politics, this suspicion often was well founded. Starting in the mid-1980s, however, these attitudes began to change, and developing countries increasingly sought to attract FDI as a means of financing investment, creating jobs, and importing technology and ideas. FDI to developing countries grew rapidly from $22 billion in 1990 to $148 billion in 2000 to almost $600 billion in 2008 (more than half of all foreign capital flows). The sharp increase was due partly to worldwide advances in technology in communications and transportation (and the accompanying reduction in costs) and was closely related to the rapid expansion in world trade during the period. It was also the result of much greater enthusiasm on

the part of developing countries in trying to attract FDI. The financial crisis reduced these flows by 2009, but they still were more than double the level of 2000.[4]

FDI continues to generate extensive controversy on a range of issues, including repatriation of profits, loss of control over domestic natural resources to foreign-owned entities, the extent of the transfer of technology, the impact on tax revenues, and the content of incentive packages. For some, foreign ownership of domestic companies should always be discouraged, even if it brings economic benefits. For others, FDI is a critical avenue to integrate the domestic economy with global markets that brings with it new technology and skills. The evidence on the relationship between FDI and development suggests that it is hard to make broad generalizations, and the impact depends critically on the purpose and type of the investment as well as policies and institutions in the recipient country. FDI in firms producing manufactured products sold on competitive global markets is more likely to be positively related to economic growth and other development outcomes, whereas FDI in firms producing primary products or manufactures or services for protected domestic markets tends to have more mixed outcomes.

FDI PATTERNS AND PRODUCTS

The majority of direct foreign investment in developing countries is undertaken by **multinational corporations (MNCs)**. A multinational corporation is a firm that controls assets of enterprises located in countries other than its home country in which foreign operations are central to its profitability. Multinational enterprises are quite diverse, coming in all sizes, from all regions of the world, and are engaged in a wide variety of activities. The majority of MNCs are from industrialized countries, but a growing number are based in developing countries. Six developing countries had companies in *Fortune* magazine's list of the world's largest 500 firms in 2010, including China (46 entries), India (8), and Brazil (7). Not all of these firms operate outside of their own nations, but most of them do. Many MNCs are private corporations, but not all: *Fortune*'s top 500 includes a number of giant, state-owned companies producing petroleum, such as China National Petroleum (ranked 10 in the world) and Mexico's PEMEX (64).[5] But multinationals are not always large; small companies, especially in East and Southeast Asia, have been investing overseas for many years, particularly producing labor-intensive manufactured products such as textiles, shoes, toys, and electronics.

It is no surprise that the vast majority of FDI comes from rich-country investors. Globally, most multinational investment is also directed toward other wealthy countries, but the share aimed at developing countries has been rising. In the late 1980s, less than one-fourth of global FDI flows were directed toward developing countries.

[4]World Bank, *Global Development Finance, 2011*, 36 (Washington, DC: World Bank, 2010).

[5]Walmart Stores, Inc. is the largest corporation in the world.

The developing country share of global FDI flows increased rapidly during the early 1990s, peaking at 40 percent in 1994 and averaging 31 percent over that decade. By 2000, the developing country share had fallen below 20 percent; yet, that share grew throughout the first decade of the 21st century, reaching 46 percent by 2010.[6] Then, in the wake of the financial crisis of 2008–09, total FDI flows fell steeply, but the amounts going to low- and middle-income economies stayed relatively stable. However, FDI (as well as portfolio equity) is highly concentrated in a few developing countries. By 2010, half of all FDI in developing countries went to just 10 countries. China (including Hong Kong), received one-quarter of the total at the same time as China was becoming a major investor in Africa and elsewhere. Russia is another large recipient of FDI, followed by Brazil and India. By contrast, the UN's category of least-developed nations, making up much of sub-Saharan Africa, received just 5 percent of the total.[7]

FDI is aimed at a very wide range of activities that are sometimes difficult to classify, but three broad categories stand out:

- Natural resource-based activities, such as petroleum, minerals, and agricultural production. Firms engaged in these activities tend to be quite large and the investments capital intensive. These investments are usually negotiated directly with the host government, and the government is often a partner in the investment.
- Manufacturing and services aimed at the domestic market in the host country, including consumer goods (such as processed food or apparel); capital-intensive products such as steel or chemicals; and a range of services such as transportation, communication, finance, electricity, business services, and retail trade. In many cases, these activities are protected at least partially against competition from imports through tariffs or other restrictions.
- Labor-intensive manufacturing aimed for export on world markets, including apparel, electronics, food processing, footwear, textiles, and toys. Firms in these activities tend to be efficient and competitive, but they also can move quickly from one country to another in response to changes in production costs or macroeconomic or political instability.

BENEFITS AND DRAWBACKS OF FDI

Viewed most narrowly, FDI is a **source of capital** that adds to total investment. FDI is relatively small compared to domestic investment, but its share has grown rapidly in the last three decades. It accounted for between 2.2 and 3.6 percent of GDP in all

[6]United National Conference on Trade and Development (UNCTAD) on-line data, UNCTADSTAT http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx, accessed March 23, 2012.

[7]United Nations Conference on Trade and Development, *World Investment Report 2010*, annex table A-1.

developing countries throughout the first decade of the twenty-first century compared to close to 1 percent in the early 1990s and less than 1 percent in the 1980s. In terms of investment, FDI amounted to about 12 percent of gross capital formation during the past decade,[8] but its importance varies widely. In some countries, FDI can be equivalent to well over 10 percent of GDP in some years, especially in countries with oil or other natural resources (for example, Kazakhstan). In other countries, FDI is less than 1 percent. By the end of 2010, Vietnam was averaging foreign direct investments equal to 9 percent of its GDP; Bangladesh attracted barely 1 percent.

Foreign capital in general tends to be more volatile than domestic capital, but FDI is usually more stable than other forms of private foreign capital. One key reason is that FDI is often attracted by either resource endowments or long-term fundamental economic strengths, factors that generally do not change as quickly as interest rates and exchange rates, which are stronger determinants of short-term bank loans and portfolio capital. Moreover, because FDI is characterized by significant management control in large, fixed-production facilities such as factories and mines, investors are less likely (and less able) to flee during economic downturns. During the 1997–98 Asian financial crises, FDI fell somewhat but much less than bank loans and portfolio capital, which dropped sharply. FDI in emerging market countries fell between 2008 and 2009.

Along with providing new capital, recipient countries hope that FDI will add to the demand for labor and **generate employment**. It is not surprising that because FDI is a relatively small source of investment in most developing countries, its contribution to employment also tends to be small, accounting for less than 5 percent of total employment in most developing countries. However, the impact on employment varies greatly depending on the activity. FDI focused on resource-based capital-intensive industries, such as mining or petroleum, creates relatively few jobs, whereas investments in labor-intensive manufacturing create more jobs. The impact of FDI on wages and working conditions is controversial, with some people charging that MNCs pay low wages and impose harsh working conditions. While conditions vary, and this may be true in some instances, on the whole, evidence suggests that MNCs pay higher average wages and have better average working conditions than do domestic firms.[9]

Another benefit of at least some kinds of FDI, especially FDI in manufactured exports, is that it can help increase **specialization** in production. When firms in developing countries are part of a global production process, they can focus on the particular activity in which they have a comparative advantage and produce most efficiently. Although domestically financed investment can also engage in very specialized production, FDI has the advantage of stronger links to other parts of a global supply chain. Firms in the automobile business need not make the entire car (and

[8]Calculated from World Bank, "World Development Indicators," http://databank.worldbank.org.

[9]Edward Graham, *Fighting the Wrong Enemy: Antiglobal Activists and Multinational Enterprises* (Washington, DC: Institute for International Economics, 2000), chap. 4.

if they did, they might not be able to compete on world markets). Instead, they can specialize in assembly, production of basic components (such as door parts or wiring), manufacturing of more sophisticated parts (for example, engines or transmissions), design, or other aspects of the production process. In today's production environment, it is difficult to classify an automobile as American, German, Japanese, or Korean because the parts are made all over the world. Moreover, the particular activity that makes sense in an economy can change over time as resource endowments, skills, and economic policies change. When Intel made its first investments in the electronics industry in Malaysia in the early 1970s, it focused on low-skill activities such as simple assembly. Over the years, as the Malaysian workforce gained new skills and more Malaysians became experienced managers, activity shifted toward production of basic parts (such as keyboards), then to more-advanced components (such as microprocessors), and later to testing and research. More recently, electronics production in the Philippines has followed a similar progression.

FDI can also bring with it **access to world markets**. Developing countries capable of producing at competitive costs often find it difficult to penetrate foreign markets. Many multinationals, particularly in natural resources, chemicals, and other heavy industries, are vertically integrated, oligopolistic firms, for which many transactions take place within the firm. Multinationals develop preferential access to customers by fashioning and adhering to long-term contracts in standardized products, such as petroleum, or by acquiring a reputation for delivering a specialized product of satisfactory quality on a reliable schedule, as in electronics and engineering. On their own, firms from a developing country often require years to overcome such marketing advantages, and an affiliation with an MNC can help accelerate the process.

Among the most important potential benefits from foreign investment is the **transfer of technology, skills, and ideas**. Because much of the world's research and development activity takes place within North America, Europe, and East Asia, firms from these areas are a potentially rich source of innovative products, machinery, manufacturing processes, marketing methods, quality control, and managerial approaches. MNCs potentially can bring these new ideas and technologies with them, helping reduce costs and increase productivity in the host country. FDI is most valuable when these kinds of benefits spread beyond the local affiliate of the MNC itself and help other local firms and enterprises, generating positive externalities called **spillovers**. For example, local firms competing against the MNC may observe and adopt the technology brought from abroad to try to improve their own productivity. A domestic furniture maker might learn about new machinery, a special technique to finish wood products, or a different way to organize production that could lower its costs and increase its competitiveness. Competition from the MNC can push rival firms to reduce their costs through more-efficient use of all inputs and by introducing new technologies and techniques, generating an indirect benefit to all firms that buy from the MNC and its competitors.

While this kind of "horizontal" spillover to competitors can be important, MNCs clearly have the incentive to limit technology transfer to their rivals. They have stronger incentives to encourage "vertical" spillovers to firms operating up and down the supply chain that either sell to or buy from the MNC. MNCs want their local suppliers to produce at the lowest possible cost, so it is in their interest to work with suppliers to increase the suppliers' productivity by introducing new methods to improve quality and reliability and reduce costs. These changes provide indirect benefits to other firms that buy from these suppliers.[10]

One important way these kinds of spillovers can occur is through the **training of workers and managers**. Most developing countries do not have many well-trained managers with experience in organizing and operating large industrial projects, such as those undertaken by multinational firms. MNCs have the incentive to train local managers and workers (both their own employees and their supplier's) and, in some circumstances, will send employees abroad to the parent company for training in production methods or management techniques. It is not uncommon for local managers to spend six months or more working in the parent company and then return to senior positions in the local affiliate. The immediate impact is to help increase productivity and profitability of the MNC. However, over time, these managers and workers may move to other firms or even start their own companies, bringing this new knowledge with them. When textile companies began to move from Korea and Taiwan to Indonesia in the 1980s, initially most senior managers were expatriates. Over time, more Indonesians were trained to fill those positions, and eventually some started their own companies, competing against the MNCs. When Mauritius first began to produce textiles and footwear in the early 1980s, virtually 100 percent of the export firms were foreign owned, but within 15 years, foreign firms controlled just 50 percent of total equity capital.[11]

However, just as FDI can create positive spillovers, it can create negative ones. MNCs might create air or water pollution or cause other environmental damage, generating a negative externality for the host country. (Of course, local investors also cause environmental damage, in some cases even worse damage.) While some MNCs have been guilty of causing extreme environmental damage, others bring with them cleaner and more efficient production techniques that help reduce environmental damage.

FDI in protected or inefficient activities can lead to net economic losses rather than gains by misallocating capital, labor, and other resources. If a government encourages an MNC to invest in a petrochemicals company that can be profitable

[10]See Howard Pack and Kamal Saggi, "Vertical Technology Transfer via International Outsourcing," *Journal of Development Economics* 65, no. 2 (2001), 389–415; Garrick Blalock and Paul Gertler, "Foreign Direct Investment and Externalities: The Case for Public Intervention," in Theodore Moran, Edward Graham, and Magnus Blomstrom, eds., *Does Foreign Direct Investment Promote Development?* (Washington, DC: Institute for International Economics and Center for Global Development, 2004).

[11]See Blalock and Gertler, "Foreign Direct Investment and Externalities."

only with government subsidies or regulations that limit competition (like high import tariffs on competing products), the costs to the country are likely to be higher than the benefits. Firms operating under protection tend to use more outdated technologies and are less likely to be able to compete eventually on world markets. The firm might boast large profits and appear to be thriving, but the costs to taxpayers and to downstream customers forced to pay higher prices might be even larger.

Perhaps the biggest concern about FDI is the loss of local control over business. MNCs can drive out local businesses, and even where this might be economically efficient it can be politically very unpopular. A large efficient MNC can drive out small local business that operate at higher costs, particularly in countries with high trade barriers and other regulations where local firms may be relatively weak. Also, MNCs are more likely to repatriate their profits abroad, although some reinvest locally (and many local businesses also send their profits abroad). Concerns are most acute for the largest MNCs, whose size and control over resources often match and sometimes outstrip that of the recipient country governments. Investment by a multinational corporation raises the specter of interference by, and dependence on, foreign economic powers beyond the control of the host country. In some cases valid social preferences over the control and distribution of income might outweigh economic efficiency arguments.

FDI AND GROWTH

Ultimately, broad statements about whether FDI is beneficial or harmful are difficult to make and can be misleading. Because FDI is so varied, much depends on the specific activity, the actions taken by the MNC and the government, and the reaction by local suppliers, competitors, and customers. Debate continues as to the existence and magnitude of spillovers, both positive and negative. Research examining the relationships between FDI and growth has reached mixed conclusions. Some research has found a positive relationship, particularly when the workforce in the recipient country has achieved a minimum level of education, whereas other studies have found no relationship or even a negative one.[12]

Clearer patterns begin to emerge when researchers take into account the purpose and context of the FDI. Foreign investment that produces for the domestic

[12]The research on FDI, spillovers, and growth is extensive. For an example of a study finding a positive relationship in the presence of a minimum level of education in the recipient country, see E. Borensztein, J. DeGregorio, and Jong-Wha Lee, "How Does Foreign Investment Affect Growth?" *Journal of International Economics* 45, no. 1 (1998), 115–72. For an influential study finding negative spillovers in Venezuela, see Brian Aitken and Ann E. Harrison, "Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela," *American Economic Review* 89, no. 3 (June 1999), 605–18. For a recent survey, see Robert Lipsey and Fredrick Sjöholm, "The Impact of Inward FDI on Host Countries: Why Such Different Answers?" in Theodore Moran, Edward Graham, and Magnus Blomstrom, eds., *Does Foreign Direct Investment Promote Development?* (Washington, DC: Institute for International Economics and Center for Global Development, 2004).

market and relies heavily on subsidies or protection from competition is much less likely to be beneficial and may even generate economic losses for the host country. FDI in natural resource-based industries depends heavily on the impact of the industries themselves. As described in Chapter 18, while primary product exports have at times helped spur development in some countries (such as diamonds in Botswana and petroleum in Indonesia and Malaysia), in other countries, natural resource abundance has been as much as curse as a blessing, such as oil in Nigeria and Venezuela, copper in Zambia, and diamonds in the Democratic Republic of the Congo and Sierra Leone.

FDI aimed at firms producing manufactured exports and operating in competitive global markets most often is found to have a positive relationship with growth and development. This type of activity tends to be economically efficient and conducive to importation of new technologies, training new workers and managers, and positive spillovers to suppliers and even competitors. Georgetown University economist Theodore Moran finds significant differences in operating characteristics between subsidiaries that are integrated into the international sourcing networks of their parent multinationals and those that serve protected domestic markets. Where parent firms use local affiliates as a part of a strategy to remain competitive in international markets, they maintain those affiliates at the cutting edge of technology, management, and quality control. But Moran finds that FDI in protected industries can hinder an economy, as these firms typically use older technologies and operate under restrictions that raise costs, hinder exports, and reduce productivity gains.[13]

POLICIES TOWARD FOREIGN DIRECT INVESTMENT

Developing countries interested in attracting FDI and ensuring maximum benefit generally use some combination of three broad strategies:

- Improve the general environment for all kinds of investment (foreign or domestic) by strengthening infrastructure, reducing red tape, and improving the quality of labor.
- Introduce specific policies and incentives to attract FDI, such as export processing zones, worker training, import protection, or tax holidays.
- Impose requirements on MNCs (such as limits on equity holdings or repatriation of profits) in an attempt to capture more benefits locally.

IMPROVE THE GENERAL INVESTMENT ENVIRONMENT The least-controversial approach, and one that can bring benefits beyond those associated with FDI, is to take steps to improve the general environment for investment and business operations. As

[13]Theodore Moran, "How Does FDI Affect Host Country Development? Using Industry Case Studies to Make Reliable Generalizations," in Theodore Moran, Edward Graham, and Magnus Blomstrom, eds., *Does Foreign Direct Investment Promote Development?* (Washington, DC: Institute for International Economics and Center for Global Development, 2004).

discussed earlier, businesses in poor countries usually face much larger regulatory burdens and higher costs than those in rich countries. To try to improve the general investment environment, governments can improve road and ports infrastructure, invest in utilities to make them more reliable and less expensive, reduce trade tariffs, strengthen the judicial process and the rule of law, and reduce unnecessary regulations and red tape that add to the cost of doing business. These steps should help attract new investment, both domestic and foreign, and help make existing investments more productive and profitable.

INTRODUCE POLICIES AIMED SPECIFICALLY AT ATTRACTING FDI The question of whether governments should take specific measures to encourage FDI even more than domestic investment turns on views on the existence and size of spillovers: If FDI brings with it positive spillovers that generate benefits to firms other than the MNC, then policies and incentives aimed specifically at attracting FDI may be appropriate. Where there are few if any positive spillovers and possibly negative ones, the argument for government action and special treatment is much weaker.

Three kinds of specific policies are common. First, host governments can provide effective and timely **information** to potential investors that markets might not provide on their own. Investors might not come to a particular country if they simply do not know much about it. Many governments in developing countries have established investment promotion agencies to market their countries and provide information on business costs, port facilities, natural resources, levels of education, climate, and other factors that might make their country attractive to investors. In some countries, this kind of promotion can help, but in others it seems to make little difference.

Second, governments can undertake specific expenditures aimed at making their country more attractive for FDI. Many governments have established industrial parks or **export-processing zones (EPZs)** to increase investment and manufactured exports. The basic idea is that building infrastructure and improving the investment climate for an entire economy are likely to take a long time, so as an interim measure, the government could establish an enclave located near port facilities in which infrastructure is of high quality, utilities are reliable and of relatively low cost, and there are fewer regulations and less red tape. Typically, countries welcome both domestic and foreign investment in EPZs, but FDI tends to account for a greater share of the investment. Most of the countries that have been highly successful in producing manufactured exports have established EPZs or similar facilities, including EPZs in Malaysia, Korea, Mauritius, the Dominican Republic, and Indonesia; special economic zones in China; and maquiladoras in Mexico and similar stand-alone facilities in Tunisia and other countries. But EPZs and related facilities are not always successful and have failed when they have been poorly located, badly managed, or in other ways added to rather than reduced the producer's costs (see Chapter 19).

Third and more controversial, governments can provide specific incentives to MNCs to increase their profitability, including protection from import competition, subsidies, or tax breaks. Governments provide **protection** by introducing tariffs and quotas to reduce imports of competing goods or provide outright monopoly control over local markets. These steps are most relevant for FDI aimed at producing for the domestic market, rather than for exports. Because import protection and monopoly control create higher domestic prices and profits, in effect local consumers pay higher prices as a transfer to the multinationals' foreign stockholders. Because evidence suggests that FDI aimed for protected domestic markets brings with it the least benefits (and sometimes net economic losses), it is often difficult to justify this kind of intervention.

Perhaps the most controversial of all steps taken to encourage FDI is income tax incentives. While these incentives can take a wide variety of forms, the most common is income **tax holidays**, which exempt firms from paying taxes on corporate income, usually for three to six years. Most countries otherwise would tax profits at rates anywhere from 20 percent to as high as 50 percent. For tax holidays to help the multinationals, they must be creditable against income taxes due to their home country governments. Otherwise, if home countries tax firms on worldwide income, as all industrial countries except France do, then the MNC would pay less tax to the developing country but more to its home country. In effect, taxes foregone by the developing country would simply be transferred to tax revenues of the multinational's home country. Most industrial countries now permit their firms to take credit for tax holidays granted abroad through tax treaties negotiated between host- and home-country governments.

There is substantial debate about the circumstances, if any, under which tax holidays are justified. Most studies conclude that, for many kinds of FDI, income tax holidays have only marginal effects on multinational investment decisions and reward the multinationals for doing what they would have done in any case. This is especially true for firms attracted by natural resources or those intending to produce in protected domestic markets of the host countries. Under these circumstances, MNCs are attracted by specific characteristics of the host country, such as the presence of gold or petroleum deposits or a large domestic consumer market. These MNCs may have few other serious location options, so tax treatment may not be a critical factor in their investment decision. Moreover, tax holidays cannot turn an unprofitable investment into a profitable one: Taxes become relevant only once a firm is earning profits.

Evidence suggests that export-oriented, labor-intensive, "footloose" industries may be more sensitive to tax holidays and other incentives because they have a much wider set of location options. Firms producing electronics products, shoes, textiles, clothing, games, and toys can choose among dozens of countries that offer the basics of political and economic stability, relatively low transport costs, and a pool of unskilled and semiskilled workers. Under these circumstances, tax holidays may be an important factor for the MNC in choosing its location. Because research suggests that these kinds of investments are more likely to provide positive spillovers to the

host country, limited tax holidays may be justified. These steps always are controversial, however, because local firms and other MNCs quickly demand similar tax treatment, and it may be difficult for governments to resist this pressure.

REQUIREMENTS AND RESTRICTIONS ON FDI Many governments impose restrictions and requirements on MNCs in an attempt to capture as much as possible of the expected benefits from foreign direct investment, including performance requirements, local ownership requirements, labor requirements, and restrictions on profit repatriation. It is possible that these policies can increase the benefits to the host country; however, under most circumstances, they discourage FDI.

Many host countries have made it mandatory for foreign investors to sell a specified share of equity, usually at least 51 percent, to local partners to form **joint ventures**. Through local ownership requirements, host governments hope to ensure the transfer of technology and managerial skills, limit the repatriation of profits, and maintain local control. However, parent multinationals often are more reluctant to allow diffusion of technology to joint ventures than to wholly owned subsidiaries. Moreover, many local joint-venture partnerships are pro forma arrangements involving local elites close to the centers of political power with little knowledge or expertise in business that simply receive occasional payment from the MNC as a figurehead partner. This is not always the case, however. In some cases, skilled local partners eventually can take greater control and possibly buy out the MNC.

Many countries impose **domestic content requirements** on MNCs, requiring them to purchase a certain share of their inputs locally (as opposed to through imports), often with the share increasing over time. The idea is to encourage local suppliers and ensure stronger links between the MNC and local firms. Ideally, MNCs would choose to purchase locally in any case, but when they are forced to do so it usually indicates that the local suppliers are not producing at low enough prices and high enough quality to compete with imports. These requirements add directly to the costs of the MNC and can discourage investment. Domestic content requirements today, however, typically violate the rules of the World Trade Organization (WTO) and thus cannot be used by developing countries subject to those rules. Similar production requirements can be aimed at labor or technology transfer. Policies that make foreign firms use local personnel are aimed not only at job creation but also at increasing absorptive capacity for the transfer of technology from multinationals. Developing countries have tried to promote technology transfer by imposing standards requiring multinational firms to import only the most-advanced capital equipment rather than used machinery. Other common restrictions include ceilings on repatriation of profits to the parent corporation and stiff taxes on profit remittances. As with domestic content requirements, if not carefully designed, these restrictions can deter investment and may do little in the long run to help transfer benefits to local entities.

Overall, the accumulated evidence indicates that some types of FDI bring large benefits and others bring small or even negative benefits. This suggests that the

best general policy is to get the basics right to make the investment climate more attractive for both domestic and foreign investment: reliable transportation, power, and communications facilities; freedom from unnecessary or onerous government regulations; capable institutions; adherence to the rule of law; macroeconomic and political stability; and labor markets in which wages are matched by productivity.

SAVINGS

As pointed out at the beginning of this chapter investment is not possible without first some person, company, or government saving part of their income. The saver can then invest the funds saved directly or deposit them in an intermediary (a bank or other financial institution) that specializes in identifying promising investments and lending it the money needed to make those investments a reality.

In the early years after the end of World War II it was commonly assumed that a lack of savings was at the heart of why so many of the countries in the world were poor. Because people in those countries were so poor, it was argued, they had to use all of their income to maintain a subsistence level of income and had nothing left over to save and invest. This problem was seen as the most fundamental of the various vicious circles of poverty that plagued low-income countries. To break the circle and get these countries on the path out of poverty, an outside source of savings (and hence investment) had to be found. The answer for many was to increase foreign aid provided by high-income countries to those mired in this rut. Arguments for foreign aid of this sort are still heard today but the rationale for most analysts has moved away from this view. (Foreign aid and the rationale for it are the subject of Chapter 14.)

Foreign aid is a form of **foreign savings** that is transferred to low-income countries and either invested or consumed. Other forms of foreign savings include FDI (discussed earlier in this chapter); portfolio equity by foreigners in developing country stock markets; and loans to developing countries by private (usually high-income-country) financial institutions, high-income governments, and international financial institutions (such as the World Bank, the IMF, and the regional international development banks).

Domestic sources of savings, however, are far larger in most developing countries than all of the sources of foreign savings combined. **Domestic savings** is made up of household, domestic corporation, and government savings. Domestic savings tend on average to be higher in high- and middle-income countries than in low-income countries but there is enormous variation within each group, and the savings rate among low-and middle-income countries has risen from two or three decades ago. China had a savings rate in 2005–09 of roughly 50 percent of GDP, an extraordinarily high rate. India, a country with lower income than China's, had a savings rate of over 30 percent

in the same period, also a high amount. But some nations save very little; Nepal saved about 10 percent of its GDP, whereas Ghana and Guatemala had domestic savings rates of 5 percent or less. High-income countries such as the United States and the United Kingdom had savings rates below 15 percent of GDP. Savings and investment data for a selection of countries are presented in Table 10–4.

How does a low-income country with a low savings rate increase that rate to contribute to a higher rate of growth in income? Can government policy have a major influence on a country's savings rate? Since the nineteenth century it has been assumed that higher incomes would raise the savings rate. In all countries the highest income earners in the population typically save far more than the lowest income earners. It would seem to follow that if a country's income increased, the average rate of savings of the country as a whole would rise along with income. But when economists set out to measure the change in savings rate over time, they quickly discovered

TABLE 10–4 Domestic Capital Formation (Investment) and Savings

	GROSS CAPITAL FORMATION (% OF GDP)		GROSS DOMESTIC SAVINGS (% OF GDP)	
	1975–1979	2005–2009	1975–1979	2005–2009
Economy				
Low income	14	23	7	10
Middle income	26	28	25	30
High income	24	20	24	20
Region				
East Asia and Pacific	30	38	30	44
Europe and Central Asia	n.a.	23	n.a.	24
Latin America and Caribbean	25	21	23	23
Middle East and North Africa	30	26*	24	32*
Sub-Saharan Africa	25	21	23	16
South Asia	18	33	16	28
Country				
Brazil	24	18	21	19
China	32	44	32	51
Egypt	31	20	16	16
Ghana	9	22	9	5
Guatemala	20	18	16	3
India	20	36	19	32
Indonesia	24	27	29	30
Mexico	24	25	23	23
Nepal	16	29	12	10
Russian Federation	n.a.	22	n.a.	32
South Africa	27	20	31	18
United Kingdom	20	17	20	14
United States	20	18	20	13

*Data from 2005–2007 only.
GDP, gross domestic product.

Source: World Bank, "World Development Indicators," http://databank.worldbank.org.

that as average per capita income rose, the national average domestic savings rate did not change much if at all.[14] It turns out that we do not really even know whether it is a rise in savings that leads to a rise in investment that in turn leads to higher growth or whether the causation goes in reverse. Is it instead the rise in the rate of growth brought about by various reforms in government policy that leads to a higher rate of domestic savings? In the economies of South Korea and Taiwan, for example, reforms in economic policy in the early 1960s jump-started growth at a time when the savings rate, particularly the savings rate in South Korea, was very low. Rapid growth during the 1960s and into the 1970s then led to a rising rate of domestic savings and domestic investment that sustained the high growth sparked by the earlier reforms.

Although there is much not known about what determines a country's overall rate of domestic savings, we do know something about what drives household savings, typically the most important part of the overall level of domestic savings. We also can say something about government savings but much less about savings by domestic corporations. We will look at each of these sources of domestic savings in turn. The chapter ends with a return to the issue of foreign savings and what drives whether a country is a net lender (that transfers savings abroad) or a net borrower (which receives other countries' savings, as in the case of FDI).

HOUSEHOLD SAVING AND CONSUMPTION

Individuals and households save for two main reasons. First, they want to generate higher future income by saving and investing some of their current income. Second, they want to save some current income to protect themselves from the risk of unexpected falls in income in the future, often from a serious illness on the part of the major income earner; the loss of employment for some other reason; a drought that undermines next year's food crop; the loss of productive assets from fire, flood, theft, or disease (that kills crops or livestock); or other loss of income. This precautionary motive can be particularly important for poor people living on subsistence levels, for whom a sudden loss of income can be catastrophic, or where insurance markets are not well developed and individuals, families, and businesses must self-insure against the risks of a sudden loss of income or assets. In most low-income countries insurance markets are weak, especially in poor rural areas.

Given these motivations, a key decision is how much to save and how much to consume. The more a person saves, the more he or she can invest to increase future income and the more he or she can safeguard against future shocks. But saving comes at a cost: The only way to save is to reduce current consumption. Households

[14]This discovery led to the works of Milton Friedman on the permanent income hypothesis and James Duesenberry on the relative income hypothesis, which, in different ways, attempted to explain this paradox.

will sacrifice current consumption to save only if they believe either that the ensuing investment will increase their income and consumption in the future or they will need to draw on that saving to finance basic consumption in the event of a severe income shock. A wide variety of factors might influence saving: the current level of income, anticipated future levels of income, the number of dependents that must be supported, the opportunities for productive investment, and the quality of the financial institutions through which some saving might be channeled.

The **life-cycle model** of household savings captures an important element of why some household savings in developing countries is high whereas with other kinds of households it is low. The life-cycle model, associated most closely with Nobel Prize–winning economist Franco Modigliani, is specific about how saving and consumption would be expected to vary systematically during a person's lifetime.[15] In this model, young adults tend to have lower saving rates because they have lower incomes (and expect higher incomes in the future) and are raising children. Indeed, many people would be expected actually to dissave (go into debt) during this stage of life. Saving rates tend to rise and peak toward the middle and end of a person's working years, when incomes are higher and there are fewer consumption-related expenses for children. During this stage of life, people accumulate the bulk of their saving to be used during retirement. Once workers retire, their income falls and they again dissave by drawing down on their previous saving. Thus saving rates tend to be low or even negative during the younger years, high during middle age, and negative again after retirement.

The life-cycle hypothesis suggests that the demographic structure of a society may have a strong effect on overall saving rates. As discussed in Chapter 7, all societies tend to pass through a demographic transition with three basic stages: (1) high birth and death rates, with low population growth, (2) falling death rates with continued high birth rates and consequently high population growth rates, and (3) falling birth rates with continued low death rates and lower population growth. As countries pass through these stages, the share of the population too young to work, of working age, or retired tends to change dramatically, and saving rates may change with them. A society in stage 2 of the demographic transition is likely to have a relatively large number of surviving children because of falling death rates and continued high birth rates. Children, of course, earn very little or no income, so their consumption effectively is negative saving. At this stage of the demographic transition, each worker in the society has more young dependents to care for, so saving rates are expected to be relatively low. Later on, as a country enters stage 3 of the transition, the number of

[15]See Franco Modigliani and Richard Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," in K. Kurihara, ed., *Post Keynesian Economics* (New Brunswick, NJ: Rutgers University Press, 1954); Alberto Aldo and Franco Modigliani, "The Life-Cycle Hypothesis of Saving: Aggregate Implications and Tests," *American Economic Review* 53, no. 1, (March 1963), 55–84. For a classic early work on the subject, see Ansley J. Coale and Edgar M. Hoover, *Population Growth and Economic Development in Low-Income Countries* (Princeton, NJ: Princeton University Press, 1958).

children tends to fall and the large number of children from the previous generation enters the workforce. As a result, society as a whole tends to have a far larger share of workers and fewer dependents. Because each worker has fewer children to care for, saving rates are expected to rise. Later still, these workers retire and saving rates tend to decline. This hypothesis is consistent with an income-saving relationship in which saving rates are high for middle-income countries and lower for high-income countries. Higher-income countries tend to have longer life expectancies and more people living in retirement, which would suggest lower average saving rates for these countries.

Figure 10–2 shows the relationship in 100 low- and middle-income economies between saving rates and the *dependency ratio*, which compares the size of the dependent population (children and retirees, the population aged 0 to 15 years and those over 60) to the working-age population. The figure shows a tendency for saving rates to be lower in countries with a larger number of dependents relative to the workforce. Note that there is significant variation around the line. Gabon and Tajikistan, for example, both have similar levels of dependency, but Gabon had a gross domestic savings rate of almost 50 percent while Tajikistan had one of *negative* 21 percent. Clearly, more than the dependency burden determines the rate of national savings. Some studies that controlled for more variables found little connection between dependency ratios and saving rates, while others detected a relationship.[16] The relationship seems to be more robust with respect to the young-age dependency ratio (the ratio of the population between 0 and 15 years of age to the working-age population). The evidence is weaker with respect to the old-age dependency ratio, which compares the size of the population aged over 60 to the working-age population, suggesting that this cohort may not reduce its saving as much as the life-cycle theory suggests.

The life-cycle hypothesis may capture a reason for the high savings rates in East Asia. When the East Asian economies such as South Korea and Taiwan began to grow rapidly, their societies also went through a rapid demographic transition as birth rates came down soon after the decline in death rates, leading to a population largely concentrated in the working ages of 15 to 65 and a declining young population. As time passed, those of working age gradually retired and with increasing life expec-

[16]Studies that find no relationship between demographic structure and saving include Angus Deaton, *Understanding Consumption* (Oxford: Clarendon Press, 1992); M. Gersovitz, "Savings and Development," in Hollis Chenery and T. N. Srinivasan, eds., *Handbook of Development Economics*, vol. 1 (Amsterdam: North-Holland, 1988). Studies that reach the opposite conclusion include Sebastian Edwards, "Why Are Saving Rates So Different across Countries? An International Comparative Analysis," NBER Working Paper 5097 (Cambridge, MA: NBER, 1996); Paul R. Masson et al., "International Evidence on the Determinants of Private Saving" *The World Bank Economic Review* 12, no. 3 (September 1998), 483–501; Norman Loayza, Klaus Schmidt-Hebbel, and Luis Serven, "What Drives Private Saving across the World?" *Review of Economics and Statistics* 82, no. 2 (May 2000), 165–81; Steven Radelet, Jeffrey Sachs, and Jong-Wha Lee, "Economic Growth in Asia" (Cambridge, MA: Harvard Institute for International Development, May 1997).

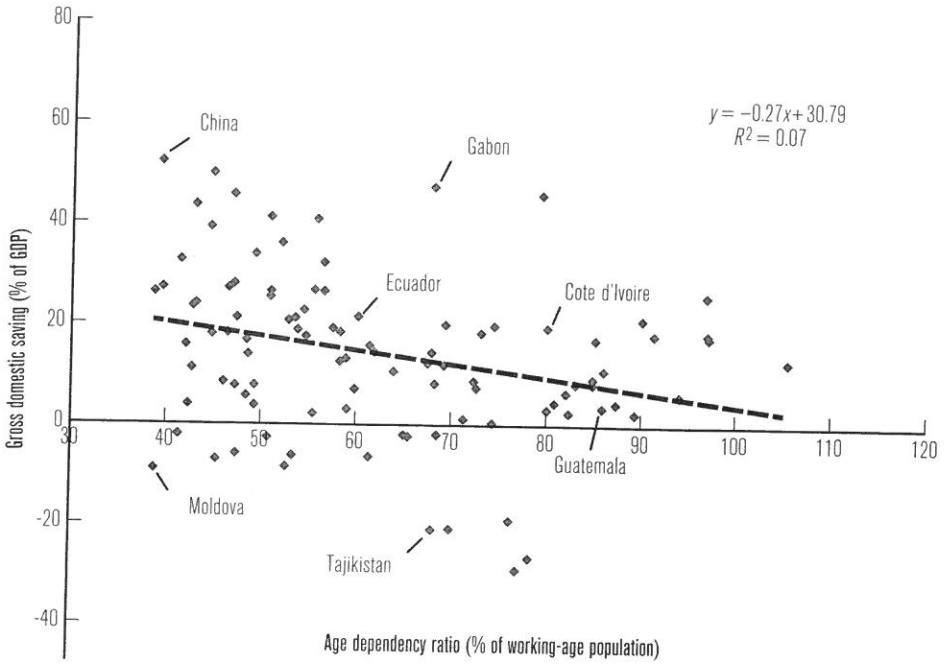

FIGURE 10-2 Gross Domestic Saving and the Age Dependency Ratio, 2009

GDP, gross domestic product.

Source: World Bank, "World Development Indicators," http://databank.worldbank.org.

tancy, elderly dependents made up a rapidly rising share of the population, but this did not occur until after these economies had experienced three or more decades of high savings, high investment, and rapid economic growth. China's one child policy has produced a similar phenomenon. The one child policy was instituted in the first part of the 1970s and had taken full effect by the time the economic reform began in 1978 that jump-started economic growth. Rapid growth thus benefited from and was sustained to an important degree by the dwindling share of dependent young people, which in turn made high rates of household savings possible. A rising share of elderly dependents in China is only now beginning to occur and will not have a major impact on the overall dependency ratio for another decade.

CORPORATE SAVING

Corporate saving is relatively small in most developing countries primarily because the corporate sector generally is small. For a variety of reasons, there are fewer pressures and incentives in developing countries for doing business in the corporate form (as opposed to operating as an unincorporated business). The principal reasons for

organizing as a corporation in the private sector are to limit the liability of enterprise owners to amounts invested in a business and to facilitate enterprise finance through the issue of equity shares (stocks). Although these advantages are substantial in higher-income countries with well-developed commercial codes, civil court systems, and capital markets, they are smaller in most developing countries, where the collection of commercial claims (for example, company debts) through the courts is relatively difficult and where capital markets are poorly developed, when they exist at all.

As usual, however, there are important exceptions to these generalizations. In some developing countries, corporations are both numerous and quite large. As noted earlier, *Fortune* magazine's annual list of the 500 largest corporations in the world (in 2010) includes MNCs from developing nations such as China's Sinopec Corporation, Shanghai Automotive Industry Corporation, and the Industrial and Commercial Bank of China. The giant firms in India included Tata Steel and in Brazil the financial conglomerate Banco Bradesco. But less than 15 percent of the *Fortune* list was from low- and middle-income nations and two-thirds of them were located in China. The vast majority of developing countries had none. There are, of course, many good-size corporations that do not make it into the *Fortune* 500 largest list. Thus in most developing countries, even when corporations of say a billion dollars in sales are accounted for, such corporations do not account for a large share of private-sector business activity and do not provide a high proportion of domestic saving.

In all but a few of the highest-income developing countries, the great bulk of private sector farming and commercial and manufacturing activity is conducted by unincorporated, typically family-owned enterprises. Some of these businesses fall into the category of medium-scale establishments (from 20 to 99 workers). The great majority are small-scale operations with fewer than 20 employees. The noncorporate sector, including most small family farms and urban informal sector enterprises, manages to generate more than half of all domestic saving in most developing countries, and this sector is the only consistent source of surplus in the sense that the sector's saving exceeds its investment. For those closely held, largely family-owned and -managed firms, enterprise profits become an important part not only of corporate saving but also of gross household income. The available evidence indicates, and economic theory suggests, that household saving accounts for the overwhelming share of private saving in developing countries and the chief source of household saving is probably household income from unincorporated enterprises.

GOVERNMENT SAVING

Unlike private saving, there are no well-developed theories for government saving and consumption behavior. Government saving arises when tax revenues exceed public consumption expenditures (that is, government spending excluding

public investment expenditures).[17] Government saving in most countries tends to be smaller than private saving (although not always), typically averaging between 3 and 10 percent of GDP in most developing countries. In countries where governments run large budget deficits, government saving is negative. Government saving also tends to be much smaller in low-income countries than in middle- and upper-income countries. One reason is that poorer countries generally do not generate as much tax revenue as richer countries.

Even though government saving usually is smaller than private saving, historically it has been given strong emphasis in development policy. This is partly because private saving is often seen as inherently constrained by such factors as low per capita income and high private consumption propensities among wealthy families with the greatest capacity for saving. But it is also because government saving can be controlled more directly by policy makers, and public sector investment financed by that saving (roads, bridges, ports) plays an important role in supporting economic growth.

Government saving can be changed by either increasing revenues or reducing consumption expenditures. Historically, most effort has focused on increasing tax revenues, either by strengthening tax structures and collection systems or by altering tax rates. In this line of thinking, tax ratios in many developing countries are too low, and policy changes aimed at increasing tax revenues help increase domestic saving (and ultimately the rate of economic growth). But there are several steps in between, and the extent to which this occurs depends on three key questions:

1. To what extent can governments increase the tax ratio, if they want to do so?
2. Will an increase in the tax ratio lead to an increase government saving?
3. Will an increase in government saving increase total domestic saving?

On the first question, it is not easy to judge the appropriate level of taxation in developing countries. If taxes are too low, governments cannot provide essential services, such as basic education, public health, a well-functioning judicial system, basic security, and public infrastructure. Tax rates that are too high (or fall too heavily on some groups) can undermine private entrepreneurs and reduce the incentives for new investment and economic growth. As a general matter, developing countries generally do not (and cannot be expected to) have tax ratios as high as is common in wealthier countries (except for developing countries with significant natural-resource endowments, which are easier to tax). Moreover, it is not easy to increase tax collection in developing countries, if for no other reason than their much lower per capita income allows a much smaller margin for taxation after subsistence needs are met. Figure 10–3 shows that in the 1990s, whereas typical tax ratios for low-income countries averaged around 15 percent, the ratio of government revenue to GDP in the industrialized countries averaged over 30 percent.

[17]In some countries saving by government-owned enterprises contributes to government saving, but it generally plays a minor role, so our discussion of government saving is confined to budgetary saving.

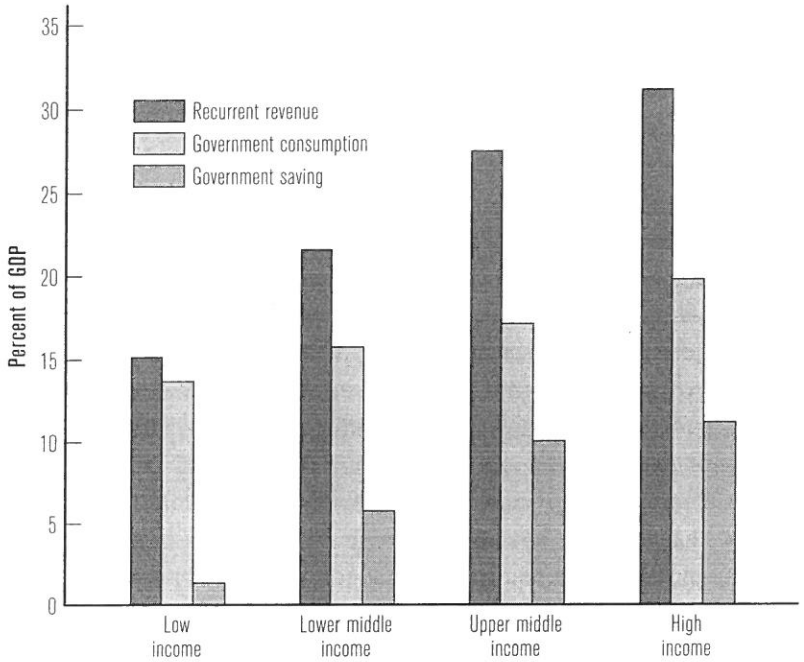

FIGURE 10-3 Government Revenue, Consumption, and Saving, 1990–2002

Tax revenues as a share of income tend to be much smaller in low-income countries than in high-income countries. Government consumption also grows with income but not nearly as much. Therefore, government saving generally is much smaller in low-income countries than in high-income countries.

GDP, gross domestic product.

Turning to the second question, a higher tax ratio does not necessarily lead to a higher government saving rate. It depends on what the government does with the revenue. To the extent that it spends the revenue on consumption (that is, increased government employment or higher salaries), government saving does not increase; to the extent it uses the revenue to reduce a budget deficit or for investment, government saving increases. More specifically, the impact of increased tax revenue on the government saving rate depends on the government's propensity to save (as opposed to consume) an additional peso or rupiah of tax revenue. In many countries, the government's marginal propensity to save out of taxes has been sufficiently small that higher taxes often have had relatively little effect on government saving and in some cases none at all.

It is worth emphasizing that increasing government consumption (rather than saving) may or may not be bad policy. Some consumption expenditures may be a waste, such as fancy cars, luxurious government offices, or a rapid buildup of military purchases. But other consumption expenditures may be vitally important, such as purchasing vaccines; making salary adjustments to keep and attract qualified civil servants; maintaining roads, schools, health facilities, and communication networks; and strengthening the judicial system or financial institutions.

Government consumption tends to rise less sharply with income than does revenue, as shown in Figure 10–3. There is much less difference in government consumption ratios between low-income countries (14 percent) and high-income countries (19 percent) than there is in tax ratios. This difference leads to a substantial divergence in average government saving rates. The poorest countries tend to have very low (and sometimes negative) government saving rates; government saving rates tend to rise with income as tax ratios increase.

On the third question, perhaps counter intuitively, an increase in government saving does not automatically increase domestic saving. How can this be when government saving plus private saving equals domestic saving? It depends on how private saving responds to the increase in government saving. If the government raises taxes, government saving might increase, but private individuals might respond by lowering their saving to pay the higher taxes, thereby dampening the impact on aggregate domestic saving. Thus the effect on saving of raising taxes depends on both the government's and the private sector's propensity to save out of the marginal dollar of income. As a general statement, increased tax revenue increases the domestic saving rate only if the government's propensity to save is greater than the private sector's propensity to save.

Debates about the private sector's reaction to increased government saving date back at least as far as the early part of the nineteenth century to the writings of the great British economist David Ricardo. Ricardo postulated—and largely rejected—the idea that, under certain circumstances, a change in taxes will have absolutely no effect on total domestic saving. Ricardo's theory has come to be known as **Ricardian equivalence**: Any increase in public saving is offset by an equivalent decline in private saving, with total domestic saving remaining unchanged. The basic idea is that when private actors receive a tax cut and see that government spending does not change, they anticipate a commensurate tax increase in the future and prepare for it by increasing their current saving. Thus, if the government reduces taxes, government saving may fall, but households and firms increase private saving in anticipation of a future tax increase. The fall in government saving is offset exactly by a rise in private saving, and the tax cut has no impact on total saving. Similarly, a tax increase may lead to higher government saving, but private saving is expected to decline by the same amount with no change in total saving. Ricardo's original idea was rejuvenated and formalized by economist Robert Barro in 1979.[18]

Ultimately, of course, this is an empirical issue that comes down to measuring the extent to which private agents alter their saving behavior in response to changes in government tax and expenditure policies. The abundance of evidence suggests partial, but only partial, truth to Ricardo's hypothesis. Many studies have shown that an increase in government saving tends to be associated with a decline in private saving, but by less

[18]Robert Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy* 82, no. 6 (November–December 1974), 1095–117.

than the strict one-to-one relationship postulated by Ricardo. Most studies have found an offset of between 0.40 and 0.65, meaning that a 1 percentage point of GDP increase in the government saving rate is associated with a 0.40- to 0.65-percentage-point decline in the private saving rate. This would imply a net increase in the total domestic saving rate of between 0.35 and 0.60 percentage points.[19]

The salutory impact of higher government saving may go beyond the effect on domestic saving. Because higher government saving is derived largely from smaller budget deficits, it reduces the government's borrowing requirements. Government deficits in developing countries typically are financed through domestic money creation (that is, borrowing from the central bank, which prints money to fund the deficit) or by borrowing in either local or overseas markets. Larger budget deficits can lead to higher rates of inflation (from money creation), larger government debts, or both. Lower budget deficits (or higher public saving) tend to have the opposite outcomes: lower inflation and indebtedness. Thus higher public saving is likely to enhance general macroeconomic stability.

FOREIGN SAVING

Historically, many countries have augmented domestic saving with foreign saving to help finance investment and growth. The United States relied heavily on foreign saving, particularly during the antebellum period from 1835 to 1860 and again in the late nineteenth century to finance, among other things, the expansion of the railway system. Likewise, Russia used foreign saving to help propel its development in the three decades before World War I and the Communist revolution. However, not all countries have followed this pattern: Japan became a wealthy nation even though it actively discouraged inflows of foreign saving and investment throughout its history. Therefore, foreign saving can help development but is not necessarily essential for it.

In decades past, some developing countries actively tried to shut out private capital flows; today almost all developing countries actively try to encourage them. But controversy surrounds foreign aid, foreign investment, short-term private capital flows, and the debt that has accrued from foreign borrowing. The remainder of this chapter provides a brief overview of some basic concepts and data on foreign saving. Foreign saving in the form of FDI was discussed earlier in this chapter; foreign savings transferred through loans to developing countries and the resulting accumulation of foreign debt is the subject of Chapter 13, and more in-depth analyses of foreign aid as a source of savings is the subject of Chapter 14. The appendix to Chapter 15 provides related background on balance-of-payments accounting.

[19]See, for example, Edwards, "Why Are Saving Rates So Different across Countries?;" Masson et al., "International Evidence on the Determinants of Private Saving"; Loayza et al., "What Drives Private Saving across the World?"; Radelet et al., "Economic Growth in Asia."

The relationships between investment, domestic saving, foreign saving, and the trade balance can best be seen from standard national accounts identities, which tell us that total investment (I) must equal total saving (S), which in turn consists of domestic saving (S_d) and foreign saving (S_f). To see this, recall from the income side of the national accounts that

$$Y = C + I + G + X - M \qquad [10\text{-}3]$$

where G is government consumption, X is exports of goods and services, and M is imports of goods and services. On the expenditure side, all income must be consumed, saved, or given to the government as taxes:

$$Y = C + S_p + T \qquad [10\text{-}4]$$

Note that the saving term (S_p) in this identity refers to private saving. Because both equations equal Y, the right-hand sides must be equal:

$$C + I + G + X - M = C + S_p + T \qquad [10\text{-}5]$$

Subtracting C from both sides and rearranging the terms yields

$$I = (T - G) + S_p + (M - X) \qquad [10\text{-}6]$$

The first term on the right-hand side ($T - G$) is government saving, and the second term (S_p) is private saving. The third term ($M - X$) is both the current account deficit of the balance of payments and foreign saving. When a country's imports (M) exceed its exports (X), the difference must be financed by inflows of capital from abroad (foreign aid, bank loans, equity flows, etc.), which is foreign saving. The right-hand side of the equation is the sum of domestic and foreign saving, yielding

$$I = S_d + S_f \qquad [10\text{-}7]$$

or the more traditional

$$I - S_d = M - X \qquad [10\text{-}8]$$

Thus, as the difference between investment and domestic saving grows (or shrinks), the trade deficit grows (or shrinks) commensurately. The two balances must move together in tandem. One can think of this in many ways. As investment increases (without an increase in domestic saving), imports tend to increase and exports decrease to provide the materials needed for the investment project. A firm building a new factory requires steel, concrete, lumber, and machinery, which can come from either new imports or purchasing the goods domestically, leaving less for export. Alternatively, an export boom without a commensurate increase in imports generates profits that can contribute to domestic saving, closing the gap between investment and domestic saving.

Foreign saving includes both a public sector component (called *official foreign saving*) and a private component. Most **official foreign saving** is foreign aid provided

on **concessional terms** as either *grants* (outright gifts) or *soft loans,* meaning that they bear lower interest rates and longer repayment periods than would be available in private international capital markets. Industrialized-country governments and international agencies also provide some financing as loans on commercial terms (*hard loans*), particularly to middle-income countries.

Private foreign saving consists of four elements. *Foreign direct investment* (discussed at length earlier in this chapter) is made by nonresidents, typically but not always by multinational corporations, in enterprises located in host countries. Direct investment implies that funds go directly to an enterprise (as opposed to indirectly through a stock market), with the foreigner gaining full or partial control of the enterprise. *Portfolio equity* is the purchase by foreigners of host country bonds or stocks, without managerial control. Portfolio equity was a very important form of financing in the nineteenth and early twentieth centuries, but fell into disuse after World War II. It was revived in the 1990s, however, as rich-country investors showed interest in emerging stock and bond markets, especially in Asia and increasingly in Latin America. *Commercial bank lending* to developing country governments and enterprises supplanted portfolio investment in importance for a time but waned beginning in the 1980s when debt crises afflicted many developing countries. It expanded quickly in the early 1990s, then dropped sharply toward the end of the decade, as several developing countries experienced major financial crises. In some cases it had not fully recovered when the global financial crisis hit in the latter half of 2008. Finally, exporting firms from the industrialized countries, their commercial banks, and official banks (such as the U.S. Export-Import Bank) offer *export credits* (or credit guarantees) to firms in developing countries that import from the industrialized countries. These credits help the exporters promote sales by permitting delayed payment, often at commercial interest rates.

Capital flows to developing countries changed dramatically in several important ways between 1990 and 2008, as shown in Table 10–5. First, private capital flows grew extremely rapidly until 1996, growing from $82 billion to $281 billion in 1996. All the major categories of private finance expanded rapidly: long-term loans, short-term loans, portfolio equity, and foreign direct investment. But this trend changed abruptly in 1997 after the financial crises that struck Thailand, Indonesia, Korea, Russia, and several other countries. Private capital flows fell sharply for several years and then grew rapidly between 2000 and 2008 (and declined again in 2009 after the financial crisis that originated in the United States).

Second, and in sharp contrast to private flows, official development flows fell during the 1990s. In particular, net official lending dropped significantly and turned negative, meaning that developing countries were repaying old loans more than they were receiving new loans from donor governments. Whereas official development finance and private finance differed by a factor of two in 1990, private flows were 35 times larger in 2008. While these two patterns hold for developing countries as a whole, the patterns differ between low-income and middle-income countries. In particular, the large increase in private capital flows was concentrated in middle-

TABLE 10-5 Financial Flows from and to Developing Countries, 1990–2008 (billions, US$)

	1990	1996	2000	2008
Inflows	81.6	281.3	172.3	727.3
Official development finance				
Official loans (net)	26.4	3.8	−5.8	20.4
Private finance	55.2	281.3	178.1	706.9
Long-term debt flows (net)	16.6	82.5	7.4	124.2
Short-term debt flows (net)	13.2	37.4	−7.9	−16.3
Portfolio investment	3.4	32.9	12.4	15.7
FDI into developing countries	22.1	128.6	166.2	583.0
Outflows	53.5	200.5	226.6	1,105.0
Accumulation of reserves	32.4	90.4	46.8	447.3
FDI from developing countries	5.0	10.0	16.5	164.0
Other items/errors and omissions	16.1	100.1	163.3	493.7
Memo item: aggregate current account balance of developing countries	−28.1	−83.6	43.6	377.9

FDI, foreign direct investment.

Source: World Bank, *Global Development Finance 2005* (Washington, DC: World Bank, 2005) http://go.worldbank.org/581EDYH6R0; IMF, *International Financial Statistic* (Washington, DC: IMF); Annual Yearbook and World Bank, *Global Development Finance 2009* (Washington, DC: World Bank, 2009) http://go.worldbank.org/581EDYH6R0.

income countries. Private capital flows to low-income countries were small in 1990, and while they were larger after the year 2000, the increase accounted for a relatively small share of the increase in total private capital flows. Official flows to low-income countries were only slightly larger in 2008 than they were in 1990, particularly if the figures are adjusted for inflation; in middle-income countries, the picture is similar.

Third, whereas capital inflows to developing countries in aggregate grew rapidly, capital outflows grew even more rapidly. The aggregate current account deficit of developing countries (shown at the bottom of Table 10-5) moved from a deficit position to a surplus position in 2000. In other words, aggregate exports of all goods and services exceeded imports of goods and services, so developing countries as a whole were exporting capital to the richer countries. Correspondingly, total net capital flows (or net foreign saving, summing together all inflows and outflows) shifted from positive to negative. The main channel through which this occurred was a small number of developing countries running large balance of payments surpluses and accumulating foreign exchange reserves, especially China. In 2007 and 2008, China accumulated foreign exchange reserves at a rate of over $400 billion per year. Typically balance of payments surplus countries (along with other central banks in developing countries) hold their foreign exchange reserves in one of two ways: (1) as deposits in banks in the United States, Europe, or Japan, which is a form of saving available to finance new loans in those countries, or (2) by purchasing government securities, such as U.S. Treasury bills. China's central bank (the People's Bank

of China) became one of the largest purchasers of U.S. Treasury bills. In effect, the balance of payments surpluses generated by these countries are providing the saving necessary to finance the U.S. budget deficit. Historically and under normal circumstances, capital tends to flow from rich countries (which tend to have larger capital stocks) to low-income countries (where capital is scarce), but since 2000 that pattern has been reversed. However, this pattern is heavily concentrated in a small number of developing countries that are exporting a large amount of capital by accumulating reserves. The majority of low-income countries continue to be net importers of capital from rich countries.

SUMMARY

- Both public investment and private investment are central to economic growth and development. Public investment generally focuses on roads, ports, telecommunications facilities, schools, and health facilities. Private investment tends to be larger than public investment and provides the dynamism for the vast majority of new jobs, new technologies, and growth in economic output.
- Cost–benefit analysis provides a rigorous technique for evaluating both public and private investments and calculating the net present value over time of each investment. This technique can be used for commercial evaluation (to calculate private-sector financial benefits), economic evaluation (to measure the economic costs and benefits to society as a whole), or social evaluation (incorporating the impact of investments on important social goals).
- The key factors that influence investment at the macro level are similar to the variables discussed in Chapter 3 that promote economic growth. At the micro level the quality of the business environment is the main influence on the level and productivity of the investment. Governments that intervene excessively, thus delaying and raising the cost of business investment decisions, lead to rent seeking and corruption that further reduce the quantity and quality of investment.
- Foreign direct investment can generate important benefits, but not all FDI is alike. FDI focused on firms producing exports on competitive global markets appears to be most beneficial, creating jobs and bringing new technologies and ideas from abroad, among other spillovers. FDI for natural resources or for firms operating in protected domestic markets generally has had more mixed benefits and sometimes has been costly to recipient countries. Policies specifically aimed at attracting FDI, such as tax