CHAPTER 1

Economic Development, Interdependence, and Incentives

ON SEPTEMBER 5, 2006, an electoral court proclaimed Felipe Calderón to be the next president of Mexico. The court ruled that Calderón had won the election, which had taken place two months before, over his rival, Andrés Manuel López Obrador. Calderón's presidential victory was by the slimmest margin in Mexican history, igniting street protests organized by López Obrador's followers that would last for months.

Both before and after the election, the political battle between Calderón and López Obrador grew increasingly tense over the issue of corruption. As political tensions mounted, each tried to paint the other candidate as a contributor to the problem, while simultaneously presenting himself as the best solution to it. López Obrador's accusations were particularly painful for Calderón, who had campaigned under the nickname *El Sr. de Manos Limpias* (Mr. Clean Hands), pledging to eliminate the scourge of corruption in Mexico.

Presidential pledges to combat corruption, however, were not revolutionary. Vicente Fox had been elected as an anticorruption warrior six years earlier, as had been Ernesto Zedillo six years before him. The tenacity of corruption in Mexico has not kept politicians from promising to eradicate it. Because citizens correctly identify corruption at the root of Mexico's development problems, promising to break its stranglehold on society garners the votes of many. But were Calderón fully aware of the difficulties before him, he might have considered easier alternatives, like changing the national language to Swahili.

Corruption occurs at all levels in Mexico, from the mundane to the grandiose, but some of the more brazen, high-level cases of corruption have become legendary. These would include the $114 million deposited into Swiss bank accounts by Raul Salinas, brother of the former President Carlos Salinas, who shortly thereafter fled to exile in Ireland. The money was believed to have come through relationships with Mexican and Colombian drug cartels during the administration of his brother.[1] In a 2004 scandal, Carlos Ahumada, a 40-year-old self-made millionaire, was charged with giving million-peso bribes to officials of Mexico's left-of-center *Partido de la Revolución Democrática* to obtain lucrative sewer-cleaning contracts in Mexico City.

[1] *BBC News*, October 20, 1998.

Unfortunately, for the residents of Mexico City, Ahumada put a lot more energy into his underhanded dealings than he did into cleaning their sewers. Very creatively, he filmed many of the payoffs for the purpose of subsequently blackmailing the same government officials. But unfortunately, for Mr. Ahumada, the video footage was discovered and used for his arrest. It also led to the arrest of the finance chief of Mexico City, Gustavo Ponce, who was caught gambling in Las Vegas with $1.67 million in wire transfers traced back to Mr. Ahumada.[2]

In Mexico, they call it the "culture of corruption." The word for bribe, *mordida*, literally means "the bite," and getting bitten in Mexico is regrettably common. The *mordida* permeates every level of society, from the offices of presidents, governors, police chiefs, and mayors, down to the level of the most menial government employee. Part of the difficulty with corruption in Mexico is that it is often hard to determine where harmless cultural norms end and the *mordida* begins. For example, around Christmas time, it is customary in many areas of Mexico to provide the local postman with a "gift" for his hard work during the year, perhaps freshly baked *pan dulce* (sweet bread), some fruit, or a box of cigars. Those who fail to provide the postman with a Christmas gift often find that the number of people from whom they receive Christmas cards plummets sharply.

Some in Mexico might feel that people who refuse to provide a Christmas gift to their underpaid mailman deserve to have their mail tossed in the *basura*. But the greater problem is that people in Mexico have to pay bribes for even the most routine interactions with government officials: A 2001 study of 16,000 Mexican households by Transparency Mexico, the local arm of the corruption-fighting organization Transparency International, determined that residents of Mexico City have to pay bribes for nearly 25 percent of the basic government services they receive. They calculated the average bribe at around 100 pesos, about $10. Bribes were reportedly highest in activity related to cars: retrieving an impounded car required the *mordida* 57 percent of the time; avoiding traffic tickets (just or unjust), 56 percent of the time; and avoiding other traffic offenses, 54.5 percent of the time.[3] Bribes in Mexico are also common and indeed are often deemed necessary for obtaining business licenses and other types of permits.

Widespread corruption is not the norm in every country. Transparency International scores countries from 1 to 10 based on perceptions of corruption by businesspeople and country analysts, those closer to 10 being the most honest and closer to 1 the most corrupt. By this measure, Iceland tops the charts with a (non-)corruption score of 9.7, followed closely by countries such as New Zealand, Singapore, and Finland with scores ranging from 9.4 to 9.6.[4] Nigeria, Myanmar, Turkmenistan, and Haiti are at the bottom of the list with scores of 1.7 to 1.9. Mexico scores a 3.5. Clearly many different outcomes are possible with corruption. What accounts for these differences?

[2] *Wall Street Journal*, June 23, 2004, p. A1.
[3] *Washington Post*, October 31, 2001, p. A23.
[4] Transparency International Corruptions Perception Index, 2005.

Many of these differences are influenced by people's expectations about the behavior of others. Suppose that in a country like Mexico government officials and common citizens believed that a new campaign *would* indeed produce a significant public backlash against corruption. Officials would be more hesitant to solicit the *mordida* if they expected that irate citizens would be likely to report them. Citizens would be less willing to offer the *mordida* if they expected that officials would refuse it or maybe even report them for offering it. In this way, the phenomenon of corruption is a problem of coordination, where entire societies coordinate themselves around corruption or noncorruption. The problem in the game is that history matters; past experience shapes people's expectations about the present and future. And it is hard to expect that public officials will behave honestly if the past provides little basis for such, and hard to expect that people won't pay bribes if they always have. In this sense, Mexico remains a prisoner of its own expectations.

What makes rich countries rich and poor countries poor? Over 230 years since Adam Smith produced his (1776) classic *An Inquiry into Nature and Causes of the Wealth of Nations*, economists continue to inquire about the nature and causes of the wealth of nations. Although there is arguably no more important question in economics, the process of economic growth, the underlying causes of entrenched poverty, and the best set of development policies for reducing poverty all have remained, in many respects, unresolved mysteries.

The short answer to the question of why poor countries are poor is that, relative to the rich countries, poor countries lack capital, technology, education, and the subsequent division of labor that these factors of production naturally create. However, saying that developing countries are poor because they lack capital, technology, and education is a little like saying that some people are hungry because they don't have enough to eat – true, but unhelpful. The more important issue is *why* capital, technology, and education are so scarce in some countries, while they are so abundant in others. Absent an understanding of these underlying causes, policies that have simply tried to push more investment, more technology transfer, and more education on the developing world haven't worked very well. The poorest parts of the developing world are falling farther behind.

Unfortunately, this book is not going to provide simple solutions to the complex issues of world poverty. Instead, what I offer in this book is a framework for understanding poverty and development problems. Central to this framework is a growing understanding by economists in recent years of how social, political, and economic incentives at the micro level shape the pattern of economic development profoundly. As a result of this understanding (as well as from decades of experience with learning from past mistakes), economics is closer to understanding why poor countries are poor than it has ever been. We now recognize more fully how the incentives that influence a person's own choices are in themselves shaped by the behavior of others as we seek to understand the causes and consequences of, for example, corruption.

Individuals everywhere are part of social, political, and economic networks in which the behavior of others influences their own best choices, and vice versa. A situation in which people's choices and welfare are interdependent in this way is called a *game*. Many games, such as the interaction between a citizen and a public official, have a number of different solutions. Some of the solutions to a game may be good for everyone, some solutions may favor the powerful over the vulnerable, and still other solutions may be bad for just about everybody. The solutions to these seemingly innocuous everyday games, multiplied countless times over, largely determine what we observe as the economic outcome of a society.

What you will see in this book is that the solution to a game largely depends on the institutional framework within which the game is played. Good definitions of "economic development" are hard to come by, but a reasonable definition is one that is related to institutions and incentives. Institutions define the framework within which social, political, and economic interaction takes place.[5] Developed nations commonly have institutions that align the incentives arising from an individual's "pursuit of happiness" closely with a behavior that simultaneously promotes the common good. For example, a functional legal system creates an incentive within markets for sellers to provide goods and services to others that live up to their billing, while creating an incentive for consumers to pay for them. Underdeveloped nations, in contrast, often lack institutions that are able to protect buyers and sellers in a market effectively, check corrupt behavior, establish property rights, manage risk, hold their governments accountable, provide incentives for long-term investments, and promote the sustainable use of natural resources. A dearth of such institutions produces an incentive for short-term individual gain at the expense of the long-term common good. Is there a common perception that the best way to advance is through entrepreneurial creativity or through seeking a share of the profits created by others? Do the incentives exist to experiment with new technologies, or to be wary of them? Are there checks on utilizing natural resources to ensure that they are used sustainably, or is there a plundering free-for-all in the use of forests, grazing land, and watersheds?

This book tries to understand economic development by getting "under the hood" of economies and looking at the incentives and institutions that guide everyday, micro-level behavior. We will see that much of this social, political, and economic behavior and its effect on development can be understood in the framework of elementary microeconomics and game theory. These will be the tools we use as we explore under the hood. But first, let's begin with a short history of how economists have thought about economic development, and how this has come to influence the way we think about it today.

A Brief History of Thought

A brief history of thought in the field of development economics helps explain the long and winding road that has led to the current understanding about the causes,

[5] North (1990).

consequences, and (even possibly) cures for world poverty. From the Great Depression until the early 1980s, there was little confidence that the market left alone could do the job. Disillusionment with the free market after the Depression left little confidence that market forces, by themselves, could produce healthy economic growth in the industrialized countries, let alone in the developing world. Much of the economics profession, even in the West, was devoted to formulating economic policy that sought a middle ground between the unbridled forces of the market and the Soviet-style command economy. Moreover, in the LDCs (less-developed countries) there existed a great deal of pessimism about the ability of the nonindustrialized countries to develop properly in the context of open economic relationships with the economically advanced countries, a view articulated by leading thinkers of the day such as the Argentine economist Raul Prebisch and Hans Singer of the University of Sussex. Import protection and state-led industrial planning became the preferred solution in India, Latin America, and most other parts of the developing world.

The consensus regarding economic development policy during this period might be summarized as "get the planning right." During this middle period of the twentieth century, whole volumes were dedicated to the proper economic planning of the developing economy. Wassily Leontief's development of input-output matrices provided the technical foundations for this exercise. Works such as Albert Hirshman's (1958) *The Strategy of Economic Development* and W. W. Rostow's *The Stages of Economic Growth* (1960), with their emphasis on state involvement in the "commanding heights" (large industries) of the economy, represented the vanguard of development thought and policy. In fact, the subfield of study in doctoral programs in economics was often called Development and Planning. During the initial decades of the development-planning era, many parts of the developing world realized fairly robust economic growth rates and marked declines in poverty rates.

However, by the late 1970s, the consensus was that the full-fledged industrial planning model had begun to run its course. Infant industries in some of the Pacific Rim economies such as South Korea, Taiwan, and Singapore had grown up, been successfully kicked out of the government nest, and had become high-flying exporters, fully and successfully integrated into world markets. Some even view the relationship between state and industry in these economies, especially at the early stages, as integral to their success. Yet, in other parts of the world, what began as shiny state-sponsored infant industries in the early 1950s had grown up to be cranky, state-dependent geriatrics. Too often riddled with corruption and political cronyism, these industries became increasingly dependent on the government dole for their sustenance. This was true particularly in India, Africa, and Latin America. Always thirstier for government subsidies, these industries became sinkholes for government resources. The mother's milk of the infant industry slowly became the addictive moonshine of the aging, unproductive alcoholic. The easy solution, especially in Latin America, was to print money to keep such industries afloat. Politically this was the most convenient solution, but unsurprisingly it led to hyperinflation in many countries and chronic macroeconomic and political instability.

After being created to help repair Europe after World War II and to foster the development of the new international economy, the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (World Bank) created a new mission for themselves in coming to the rescue of these dysfunctional economies. The two sister institutions became deeply involved in many of these economies beginning in the early 1980s. The primary targets of their intervention were the state-sponsored industries, which had been protected from foreign competition by elaborate systems of domestic subsidies, tariffs, and quotas. What most alarmed the IMF and World Bank was that state-led industrial planning had produced wide gaps between domestic prices and world prices for many goods. These price distortions sent faulty signals to both domestic producers and consumers about the relative values of different goods and services. As a result, price distortions to protect domestic industry were consequently viewed as a major source of economic backwardness and instability. The mantra that emerged at the IMF and World Bank was for LDCs to "get the prices right." Economic "shock therapy" was employed in countries such as Bolivia and Peru to reduce inflation and stimulate production to bring domestic prices in line virtually overnight with the relative value of goods on world markets.

The great test for "get the prices right" was the collapse in the early 1990s of the Soviet Union. Politicians, economists, and nearly everyone else realized that stable market economies needed to be developed immediately in the former Soviet republics, most particularly Russia. Quite understandably, the West viewed the prospect of a nuclear-armed, economically destabilized Russia with great trepidation. In 1991, a shock therapy approach had been implemented in Poland with some degree of success. A team of economists worked feverishly to bring about a similar overnight change in the Russian economy, privatizing assets and freeing prices in a dizzying process of economic liberalization. As is now well known, the process was largely a failure in the absence of a supporting institutional framework. "Getting the prices right" in Russia produced an economy rife with monopoly, corruption, and organized crime. Estimates of output decline during the 1990s ranged from 25 percent to 45 percent.[6] Unaccompanied by other critical reforms, getting the prices right proved to be a disaster.

However, the best outcome from the Russian debacle was a fuller understanding of what actually makes market economies work. What was gleaned from the experience in Russia and other transitional countries during the 1990s was an understanding that effective institutions are critical ingredients to economic development. Put more broadly, we realize that it is *incentives* more generally, and not just prices, that matter. A new consensus emerged in economics that views the creation of proper incentives within both the political and economic systems as foundational to broadly based development.[7] If one were to simplify the approach of the current consensus in a phrase, it might be described as "getting the incentives right."

[6] Dolinskaya (2002) of the IMF, for example, lists the fall in Russian GDP from 1991 to 1997 at 40 percent.
[7] Well-known voices of this consensus would include William Easterly, Joseph Stiglitz, Amartya Sen, and others.

Although admittedly it is a bit vague, the current approach represents a more robust, as well as a more humble, framework for thinking about development problems.

Incentives and Strategic Interdependence

Incentives are shaped by the rewards that accrue from different activities, by the institutional framework within which one operates, and by one's expectations about the behavior of others. If an entrepreneur believes the only way he will get a business permit is to pay a bribe, then he will probably pay a bribe. If an inspector believes that entrepreneurs will be forthcoming with bribes, then he will probably solicit them.

To take another example, the strength of your desire for more schooling depends on the array of employment opportunities for educated people (which depends on the number of educated employers), feedback that you get from your social network about the costs and benefits of further education, and the norms with respect to schooling among your peers – you might not want to stick out. The point is that your schooling decision depends substantially on what others do, and even what you *think* others are likely to do.

This phenomenon is called *strategic interdependence:* Your optimal decision depends in part on what I do, and my optimal decision depends in part on what you do. Economic development is laden with examples of how strategic interdependence affects economic incentives. Consider investment in a machine. A woman may invest in, say, a new sewing machine if she believes that there will be a reasonable demand for new clothing in her village. The demand for clothing, however, is linked to the incomes of the other villagers. This in turn is linked to their own willingness to undertake small capital investments in other local small businesses, in agriculture, and so forth. If each villager is confident about the investment behavior of the others, each is more likely to make the required investment, and everyone is better off. If each believes that the others will hold back, then a lack of confidence in others' behavior becomes a self-fulfilling prophecy.

The twentieth century in Latin America illustrates some of the problems with incentives in a context of strategic interdependence. Free from the discipline of the market, economies in countries such as Mexico, Argentina, and Brazil evolved into self-reinforcing systems of patronage. Economic policy stifled entrepreneurialism, while the system simultaneously rewarded those who greased the palms of politicians to help themselves to a larger piece of the economic pie. Politicians rewarded their supporters with economic protection and lucrative subsidies. Creative people used their creativity to seek the surplus produced by others rather than creatively produce new surpluses of their own. Though the end was a stagnant economy rife with corruption, each behavior constituted a best response to the behavior of others, and so the mutually reenforcing behaviors continued.

Development Traps

In this way, an economy can get "stuck" on the path of economic development. Economic, political, or social behaviors emerge that are negatively self-reinforcing, causing society to be worse off than it could be and making change difficult. Some development traps affect just one aspect of behavior and are fairly benign; more serious development traps can imprison entire societies in long-term poverty.

In this chapter, I provide examples of strategic interdependence in the context of economic development. I take these examples from Mexico, Central America, and the Caribbean, the areas of the world that have been the main focus of most of my own interest and research. In each example, multiple outcomes are possible. Which outcome occurs as history unfolds is not always easy to predict, for often many possible outcomes can result from games in which there is, by definition, strategic interdependence. As I will point out later, multiple outcomes are even possible for situations with apparently similar initial conditions. What results may sometimes be generated by fine nuances in perception, small events in the past, or by what appears to be random chance.

These examples, in the form of vignettes, will serve as examples of five distinct types of games. Each of the games behind the vignettes will be explained more carefully in Chapter Two. These games will then serve as building blocks for exploring the relationship between economic development and behavioral incentives in areas as diverse as natural resource use, savings and credit, technology adoption, corruption, civil conflict, and international trade.

Understanding how each type of game differs from the others is necessary in order to understand key differences in the incentives that underlie each example. Being able to categorize different types of social behavior into the framework of specific types of games is valuable for thinking clearly about incentives and interdependence. It is also valuable for creating institutional structures that direct human energy and creativity in directions that lead to broadly based development.

Bienvenidos a Los Angeles

Many people (especially Californians) do not regard Los Angeles as a beautiful city. Its streets are lined with car dealerships, convenience stores, and tacky fast-food restaurants. The sky is brown. However, to immigrants from many developing countries, Los Angeles possesses the allure of Florence. With the number of foreign-born inhabitants equal to 3.5 million out of its population of 9.5 million, its esteem as a U.S. immigrant destination is unparalleled. What makes Los Angeles such a popular destination for immigrants?

It is tempting to point at the city's balmy weather, but this is almost certainly a pleasant side benefit, rather than the major draw. Cities such as New York and Chicago, both with comparatively uncivilized climates, also receive huge numbers of immigrants. The answer is likely that, after a point, immigration begins to feed on itself: A principal reason for the spiraling migration to the City of the Angels is that to people from certain countries, Los Angeles has become a virtual "home away from home." The city is home to 3,041,974 people of Mexican origin, making it the second-largest "Mexican city" in the world (behind, of course, Mexico City). It is also the second largest "Guatemalan city," the second-largest "Samoan city,"

Table 1.1. Population by major city and ethnic group

Ethnic group	Los Angeles	New York	Chicago	Miami
Chinese	**329,352**	**361,531**	48,058	9,869
Cubans	38,664	41,123	12,752	**650,601**
Dominicans	1,735	**406,806**	2,205	34,454
Filipinos	**296,158**	54,993	54,915	4,563
Guatemalans	**100,341**	15,212	16,765	9,676
Koreans	**186,350**	86,473	34,536	1,333
Mexicans	**3,041,974**	186,872	**786,423**	30,095
Puerto Ricans	37,862	**789,172**	130,414	80,327
Salvadorians	**187,193**	24,516	5,072	9,115
Vietnamese	**78,102**	11,334	11,325	1,383
TOTAL POPULATION	9,519,338	8,008,278	5,316,741	2,253,362

Source: Data compiled from 2000 U.S. Census, *Demographic Profile on Race, Ethnic, and Ancestry Groups* from Los Angeles County, New York City, Cook County (Chicago), and Dade County (Miami).

and the second-largest "Armenian city."[8] In some countries, it seems that nearly everybody has a friend or relative in greater Los Angeles.

This is important because once a critical mass of migrants from a certain country has settled in an area it makes it a great deal easier for those who follow. Consequently, there is a "beachhead" effect with immigration. A useful analogy recalls the Allied invasion of France, as is graphically conveyed by the opening scene of the movie *Saving Private Ryan*. As the movie portrays, life in the moment is exceptionally difficult for the first arrivals on the beach. Like the lead soldiers who take the heaviest onslaught of bullets and shrapnel, immigrants who arrive first on foreign shores lacking a social and economic network also endure great hardship.

Because of the beachhead effect, immigrants from a particular country tend to cluster together in one or two major cities. Table 1.1 gives population figures from the 2000 U.S. Census for ten large immigrant groups and four major U.S. immigrant cities. Like New York, Chicago, and Miami, notice that Los Angeles does not have large numbers of immigrants from every country. For example, there are relatively few Puerto Ricans in Los Angeles, relatively few Cubans, not to mention a paltry 1,735 Dominicans. Moreover, it is clear from the data that immigrants do not always head toward the city with the best weather, or even that which is closest to their homeland. If so, what are 406,806 Dominicans and 789,172 Puerto Ricans doing in New York or 786,172 Mexicans doing in Chicago? Arguably, Miami could have made a nicer destination for 86,473 Koreans than New York; yet, only 1,333 chose Miami.

During a field research trip to Guatemala, I returned to a village in which a rather embarrassingly large number of the microfinance borrowers I had interviewed five years before were working as busboys in Houston. One woman claimed that more than 500 men from this particular village were living in Houston, most of them in the same apartment complex. Brothers and cousins, fathers and sons, childhood friends and childhood enemies lived in this apartment complex. Each had paid a *coyote* to

[8] U.S. Census (2000).

smuggle him across Mexico into the Promised Land of Houston. Villagers told of the boisterous parties that often took place when a friend made it across Mexico, over the border, and to the doorstep of the apartment complex. Upon arrival of a fellow villager, they would kill the fatted calf in wild celebration.

Why the celebration? The rural wage in Central America is typically less than $0.50 per hour. Because of the scarcity of labor relative to capital and technology in the United States, the same workers can earn between $5 and $15 per hour as busboys, painters, construction workers, and landscapers. This leaves much to celebrate, especially for families back home. The lion's share of this wage is wired back to home country families as remittances and used to purchase land, finance small businesses, schooling, and home construction, and to buy televisions. It is said in Guatemala that the income of the 1 million Guatemalans in the United States is roughly equal to the 10 million that have stayed behind.

The immigrant network is critical to this entire (ad)venture. Those without a network are forced to struggle on the streets without moral, social, or economic support. Those within a network immediately have a place to live, can conserve on costs through shared expenses, and are quickly plugged into appropriately skilled jobs. As a result, the rewards from immigration are great if undertaken in tandem with others but small if undertaken alone. One migrant's behavior greatly shapes that of another, and vice versa, as well as the payoffs each realizes from migration. For this reason, even when the economy, weather, and amenities are viewed to be more favorable in another city, a Dominican will still head to New York, and a Salvadorian to Los Angeles.

Land Tenure in Costa Rica and El Salvador

Compared with almost any pair of countries in the world, El Salvador and Costa Rica have much in common: both populated by Spanish settlers in the sixteenth century, both originally part of the Central American Federation until 1838 (after which both gained their independence), both with size and population similar to a small U.S. state (6.4 million and 3.9 million, 21,000 km^2 and 51,000 km^2, respectively), geologically similar in the volcanically rugged yet fertile Central American landscape, both predominantly Catholic, and both heavily reliant on coffee as a predominant export commodity. Nevertheless, it is hard to imagine a greater contrast between two countries in the historical evolution of their political economy.

Much of this contrast can be traced to the historical differences between the countries in land distribution and property rights. Settlement of Costa Rica began in 1522, twenty years after Columbus originally landed on what he far-too-optimistically called the "Rich Coast." In fact, settlers were later disappointed to find very few deposits of precious minerals in Costa Rica. The lack of precious metals quickly forced the Spanish settlers of Costa Rica into agriculture. Because most of the small native population had quickly succumbed to diseases brought by the Europeans, slavery of natives was relatively uncommon. Consequently, agricultural plots were typically small-to-medium-sized because farmers had to work their own land.