

3. big-firm capitalism, in which the most significant economic activities are carried out by established giant enterprises; and
4. entrepreneurial capitalism, in which a significant role is played by small, innovative firms.¹

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CAPITALISM: THE DIFFERENT TYPES AND THEIR IMPACTS ON GROWTH

For many of us, November 9, 1989—the day the Berlin Wall fell—marked the end of the terrifying cold war struggle between communism and capitalism. Capitalism had triumphed and communism was reduced to a mere historical curiosity. Looked at that way, the term “capitalism” seemed to refer to a simple and uniformly characterized form of economic organization, something we would recognize if we saw it even if we had no formal definition for it. But this view of capitalism turns out to be a seriously misleading oversimplification. As we will emphasize in this chapter, in the countries that we would all consider “capitalistic,” the organization of the economy, the economic role of government, and a variety of other attributes differ profoundly. Some capitalist economies come close to being socialistic, while others are far more regulated. Moreover, the form taken by capitalism in a particular country has profound implications for its growth performance, and that is why, for our purposes here, it simply will not do to put all forms of capitalism into a single category. Rather, we will classify the economies of the different capitalist countries in four categories:

1. state-guided capitalism, in which government tries to guide the market, most often by supporting particular industries that it expects to become “winners”;
2. oligarchic capitalism, in which the bulk of the power and wealth is held by a small group of individuals and families;

About the only thing these systems have in common is that they recognize the right of private ownership of property; beyond that they are very different. In particular, the economies in one category tend to have growth records very different from those in another, and that is because their mechanisms of growth, innovation, and entrepreneurship vary substantially. We will maintain that one of the most promising ways to promote growth in an economy that is currently characterized by a slow-moving form of capitalism is to adopt reforms that move it toward a type of capitalism with a more powerful growth engine. For the same reason, economies that already are characterized by a fast-growing form of capitalism must vigilantly watch out for developments that might undermine their membership in that group.

No type of capitalism is dominant within and across economies and over time. Economies can be and are different mixes of the various types at different stages in their histories. There are even some “precapitalist” economies that readily fit into one or another of the four archetypes. A capitalist economy is typically very poor (with annual per capita income of \$1,000 or less), with few if any of the institutions one associates with capitalism of any sort, particularly rights of property that are protected by the state. In some precapitalist economies, many of which can be found in parts of Africa, Central America, and western Asia (such as Afghanistan or Pakistan), governments are very weak; precapitalist societies instead consist largely of clans or tribes that set the rules. In some cases, these clans may forbid private property, while in others property rights may be informally recognized. But the governmental institutions associated with capitalism are so primitive in these economies that it doesn't make sense to include them in our classification. It is nonetheless important to consider these precapitalist economies because they are home to tens, if not hundreds, of millions of people living at subsistence levels whose plight deserves the world's attention, not simply for moral reasons but because they cannot be good customers for our products and, more important, at least

for those of us who live in other societies, they can be breeding grounds for diseases and for terrorists who threaten the lives of those in more developed societies. Fortunately, however, we believe that the same set of recommendations we offer to developing countries that do fit within one of our categories also apply, with appropriate adaptation, to precapitalist economies.

In describing each of the four archetypes of capitalism, we will be painting a picture that depicts more about their outcomes than the inputs required to attain those results. Frankly, it is easier to envision the outcomes since, in many instances, they are already there to be seen. It is much harder to determine what steps will achieve or even contribute to those outcomes. That is the job we will attempt in later chapters.

In the appendix to this book, we address another important topic: how does one *measure* the degree to which economies fit into one or the other of these paradigms? We will outline some suggestions, in principle, but fuller answers must await further research and, most important, time-consuming data collection.

Before describing our four prototype variants of capitalism, we should first specify what we mean by the term. Generally, an economy is said to be capitalistic when most or at least a substantial proportion of its means of production—its farms, its factories, its complex machinery—are in private hands, rather than being owned and operated by the government. No economy is perfectly capitalistic. For example, in the United States, some electricity is produced by municipal governments and also by the federal government. In a communist regime, some pieces of small-scale productive equipment, such as sewing machines, are owned by private individuals. In our descriptions of the four capitalisms, we will encounter cases that might be described as “state socialism.” But the societies in question often also possess substantial capitalistic attributes, and it is those features that will be our primary concern.

State-Guided Capitalism

As the label suggests, state-guided capitalism exists where governments, not private investors, decide which industries and even which individual firms should grow. Government economic policy is then geared to

carry out those decisions, using various policy instruments to help out the chosen “winners.” The overall economic system nonetheless remains capitalist because, with the exceptions to be discussed shortly, the state recognizes and enforces the rights of property and contract, markets guide the prices of the goods and services produced and the wages of workers employed, and at least some small-scale activities remain in private hands.

Why do governments try to direct economic traffic? In part, it may be because political leaders want to take advantage of their power to extract wealth and other benefits from the winner industries and firms. This form of state-guided capitalism is little different from oligarchic capitalism, which we discuss in the next section. The main objective of leaders of oligarchic economies is patronage, not economic growth. In contrast, under state-guided capitalism governments typically take the position that centrally planned direction of or influence on the allocation of resources in the economy is the best way to maximize economic growth.

Governments have a number of means at their disposal to guide growth. Perhaps the most important is explicit or implicit ownership of banks, which are the principal conduits in virtually all countries for transferring the resources of those who save to those who invest the savings. Only in the United States, at least so far, is this task of transmission of financial resources from savers to producers carried out primarily in organized capital markets, such as stock and bond markets, rather than by banks. It is true that the last few years have produced a wave of privatizations of publicly owned enterprises around the world—driven as much by the need of governments to acquire revenues from the sale of these assets to help deal with their deficits as to improve the efficiency and lower the price of the services offered by these formerly government-owned enterprises. Nevertheless, in developing economies, as well as in some developed ones (such as Germany), the government still owns a significant share of the banking system (see Hanson, 2004). In India, state ownership accounts for fully 75 percent of all bank assets (see Patel, 2004). And not surprisingly, given its command-and-control heritage, four state-owned banks in China dominate the financial system in that country, although under China’s agreement upon joining the World Trade Organization, it is scheduled to privatize those banks completely in 2007.

Even without direct ownership, governments can still direct or strongly

“persuade” banks to do their bidding. South Korea is a good example of the former, and Japanese “administrative guidance” an example of the latter. Governments can and do guide capitalism in other ways as well, for example, by favoring certain companies or sectors with tax breaks, exclusive licenses (legalized monopolies), or government contracts. Favored companies thus can become “national champions,” whose success is assured by government policy. Governments can also support industries through protective measures, such as tariffs, insulating domestic companies from foreign competition. In addition, governments can guide the activities of foreign investors or partners, allowing them only in certain sectors and under certain conditions (commonly, that the foreign partner share and eventually transfer its technology and know-how to the local partner). China’s joint ventures with American manufacturers and Japanese arrangements with U.S. aerospace companies are examples of this type of guidance.

State-guided capitalism can overlap to some degree with big-firm capitalism, but the two systems are fundamentally different. They overlap when, for example, national champion firms are favored by the state. These firms typically have large numbers of employees, who are managed in a highly structured way. Innovation, to the extent that it exists, is organized, separately budgeted for, and closely managed. It is rare in a state-guided system to have more than a few national champions, if only because the size of the domestic market may not allow more than a certain number. Meanwhile, other large firms may prosper, perhaps by conducting substantial business with government or by tapping into domestic and/or foreign markets that generate growth of the enterprise. Economies can then come to be dominated by big firms, but not necessarily directed toward that outcome by government policy.

It also may be tempting to equate state-driven capitalism with central planning, but the two systems also are very different. In centrally planned economies, the state not only picks winners, it also *owns the means of production, sets all prices and wages, often cares little about what consumers may want, and thus provides essentially no incentive for innovation that benefits the individual*. On the contrary, the bureaucrats who ran the large “firms” in the former Soviet bloc countries, which were the apotheosis of central planning, were paid according to the amounts their plants produced, regardless of quality or whether consumers actually wanted the output. Cen-

tral planning, by its nature, is not conducive to the adoption of breakthrough technology, the Soviet space program that launched Sputnik in 1958 being perhaps the only exception. But this effort was the kind of thing state socialism does best: a massive command-and-control activity for a specific, even limited purpose. It generated little in the way of pervasive long-run economic benefits.

Indeed, in the old Soviet bloc—where progress was mapped out in five-year plans and where entrepreneurship was, to use computer terminology, not supported by the operating system—the high-tech industries that have propelled growth in the industrialized capitalism world, especially in the United States, never even got off the ground. The Soviet system was capable of producing superbly trained scientists but literally incapable of capitalizing on their work. Like the ending in the movie *The Wizard of Oz*, when the curtain is pulled back to reveal an ordinary human being at the controls, the crumbling of the Berlin Wall revealed to the whole world the miserable economic failure of the Soviet-bloc economies, surprising even many experts in the West (including the United States Central Intelligence Agency), who had believed that the Soviet Union, in particular, was a rather powerful economy that had to be reckoned with.

It is important to note that, without adopting “state guidance” in the sense in which we use the term here, government nonetheless can play an important role in providing public goods and services whose benefits are shared widely throughout the population without necessarily seeking to decree *which particular sectors or industries should prosper*. For example, governments routinely provide basic infrastructure—roads, water and sanitation systems, education, police and judicial systems—and fund basic scientific research. In undertaking these activities, governments are simply providing a platform on which all economic actors can carry out their activities. Providing “public goods,” or those whose benefits no single individual or firm can fully appropriate, is the basic job of governments (along with national defense). Doing so does not mean that governments are thereby “guiding” the economy. Providing public goods is normal in every form of capitalist economy, and not only in those that are guided by the state.

What are some prominent examples of state-guided capitalism? One immediately thinks of most of the countries in Southeast Asia, where govern-

ments have used one or more of the instruments of guidance already outlined to favor certain sectors, primarily for exports. For several decades, many countries in Latin America followed policies of "import substitution," which were designed to promote the growth of sectors, and often of individual firms that had been selected for such support, by sheltering them from imports. There also have been elements of state planning or direction in France, Germany, and the United States, indicating that no single and pure form of capitalism is likely to dominate any economy to the exclusion of elements of the others, the mix of the different systems being what is most important for the economy's growth. To be more specific, though it primarily limits itself to providing the kind of public goods that governments should supply, the federal government in the United States also engages in a limited form of state guidance by subsidizing its agricultural sector directly and through tariffs or quotas and cash subsidies (like Europe and Japan); its energy sector through tax breaks; and its housing industry through tax breaks and a subsidized secondary mortgage market (dominated by two large government-sponsored enterprises, "Fannie Mac" and "Freddie Mac").

The Advantages of State-Guided Capitalism

As the remarkable growth of the state-guided economies of Asia attests, this form of capitalism can be highly successful and last over long periods (although, in the case of the Southeast Asian economies, economic growth was interrupted by one major postwar financial crisis in 1997–98). The sources of this success are not difficult to comprehend. Economies that lag well behind those at the technological frontier need only find some way to gain access to cutting-edge foreign technology, or something reasonably close to it, and then combine it with lower-cost labor to turn out products (and, increasingly, services, for example, "call centers") that will sell well in international markets. Foreign technology can be imported through foreign direct investment. Knowledge can be gained by sending nationals abroad for university study (most commonly, to the United States). A bolder strategy is to encourage, or at least not limit, the ability of domestic residents to emigrate to technology-leading countries like the United States and hope that they succeed and later either return to their home countries or facilitate from abroad the start-up and growth of new home-grown enterprises. India is the leading practitioner

of this "reverse brain drain" strategy, which may have looked like a gamble several decades ago but seems to have paid off handsomely now that successful Indian entrepreneurs in the United States have either returned home or invested in Indian enterprises (Saxenian, 1999).

However it has been accomplished, countries that have adopted a strategy of "export-led growth," facilitated largely by state guidance, have been successful only because their exports have had someplace to go, largely to the United States and more recently, in the case of the Asian exporters, to other countries in Asia, where incomes are rising and governments have the foreign exchange, earned through exports, to pay for imported goods. State-guided, export-led growth would not have been successful if markets around the world had not been opened by successive multilateral liberalizations of tariffs and other at-the-border restrictions, first under the auspices of the General Agreement on Tariffs and Trade (GATT) and later through its successor, the World Trade Organization (WTO).

Pitfalls of State-Guided Capitalism

There are drawbacks, even dangers, to state-guided capitalism. Indeed, given our proclivity to favor the other forms of capitalism, it may not surprise readers to learn that we see many more drawbacks than advantages, especially once these successfully state-guided capitalist economies approach the per capita income levels of richer, less state-guided economies.

BELIEVING THAT STATE GUIDANCE WILL WORK FOREVER Governments that guide their economies with some success can learn the wrong lessons from the past. For countries whose economies have grown rapidly under the guiding hand of the state—one thinks of many Asian economies in particular—it can be tempting to conclude that indefinite continuation of the same approach will yield growth benefits. But the world changes. After picking the low-hanging fruit, the difficulties of harvesting grow much greater. So it is, and has been, for a number of countries where state guidance has worked for a period.

EXCESSIVE INVESTMENT A good example of what can go wrong is what happened to South Korea in the late 1990s. Long accustomed to directing its banks to provide loans to the larger South Korean conglomer-

ates ("chaebols"), South Korea's government induced too many banks to invest excessively in the expansion of the semiconductor, steel, and chemicals industries. When the financial crisis that began in Southeast Asia during the summer of 1997 spread to South Korea, the country's banks and, more important, the companies that had borrowed to expand were so overextended that the South Korean economy came close to collapse. It was rescued only when the United States government led an international effort to prop up the country's financial institutions by extending the maturities of their deposits (Blustein, 2001). Only later would the South Korean government force a number of the chaebols to restructure and induce its banks to apply commercial, rather than government-directed, criteria to the country's lending.

South Korea is not alone. China has had a huge banking problem, resulting from decades of central planning during which the state banks essentially were government instrumentalities for financing state-owned enterprises (SOEs). As China has moved away from central planning toward its own unique version of capitalism, many of the SOEs have been unable to repay the state banks, leaving the Chinese government to pick up the enormous tab for the losses, a process we describe in chapter 6. In chapter 7, we discuss a similar banking mess that has plagued the Japanese economy ever since that country's stock market and real estate bubbles burst at the end of the 1980s. Although Japan had not adopted central planning, its form of "administrative guidance" to its banks eventually led to overinvestment by corporate borrowers, who could not repay the debt they had taken on. The government's halting and delayed response to this problem contributed to the stagnation of the Japanese economy throughout the 1990s and well into the current decade.

PICKING THE WRONG WINNERS AND LOSERS Excess investment is not the only drawback of state-guided capitalism. As such countries approach the technological frontier, they no longer can just pick a sector or an industry, figuring, "We'll find out how the firms in that industry work and 'one up' them." Instead, once at the frontier, a country comes to the proverbial fork in the road. Which direction to choose? That is the question that firms in advanced economies face every day. They are not sure which new products and services consumers will want. They also don't know the outcome of their R&D efforts, however planned they may be.

In rapidly innovating economies, individual firms—often working in parallel at the same time—race to be the "first mover" and to take advantage of that market position. Sources of finance back their efforts, effectively placing their bets on which horses they believe most likely to win the race. A Darwinian process of market selection eventually produces a winner or winners, who may not be the most technologically sophisticated of the horses to enter the race, but who have the most effective production, marketing, and distribution plans and appeal widely to many consumers. Examples in the United States include the Model T made by Ford (certainly not the most sophisticated automobile of its day), the Windows personal computer operating system developed by Microsoft (not as secure as its latest competitor, the "open-source" Linux), or even the personal computer itself, where Dell has made its way to the top of the pack by selling the equivalent of the Ford of computers, not the Cadillac (made by Sun and others).

Governments in state-guided economies are not comfortable with the seemingly chaotic, unplanned, rough-and-tumble process that is the hallmark of capitalism unconstrained by bureaucracy. Instead, having seen firsthand their initial success at picking sectors for their export prospects (with sales in the domestic economy to follow), these governments are apt to believe that the same process of guidance can continue to produce the winners of the future. But once economies are at the frontier where success is not so easy to generate—because there are no clear leaders to copy or follow—mistakes are easy to make. That is how Malaysia ended up building one of the world's largest high-technology parks in the 1990s, a multi-billion-dollar venture that still does not seem to have paid off. And it is what has led Singapore to launch a major effort aimed at making the country one of the world's leaders in biotechnology, offering large salaries and perquisites to leading researchers from all over the world if they would spend significant time in Singapore. That gamble may yet work, but Singapore is not alone in believing that it can become the next Silicon Valley of biotech. South Korea has made major strides in the biotechnology field, in part because its government does not have the strict laws against cloning that are found in the United States. Meanwhile, in the United States, numerous states and localities are staking out their claims to be the center of the biotech revolution. Some will be successful in this biotech race, but not everyone.

channel resources from low-yielding activities toward potentially more rewarding ventures become the norm.

Oligarchic Capitalism

As already suggested, the form of capitalism we call "oligarchic" is easily confused with state-guided capitalism because under the former the state also is apt to be heavily involved in directing the economy. Capitalism is defined as "oligarchic" when, even though the economic system is nominally capitalist and property rights protect those who own substantial property, government policies are designed predominantly or exclusively to promote the interests of a very narrow (usually very wealthy) portion of the population or, what may be worse, the interests of the ruling autocrat and his (or her) friends and family (in this instance, the system is better characterized as a "kleptocracy"). This form of capitalism is, unfortunately, all too common in too many parts of the world, encompassing perhaps one billion or more of the world's population. It is prevalent in much of Latin America, in many states of the former Soviet Union, in most of the Arabic Middle East, and in much of Africa.

In these societies, economic growth is not a central objective of the government, whose main goal is instead to maintain and enhance the economic position of the oligarchic few (including government leaders themselves) who own most of the country's resources. This fact distinguishes oligarchic capitalism from other autocratic, or less-than-democratic societies, where growth clearly is a central objective but where capitalism is repressively "guided" by the state. Of course, even in oligarchic economies, governments and the ruling elites to whom they respond may be and probably are interested to some degree in promoting growth, but only as a peripheral objective or a "constraint": to achieve enough growth to keep "the natives" from rebelling and overthrowing those in power as well as giving the ruling elites a larger accumulation of national wealth from which to expand their larceny. It is these circumstances, along with the repressive powers that such governments exercise, which lead us reluctantly to conclude in chapter 6 that revolution may be the most effective (and perhaps the only) way to undo oligarchic capitalism and move toward a system where economywide growth becomes a primary goal of government.

SUSCEPTIBILITY TO CORRUPTION In economies where a business firm's success depends on whether it receives favors from government, there is always a danger of corruption. Firms will find subtle or not-so-subtle ways to earn those favors. China, where corruption is a well-known feature of the system, is a good example. As we will suggest shortly, although China has grown rapidly, it could grow faster were it free of corruption.

DIFFICULTY "PULLING THE PLUG" AND REDIRECTING GOVERNMENT RESOURCES A final danger of state-guided capitalism is that once a state has committed its resources and prestige to particular ventures or sectors, it can be hard to "pull the plug" if it becomes clear that major restructuring is called for or that competitors in other countries are surpassing them. Either governments don't want to lose face, or more commonly, politically powerful interests impede the ability of well-intentioned governments to abandon their interventions. The best examples of this problem are the agricultural subsidies extended by virtually all rich-country governments, despite the falling and now relatively small share of employment engaged in agriculture (in the United States, it is under 3 percent). Furthermore, despite the liberalized trading rules negotiated under GATT and then the World Trade Organization, rich countries still attempt to protect certain manufacturing industries from import competition, whether through "temporary" protection authorized by the so-called escape clause in the WTO agreement or via the more permanent variety: antidumping duties and countervailing duties to offset foreign subsidies (despite overwhelming condemnation of antidumping remedies in particular by economists). Indeed, it is ironic that political pressures often force governments to support failing industries rather than those industries with promise for the future, largely because the dying industries and their employees can be counted upon to cry most loudly for government assistance.

In sum, states can often successfully guide their economies when they have well-defined targets to aim for. But as economies catch up to the technological frontier, the low-hanging fruit will have been picked. At this point, or perhaps well before it, the drawbacks of state-guided capitalism become more evident: excessive investment, an inability to come up with radical innovation, susceptibility to corruption, and the reluctance to

Inequality and Sluggish Growth

Oligarchic capitalistic economies generally have several features in common. First, and perhaps most obviously, their incomes are distributed extremely unequally (and their wealth tends to be distributed even more unevenly). We can use the so-called Gini coefficient, a standard measure of inequality, to illustrate this.² Table 3 reports the Gini coefficients in 1998, 1999, or 2000 for Latin America, a region we believe to be broadly characterized by oligarchic capitalism. The higher the Gini—on a scale from 0 to 100—the more unequally income (or wealth) is distributed. For contrast, table 4 shows the Ginis for countries belonging to the Organization for Economic Cooperation and Development (OECD), which includes the world's rich countries (along with a few exceptions, such as Mexico and Turkey). The differences are striking. The Ginis are much higher in Latin America, roughly near 50 to 60, suggesting a high degree of income inequality. In contrast, the Gini's in the OECD fall in the 25–40 range (with the United States at the top of the range).

Table 3 Gini Coefficient for Selected Latin American Countries

<i>Country</i>	<i>Gini coefficient</i>	<i>Year</i>
Bolivia	44.7	1999
Chile	57.1	2000
Colombia	57.6	1999
Costa Rica	46.5	2000
Dominican Republic	47.4	1998
Ecuador	43.7	1998
El Salvador	53.2	2000
Guatemala	59.9	2000
Honduras	55.0	1999
Mexico	54.6	2000
Panama	56.4	2000
Peru	49.8	2000
Uruguay	44.6	2000
Venezuela	49.1	1998

Source: World Bank, 2004 *World Development Indicators* (Washington, D.C.: International Bank for Reconstruction and Development/World Bank, 2004).

Note: Gini coefficients for other Latin American countries were unavailable from this source.

Table 4 Gini Coefficient for OECD Countries

<i>Country</i>	<i>Gini coefficient</i>	<i>Year</i>
Australia	35.2	1994
Austria	30.0	1997
Belgium	25.0	1996
Canada	33.1	1998
Czech Republic	25.4	1996
Denmark	24.7	1997
Finland	26.9	2000
France	32.7	1995
Germany	28.3	2000
Greece	35.4	1998
Hungary	26.9	2002
Ireland	35.9	1996
Italy	36.0	2000
Japan	24.9	1993
Korea	31.6	1998
Mexico	54.6	2000
Netherlands	30.9	1999
New Zealand	36.2	1997
Norway	25.8	2000
Poland	34.1	2002
Portugal	38.5	1997
Slovak Republic	25.8	1996
Spain	32.5	1991
Sweden	25.0	2000
Switzerland	33.1	1992
Turkey	40.0	2001
United Kingdom	36.0	1999
United States	40.8	2000

Sources: For Gini coefficients, World Bank, 2004 *World Development Indicators* (Washington, D.C.: International Bank for Reconstruction and Development/World Bank, 2004); for OECD members, OECD web site at http://www.oecd.org/documentprint/0,2744,en_2649_201185_1889402_1_1_1_1,00.html.

Note: Data not available for Iceland and Luxembourg.

To be sure, a number of Latin American countries seemingly attempted to enhance growth in the 1980s and beyond, shedding the import-substitution strategy pushed by Argentine economist Raúl Prebisch in the 1950s and adopted throughout much of Latin America for two decades thereafter. The rationale offered for this policy was that it would protect

local “infant industries” from foreign competition so that they could, in time, grow up and withstand competition from any source. But powerful and wealthy local families typically owned those infant industries, underscoring the consistency of such import protection with the oligarchic capitalism we describe here. The abandonment of this approach by some countries in Latin America and the hesitant steps toward opening their economies to foreign competition would seem to indicate some weakening of the oligarchic-capitalist model and faster growth as a result.

So far, the results are not consistent with this view, however. Table 5 compares the growth rates of major Latin American economies over two time periods, 1960–80, and 1980–2000. The first period roughly coincides with a time when the import-substitution economic policy was dominant throughout Latin America; the latter period loosely covers the “market reform” era. Yet, as table 5 shows, with the exception of Chile (where the Gini coefficient was among the lowest in Latin America), economic growth in the period 1980–2000 was not materially different, and in many cases it was actually *lower* than in the period 1960–80.³

In 2006, the World Bank devoted its entire *World Development Report*, an annual document that is scrutinized closely by policy makers and development experts around the world, to the relation between equity and economic development. Although it has been commonly assumed that there is a tradeoff between the two in developed economies (Okun, 1976), the Bank makes a compelling case that at least for developing countries as a whole, income and wealth inequality can impede economic growth through two ways. Those with power and wealth can and do tend to distort the cost of capital across social groups, thus leading to wasteful and inefficient allocation of resources while impeding opportunities for those who are penalized. Narrow, powerful elites also tend to put in place and maintain institutions and rules that benefit only themselves, at the expense of wider publics. Both of these tendencies are apparent, and indeed accurately describe economies where oligarchic capitalism dominates.

Informality

Latin American economies, among other developing-country economies, have been plagued by a second feature associated with many if not most oligarchic economies: a high share of “informal activity.” Econ-

Table 5 Average Growth in GDP per Capita and Gini Coefficient for Latin American Countries

Country	Import substitution era, 1960–80		Free market era, 1980–2000		Gini coefficient
Argentina	1.94		0.42		52.2 ^a
Bolivia	1.40		–0.53		44.7 ^b
Brazil	5.12		0.66		59.3 ^a
Chile	1.87		3.20		57.1 ^c
Colombia	2.72		1.13		57.6 ^b
Costa Rica	2.28		0.48		46.5 ^c
Dominican Republic	2.89		3.07		47.4 ^d
Ecuador	3.91		–0.94		43.7 ^d
El Salvador	1.23		0.38		53.2 ^c
Guatemala	2.80		–0.16		59.9 ^c
Honduras	1.56		–0.48		55 ^b
Mexico	3.35		0.75		54.6 ^c
Nicaragua	0.54		–2.53		43.1 ^a
Panama	4.32		0.73		56.4 ^c
Paraguay	3.18		0.28		57.8 ^a
Peru	2.17		–0.07		49.8 ^c
Uruguay	1.62		1.08		44.6 ^c
Venezuela	0.18		–1.01		49.1 ^d

Sources: For GDP, Alan Heston, Robert Summers, and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002, available at http://pwt.econ.upenn.edu/php_site/pwt61_form.php; for Gini coefficient, World Bank, 2004 *World Development Indicators* (Washington, D.C.: International Bank for Reconstruction and Development/World Bank, 2004);

^aGini coefficient in 2001.

^bGini coefficient in 1999.

^cGini coefficient in 2000.

^dGini coefficient in 1998.

omists have been aware of the informality phenomenon for some time (see Tanzi, 2000), and it was popularized in two best-selling books by Peruvian economist Hernando De Soto (see De Soto, 1989, 2000).

Informality, in the sense in which De Soto uses the term, exists when individuals and firms carry out economic activities that are inherently constructive—such as building homes, selling goods and services, and so on—but in ways that are technically illegal because they lack the requisite official approvals, licenses, or, in the case of land, titles. This definition of

informality distinguishes it from criminality, which is also an extralegal activity but which society condemns because it undercuts the fabric of society (through such activities as theft, assaults, kidnapping, murder, and in many countries, the use and sale of certain drugs and the money laundering that typically accompanies it).

Informal activity is constructive and contributes to growth, but as we argue in the next chapter, economies where it is widespread could grow faster if informal businesses were allowed to surface from the underground and do business in the open, with access to formal credit and networks that facilitate more rapid expansion. The key point for our present purpose is that we do not believe it to be an accident that in oligarchic capitalism informality tends to be widespread and persistent. The ruling families in such societies do not consider the extension of formal rights throughout the population to be in their narrow economic interests. They don't want the competition that new, formal entrants into the economy can provide. Governments backed by oligarchic elites seem to go out of their way to make it difficult for informal firms and individuals to operate formally.

The problem of informality is now recognized far beyond Latin America, where De Soto first studied it in the 1980s; it is also prevalent in Africa, Asia, India, and China. Indeed, even Russian President Vladimir Putin has acknowledged the difficulties of establishing new businesses in Russia, a country that, somewhat to its dismay, has facilitated the influence of oligarchs. Thus, Putin has lamented: "The government and the regional authorities (in Russia) have failed to create conditions for small-and-medium-sized businesses to flourish. *Everyone who opens a new business and registers a company should be given a medal for personal (bravery)*" (as quoted in Arvelund, 2005).⁴

Corruption

Oligarchic economies typically are plagued by corruption, even more than in state-guided capitalism, though corruption certainly is not unknown in any economic system. Governments that make it difficult for citizens to obtain licenses or approvals—the preconditions that lead to informality—also create opportunities for lesser officials to take bribes. Indeed, firms that pay bribes typically face more intrusion from government

officials than law-abiding enterprises (see Kauffman and Wei, 1999). Furthermore, although the few firms and families that dominate oligarchic countries can be "powers behind the throne," ultimate power still rests with government officials who have the means to make life easy or hard for the oligarchs. As a result, firms and families in this position may be subject to demands for side-payments by the leaders in charge.

Corruption should stunt growth in a number of ways. For one thing, it diverts entrepreneurial energy away from productive activities like the development and adoption of innovations and toward socially wasteful endeavors. The "opportunity cost" of losing the productive services of these potential innovators is perhaps the greatest cost of corruption. In addition, by increasing the cost of doing business, corruption discourages investment, both at home and from abroad. One largely anecdotal but persuasive account of the problem blames corruption for much of the economic misery suffered in Africa and other poor countries in the world (see Baker, 2005; Naim, 2005b). There is some more formal statistical evidence confirming that corruption is costly, finding it to discourage foreign investment in particular.⁵ For example, Shang-Jin Wei of the Brookings Institution and the International Monetary Fund has estimated that corruption can impose as much as a 50 percent tax rate on foreign investment, which understandably discourages foreign inflows of capital (see Wei, 2000).⁶ One might suppose that China, where despite widespread corruption the country has been highly successful in attracting foreign investment, is an exception to this pattern. Yet Wei finds that China would attract even more investment from abroad, and thus grow even more rapidly, if it were able to reduce corruption (Wei, 2001).⁷

The Dangers of Abundant Natural Resources

Finally, there are some oligarchic countries where abundance of a natural resource—oil, in particular—helps cement that form of capitalism and makes it difficult to dislodge. *New York Times* columnist Thomas Friedman has advanced an even broader hypothesis, which he calls "the first law of petropolitics," that asserts that in oil-rich economies, "the price of oil and the pace of freedom always move in opposite directions" (Friedman, 2006, 31). The notion is that when oil prices rise in oil-rich economies, the ruling oligarchies have the wherewithal to "buy off" op-

progress of the Middle East (excepting Israel) has been abysmal, despite the oil riches in most of these countries. As one study has reported, "since 1975, per capita GDP growth in the Middle East has been worse than that of any other region in the world" (Askari and Takhavi, 2006, 83).

In sum, economies governed by oligarchic capitalism are not driven by a growth imperative but rather, in a worst case, are homes for corrupt leaders and, even in better cases, manage to preserve income and wealth only for a favored few. Indeed, a high degree of income inequality is one of the defining characteristics of oligarchic capitalism. Other characteristics include an extensive network of informal economic activities and pervasive corruption (which can be magnified when an economy is heavily dependent on a single natural resource).

Big-Firm Capitalism

Ironically, toward the end of his life (in the late 1940s and early 1950s), Harvard economist Joseph Schumpeter—one of the only economists to recognize the central role of entrepreneurs in capitalist economies—was pessimistic about the future of innovation in the United States. Schumpeter feared that entrepreneurial activity was gravitating toward the large, established enterprises, which not only had the resources to finance creative activity but also enjoyed positions in their markets large enough to earn profits sufficient to make the investment in the development of innovations worthwhile. Schumpeter was also concerned that the growing bureaucracies within large U.S. companies, especially in the wake of the mass production required during World War II, were going to stifle innovation in the future (Schumpeter, 1942, 81–86).

Another Harvard economist, John Kenneth Galbraith, who was even better known to the public, also wrote about the growing power of large, established companies during the early part of the postwar era. But unlike Schumpeter, Galbraith was not worried that Corporate America would run out of commercial ideas. On the contrary, he feared that large corporations were becoming so powerful that society would need "countervailing powers"—unions and government—to check corporate excesses, in wasteful advertising, in lavish perks, and in profits (Galbraith, 1967, 388–99).¹⁰

ponents to their regimes and also the resources to ignore what other countries may think of them. For our purposes, the most relevant aspect of Friedman's hypothesis is that in high oil price regimes, there is less incentive or need to foster entrepreneurship as well.

Saudi Arabia, where one family (the House of Al Saud) has been in power for generations and also owns the state oil monopoly (Aramco), is perhaps the prototypical example of these propositions. Enriched by oil revenues, the family is able not only to control the oil business but to use the revenues to acquire or establish many other businesses. The Saud family also has used oil revenues earned by the government to support other businesses, such as petrochemicals, thus displaying features of state-guided capitalism as well. The situation in other parts of the Middle East is similar, but the families that rule the oil-rich countries of Oman, Bahrain, Dubai, the United Arab Emirates, and Kuwait seem to have been more successful in their efforts to encourage broader-based growth of their economies. Our impression is that one reason for this is that despite the apparent ease of opening a business in Saudi Arabia (as judged by the World Bank's annual *Doing Business* rankings, discussed in the next chapter), and state plans to use the vast increase in the country's oil revenues to develop more giant manufacturing complexes and petrochemical facilities, the country is still far more culturally and economically closed than the more successful oil-rich economies, which are more open to foreign goods, ideas, and capital.⁸

For example, although significant hurdles must still be overcome, Dubai is doing its best to become the Middle East's center for banking and securities trading (Spindle and El-Rashidi, 2006). Dubai's leaders recognize that this effort will not succeed without the active on-the-ground presence of major foreign financial institutions, and so far a number of them have responded by opening or expanding their operations in the country. Dubai is also building "Internet City," which, as of mid-2006, has attracted many of the leading high-tech names from the United States (Microsoft, Hewlett-Packard, and Cisco) to establish major Middle Eastern operational facilities there. The leaders of Oman and Bahrain have also opened their economies in a different way, seeking to attract tourists from within and outside the region.⁹

Still, for all the recent progress of the Emirate states, the economic

Both Schumpeter and Galbraith concerned themselves with what we call big-firm capitalism, in other words, economic systems dominated by large companies, where the original founder of the company either has passed from the scene or is no longer in effective control of the company. Ownership of such enterprises is widely dispersed among many shareholders, often including some large institutional investors (insurance companies, pension funds, universities, foundations, and the like). Professional managers are the “agents” of these “principals,” giving rise to the well-known “principal-agent” problem, that of ensuring that the managers continually act in the best interests of the owners of the firms they manage.¹¹

Here and in chapter 7, we identify big-firm capitalism primarily with Continental Europe, Japan, Korea, and pockets of other economies, including the United States. This isn't to say that the former group of economies is totally dominated by large enterprises, because in fact each of them also hosts many small entrepreneurs. But there are few entrepreneurs in big-firm economies that are innovative in the sense of the term as we use it. Instead, the entrepreneurs in big-firm economies live at the margins and do not provide the economic fuel for the large firms in the way that is done by innovative entrepreneurs in the United States and increasingly in other countries where entrepreneurial capitalism is a central feature of the economy or becoming so. Big-firm economies also tend to be powered more by certain national champion firms that are selected or promoted by governments, out of national pride and stemming from the belief that only such firms can realize the economies of scale to take on powerful global competitors from other countries (typically from the United States).

Disadvantages of Big-Firm, Oligopolistic Capitalism

Often, but not always, big-firm capitalism is *oligopolistic*. That is, it is characterized by large firms operating in markets that, because of their limited size, are capable of supporting only a few competitors who may be able to take advantage of any significant economies of scale provided by the current technology. Or these markets may contain only one or a few firms because of “network effects,” where the value of a good or service depends on how many others use it, as is the case for communications networks, stock markets, and various high-technology products, notably

computer software. Such markets tend to be highly concentrated, sometimes even monopolies, because the firms that succeed in building a substantial body of customers can thereby out-compete would-be entrants.

Oligopolies nonetheless have been frowned on by many economists and policy makers because they depart from the competitive ideal of many small firms, each working hard to outdo the others. In such “atomistic” markets, no one firm controls enough of the market to be able to set its price; rather, prices are determined by the impersonal interactions of many consumers and many firms and are represented graphically by the intersection of the supply and demand curves found in every introductory text on economics. In contrast, oligopolies are distrusted because in industries with few competitors, individual firms may have some control over the prices they set, especially where they are able to differentiate their products and services from others in their market (economists label this “monopolistic competition”). Firms with pricing power can thus earn “supranormal” profits—or profits above those earned by firms in purely competitive markets—via higher-than-competitive prices, which can hurt consumers.

In addition, firms in oligopolies can be lazy, living off their cash flow without innovating, and can leverage their power in one market into other markets, thereby stunting the growth of new technology and handicapping the entrepreneurs who could commercialize it. Oligopoly firms sometimes “rent-seek” from government, asking for protection by the courts or regulatory agencies from more efficient domestic and foreign competitors. The U.S. automobile and steel industries are prime examples of large firms in oligopolistic markets that lost their competitive zeal and then sought and obtained trade protection to blunt—but not totally thwart—more efficient competitors from abroad. The domestic counterpart of trade protection here is antitrust litigation aimed at benefiting particular big-firm competitors rather than the entire economy, with such litigation mounted by increasingly enterprising plaintiffs’ lawyers, state attorneys general, and occasionally federal antitrust authorities (Baumol, 2002).

Advantages of Big-Firm, Oligopolistic Capitalism

Oligopolies do have advantages, however. If the cost structure or network effects in a market support only a few firms, then oligopoly could be the most efficient outcome for consumers, even if prices reflect a markup for higher profits. Indeed, because of their supranormal profits,

the Trinitron television and was once one of the most successful innovative large firms—seems to have lost its way. As one commentator has put it, Sony has become (at least as of this writing, since its new CEO is doing his best to turn the company around) a classic victim of the “not invented here” syndrome, refusing to imitate or cooperate with other companies (Surowiecki, 2005).

But big firms nonetheless can grow and prosper by constantly refining existing products and services and occasionally developing new ones, typically after considerable market research about what consumers will and won't buy. The innovation process becomes routine and predictable, picking up “three yards at a time” (to use an American football analogy) rather than seeking the breakthrough touchdown. Such constant, albeit routine, refinement is necessary in any economy.

Indeed, big firms are also essential to mass-produce some of the innovations that radical entrepreneurs are unable by themselves to manufacture in a cost-effective way. Examples are legion: Ford with the mass production of the automobile, which had seen a long line of inventors before;¹³ Boeing, Lockheed, McDonnell-Douglas, and Airbus with the airplane that was invented by the Wright brothers; IBM with the mainframe computer that was developed at the University of Pennsylvania; Dell with the personal computer that had been developed by Apple; Microsoft with the PC operating system that apparently was developed by Gary Kildall; and large pharmaceutical companies, which have the resources to conduct the expensive and time-consuming clinical trials on breakthrough therapies invented in universities and in small companies.

In these and many other cases (including the radical innovations we discuss below), the early innovations were usually in a primitive state, limited in capacity, and often subject to frequent breakdown. It eventually took the bigger firms, with their permanent and well-trained research staffs, to refine them and to turn the innovations into products that consumers wanted and could afford. Understandably, in such environments the research arms of these firms give priority to product improvements that enhance reliability and user-friendliness rather than to imaginative breakthroughs. Nonetheless, these incremental refinements are essential. Without such “routinized” research and development activities of big corporations, economies in developed (and developing) countries would be far

firms in oligopolies have the cash flow to finance the development of the incremental improvements in technology that are the hallmark of large firms. Two Japanese giants, Honda and Toyota, exemplify the best of big-firm enterprises, firms that not only have continuously improved their automobiles, but have been radical innovators as well (most recently, in the case of hybrid cars that combine two sources of power, gasoline and a rechargeable battery). A few large Korean manufacturers—Hyundai and Samsung—also have displayed innovative zeal in recent years. Western European economies are also host to a number of successful and innovative large firms, which are strong in the automobile, capital goods, and consumer appliance industries, among others.

Indeed, large firms are essential to the functioning of *any* economy if for no other reason than because founders of vibrant, new companies—the entrepreneurs—eventually must pass the reins of power to nonfounding managers. At this point, the firms confront a fork in the road: down one path lies successful expansion and ideally other rounds of innovation, down the other lies stagnation and possible demise of the firm. If the initial firm was a radical innovator, it is unlikely that it will repeat that success in its second and third generations of management, however. Larger, second-generation companies typically have flatter, more lock-step compensation systems that cannot reward individuals or groups within the firm for breakthrough inventions to the same degree that the market rewards lone inventors or entrepreneurs. In addition, breakthrough technologies can quickly make existing products and services obsolete and for that reason may be fiercely resisted within large organizations.

These factors help explain a number of seeming conundrums: why only a small fraction of the R&D budgets of large firms is devoted to radical research (Branscomb, 2004); why research and patents filed by small firms are at least twice as likely to be “high impact” patents as those filed by bigger firms (see CHI, 2003, and Council on Competitiveness, 2004); why large U.S. firms like Procter & Gamble, Intel, and large pharmaceutical companies, among other large enterprises, increasingly seem to be “outsourcing” much of their R&D to smaller firms, which come up with new products and then sell themselves to those larger companies (some of which may make equity investments in them in the first place);¹² or why Sony of Japan—which originated the transistor radio, the Walkman, and

less productive, and the reliability, practicality, and user-friendliness of many innovative products would be far more circumscribed.

In rare cases, big firms even can be entrepreneurial. One example is General Electric, which during CEO Jack Welch's tenure was run more as a collection of individual entrepreneurial enterprises than as one large company. Indeed, Welch streamlined GE's central office and decentralized power to the company's individual business units. Another big company well known for encouraging its employees to come up with new ideas, and then backing them as if they were starting new businesses, is 3M Corporation. And in Japan and now in its operations throughout the world, Toyota and Honda have demonstrated that large automobile companies can continue both to make incremental improvements in the already high quality of their vehicles and to innovate with new hybrid cars that are substantially more fuel-efficient than anything else on the market.

There also are cases of established, once-entrepreneurial firms that develop and market innovations when their backs are to the wall, having suffered declining fortunes from their other operations. The transformation of Nokia, the Finnish cellular telephone company, is one of the world's leading examples of this genre. More recently, in the United States, Apple has been resurrected by "iTune" players and online music and video stores, radical technologies that have rescued the company from its perennial status as a niche producer of personal computers.

And then there are large firms that simply buy radical innovation from smaller, more entrepreneurial firms. As one *Economist* survey put it in 2006: "Most of the innovation in pharmaceuticals these days is coming from small new firms. Big Pharma's R&D activity is now concentrated as much on identifying and doing deals with small, innovative firms as it is on trying to discover its own blockbuster drugs" ("New Organization," 2006, 9). Much the same can be said for a number of the larger information technology firms, such as Cisco, Intel, and Microsoft.

The more typical pattern among larger firms, however, is one that is the Achilles' heel of big-firm capitalism itself: the tendency *not to innovate*. The temptation to live for the status quo is especially strong if the large firms that dominate a market are successful in thwarting competition, either through acts on their own or by enlisting governments to shelter them from competition. Either way, the drive for continued improvement may wane. Or big firms may simply become so bureaucratic that they be-

come incapable of recognizing and acting on radical ideas even when they see them. One noted expert on entrepreneurship, Amar Bhidé of Columbia Business School, argues that such tendencies may be endemic in large companies (Bhidé, 2006).

The sclerosis of larger firms threatens the growth of entire economies not only because of missed opportunities but because it can infect the attitudes of those who work for them. The labor market counterpart of a stagnant product market is when workers see job security, rather than personal growth and contribution to their company's welfare, as their highest priority. It is not an accident that in the leading exemplars of big-firm capitalism—continental Europe and Japan—labor markets are rigid, employment security is taken for granted, and firing is rare. The irony, of course, is that big-firm economies have failed to provide the employment security that workers in them so fervently seek. After outperforming the United States with lower unemployment rates through the 1950s, 1960s, and 1970s, Western European economies over the last decades have suffered structural unemployment rates that substantially exceed those in America. Restrictive labor rules that make it difficult for firms to fire or lay off redundant employees also discourage them from hiring new ones to begin with. More problematic, the fear of being stuck with a labor force that they cannot later modify deters entrepreneurs from getting started in the first place, or if they do manage to begin, from hiring beyond any threshold that triggers the job protection requirements. Yet both Europe and Japan now find themselves aching to create an entrepreneurial culture to help generate the new jobs that their existing big firms cannot. Whether either or both will succeed is the major topic we take up in chapter 7.

In short, big-firm capitalism at its best generates sufficiently large cash flows to finance internally the continuing, incremental improvements in products and services that are staples of any modern economy. At its worst, big-firm capitalism can be sclerotic, reluctant to innovate, and resistant to change.

Entrepreneurial Capitalism

Finally, we come to our fourth category: entrepreneurial capitalism, the capitalist system in which large numbers of the actors within the economy not only have an unceasing drive and incentive to innovate but

also undertake and *commercialize* radical or breakthrough innovations. These innovations are bolder than the incremental innovations that characterize big-firm capitalism. Together, these innovations, as improved and refined by the entrepreneurs themselves or by other existing firms, have improved living standards beyond anything our ancestors could have believed. Examples include the automobile and the airplane; the telegraph, which led to the telephone and eventually the Internet; the generation of electricity, which has transformed the way we work and live; and the air conditioner, which has permitted massive migrations of peoples from colder climates to warmer climates, not just in the United States but around the world, and increased worker productivity by no small amount along the way.

This is just a small sample of the radical innovations that have transformed our lives and have spawned entire industries around them. They either become “platforms” on which other products or technologies are built (electricity or personal computer operating systems, for example), or “hubs” that help create and support many “spokes” (automobiles and their supplier industries). The industries spawned by these radical innovations in turn enhance productivity and thereby contribute to economic growth, both nationally and within regions where new firm formation is especially strong (Acs and Plummer, 2005; Acs and Armstrong, 2004).¹⁴ Or, as David Audretsch and his colleagues at the Max Planck Institute have argued, “entrepreneurship makes an important contribution to economic growth by providing a conduit for the spillover of knowledge that might otherwise have remained uncommercialized” (Audretsch et al. 2006, 5).

New Firms and Breakthrough Innovations

But where do these radical, breakthrough innovations come from? The answer is that transformational technologies, and hence entrepreneurial capitalism, would not exist without *entrepreneurs*, who recognize an *opportunity* to sell some thing or service that hadn't been there before and then act on it. Radical breakthroughs tend to be disproportionately developed and brought to market by a *single individual or new firm*, although frequently, if not generally, the ideas behind the breakthroughs originate in larger firms (or universities) that, because of their bureaucratic structures, do not exploit them (Moore and Davis, 2004, 32). As Jean-

Baptiste Say noted at the beginning of the nineteenth century, without the entrepreneur, “[scientific] knowledge might possibly have lain dormant in the memory of one or two persons, or in the pages of literature” (Say, 1834, 81). Although the finding is now somewhat dated, one thorough statistical study has found that smaller, younger firms produce substantially more innovations per employee than larger, more established firms (Acs and Audretsch, 1990).

With rare exceptions, truly innovative entrepreneurs can only be found in capitalist economies, where the risk of doing something new—and spending time and money to make it happen—can be handsomely rewarded and the rewards safely kept (these are key preconditions for entrepreneurial capitalism, which we will discuss in chapter 5). Given the importance of innovation, the virtue of a free-market, opportunity-maximizing economy is that it taps the talents of the many. Such an economy is open to continual brainstorming and experimentation, which pays off because the people at large—vast numbers of them, having a diverse mix of skills and different kinds of knowledge—are more likely to come up with and implement good ideas than any group of planners or experts. Thus, the very “un-plannedness” of a free-market economy, which might seem to be a great weakness, turns out to be a great strength.

One of us (Baumol) has offered several reasons why radical innovations seem to emanate from entrepreneurs rather than large firms (at the same time being careful to note that most entrepreneurs are replicative rather than radical).¹⁵ For one thing, successful radical innovation, if undertaken by the entrepreneur, promises what might be called “mega-prizes”—hundreds of millions, if not billions, of dollars of wealth. Nothing comparable awaits the radical innovator in a large firm, who might get a special recognition award and a onetime bonus.

Beyond this, paradoxically, studies have found (for the United States at least) that the *typical* entrepreneur earns *less* monetary compensation than her employee counterpart. Why then do so many entrepreneurs willingly engage in what is inherently risky activity? Because the additional psychic rewards—being one's own boss, pride in self-accomplishment, and so forth—make the entrepreneurial endeavor worthwhile even if the entrepreneur does not gain the mega-prize. This, in turn, helps explain why entrepreneurs have a comparative advantage relative to large companies in

attempting to discover and commercialize breakthrough innovations. Because a not insignificant portion of the entrepreneur's "income" from her activity is psychic, the entrepreneur is the low-cost provider of radical innovation. Often, therefore, it is more economical for the large firm to wait for entrepreneurs to develop the radical innovations and then buy them out.

Large Firms and the Contagion of Innovation

Why then does this low-wage competitive advantage of the independent innovator-entrepreneur not extend also to less radical innovations, the cumulative incremental improvements that are specialties of large firms? Part of the answer lies in the greater complexity and capital cost of incremental innovation. A Boeing 777 obviously is far more complicated than the primitive airplane developed by the Wright brothers. It has taken Boeing a century to continually refine the original airplane into the complex and rather amazing piece of machinery that is today's modern airplane. Boeing has accomplished this feat by amassing an army of engineers and designers and spending billions of dollars—money the Wright brothers did not have. This, too, is not accidental. By its very nature, the original revolutionary invention known as the airplane, like so many that came before and after it, grew ever more complex as it was repeatedly modified and improved. In this respect, the independent innovator-entrepreneur was at a marked disadvantage in the financing of the incremental improvements that have led to the modern airplane.

None of this is to imply that large firms are incapable of radical innovation or that they never achieve it. The fact is that even in America, entrepreneurs have not had a monopoly on all radical innovation, and large second-generation firms are essential to ensure that radical innovations take root. For example, Bell Laboratories, which was perhaps the most successful research arm of any major corporation (when it was owned by AT&T), was responsible for two of the more important big-firm radical innovations in recent decades: the transistor and then the semiconductor.

These were seminal breakthroughs indeed, but it is also noteworthy that they helped to launch a wave of innovation by newer, entrepreneurial firms. In 1958, when American scientists were scrambling to catch up to the Soviet Union's successful launching of Sputnik, Jack Kilby at Texas In-

struments expanded on the Bell Labs work by conceiving an integrated circuit, a silicon chip containing transistors along with other circuit elements. Building upon these two innovations, others brought to market a series of new consumer and business goods, from transistor radios to pocket calculators and, eventually, personal computers—which were developed and commercialized in the 1970s by entrepreneurs at a time when existing firms did not yet see the value of PCs (an industry launched by another entrepreneur, Steve Jobs, the founder of Apple).

Innovation didn't stop there. The PC industry, in turn, gave a huge boost to the fledgling software industry that also had been launched by cadres of independent entrepreneurs. Even the legendary start and growth of Microsoft into one of the world's largest and most profitable companies, as the pioneer of PC operating systems, thereafter provided a market for other computer application software. Advances in computing, in turn, have enabled advances in biotechnology, a new field started by university researchers experimenting with recombinant DNA, which was developed into an industry by entrepreneurs and venture capitalists. Computing and biotech have since played instrumental roles in the emergence of nanotechnology—miniature devices no larger than molecules—that may revolutionize medicine and other fields in ways that cannot yet be imagined.

No one could have planned these events. No one even foresaw them. Yet they led to entirely new industries employing millions and benefiting hundreds of millions (if not billions) more.

Other countries have witnessed these remarkable developments and are learning from them. As we discuss in later chapters, such countries as Ireland, Israel, and the United Kingdom have or are in the process of shedding the guiding role of the state in their economies and putting their bets on entrepreneurs, with growing and even remarkable success. India, a longtime practitioner of state-guided capitalism, has embraced entrepreneurship, more by accident than design, in a small but growing corner of its economy: call-in centers and software design. China, formerly the world's largest centrally planned economy, has developed a new form of semi-state-led entrepreneurship that has helped make that economy the world's fastest growing of the last decade. We will have more to say about both the Indian and Chinese embrace of entrepreneurship in chapter 6.

The United States and the Brave New World

For now, however, we simply point out that Americans must learn to live with the fact that they no longer have a monopoly on their country's unique blend of entrepreneurial and big-firm capitalism. This is a good thing if it spurs the United States to maintain its commitment to both radical innovation and incremental improvement. It will be unfortunate, however, if the fear of stiffer competition induces American policy makers to adopt a more defensive form of capitalism that, over time, retards the remarkable growth in innovation that has so far characterized the U.S. economy.

The fear we speak of grows out of the necessary and inevitable consequence for any entrepreneurial economy, what Schumpeter called "creative destruction." The creativity and the destruction are often brought about by the entrepreneur and successor firms, who commercialize the new technology that replaced the old: the car instead of the horse, electricity instead of the steam engine, the semiconductor instead of the cathode ray tube, and computer hardware and software that have eliminated (and continue to eliminate) many tasks once formerly carried out by human beings, among many other examples.

Successful entrepreneurial economies *embrace* and generally *encourage* change. They do not erect barriers that prevent money and people from shifting from slow-moving or dying sectors to dynamic industries. They do not wall off their existing producers from more efficient ones in foreign countries. And they seek out better ideas wherever they can find them, even abroad (we will have more to say about the importance of imitation in chapter 5).

Radical innovations and the changes they spawn have a tendency to come in waves, accompanied by much disruption over an extended period of time, with many losers and just a few winners. At one time, for example, several thousand firms or individuals were making and trying to sell automobiles in the late nineteenth and early twentieth centuries; only a handful survived. A similar story can be told about the telephone industry and, more recently, the numerous dot-com companies that quickly came and went in the 1990s. Financial bubbles attend these technological revolutions, with investors placing bets on numerous competitors, pushing up

their share prices only to see most prices fall to earth when most of the companies fail. This boom-and-bust nature of financial markets is inherent in any economy that spawns radical or paradigm-shifting innovation (see Perez, 2002).

Economies characterized by entrepreneurial capitalism are also dynamic in another sense: there is a constant churning of firms in the pecking order among all firms, in contrast with greater stability in firm rankings in economies characterized by big-firm capitalism. Consider, for example, the contrasting experiences of the United States and Europe. Of the twenty-five largest firms in the United States in 1998, eight did not exist or were very small in 1960. In Europe, all twenty-five of the companies that were the largest in 1998 were already large in 1960. Moreover, the pace of the change in America seems to have accelerated. Whereas it took twenty years to replace one-third of the Fortune 500 companies in 1960, it took just four years to accomplish this task in 1998 (Commission of the European Communities, 2003).¹⁶

Because radical change is so disruptive, entrepreneurial economies can benefit from properly constructed safety nets that shield some of the victims of change from its harsh impacts (without at the same time destroying their initiative to get back on their feet). This may seem paradoxical or counterintuitive. The former chief scientist of Israel once told two of the present authors in conversation that she believed one reason Israel was so entrepreneurial was that its people had a high level of discomfort, brought about largely by external threats to their physical security. In societies where individuals may be too comfortable—much of Western Europe, for example—people may be reluctant to take the risks inherent in any entrepreneurial endeavor. Indeed, in 2004, a French government employee wrote a best-selling book called *Bonjour Paresse* (Hello Laziness), which extolled the virtues of not working hard. This "avoidance of work" ethic is now a serious cultural issue across Western Europe, manifesting itself in a noticeable drop in average hours worked per year by employed individuals in major European countries (see chapter 7).

But context makes a big difference. In Europe, where there is job security for those who have a job, it is not surprising to find authors hailing laziness. In societies where this is not so and where people have much to lose if they lose a job, as is true in the United States, change from any source

can be highly threatening. And when change hits home, it is easier to put a foreign face on it—blaming trade, outsourcing, or direct investment by American companies abroad—than to recognize that most change is domestically driven by continuing improvements in productivity that allow firms to make do with fewer workers, with or without foreign competition or outsourcing. In such an environment, then, actual and potential losers from change have a strong incentive to try to disrupt very visible sources of change, such as trade, outsourcing, and the like.

Thus, although it may seem counterintuitive, constructive safety nets that catch the fallen without destroying their incentive to get back up can be more important in high-income, entrepreneurial economies than in economies with lower average standards of living. This is because the potential losers from change in high-income countries have more to lose and thus greater incentive to try to stop it or slow it down.

To summarize, entrepreneurial capitalism is the system we believe is most conducive to radical innovation. But no advanced economy can survive only with entrepreneurs (just as individuals cannot survive by eating just one type of food). Big firms remain essential to refine and mass-produce the radical innovations that entrepreneurs have a greater propensity to develop or introduce. One area for future research is the optimal mix of entrepreneurial and large firms. To address this challenge, however, requires better data sets than currently exist. (Readers interested in the important but overlooked topic of what data are required to test the hypotheses advanced in this book should consult the appendix.)

The Challenge Ahead

Now that we have outlined the four types of capitalism, a number of obvious questions beg for answers. In particular, how can governments set out to create or accelerate the growth of entrepreneurship? Assuming they can, how can governments ensure that the successful large firms that result continue to innovate? Or is government essentially helpless, taking a back seat to the informal norms and practices of a society—its “culture”—which may take decades, or even centuries, to change? Chapter 5 takes up these and other related questions that are vital to understanding and promoting economic growth.

5

GROWTH AT THE CUTTING EDGE

Growth failed to respond to any of the (standard macro) formulas because the formulas failed to take heed of the basic principle of economics: people respond to incentives.

—William Easterly, *The Elusive Quest for Growth*, p. 143

Throughout most of recorded history and in almost all societies accumulation of wealth has been a primary goal of enterprising individuals. In the vernacular familiar to American readers, individuals have pursued one of the two primary roads to acquire wealth: increasing the size of the pie and taking one's fair share from the increase, or simply taking more of the pie, whether or not it grows. Until the time of the Industrial Revolution, the second of these options—redistribution of what was already there—was pursued overwhelmingly. That fact, ultimately, explains why the economic growth achieved by industrial countries in the last two centuries is unparalleled in previous history, ancient or recent.

There are straightforward reasons why redistribution rather than growth has for most of human history been the preferred method of wealth-accumulation. Perhaps the most obvious is that it looks easier simply to acquire riches by taking them away from others who are weaker. Indeed, when unrelenting dangers lurked from every side, violence was understandably deemed a manly, heroic activity. More than that, in such an environment there was little certainty that the fruits of the other avenue to wealth—contribution to production and growth of the economy—would

