Inter-American Development Bank

# DEVELOPMENT BEYOND ECONOMICS

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Economic and Social Progress in Latin America

2000 Report

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# DEVELOPMENT
## BEYOND ECONOMICS

2000 Report

Economic and Social Progress in Latin America

**Distributed by the Johns Hopkins University Press for the Inter-American Development Bank**

***Washington, D.C.***

**A Statistical Appendix with up-to-date economic data on Latin America and the Caribbean is available online at www.iadb.org/int/**

DEVELOPMENT BEYOND ECONOMICS
ECONOMIC AND SOCIAL PROGRESS IN LATIN AMERICA

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# *Contents*

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### *Research*

Chapter 1 was written by Eduardo Lora with the collaboration of Patricia Cortés and Mauricio Olivera. Chapter 2 was compiled by Miguel Székely, using research material prepared by Jere Behrman (University of Pennsylvania), Suzanne Duryea and Miguel Székely; by a team led by David Bloom (Harvard School of Public Health, with the participation of David Canning, David K. Evans, Bryan S. Graham, Patrick Lynch and Erin E. Murphy); by Carmen Pagés and Andrew Morrison; and by Orazio Attanasio and Giovanni Violante (both from the University College of London). Parts of this chapter were written by Eduardo Lora, Gustavo Márquez, Carmen Pagés, Claudia Piras and William Savedoff. Research support was provided by Mauricio Olivera and Marianne Hilgert. Chapter 3 was written jointly by John Gallup (Center for International Development, Harvard University) and Eduardo Lora, with contributions from Celine Charveriat and Alejandro Gaviria. This chapter benefited from the nine case studies carried out under the Regional Research Network Program on Geography and Development in Latin America. Chapter 4 was written by Alejandro Gaviria and Mark Payne with the assistance of Patricia Cortés. Background research for this chapter was conducted by Alejandro Gaviria, Carlos Losada, Carmen Pagés, Ugo Panizza, Mark Payne, Jessica Seddon and Ernesto Stein. The background papers are included in the bibliographies for each chapter.

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*Foreword*

# Development Beyond Economics

Latin America begins the 21st century while still shaking off its most recent crisis. As has often happened, disturbances from outside the region have spoiled the optimistic projections and plans of many governments. Growth has been unsatisfactory in recent years, forcing governments to focus their concern once more on maintaining fiscal discipline and price stability, and on deepening economic reforms that will strengthen confidence and improve chances for recovery.

Most Latin Americans find this state of affairs quite discouraging. While governments direct their efforts toward dealing with macroeconomic turbulence, many people of Latin America and the Caribbean see little being done to solve their countries' most critical problems, such as scant employment opportunities, lack of education, poverty, corruption and crime. Some even believe that striving for macroeconomic stabilization unnecessarily aggravates these problems at a time when lasting solutions seem increasingly remote.

On previous occasions, the *Economic and Social Progress Report* has fueled this debate by analyzing the implications of volatility and the consequences of macroeconomic policies in the region. This year's report, however, examines the problems of Latin American development from a broader perspective. We do so not only because the beginning of the century is a propitious occasion for considering overarching questions, but also because we believe that this is what Latin Americans are demanding.

The purpose of the report is twofold. First, it compares Latin America's development to other regions of the world, with the understanding that "development" means not only economic progress, but also human development and the capacity of people of a society to work together. Second, the report highlights the influence of three sets of structural factors on economic and social development: demography, geography and institutions. These factors are major determinants of long-term development, yet they have received little attention, in part because addressing them goes beyond the conventional scope of economics.

## The State of Development

There is no single snapshot that conveys the state of development in Latin America. Rather, the picture is one of sharp contrasts. It is not just that the countries in the region vary widely in terms of their development. More importantly, while the region stands out in some ways as relatively more advanced than other parts of the developing world, in other ways it displays truly worrisome indicators.

In terms of economic development, Latin America can today be classified as a medium-income region. Worldwide, it occupies fifth place in terms of per capita income, behind the developed countries, Southeast Asia, the Middle East and Eastern Europe. Only the countries of the rest of Asia and Africa are below it. That differs dramatically from a half century ago, when only the now-developed countries were ahead of Latin America. This downward trend indicates that Latin America has not performed especially well in recent times in terms of economic development. Besides being modest, economic growth has been quite unstable—actually a chronic problem in the region, although it may be that some of the recent manifestations of volatility have been more conspicuous and pernicious than in the past.

The greatest concern about Latin America's pattern of economic development is the way income is distributed, a topic to which the previous edition of this report was devoted. Some Latin American countries are among those with the worst income distribution in the world, and even countries in the region with somewhat better distribution have indices of income inequality that are above the world average. Poor income distribution is thus a trait common to the entire region.

In contrast to this discouraging picture, many human development indicators in Latin America are outstanding. In terms of the United Nations Human Development Index, levels in the region are quite close to those of the Southeast Asian countries, and are surpassed only by the developed countries. The foundation for these relatively high human development levels is Latin America's impressive achievements in terms of longer life expectancy, lower infant mortality rates, and higher literacy rates. Although some countries in the region still have serious shortcomings in these areas, practically all the improvements are greater than what could be expected solely on the basis of countries' per capita income levels. It is remarkable that major advances in health have continued through the turbulent 1980s and 1990s. Unfortunately, however, the same cannot be said of education. Although initial access to the educational system has been extended throughout the region and enrollment is high in the lower grades, years of schooling attained by current cohorts of Latin America's young are not much higher than they were 20 years ago. On average, Latin Americans remain in school for fewer than nine years, only a year and a half more than two decades ago, and much less than the average schooling of 13.5 years for young people in the United States or the 12 years plus in Korea or Taiwan.

Nowhere are the contradictions and contrasts in Latin America's development more pointed than in indicators that measure the capacity of societies to live and work together. On the one hand, the region has progressed toward democracy over the past two decades at an extraordinary and unprecedented pace. While Latin American democracies are far from perfect and still a considerable distance behind the developed countries in terms of consolidation, citizens of the region have come to enjoy broader freedom to participate in public processes, oppose governments, and otherwise express and inform themselves. With significant differences between countries, Latin Americans today enjoy more protection from arbitrary action, discrimination and injustice than ever before.

On the other hand, consider the change that has taken place in terms of crime. As far back as the 1970s, murder rates in the region were on average the highest in the world, and since then they have risen in almost all countries, in some instances reaching levels 40 times higher than those of the developed countries or Southeast Asia.

## Perceptions

Most Latin Americans are unfamiliar with these comparative indicators. Yet their opinions faithfully reflect the development problems of the region. According to surveys in 17 countries taken over three consecutive years during the 1990s, only 10 percent of Latin Americans characterize their country's current economic situation as good. An overwhelming 60 percent believe that their parents were better off, despite the fact that current per capita incomes are better than they were several decades ago. The surveys reflect widespread impressions by many Latin Americans that add up to concerns about economic instability and inequitable income distribution. Half of those surveyed pointed to one of five issues—unemployment, low wages, inflation, poverty and job instability—as the most important problem facing their country.

Beyond the economic dimensions of development, the main concerns of Latin Americans have to do with education, corruption and crime. Four of five Latin Americans believe that crime has risen a great deal in recent years, and two of five say that they or their close relatives have been victims of a crime.

## Structural Factors that Affect Development

Some of Latin America's problems in terms of development may have been exacerbated in recent years by changes in domestic policies or the international context. Globalization or neoliberal policies are often mentioned as causes of the region's slow growth, instability, income inequality, or other shortcomings. Yet none of these problems is new, so the blame can

hardly be placed squarely on any one of them. And since the effects of economic policies on Latin America in a global world have been roundly discussed and debated, we turn here to broader and less popularized structural factors that affect the region's development: demography, geography and institutions.

These three variables share fundamental characteristics: they are historical in nature and change slowly, yet their influence on development can be changed through the adoption of appropriate policies. Unto themselves, they do not constitute a specific design for medium- or long-range development. But if their importance is ignored, or perhaps simply obscured by the development issues of the day, they can have uncontrolled effects harmful to development.

### *The Demographic Opportunity*

Public discussion of demography traditionally has focused on the consequences of population growth and on the pros, cons and ethical implications of birth control. Ironically, while debate on these issues raged, many of the more important ways in which demography influences development were virtually ignored.

From the standpoint of economic and human development, the key demographic variable is not the population growth rate, but the age composition of the population. Obviously, both factors are related, but the policy implications are radically different. While focusing on population growth leads to often contentious debate over birth control, emphasis on age composition means facing the challenges and exploiting the opportunities posed by each stage of the demographic transition.

The Latin American countries today are at the stage of the demographic transition when the largest population groups are young adults who are beginning productive activities or will do so in the coming decades. Opportunities for economic and social progress are extraordinary at this stage of the transition because the rates of dependency of children drop quickly while the proportion of elderly is still low. There is in effect a window of opportunity to increase the incomes of families (and thus the economy as a whole), boost savings and investment, and offer a better education to what will be a smaller number of children in the new generation. But it is also a time of great challenge, because sources of employment must be created quickly, educational opportunities must be extended beyond basic schooling to help new entrants into the job market find productive employment, and social mechanisms must be put in place to head off social disaffection among the young and an increase in crime.

How the opportunities and challenges posed by this stage of the demographic transition ultimately balance out will depend on economic and social policies. Choosing or adapting the right policies depends on a thorough understanding of the economic and social implications of the demographic change. It would therefore seem a serious mistake to continue to ignore demography, yet that is just what is happening in official and academic circles in many countries of the region.

In the decades ahead when the demographic transition is in full force, labor policies will have to facilitate incorporation of women and young people into the labor market. They will have to be given opportunities to obtain social security, a benefit until now available disproportionately to adult men. Social security systems will have to be transformed to take better advantage of the savings potential of people of the current generation, and to ensure that when they reach retirement age they will not become a burden to future generations. Education systems will have to be transformed to respond more flexibly and efficiently to the changing age composition of the population, providing the diversity of educational services required by heterogeneous population groups. One of the main challenges of the current stage of demographic change will be controlling juvenile crime, especially in large cities. Each country and city will have to find the policy mix that broadens prevention efforts, improves cooperation between government agencies, incorporates communities into crime detection and prevention efforts, and makes the normal channels of justice function as they should.

### *Realizing the Potential of Geography*

Geographical variables have often been ignored when discussing and designing public policies in Latin America, in part because of concerns that addressing them somehow implied yielding to notions of fatalism and even racism. But the cost of disregarding geographical realities has been high. There has been little technological development suited to the agricultural

conditions or diseases endemic to tropical areas. Mechanisms to prevent and respond to earthquakes, floods and other natural disasters lag behind. The region lacks adequate criteria for investments in transportation and communications infrastructure. Uncontrolled growth of cities remains practically unaddressed.

Economic, social and human development in Latin America has been and continues to be influenced in various ways by both physical geography—such as climate, land characteristics and topography—and human geography, which is the settlement patterns of populations. Key factors include productivity of the soil, distance to world markets, and health conditions. The possibilities for sustained growth and for economic and human development are lower in more tropical countries, and in countries located far from world markets. But such difficulties can be overcome, as has been shown by some of the more successful Southeast Asian and Eastern European economies. Geographical limitations also tend to become less relevant to the extent that countries pass beyond a certain threshold of economic development, perhaps because of urbanization and access to the technological advances that accompany development.

Of course, government policies can also mitigate more unfavorable geographical factors and channel the more favorable ones in a positive direction. The benefits of investments in infrastructure, technology and information are of particular importance. Infrastructure investments can change the influence of geography by making lands more productive, facilitating access to markets, and improving basic water, sewerage, power and communications services. But resources are often limited, so investment projects must respond to clear policy priorities, which in turn must be based on a thorough understanding of the geographical factors of each country and region. The most efficient investments from an economic standpoint are usually those in areas more favored geographically and with greater population density. However, for reasons of social equity, meeting the basic needs for services of the entire population must be considered alongside economic efficiency criteria.

The variety of problems posed by geography cannot be addressed without having available the information needed to overcome them. Yet in many Latin American countries, this information either does not exist or is not disseminated adequately. This is particularly important for natural disasters. With better information on risks and how to prevent them, ways can be found to prevent settlements in high-risk areas, adapt appropriate technologies for infrastructure and housing, and better prepare for handling disasters. Obviously, information is not enough—the incentives framework and institutional organization are also decisive for the success of any prevention effort.

Some of the most serious problems rooted in geography cannot be resolved with national policies, since these problems often result from biased technological development worldwide. Agricultural productivity has grown slowly in tropical areas because technological development has concentrated on agriculture in temperate zones. For market reasons, international pharmaceutical research has also essentially ignored the health problems of tropical regions. Solving these problems requires transnational efforts by groups of countries, guided by multinational bodies that specialize in agriculture and health.

### *The Importance of Institutions*

According to the econometric analyses presented in this report, more than half the difference in income levels between the developed countries and Latin America is associated with deficiencies in the institutions of the latter. To one degree or another, all of the Latin American countries have problems with the rule of law, corruption, and the ineffectiveness of governments in providing essential public services. These three problems with Latin America's institutions are serious even in comparison with other developing regions. Taken together, they constitute a significant barrier to the region's economic progress and social development.

Although demography and geography are important factors that help explain differences in development levels between countries, their relative weight is less than that of institutions, and more importantly, their influence varies strongly from country to country, depending on the particular circumstances. The association between the quality of institutions and economic, human and social development is especially close across the boards, partly because institutions are themselves influenced by the development process.

The importance of institutions has been recognized increasingly by Latin American governments and societies, and has recently received a great deal of

attention from scholars and international agencies. No one now doubts that effective institutions are critical to hastening the development process. The question that has still not been answered satisfactorily, however, is how to go about changing institutions.

From an analytical standpoint, the factors that determine the quality of institutions must be understood first in order to then take up the problem of how to change them. Government institutions are by their nature the expression of the political forces through which societies address their collective problems. Thus, the quality of public institutions is inevitably influenced by the rules and practices of the political game. Yet the relationships between politics and the quality of institutions have been studied very little, even by international organizations for which these relationships have important implications. In this report, we have decided to make a foray, with some trepidation, into the difficult terrain of political science.

The quality of public institutions constitutes the bridge between development and politics—development depends largely on public institutions, but they are in turn created and transformed in the context produced by levels of development. It is not rash to say that economic, human and social development depends on having political institutions that facilitate effective representation and allow for public control over politicians.

Which political institutions make it possible to best achieve those objectives cannot be determined without taking into account the specific conditions of each country. For example, electoral institutions that make room for minority interests in legislative bodies might be suitable for a country with complex social conditions, but not necessarily for a more homogeneous country. Similarly, the reelection of presidents might be a good idea in a country that has elaborate systems of control over the use of public funds for elections, but not such a good idea in countries lacking such controls. Consequently, this report refrains from drawing concrete recommendations; rather, it objectively discusses the merits and drawbacks of various kinds of political institutions. The analysis does not seek to be exhaustive. The emphasis is on electoral institutions and political participation. These two dimensions, central as they are in the political game, have two further advantages from a methodological standpoint. Both can be described quantitatively, facilitating comparison between countries, and both have clear and important connections with the quality of public institutions.

Electoral institutions play a preponderant role in politics. Whether politicians will direct their efforts toward satisfying collective or individual interests depends on electoral institutions. Likewise, electoral institutions ultimately determine the size and strategies of political parties. In turn, political participation—which is not merely a matter of going to the polls but also entails taking part in the process of discussion, selection and oversight of public decisions—is the very essence of politics. Without participation there is no real democracy: citizen interest will not be reflected in decisions, politicians will not be subject to public control, and political spaces will be occupied by pressure groups and open to purposes contrary to the public interest.

## A Final Note

This report is inspired by the conviction that the state of development in Latin America and the Caribbean is largely the result of the region's own circumstances that to date have not been sufficiently understood or controlled. Deficiencies in development cannot be attributed to the passive position played by the region in the worldwide geopolitical chess game, as was commonly believed during the Cold War. Nor can it be attributed to the interventionist and import-substitution orientation of regional economic policies, the fashionable view of the "Washington Consensus" and the interpretation most widely presented by international organizations in explaining the miracle of the "Asian tigers." Naturally, the forces of world geopolitics and the orientation of Latin America's economic policies have an impact on growth. But such factors cannot satisfactorily explain away the region's income levels, inequalities, quality of education or crime levels. This report is an effort to look beyond the trends of the time for the deeper roots of these problems and for the solutions that can turn them around.

**Ricardo Hausmann**
Chief Economist
Inter-American Development Bank

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Chapter 1

# Latin America at the Turn of a New Century

The great economic, social and institutional changes engendered by development often progress slowly and haltingly. Consequently, advances in the development process are best measured over a long period of time. Using the start of a new century as its milestone, this edition of the *Economic and Social Progress Report* assesses Latin America's evolving development process in its various dimensions from just such a long-term perspective.

Although Latin America and the Caribbean as a region can be ranked at a medium level of development, it includes countries with incomes ranging from the average in developed countries to the median level in Africa. Its economic and social diversity notwithstanding, Latin America has some clearly defined features. Its pace of economic growth has been modest in comparison to world patterns, both in recent years and over several decades. Economic activity has been unstable and the fruits of growth have been distributed unequally among the population, giving Latin America the unfortunate distinction of having the worst distribution of income of any region in the world.

In terms of human development, Latin America presents a picture of sharp contrasts. In recent decades, the region has made outstanding progress in health, as seen in lower infant mortality and a significant increase in life expectancy. Illiteracy has declined significantly, a consequence of widespread access to primary education. Nevertheless, progress in education beyond the early grades has been quite poor, and as a result only a privileged few finish high school, much less college.

The conditions under which people relate to one another as a society represent an equally paradoxical picture. While the region now stands in the forefront of the developing world in terms of civil liberties and democratic rights, some Latin American countries have the highest crime rates in the world. In many parts of the region, the symptoms of social and institutional breakdown are plain to see.

Faced with such problems on a daily basis, the people of Latin America are worried, perplexed and even pessimistic. Public opinion surveys show most Latin Americans believing that their countries are in bad shape economically, that earlier generations lived better, that poverty has increased significantly, and that income is distributed unfairly. Latin Americans overwhelmingly say that crime and corruption have increased a great deal and that most public institutions do not deserve their trust.

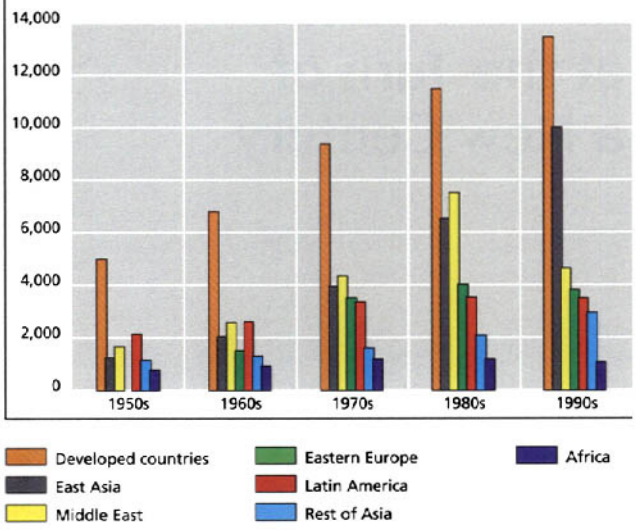
These concerns point toward entrenched problems that go beyond any of the difficulties countries might have endured in recent years. This introductory chapter offers a broader perspective. It shows how economic, human and social development indicators worldwide are closely connected to three groups of deep structural factors: demography, geography and institutions. These three relatively forgotten areas of development hold the key to better understanding Latin American societies today as well as the challenges awaiting them in the new century.

## The State of Development

### *Per Capita Income*

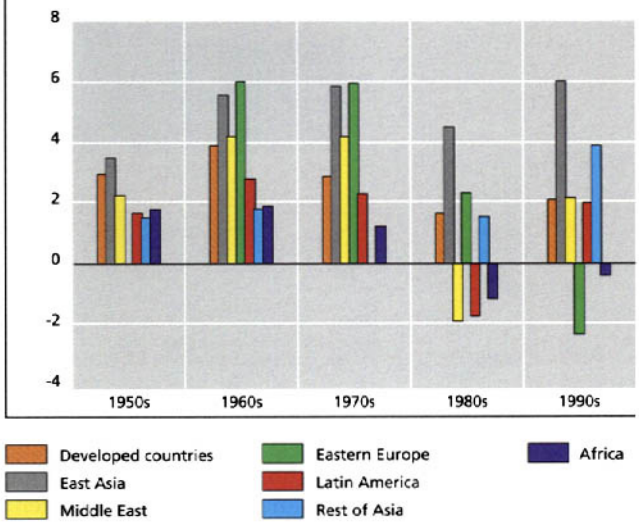
Latin America does not stand out in recent decades for its economic performance. The countries of the

**Figure 1.1 Per Capita GDP**
*(In 1987 PPP dollars)*




*Source: Penn World Tables (1998).*

**Figure 1.2 Growth Rate of Per Capita GDP**
*(In percent)*




*Source: IDB calculations based on Penn World Tables (1998).*

region have an average per capita income level estimated at $3,500 at 1987 parity prices (approximately $3,100 in current 1999 dollars).[1] This figure is not even 30 percent of the per capita income of developed countries, and is lower than that of East Asia, the Middle East, and Eastern Europe.[2] As the 20th century draws to a close, Latin America leads only the rest of Asia and Africa in per capita income (Figure 1.1).

This was not the situation a half century ago. In the 1950s, per capita income in Latin America was higher than all other regions of the developing world, and roughly 50 percent of that of the developed countries. Although the region experienced significant growth over the two decades that followed, however, this was still no "Latin American miracle." Economies elsewhere in the world were even more dynamic. While growth in Latin America was between 2 and 3 percent a year—rates that were certainly acceptable—growth in East Asia was over 5 percent for two decades. In the Middle East, growth averaged 4 percent, and in Eastern Europe it was close to 6 percent. And in the 1980s, while growth in Latin America plummeted to -1.7 percent a year, the economies of East Asia and the rest of Asia and Eastern Europe continued to record positive growth (Figure 1.2).

Statistics available for periods prior to 1950 are fragmentary, but it is known that the six largest Latin American economies maintained approximately the same distance from the United States in terms of growth during the first half of the 20th century. Looking back even further, there is solid evidence that Latin America became an underdeveloped region in comparison to the United States in the 19th century (Figure 1.3).[3] Consequently, it is not just in recent times that growth in the region has been unremarkable—Latin America in fact has never shown outstanding economic performance over a prolonged period of time during at least the past two centuries.[4]

Latin Americans appear to be all too aware of this ongoing economic problem. A series of four annual surveys covering 17 Latin American countries offers overwhelming evidence of dissatisfaction with

[1] Parity purchasing power prices correct not only for price changes due to inflation, but also for differences in the buying power of incomes in each country due to differences in relative prices. These adjustments improve the comparability of figures, but as with all economic estimates, they are not exempt from criticism. See Astorga and FitzGerald (1998).

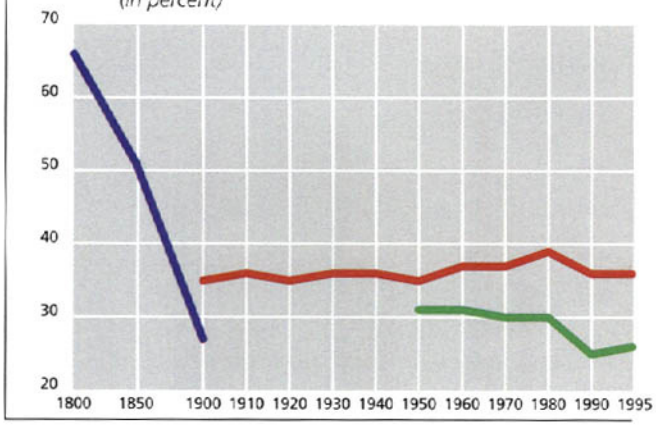
[2] The classification of countries in this report comes from the World Bank. See Appendix 1.1 for details.

[3] Average income of the six Latin American economies was only one-third lower than that of the United States in 1800. By 1900, the ratio was close to 4:1. See Coatsworth (1998).

[4] See Astorga and Fitzgerald (1998) and Coatsworth (1998). According to Maddison's statistics, the best relative performance of Latin America occurred during the first half of the 20th century, when annual per capita growth was 1.7 percent, the same as that of the "new western economies" (Australia, Canada, New Zealand and the United States) and greater than that of any other great regions of the world. See Maddison (1997, Table G.3).

**Figure 1.3** Per Capita GDP Relative to the United States

*(In percent)*




Argentina, Brazil, Chile, Cuba, Mexico, Peru

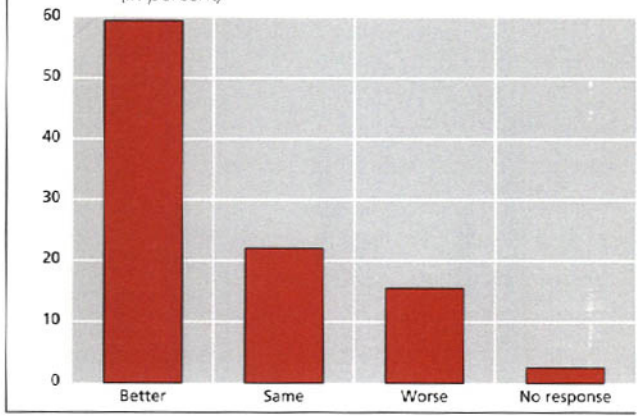
Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Venezuela

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela

*Source: Astorga and FitzGerald (1998) and Coatsworth (1998)*

**Figure 1.5** Survey: Would You Say that Your Parents Lived...

*(In percent)*




*Source: Latinobarómetro, various years.*

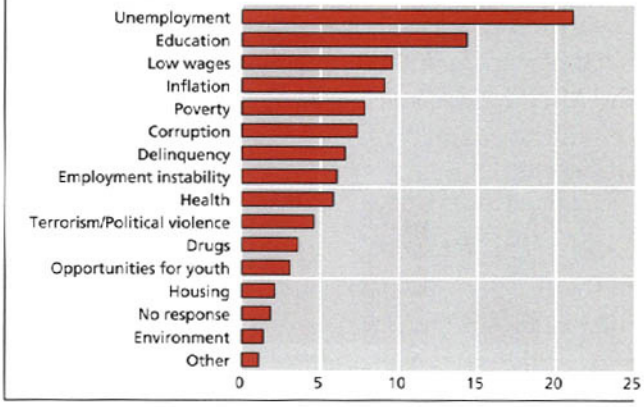
**Figure 1.4** Survey: How Would You Characterize the Current Economic Situation?

*(In percent)*


*Source: Latinobarómetro, various years.*

**Figure 1.6** Survey: What Is the Most Important Problem in Your Country?

*(In percent)*



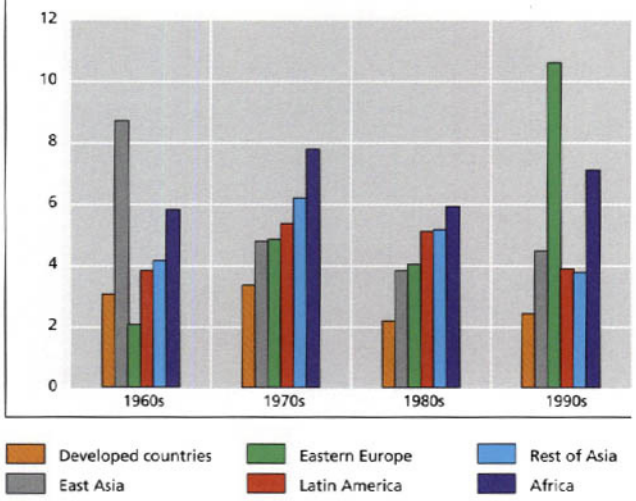

*Source: Latinobarómetro, various years.*

the state of economic development. Only around 10 percent of those surveyed characterize the current economic situation as good or very good, while almost 40 percent say it is fair, and practically half the population consider it bad or very bad (Figure 1.4). When asked to consider the long term, some 60 percent of Latin Americans believe their standard of living has declined from that of their parents, and only 15 percent believe that it has improved (Figure 1.5).

At first glance, these opinions seem to be too harsh, at least when compared with progress in per capita income, which has been positive in all respects. Nevertheless, the subjective judgment that these surveys reflect may incorporate a broader vision of the economic situation than what is narrowly captured by current or recent per capita income levels or growth rates. Latin Americans show a great deal of concern over unemployment, inflation and job insecurity, all of which speak to a chronic problem with Latin American economies: volatility (Figure 1.6).

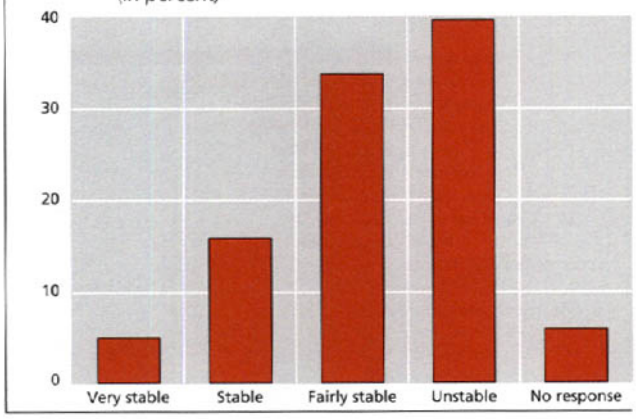
Given the recent exchange rate and financial turbulence in several countries of the region, the term "volatility" seems to suggest events of external origin, or sudden shifts in stock exchange prices. For the

**Figure 1.7** GDP Volatility
*(In percent)*



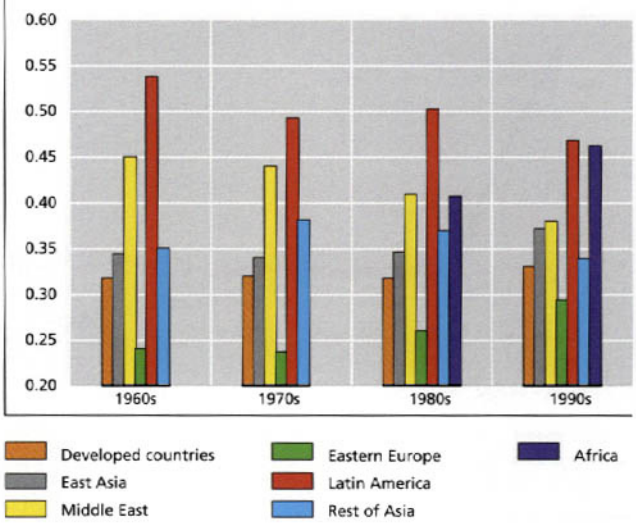

*Source: IDB calculations based on World Bank (1998).*

**Figure 1.8** Survey: How Stable Is the Economic Situation?
*(In percent)*




*Source: Latinobarómetro, various years.*

**Figure 1.9** Gini Coefficient




*Source: Penn World Tables (1998).*

average Latin American, such events are basically just news items in the press, not personal matters. Job instability and real incomes, however, hit much closer to home. Figure 1.7 shows Latin America's history of GDP volatility, an effective measure of everyday instability. Although Latin America has not been the most unstable region over four decades, it has nonetheless registered persistent instability that is much higher than that in developed countries. The growth rate in any Latin American country in any year typically fluctuates 4 points in one direction or another. It is not surprising, then, that for all four survey years, four of ten Latin Americans characterized the economic situation as unstable, and only two of ten thought it was rather stable or very stable (Figure 1.8). Naturally, in those countries that are more subject to sudden economic tremors, these survey figures are even more extreme.

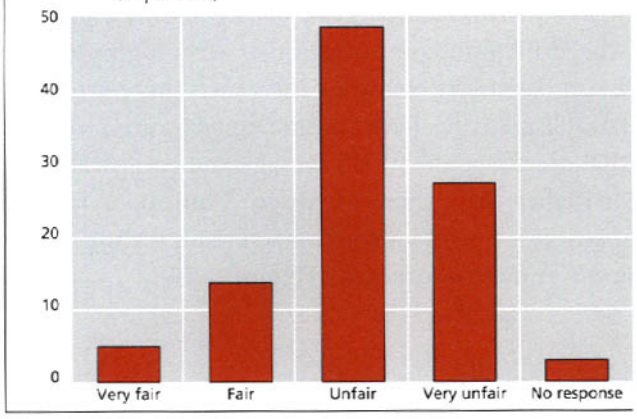
### *Income Distribution*

Latin America's income levels are not only modest, slow growing and unstable, but they are also very poorly distributed among the population. The region has consistently had higher indices of income concentration than any other region in the world (Figure 1.9). In Latin American countries, a fourth of national income goes to only 5 percent of the population, and 40 percent goes to the richest 10 percent. By contrast, in Southeast Asian countries, the richest 5 percent receive 16 percent of income on average, and in developed countries the figure is 13 percent.[5] The perceptions of Latin Americans on this aspect of economic development are as overwhelming as on the previous issues. Only two of ten people think distribution is just or very just, while the remaining eight say it is unjust or very unjust. (Figure 1.10).

[5] A detailed account of income concentration in Latin America can be found in the 1998-1999 issue of this IDB report.

**Figure 1.10** Survey: How Fair is Income Distribution?

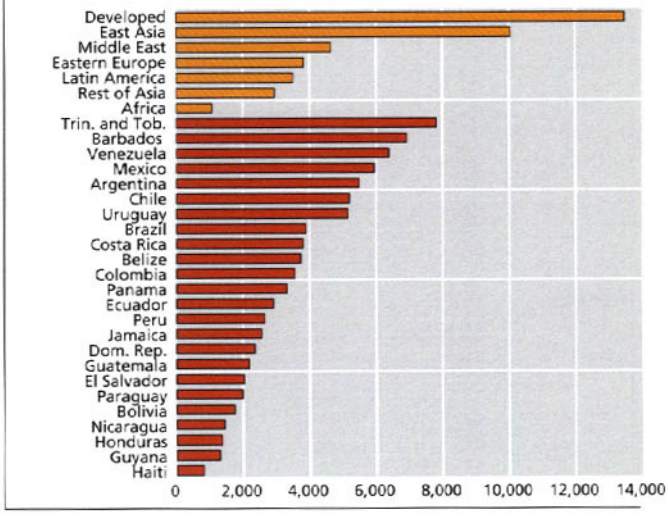
*(In percent)*




*Source: Latinobarómetro, various years.*

**Figure 1.11** Per Capita GDP in the 1990s

*(In 1987 PPP dollars)*




*Source: Penn World Tables (1998).*

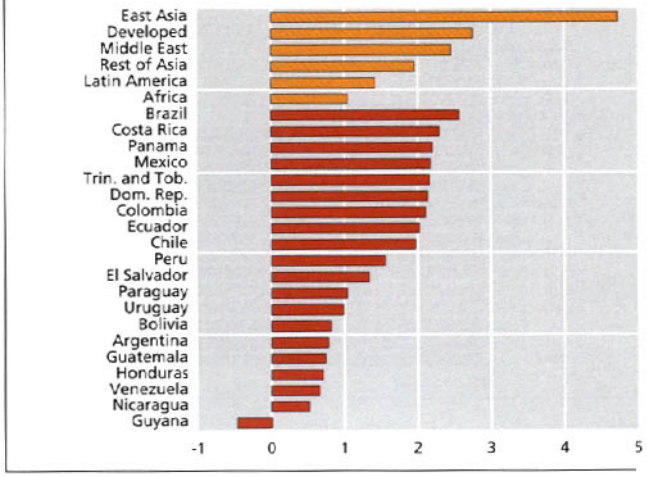
### *A Heterogeneous Region*

In short, Latin America has had serious deficiencies in terms of medium- and long-term development. It has fallen behind other regions of the world, both developed and developing; its growth has been unstable; and the economic fruits have been poorly distributed. This conclusion should not obscure the fact, however, that within the region there are notable differences in economic performance. The highest-income countries in Latin America—including Trinidad and Tobago, Barbados and Venezuela—have incomes that are approximately half those of developed countries, when measured in terms of their purchasing power parity (PPP). The poorest countries in the region, which include Haiti, Guyana, Honduras and Nicaragua, have income levels that are a tenth or less of those of developed countries and are not far from the average for Africa, which is the poorest region in the world. The countries closest to the Latin American average are Brazil, Costa Rica, Belize, Colombia, Panama, Ecuador, Peru and Jamaica (Figure 1.11).

Differences between countries in economic growth are also considerable. Brazil has achieved the greatest economic growth since the 1950s, with an average annual per capita growth rate of 2.5 percent. Seven other countries had average growth rates of between 2 and 2.5 percent, while in seven others it was only between 0.5 and 1 percent. Only Guyana registers average negative growth for the entire period. Despite this significant diversity, however, in no Latin American country did per capita income grow as fast as the average for the developed countries or the East Asian economies (Figure 1.12).

**Figure 1.12** Growth Rate of Per Capita GDP, 1950-98

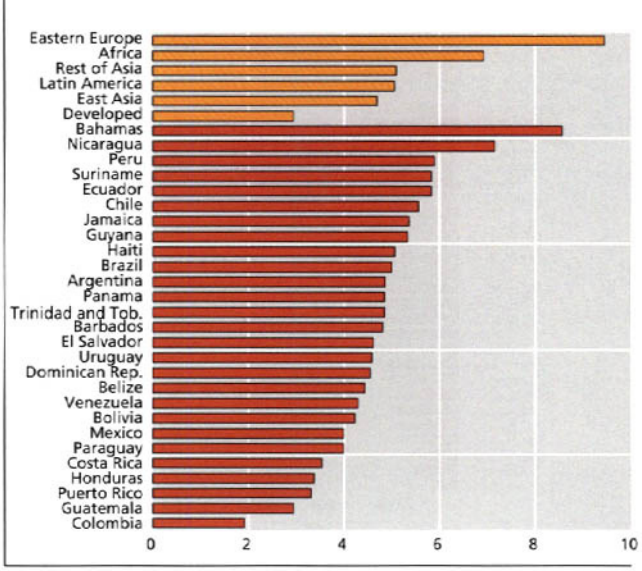
*(In percent)*




*Source: IDB calculations based on Penn World Tables (1998).*

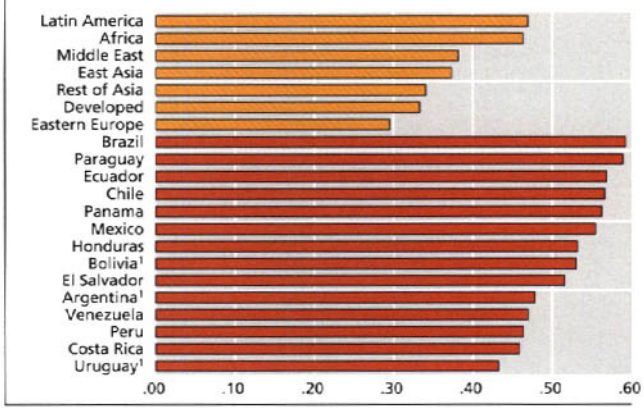
In terms of volatility, countries such as Colombia, Guatemala, Honduras and Costa Rica have traditionally enjoyed stability comparable to that of the developed countries, while others, such as the Bahamas, Nicaragua, Peru, Suriname and Ecuador

**Figure 1.13 GDP Volatility, 1960-98**
*(In percent)*




*Source: IDB calculations based on World Bank (1998).*

**Figure 1.14 Gini Coefficient in the 1990s**




[1] *Urban data only.*
*Source: IDB calculations based on household surveys and Deininger and Squire (1996).*

have been very volatile (Figure 1.13). It is important to note that these calculations take into account levels of volatility over four decades, which may not correspond to recent events or to what has happened in other subperiods. For example, Peru stands out as a country with relatively high volatility, despite its notable advances towards stability in the last decade. At the other extreme, Colombia, traditionally the most stable county in all of Latin America, would not be particularly impressive if only its growth performance during the 1990s were considered.

Although income distribution also varies across countries—from Uruguay and Costa Rica, where distribution is best, to Brazil and Paraguay, where income concentration is very high—all the Latin American countries for which there are comparable statistics have income concentration indices that are above the world average and comparable to, or higher than, those of Africa. Thus, poor income distribution is the most characteristic feature of the Latin American countries (Figure 1.14).

## Human Development

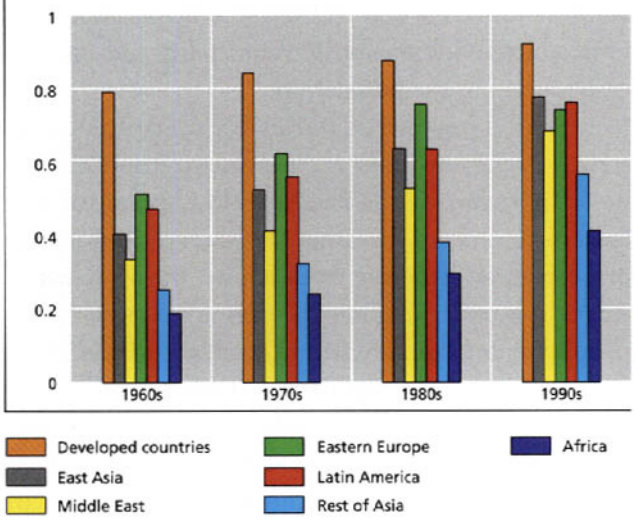
The human development indicator most commonly used is the United Nations Human Development Index (HDI). The HDI is based on the concept developed by Amartya Sen (1985 and 1992), according to which development means essentially enhancing the abilities of individuals to develop in the various realms of their personal lives and social interaction. The HDI seeks to capture both the economic and social aspects of development, and it is calculated as a combination of the following four indices (all on a scale from 0 to 1):

- Life expectancy at birth (where the minimum and maximum values used to define the scale are 25 and 85 years and are weighted as one-third of the HDI);
- The literacy rate of people over 15 (weighted as two-ninths);
- The combined rate of school enrollment in primary, secondary and post-secondary education (weighted as one-ninth); and
- GDP per capita in constant 1987 parity dollars (with a minimum and maximum of $100 and $4,000, respectively, and weighted as one-third). [6]

The HDI for Latin America is surpassed only by the developed countries and is quite similar to that of the countries of East Asia and Eastern Europe. On the range of 0 to 1 over which this index moves, the 33 countries of Latin America included in the index

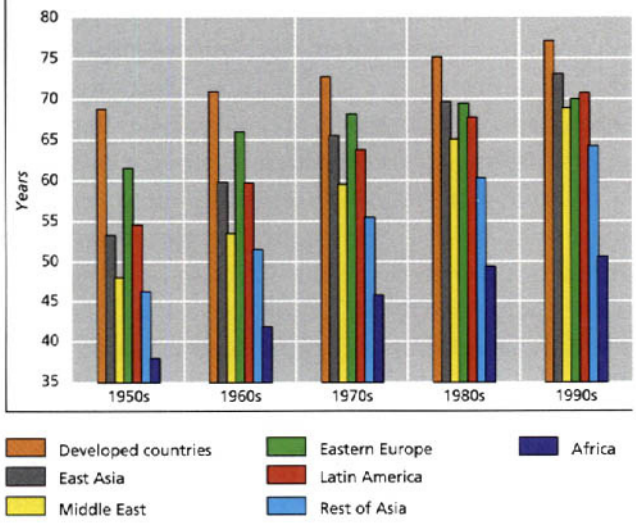
[6] The income index is a nonlinear transformation of GDP amounts based on the so-called Atkinson index, according to which incomes above the world average are discounted at a gradually increasing rate. In practice, the discount rate used in the calculation is so high that it does not make any appreciable difference at any income level over $4,000 (1987 PPP).

**Figure 1.15** Human Development Index (HDI)



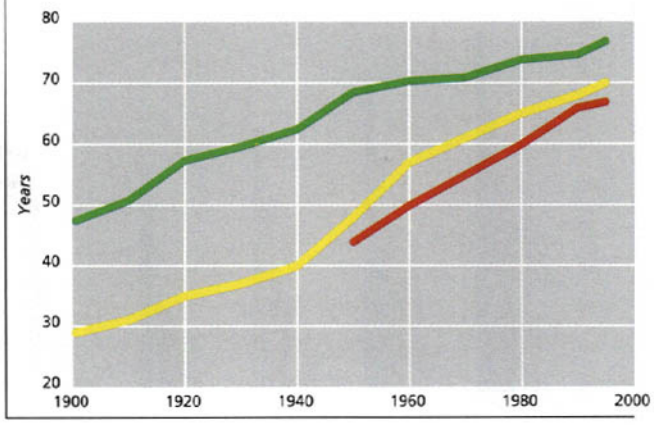

*Source: UNDP (1998).*

**Figure 1.16** Life Expectancy




*Source: UNDP (1998).*

**Figure 1.17** Life Expectancy at Birth




*Source: Astorga and FitzGerald (1998).*

reach an average level of 0.76, whereas the rate for developed countries as a group is 0.92. This relative gap has been narrowing over time. In the 1960s, Latin America had a human development level of 0.47, while in developed countries it was 0.79. The distance was reduced in succeeding decades, even while per capita income in the region dropped during the 1980s.

Hence, contrary to Latin America's economic development, the region has made rapid progress over the past four decades in the most basic areas of human development as measured by the HDI. However, this was true not only for Latin America. The countries of East Asia and the Middle East made even greater progress, and the rest of Asia and Africa also showed significant gains (Figure 1.15).

### *Progress in Health*

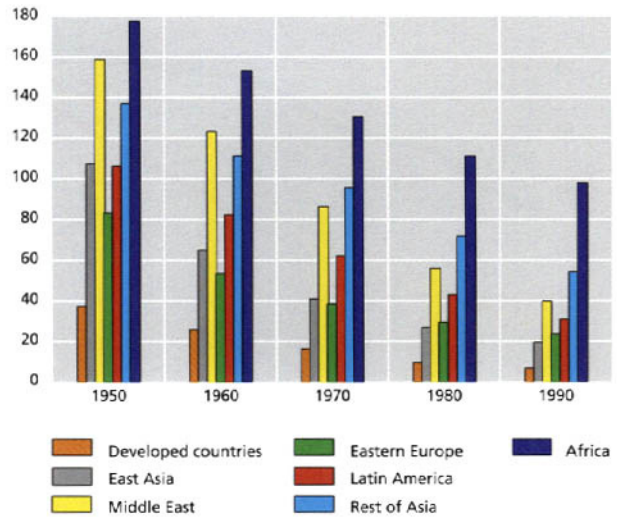
Health conditions throughout the developing world have advanced enormously since the mid-20th century, reducing the gap with the industrial countries. While average life expectancy in developed countries has risen by eight years since the 1950s and now stands at 77, it rose 20 years in Asia and the Middle East. The pace of progress in Latin America was less remarkable, although still significant: life expectancy rose from an average of 55 years in the 1950s to approximately 71 in the 1990s (Figure 1.16).

More fragmentary pre-1950 statistics on life expectancy indicate that the process of improving health conditions gathered momentum around 1940. After that point, the life expectancy gap with the United States, which had been constant since the beginning of the century, began to narrow (Figure 1.17).

Increases in life expectancy throughout the developing world largely reflect the notable decline

**Figure 1.18a** Infant Mortality

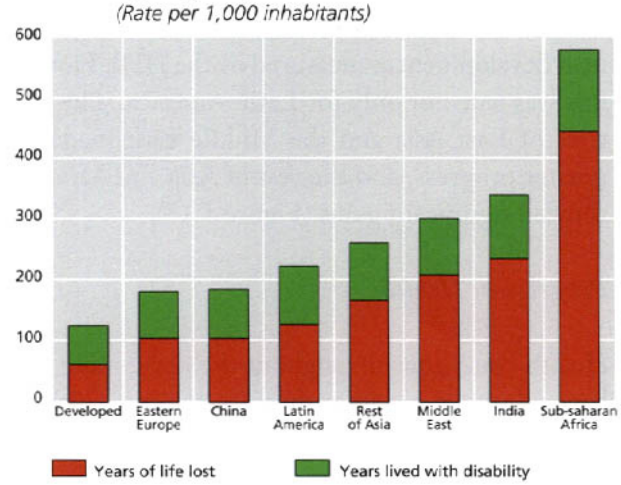
*(Per 1,000 births)*




*Source: UNDP (1998).*

**Figure 1.18b** Disability Adjusted Life Years by Region, 1990

*(Rate per 1,000 inhabitants)*




*Source: Murray and López (1996).*

in infant mortality. In the 1950s, the average infant mortality rate in developing countries was 135 for every 1,000 live births. After a continual process of reduction in all regions, this average declined to 54 per 1,000 in the 1990s. Latin America has succeeded in reducing infant mortality from 106 to 31 for every 1,000 live births, which represents remarkable progress. However, it is surpassed in both absolute and relative terms by the East Asian and Middle Eastern countries (Figure 1.18a).

Mortality and life expectancy figures reflect probabilities of mortality that are assumed to be closely connected to overall health conditions. However, a more direct measurement of health conditions are disability adjusted life years (DALYs), which measure loss of productive life due both to mortality and the disease burden of the population.[7]

In developed countries, for every 1,000 persons, 120 person-years are lost due to death and illness. Approximately half are years lost because of premature death, and the other half due to a temporary or permanent handicap or disability. In sub-Saharan Africa, it is estimated that 580 person-years per 1,000 people are lost from premature death and illness. With an average of approximately 220 person-years lost, Latin America stands at a relatively favorable position on this scale, although it is surpassed by East European countries and China (Figure 1.18b). In Latin America, premature deaths explain 57 percent of the burden of loss of productive life, a percentage similar to that of Eastern Europe and China and lower than that of other regions.

Hence, in health as in economics, despite the enormous progress in recent decades, there is no Latin American miracle. However, because both types of progress are closely related, it is worth asking whether they have moved at a similar pace. More precisely, given Latin America's level of economic development over time, can its basic health indicators be said to fit worldwide patterns? With regard to life expectancy, the answer is that Latin America has gone from being below world patterns in the 1950s to being slightly above them since the 1970s (on a scale that is not statistically significant, as can be seen in Table 1.1).[8] Progress in infant mortality indicators has been even more remarkable. In the 1950s, infant mortality in the region was more than 40 percent above the worldwide pattern. The infant mortality gap declined but continued to be significant (in statistical terms) until the 1970s. Since then it has declined to an insignificant level.

[7] The information for this indicator is only available by regions, which do not exactly correspond to those in previous indicators. See Murray and López (1996).

[8] These conclusions are based on regressions of the life expectancy logarithm as a function of the per capita income logarithm and dummy variables for Latin America and Africa. The latter was included because of the adverse health conditions in that region, which tend to distort international comparisons. For a detailed analysis of Africa's health problems, see Bloom and Sachs (1998).

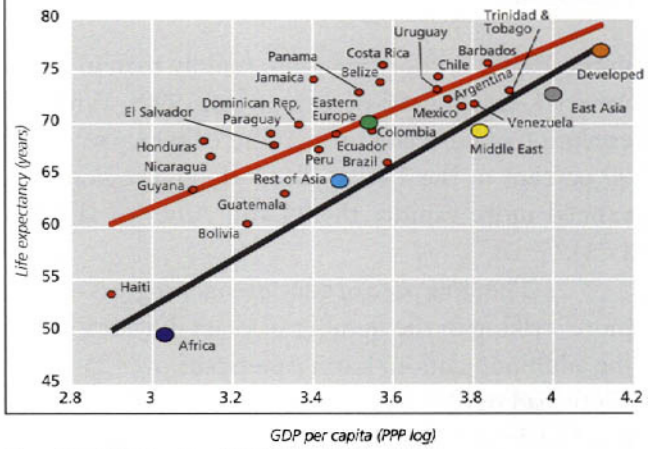
**Table 1.1** **Social Development Indicators: Is Latin America Above or Below World Patterns?**

| Development indicator | Over- or under-performance | | | | |
|---|---|---|---|---|---|
| | 1950s | 1960s | 1970s | 1980s | 1990s |
| Life expectancy (0-1)[1] | -0.056 (-1.86) | -0.007 (-0.22) | 0.019 (0.07) | 0.028 (1.51) | 0.034 (1.65) |
| Infant mortality (log)[1] | 0.406* (4.13)* | 0.334* (3.00)* | 0.327* (2.81)* | 0.169 (1.48) | 0.087 (0.81) |
| Literacy rate (0-1) | na | 0.212* (3.81)* | 0.131* (2.55)* | 0.194* (4.83)* | 0.151* (4.36)* |
| Primary enrollment | na | 0.121* (2.11)* | 0.132* (2.91)* | 0.118* (2.37)* | 0.091* (2.21)* |
| Secondary enrollment (0-1) | na | -0.056 (-1.80) | -0.038 (-1.02) | -0.026 (-0.69) | -0.059 (-1.53) |
| Average years of education | na | -0.542 (-1.45) | -0.276 (-0.69) | -0.013 (-0.03) | -0.056 (-0.14) |
| Democracy index (0-1) | na | -0.092 (-0.97) | -0.094 (-1.05) | 0.068 (0.77) | 0.148 (1.79) |

[1] *Regressions including dummy variable for the African countries.*
*Note: Coefficients and t-statisitics for the Latin American dummies in cross-section regressions for development indexes controlling for (PPP adjusted) income.*
** Significant at 5 percent or more.*

The countries with the best health indicators in Latin America include Argentina, Barbados, Belize, Chile, Costa Rica, Jamaica, Panama, Trinidad and Tobago, and Uruguay. All of them have life expectancy at least equal to that of the Southeast Asian countries, and in some instances quite close to the average of developed countries. The countries with short life expectancy include Guyana, Bolivia and Haiti, which are below the average for the rest of the Asian countries, although all of them are above the average for Africa (Figure 1.19). The countries that stand out for their high or low infant mortality are generally the same as those for life expectancy (Figure 1.20).

**Figure 1.19** **GDP and Life Expectancy**



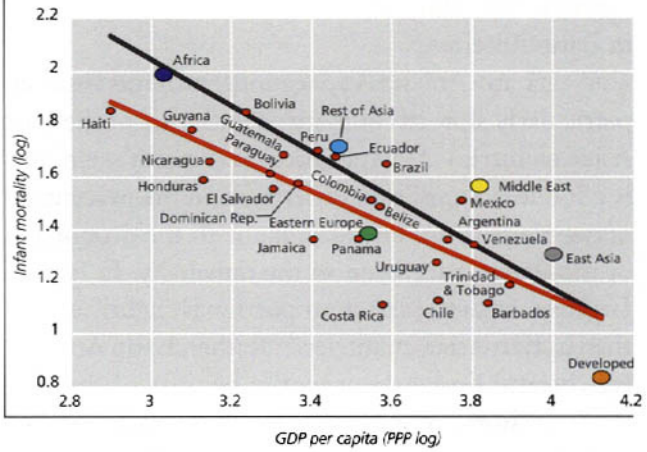

Source: *UNDP (1998) and Penn World Tables (1998).*

## *Slow Progress in Education*

Progress in education around the world has been substantial, although improvements have come less rapidly than in health. This is partly because education statistics such as the illiteracy rate or years of schooling of the adult population are the accumulation of results over several decades, whereas health statistics such as life expectancy and infant mortality reflect health conditions at a particular moment. Even so, education statistics for Latin America reveal a much slower pace of progress than in other regions of the world, and reflect serious deficiencies in quality as well.

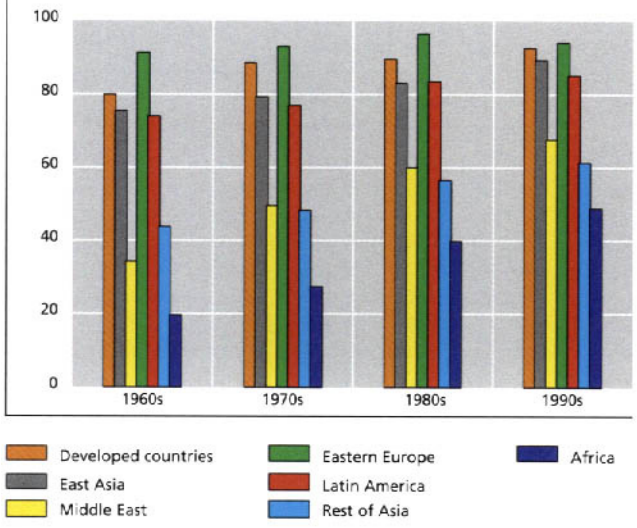
In Latin America, the literacy rate of those over 15 years of age rose from 72 to 87 percent between the 1960s and the 1990s. Although literacy was already high (80 percent) in the developed countries

**Figure 1.20** **Infant Mortality and Income Levels**



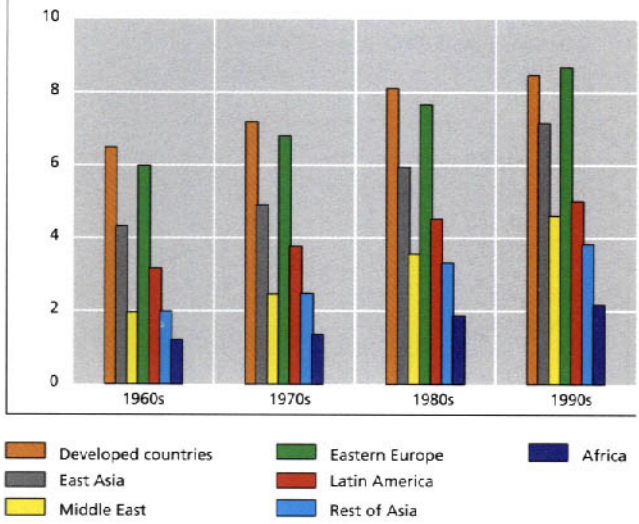

Source: *UNDP (1998) and Penn World Tables (1998).*

**Figure 1.21** Literacy Rate
*(In percent)*




*Source: Barro and Lee (1994).*

**Figure 1.22** Average Years of Education of Persons over 25 Years of Age




*Source: Barro and Lee (1996).*

in the 1960s, it improved more rapidly than in Latin America, reaching 93 percent in the 1990s. With the exception of Eastern Europe, where literacy was over 90 percent in the 1960s, all developing regions advanced more rapidly than Latin America (Figure 1.21).[9]

The slow pace of educational progress is even more striking in the number of years of education of the adult population. Latin Americans over 25 in the 1960s had only 3.2 years of education. This average reached 5 years in the 1990s. Meanwhile, Southeast Asian countries went from 4.3 to 7.2 years, Middle Eastern countries from 2 to 4.6 years, and the Eastern European countries from 6 to 8.7 years (Figure 1.22). Only in Africa did the number of years of education of the adult population rise more slowly than in Latin America.

Latin America's educational progress has been particularly slow in comparison with that of the East Asian countries. As paradoxical as it might seem, this is not due to significant differences in the percentage of people who are uneducated, or to the proportion of those who have been to the university. In fact, in Latin America this latter proportion is slightly higher than in East Asian countries.[10] Rather, Latin America lags behind East Asia primarily because of the very small proportion of its people who complete all or part of secondary school. Even though there is broad access to primary education in Latin America, the vast majority of students leave the system without finishing primary school, much less reaching secondary education.[11]

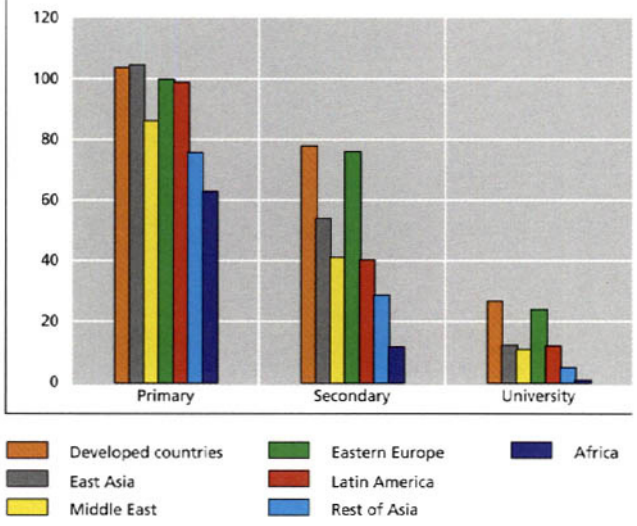
The literacy rate and average education of adults reflect the educational outcomes of many generations, so they are rather poor measures of the educational process, which can be very much affected by population structures. Two indicators less affected by this limitation are rates of schooling and average years of education by cohorts. Both confirm the weaknesses of educational systems in Latin America. Figure 1.23 shows that in Latin America, rates of primary education are close to 100 percent, not greatly different from developed countries, East Asia or Eastern Europe. Hence, the problem is not one of initial access to

[9] These comparisons between regions of the world are based on statistics processed by Barro and Lee (1994) that have the merit of using the same methodology for 183 countries. However, their figures are not entirely compatible with the estimates based directly on household surveys in Latin American countries used elsewhere in this Report.

[10] In Latin America, 8.6 percent of the labor force has had higher education, as opposed to 8.2 percent in East Asia. See IDB (Chapter 2, 1998/99).

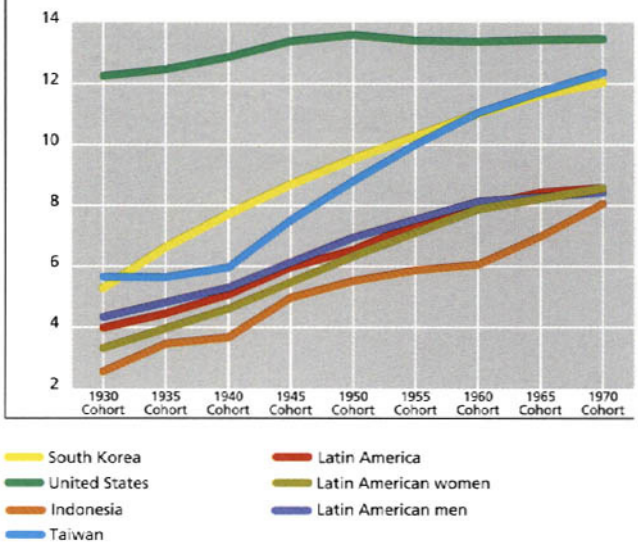
[11] The proportions of individuals with (complete and incomplete) secondary education in Latin America and East Asia are 16.9 percent and 28 percent, respectively; for (complete and incomplete) primary education, the figures are 50.8 and 43.8 percent, respectively. See IDB (1998/99, Chapter 2).

**Figure 1.23** Enrollment Rates in the 1990s
*(in percent)*




*Source: Barro and Lee (1996).*

**Figure 1.24** Average Years of Education, by Age Cohort




*Source: Behrman, Duryea and Székely (1999a).*

education. Nor are Latin America's schooling rates at higher levels of education especially low. They are lower than those of developed countries and Western Europe, but, again, similar to those of East Asia and Eastern European. The greatest deficiencies are found in secondary education, where Latin America is far below the developed countries, Eastern Europe and East Asia, leading only the rest of Asia and Africa.

Trends in educational levels attained by the various cohorts also reflect Latin America's limited educational progress, although in this instance the group of countries considered is smaller. Using national household surveys, Figure 1.24 shows that while each new cohort of Latin Americans has received more education than the previous one, progress has slowed over recent generations. For example, men born around 1960 received 7.7 years of education, whereas those who had been born around 1930 had only 4.7 years of education. Women advanced even more rapidly, from 3.7 years of education for those born around 1930 to 7.8 years some 30 years later. However, the pace of educational progress slowed notably after the generation born in the 1960s (who had to go through the education system between 1966 and the mid-1980s). Those born around 1970 received eight years of education, with a gain of only 0.4 years for males and 0.9 for females.

The pace at which education advanced from some cohorts to others in Latin America was much slower than in South Korea or Taiwan, two representative East Asian countries. People born in those countries around 1930 attained only five years of education, while those born around 1970 completed 12 years.

Latin America's slow educational progress has meant that its educational gap vis-à-vis the United States, which narrowed significantly up to the generation born in 1960, has changed very little since then.

In sum, Latin Americans have good reason to think that education is one of the most serious problems faced by the region today. Although the region's problems with education are less apparent when based on comparisons with a broad sample of countries, and not solely with developed countries or selected Southeast Asian countries, the central conclusions do not change. Latin America's problem lies neither in its rates of illiteracy nor primary schooling (including incomplete primary education), where the region in fact is significantly ahead of worldwide patterns. The problem lies in the fact that broad access to the most basic educational levels does not translate into children completing primary school, let alone moving ahead to secondary education. Consequently, average levels of schooling remain below world standards (Table 1.1).

**Figure 1.25a Primary Enrollment**

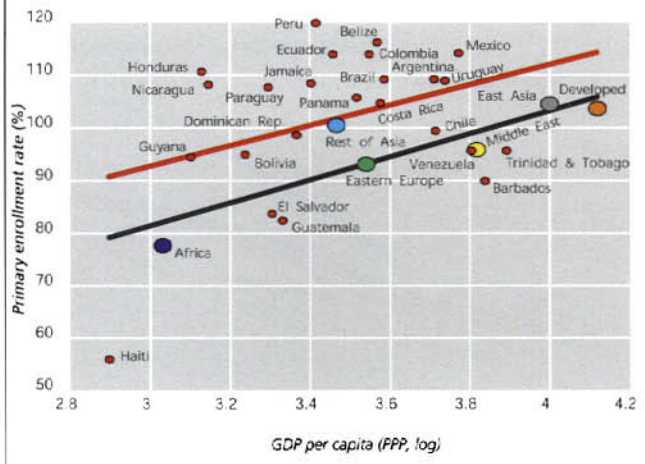
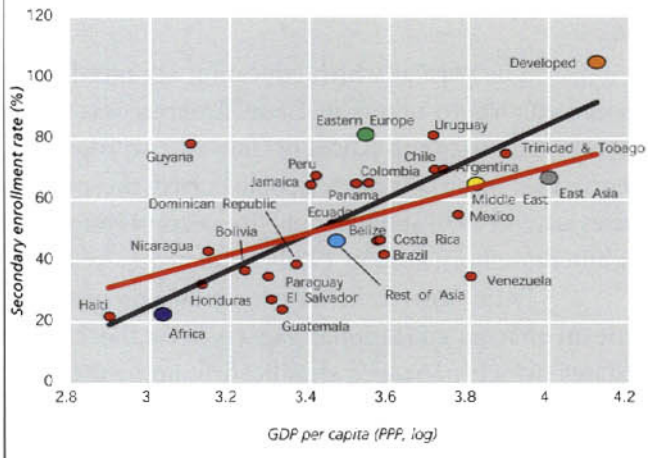
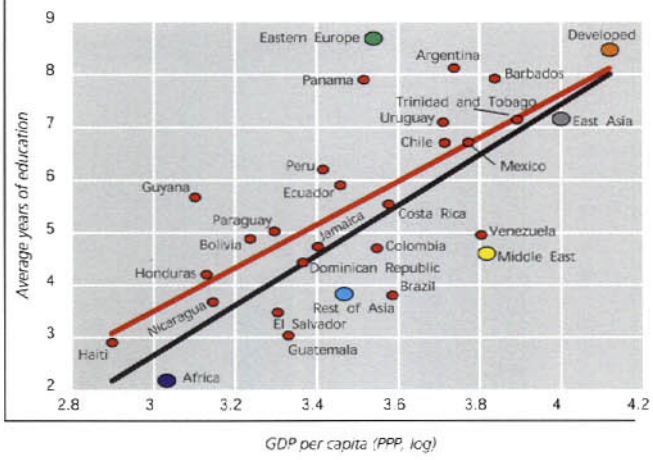



**Figure 1.25b Secondary Enrollment**




Source: Barro and Lee (1996) and Penn World Tables (1998).

**Figure 1.26 School Attainment**




Source: Barro and Lee (1996) and Penn World Tables (1998).

Figure 1.25a shows that most countries in the region attain primary school enrollment rates that are higher than the world standard. In some cases, rates are over 100 percent, due in part to statistical over-reporting and to the fact that many children do not advance through the system according to their age.

Rates of secondary enrollment, however, are substantially lower. Only Guyana and Uruguay have a secondary enrollment level close to 80 percent, and at least 10 countries are below the world standard—sometimes strikingly so, as in Venezuela, Guatemala, El Salvador and Brazil (Figure 1.25b).

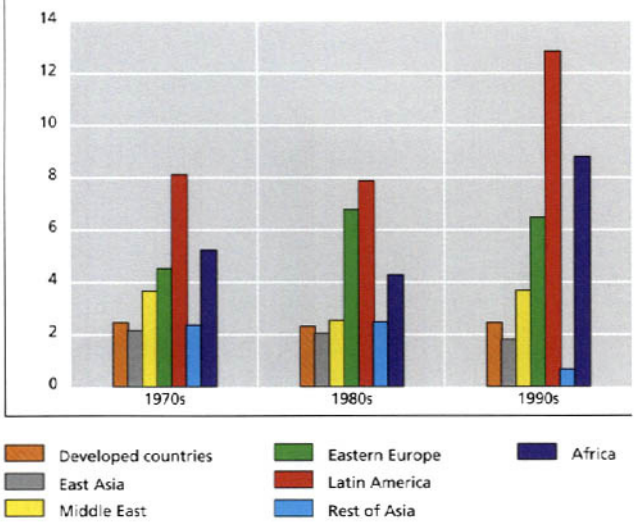
In four countries in the region—Barbados, Argentina, Panama and Guyana—the working age population has average education levels substantially above what might be expected according to the world standard (Figure 1.26). But this apparent "surplus" of education may reflect the fact that human capital is less productive because of differences of quality, obsolescence, or the absence of other factors of production. Or it could be that human capital is inadequately utilized because of unemployment or underemployment.[12] The opposite interpretation can be applied to countries like Brazil, Colombia, Guatemala and Venezuela, whose education levels are low relative to their level of economic development.

## Social Development

The economic and human development indicators described in the previous sections reflect the productive capacity of economies and individuals, but they do not address the conditions under which people interact in society, particularly whether they live under conditions that show respect for life, individual freedoms, and standards for group social behavior.

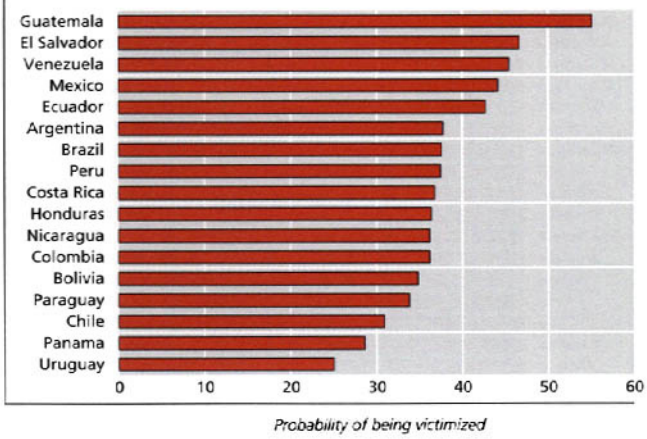
[12] See IDB (1996, Part 3) and IDB (1998-99, Chapter 2) for an assessment of educational systems. For an analysis of the underutilization of human resources for labor reasons, see the documents presented at the 1998 Annual Meeting of the IDB Governors: Lora and Márquez (1998), Lora and Olivera (1998), Pagés and Márquez (1998), and Székely and Duryea (1998).

**Figure 1.27 Homicides**
*(Median per 100,000 inhabitants)*




*Source: UNDP (1998).*

**Figure 1.28 Survey: Victimization Rates**
*(In percent)*




*Source: Gaviria and Pagés (1999) based on Latinobarometro, various years.*

Latin America is paradoxical in its social development. The region has the highest murder rates in the world and shows any number of symptoms that reflect a lack of respect for life and property. Yet the region has moved to the forefront of the developing world in terms of civil liberties and respect for democratic rights.

### *Respect for Life and Property*

Crime has increased at an alarming rate in Latin America in recent decades. Even though the region had the highest murder rates in the world dating to the 1970s, the typical country during that period had 8 murders a year per 100,000 inhabitants, a figure that did not change notably in the 1980s.[13] In the 1990s, however, the median murder rate approached 13 per 100,000 persons—four times the rate in other groups of countries, except for Africa. With some notable exceptions like Chile and Costa Rica, murder rates in the region have increased dramatically—as much as five times over or more in the worst cases. Although crime has risen in developed and developing countries throughout the world, Latin America and Africa are the only two regions that have registered such a striking increase in murder rates (Figure 1.27).

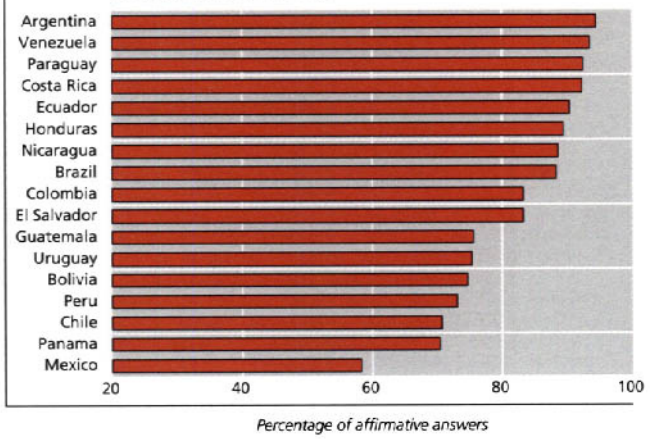
Because crime reports are the main source of official statistical information for reporting crime rates, these indicators are often seriously flawed. For murder rates, these deficiencies make international comparisons less precise; for most other crimes, they render them useless, since the inclination to report crimes is greater where justice is more effective and where laws are broadly respected. There is, however, one source of information that is more reliable—opinion surveys in which interviewees are asked whether they or their family members have recently been victims of a crime. Such surveys conducted in 18 Latin American countries in 1996 and 1998 suggest that crime is widespread in the region. At least one out of every four persons in any country and in any year says that some family member has been a victim of some crime. Only in Uruguay and Panama are victimization rates below 30 percent; most other countries are around 40 percent, and in one case data indicate that crime affects more than 50 percent of citizens (Figure 1.28).

The perception of most people in all Latin American countries is that crime has been rising year by year. At least 9 of 10 people in five countries say that "crime has risen a great deal" (the reference periods are 1996 and 1997). Even in countries where opinion is not so negative, such as Mexico, at least 5 of 10 people believe crime has been rising (Figure 1.29).

[13] Figures for groups of countries are for median rates, not for averages of countries, as in previous tables. This is to avoid the bias introduced by extreme cases.

**Figure 1.29** **Survey: Has Crime Increased Substantially?**

*(For the years 1996-97)*




*Source: Latinobarómetro, various years.*

The seriousness or nature of the crimes cannot be established for the same number of countries to which the figures refer. Nevertheless, more detailed statistics from official sources, available for Colombia, El Salvador and Peru, provide a clearer picture of the incidence of crime and the people affected by it. Property crimes unquestionably represent the bulk of crimes in these countries, and possibly the most common form of crime of which Latin Americans are victims in all countries. Property crimes more frequently affect upper-income individuals. In Colombia, the likelihood of being a victim of theft is around 15 percent for people in the highest income quintile and less than 10 percent for people in the lower three quintiles. The wealthy are also the most vulnerable to auto theft. In El Salvador, the most critical case, the likelihood that a person from the highest income level (or someone in his or her family) will be the victim of auto theft is around 40 percent. In the next quintile it is around 20 percent. By contrast, robbery of other kinds of property affects a larger proportion of the middle strata—the probability is over 60 percent in the middle quintile—and assaults more often and more severely affect the lower strata. In Peru, the rate of personal injuries in the two lowest strata is approximately twice what it is in the highest level, and in Colombia, families in the second and third poorest quintiles are most likely to be affected by murder (Figure 1.30a, b and c).

**Figure 1.30a** **Crime per Income Quintile: El Salvador**

*(In percent)*

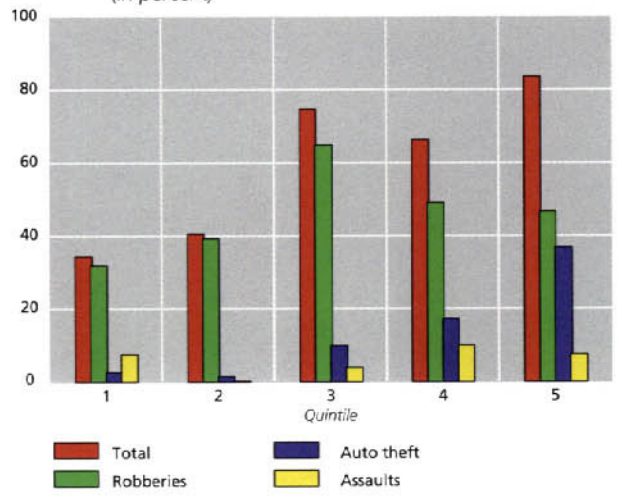



**Figure 1.30b** **Colombia**

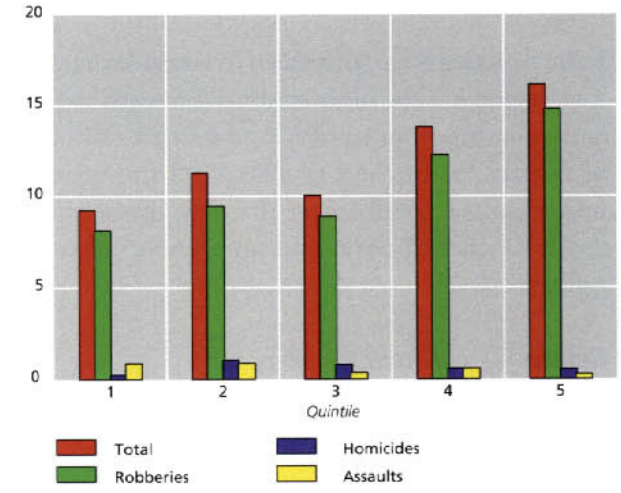
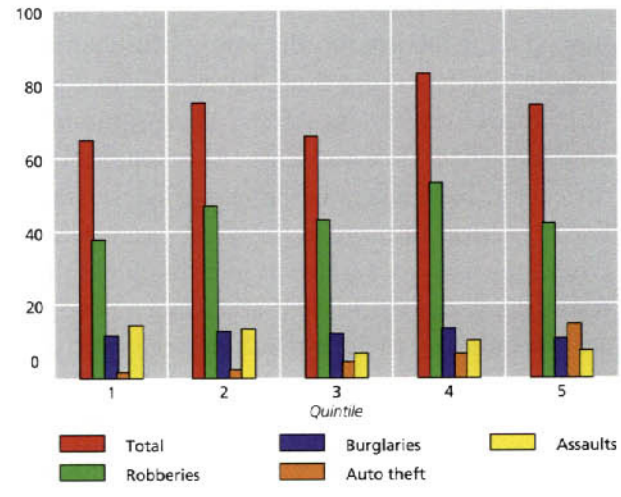



**Figure 1.30c** **Peru**



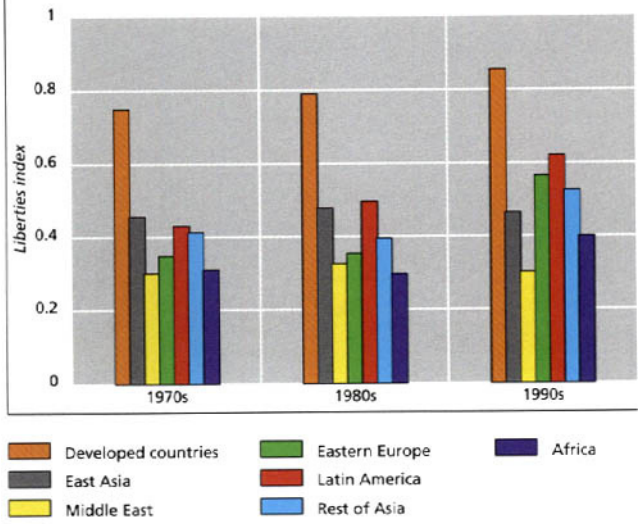

*Source: Gaviria and Pagés (1999).*

### *Civil Liberties and Democracy*

In stark contrast with what has happened in terms of crime and violence, Latin America has made remarkable progress in recent decades in the areas of civil and political freedom. In the 1970s, the region did not stand out in terms of social development in comparison with other developing regions, and it was far below the developed countries. In the 1990s, however, Latin America's social development is closer to that of the developed world, with the region boasting higher indicators for civil and political freedom than any other developing region (Figure 1.31). Latin America's recent progress toward democracy is even more remarkable from a long-term perspective. Indicators dating to the 1800s show that no other region has attained such great progress over a similar period of time (two decades). After the setbacks to democracy in the region between the mid-1960s and the late 1970s, subsequent progress has been sustained and deep, and is reflected in almost all countries of the region (Figure 1.32).

Indicators for civil and democratic freedoms must be considered with caution, since they are subjective in nature and may be affected by significant measurement errors. However, these deficiencies are lessened when various complementary sources and indicators are combined, and when information is drawn from a number of years. Figure 1.31 is an index of liberties developed by combining political rights, civil liberties and democracy for available years in each decade. These complementary indicators come from two sources recognized as having the greatest coverage in these areas,[14] and were chosen based on a wide range of questions to experts. Questions used for the political rights indicator evaluate the ability and autonomy enjoyed by individuals and social groups (especially if they are minorities) to participate freely in the political process through which rulers and representatives in legislative bodies are chosen; to set up political organizations; and to engage in opposition to the party in power. In the area of civil liberties, the indicators gauge the ability of individuals to make personal decisions (regarding work, religion, residency, marriage, freedom, and so forth); to express their opinions, dissent publicly, and create and develop (civil, labor, professional) organizations; to benefit freely from their economic effort and their

**Figure 1.31** Democratic Freedom and Civil Liberties



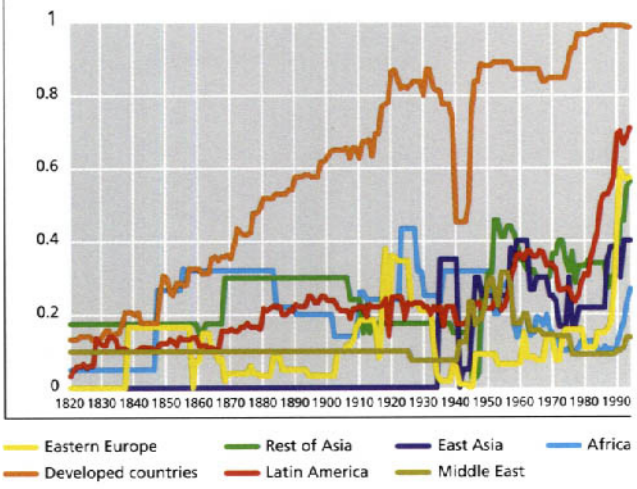

*Source: Jaggers and Gurr (1995) and Freedom House (1999).*

legal property; and to have access to justice and be protected from arbitrary treatment or political persecution or terrorism. The democracy indicator (which appears separately in the long-term series in Figure 1.32) uses more general categories that measure the competitiveness and regulation of political participation, the competitiveness and openness with which the executive is chosen, and the systems of checks and balances limiting the power of the executive.

Latin American countries vary enormously in civil and political freedoms. By these indicators, some countries, including Barbados, Costa Rica, Uruguay, and Trinidad and Tobago, rank close to the highest possible levels, (with figures above 0.9 in the combined index that ranges from 0 to 1). The lowest levels, between 0.3 and 0.6, are found in countries whose political systems have recently undergone transitions, and which in all instances are progressing toward freer systems. In keeping with worldwide trends, Latin American countries with higher income levels display greater advances in civil and political freedoms. But as Figure 1.33 makes clear, in most countries of the region, that advance is considerably above the world level, and in

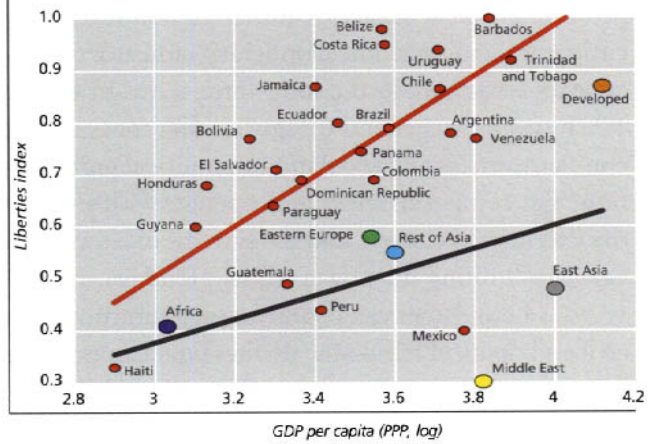
[14] The first two indicators come from the Comparative Survey of Freedom carried out since the 1970s by Freedom House, while the third is from Polity III, an ambitious and respected project that gathers and constructs political indicators worldwide, with coverage starting in 1800. See Jaggers and Gurr (1995).

**Figure 1.32** Democracy Index




*Source: Jaggers and Gurr (1995) and Freedom House (1999).*
*Note: Index increases as democracy increases.*

**Figure 1.33** Democratic and Civil Liberties

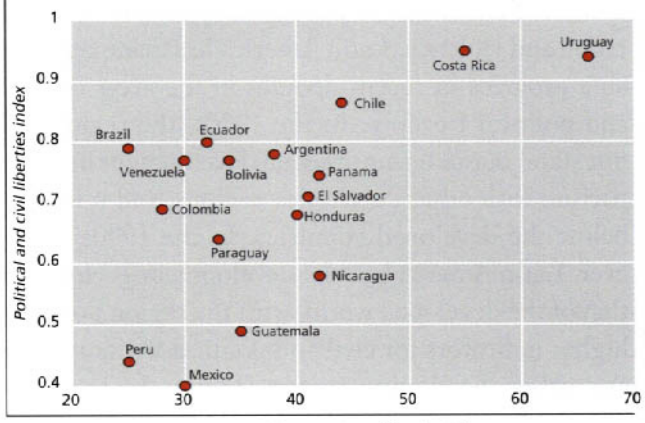



*Source: Jaggers and Gurr (1995), Freedom House (1999) and Penn World Tables (1998).*

some cases even above the average level in developed countries, despite differences in income level. This confirms how much democratic progress has been made in the region.

It is important to note that the ratings by international experts and analysts upon which these indicators of civil and political liberties are based may differ from public opinion. This is an important point, because the basis and functioning of liberties and democracy may vary from country to country, from culture to culture, and over time. Figure 1.34 compares the index of freedoms discussed thus far with an indicator of the perception of freedoms taken from public

**Figure 1.34** Political and Civil Liberties Index vs. Public Opinion



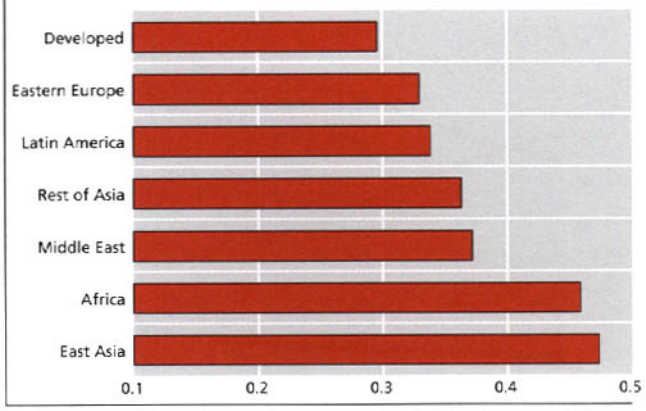

*Source: Jaggers and Gurr (1995), Freedom House (1999) and Latinobarómetro, various years.*

opinion surveys. This indicator averages the opinion of citizens on how satisfied they are with democracy, whether elections are clean, the chances for the political group they favor, and equal treatment of citizens before the law. Although both indicators correlate well, in some instances the indicators worked out by experts may diverge notably from public opinion—a difference in perception that, it is well to note, is often more critical than what the experts themselves report (as can be proven from the scales of the two indicators in the figure).

## Lopsided or Typical Development?

The various dimensions of development in Latin America have therefore advanced unevenly in recent decades. Do these imbalances indicate that development in Latin America is somehow abnormal and possibly unsustainable? The answer is no. Development in Latin America is no more unbalanced than in other developing regions, and not even much more than it is in the industrial countries. Figure 1.35 presents an indicator of imbalances in development for each country based on heterogeneity among seven indicators: life expectancy, infant mortality, illiteracy in adults, the combined rate of schooling for all three educational levels, the educational level of the working-age population, murder, and civil liberties. Higher levels of this indicator represent greater imbalances in development

**Figure 1.35 Disequilibrium in the Development Process**
*(Averages of standard deviations of development indexes)*




*Source: IDB calculations based on selected development indicators.*

(on a scale of from 0 to 1). Curiously, East Asia has the most lopsided patterns of development, which indicates that in these countries the various dimensions of economic, human and social progress have not gone hand in hand. Latin America's development pattern is as balanced as that of Eastern Europe (after the fall of communism), and only somewhat less balanced than that of the developed countries.

## Structural Factors that Affect Development

So as Latin America moves into the 21st century, its economic performance is modest and profoundly unequal and unstable. Yet the region has seen remarkable improvement in life expectancy and infant mortality, achieved broad coverage in the early years of schooling, and progressed rapidly in the area of freedom and civil liberties. On the other side of the scale, Latin America shows alarming rates of crime and violence and has low average education levels, that have increased little in recent decades.

The aims of this report are to discuss the structural reasons for these gains and setbacks and to analyze the long-range economic, social and institutional policy options that can help to hasten development in the next few decades. Because of its medium- to long-range perspective, the study does not directly examine the more conjectural factors that might explain fluctuations of economic growth in some years as opposed to others, nor does it look at macroeconomic policies that help explain medium-range growth trends. These matters have received a great deal of attention from different analysts, including previous editions of this report.[15]

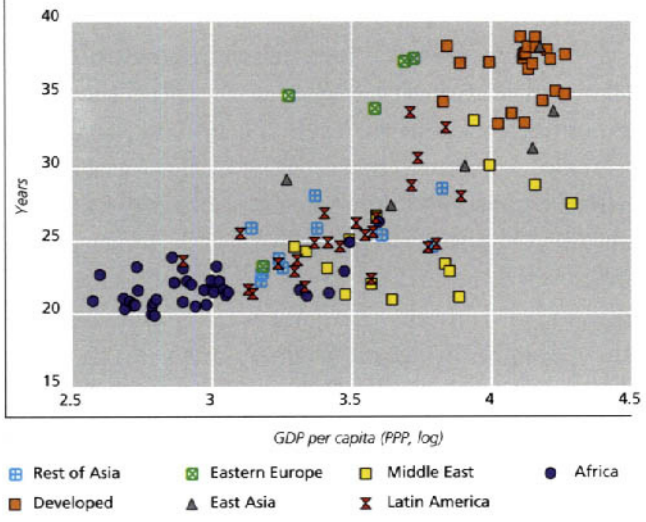
Our interest is focused instead on the deeper structural factors that may help to explain the enormous differences in the levels of economic, social and human development that separate Latin America from other regions, and Latin American countries from one another. Eclipsed by purely economic topics, three groups of structural factors—demographics, geography and institutions—have not received the attention they deserve in recent years in analyses of Latin America's development. But as will be seen, development is not just economics.

This report first highlights the influence on development of demographic factors, particularly the age structure of the population and its changes over time. Although demographic conditions are not a constant and are both a cause and an effect of the development process, they constitute a structural determinant insofar as they change slowly and their effects last for many decades. Demographic issues have received considerable attention during certain periods in Latin America, but the discussion traditionally has centered more on the implications of demographic growth and birth control. This report looks more at ways that demographic conditions can be addressed by policies in order to promote economic and social development.

The second group of structural factors that influence development involve geography—both natural conditions and those resulting from human activity. There has been a tendency to ignore geography in economic and social studies of Latin America because it is incorrectly associated with a fatalistic vision of development or with connotations of racism against peoples of the developing world. But the focus of this study is simply on how economic outcomes can be influenced by such factors as the productivity of land, the effect of climate on health conditions, and access to markets. Just like demography, geography is not a constant over time. Even though natural conditions such as location, climate or access to the sea may not change greatly, their influence on development

[15] The 1996 and 1997 editions discussed how stabilization policies and structural reforms have affected development and growth trends in Latin America since the mid-1980s.

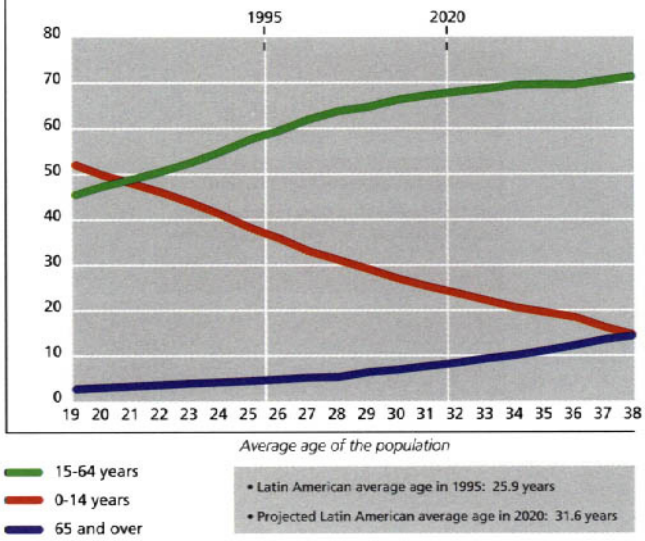
**Figure 1.36 Average Age and Economic Development**




Source: IDB calculations based on UN (1998).

**Figure 1.37 Population Breakdown by Age Group**

*(In percent)*




Source: Behrman, Duryea and Székely (1999b).

outcomes can change radically, depending on where populations locate and what economic activities they undertake, investments in infrastructure and public services, and changes in costs and modes of transportation, among other factors. Like demography, these factors do not change abruptly, so conditions at any given moment can leave a persistent imprint over time.

The third group of structural factors is institutions. Although institutions in Latin America have received greater attention than demography or geography, most recent analyses and policy recommendations have focused on the effects of institutions on different dimensions of development and on which types of institutions are conducive to economic and social development. This report looks more at the reasons why institutions are the way they are and the factors that keep them from getting better.

Particularly little attention has been paid to the political aspects of institutions. In various circles, including multilateral lending agencies, study of political structures and practices is forbidden territory, even though problems with them may be the most serious constraint to improving institutions and to adopting economic and social policies favorable to development.

The remainder of this chapter seeks to answer this question: What features of demography, geography and institutions set the countries with the lowest levels of development apart from those that are most developed? The answer will provide the tools with which the chapters that follow examine how the three groups of structural factors affect the development process or interact with it over time, and define which policies can best channel those factors toward promoting development.

### *Effects of Demography*

There is a strong association between levels of economic development and the average age of populations (Figure 1.36). The average age in the poorest countries of the world, most of them in Africa, is between 20 and 25 years old, while the average age in the developed countries hovers between 32 and 40. The Latin American countries, which stand mostly in between these extremes in terms of income levels, have average population ages that range from 21.6 years old in Nicaragua to 34 years in Uruguay. The close relationship between average age and per capita income is evident not only in these cross-section comparisons across countries, but also across time by countries.[16] This is enormously important because it suggests that demography can cause changes in levels of

[16] More specifically, the Technical Appendix shows that the coefficient of a panel regression with fixed effects is consistent with that of a panel regression with random effects, which suggests that the relationship observed across time by countries and across countries at a given moment are both due to the influence of demography on development.

Box 1.1

## The Influence of Demography on Development

The academic discussion regarding demographic effects on development has traditionally been dominated by the vision of Thomas Malthus. At the end of the 18th century, he hypothesized that demographic growth trends can occasionally be moderated if a shortage of resources does not keep up with expansion of the population. The debate has raged ever since as to whether demographic growth is a favorable or unfavorable factor for the sustainable expansion of supply, not only of food but also of all types of goods. This controversy is still not settled, since the relationship between economic and population growth is mediated by numerous factors (Cassen, 1994).

This discussion has distracted economists and other social scientists from studying the much more important connection between demographics and development, which only recently has gained attention. The most important relationship is not the size or the rate of growth of the population but its composition. Economic theories on the life cycle allow us to understand why. The consumption needs of children and the elderly surpass their productive capacity, while the opposite occurs for people of intermediate ages. Therefore, the capacity to save and invest in physical and human capital for any society depends on the composition of its population. Consequently, growth will be higher in societies that have an age composition that favors intermediate ages, and less in societies that are very young or very old. The composition of the population will also impact the fiscal capacity of the government through its effects on the size and composition of public spending and in many other economic and social variables, as shall be seen in Chapter 2 of this report.

The favorable effect that a low dependency rate can have on growth has been pointed out for many decades (Coale and Hoover, 1958). However, empirical studies and policy discussions have centered on the issue of population growth rather than on the mechanisms through which the composition of the population affects growth and development, or on the policies that can affect these mechanisms. Only recently have some studies begun to emphasize the importance of age composition of the population (ADB, 1997; Kelley and Schmidt, 1998).

In other words, by focusing on demographic expansion and population control, we have neglected other dimensions of demography that are not only more important for development, but which are more favorable for public policy intervention.

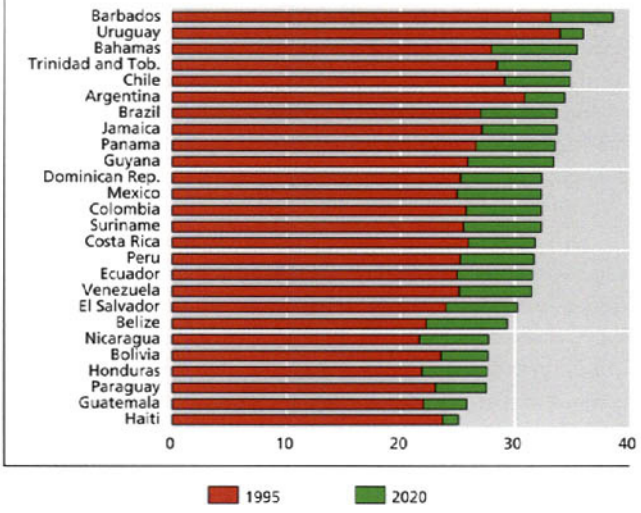
development over time (without ruling out the opposite relationship). The reason for this claim is that changes in average ages of populations are the results of the births and deaths taking place over many previous decades (perhaps the result of development during those time periods). Therefore, a simultaneous increase in average age and in economic or social development levels suggests an influence of demography on development.

Even though the theoretical basis for this association is well-known and accepted, the economic channels through which the process takes place and the manner in which it can stimulate development have received little attention in empirical studies and discussions on social and economic policies (see Box 1.1). The central argument is that different age groups behave differently, reflecting a person's place in the life cycle. Children and older people are less economically productive than those of intermediate ages, and they also have greater health care and educational needs. Hence, age composition will affect the capacity of a population to generate per capita income, as well as a society's saving rate and its ability to adequately cover educational and health needs. Through these channels, age composition thus influences not only current income levels but also a society's ability to generate future income.

In countries with a very low average age, around half the population is under 14 years old, while a tiny proportion of the population is over 64. In countries with the highest average age, the child population represents less than 20 percent of the total and the elderly begin to have a relative weight as important as that of children (Figure 1.37). The position occupied by each country between these two extremes depends on its stage in the demographic transition. The pace of that transition can vary a great deal, depending essentially on when and how quickly mortality and fertility have dropped, as will be discussed in detail in the next chapter.

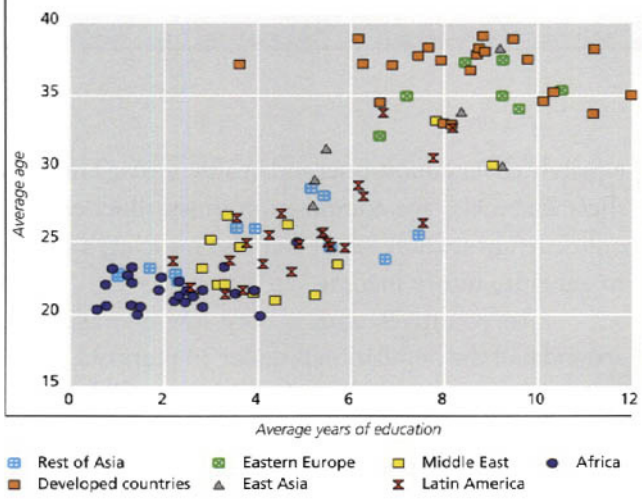
In Latin America, the average age of the population will go from 25.9 years in 1995 to 31.6 years in 2020. Some countries will have modest changes, such as Haiti, where the average age will rise by only 1.3 years. But others—such as in Guyana, the Bahamas, Mexico, the Dominican Republic and Belize—will see

**Figure 1.38** Average Age of the Population




*Source: IDB calculations based on UN (1998).*

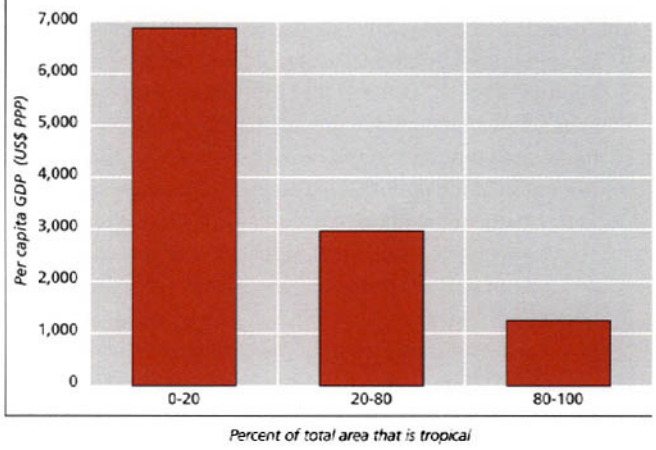
**Figure 1.39** Average Age and Level of Education




*Source: Barro and Lee (1996) and IDB calculations based on UN (1998).*

changes of seven years or more, significant enough to seriously affect conditions for development (Figure 1.38). However, such a change is no guarantee of faster economic and social development. It is true that insofar as the number of dependent persons per worker falls, average income will rise simply for accounting reasons. But those countries with higher average ages do not have higher per capita incomes for that reason alone. Rather, they have to have taken advantage of this demographic change to improve conditions for development. Most countries with high average ages have achieved higher average educational levels for their work force than have very young countries, thereby enabling them to generate more income per worker (Figure 1.39). Within demographically mature countries, however, there is great diversity of educational achievement—much greater, in fact, than among young countries, which suggests that improving development conditions through the demographic transition is an opportunity that may or may not be seized. As we will see in the next chapter, that will depend to a great extent on the policies adopted during the early stages of the transition in such areas as education, labor and social security.

**Figure 1.40** Tropical Areas and Per Capita GDP




*Source: IDB calculations based on Penn World Tables (1998) and Gallup, Sachs and Mellinger (1999).*

### *Effects of Tropical and Isolated Conditions*

Geography can have a strong influence on development because it affects productivity, access to markets, and the advantages of economies of scale or agglomeration. It is hard not to notice that, in general, the more developed countries share geographical conditions quite different from those of poor countries. Per capita income of countries located in the temperate zones is five times greater than that of tropical countries (Figure 1.40). Practically all the 37 least economically and socially developed countries in the world, with per capita incomes of less than $1,400 at 1987 parity, are located within a range of 20 degrees

Box 1.2

## Why Does Geography Matter?

A series of empirical studies has shown conclusively that income levels and growth rates of countries are associated with different geographical conditions, both natural ones and those resulting from human activity.[1] The influence of geography operates through health conditions, productivity of land, availability of natural resources, transportation costs, and economies resulting from scale and from market size.

Health conditions are more adverse in the tropics, where modest changes of seasons and hot and humid climates make it difficult to control the propagation vectors of certain illnesses. Malaria today affects 500 million people in tropical areas, lowering the rate of economic growth in affected countries by 1 percentage point.

Tropical lands generally provide lesser yields for seasonal crops because processes of photosynthesis are slower, evaporation is quicker, rainfall varies more, and pest control is more difficult. These disadvantages have tended to be reinforced by technological developments intended for temperate areas that are difficult to adapt to tropical regions.

A generous endowment of nonrenewable natural resources is an asset that can easily be turned into a revenue source. Nevertheless, empirical studies show that abundant nonrenewable natural resources do not favor growth, possibly because they tend to generate very concentrated and capital-intensive property structures. These structures often do not encourage creation of productive employment or investment in human capital, leading to conflicts over distribution that hinder institutional development.

Transportation costs are the main reason why regions with access to the sea or large navigable rivers have better chances for development. High transportation costs discourage industrialization and hinder investment and competition. Being far from large centers of world trade has a similar effect, isolating countries from major world currents of trade and technology.

The spatial distribution of the population can correct or reinforce geographic effects. Higher population densities in coastal regions generate agglomeration benefits due to the proximity between producers, the greater supply and diversity of human capital, and learning, specialization and complementarity externalities. While all this translates into higher growth when there is higher density in coastal regions, the concentration of populations in isolated regions may be a source of greater difficulties.

These findings show geographic effects to be a tangible and influential development factor, yet geography traditionally has occupied a modest role in policy discussions on economic and social development. More recently, these findings have begun to generate healthy academic debate and controversy, like any field of empirical investigation in economics (Collier and Gunning, 1999; Sender, 1999).

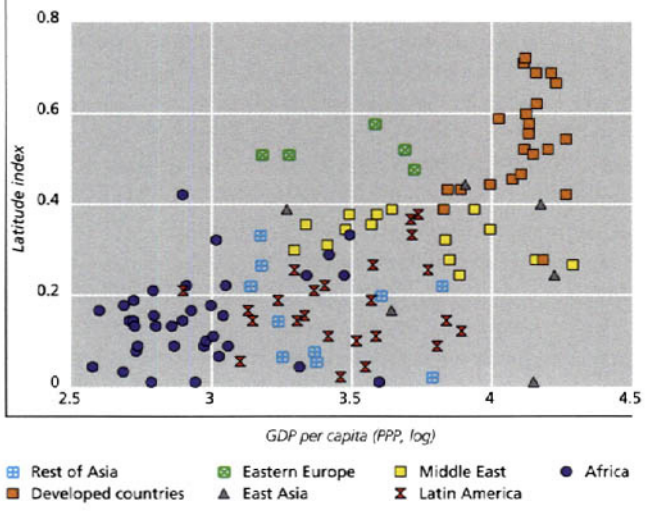
[1] ADB (1997); Bloom and Sachs (1998); Gallup (1998); Gallup, Sachs and Mellinger (1999).

from the equator. Although there are exceptions, and even though being far from the tropics does not necessarily mean greater development, the odds would appear to be against tropical countries (Figure 1.41). The reasons, which have only recently begun to be studied, have to do with the quality of tropical lands, the difficulties of adapting agricultural technologies to tropical regions, and the adverse health conditions in hot and humid areas (see Box 1.2).

Location vis-à-vis the equator is not the only geographical factor that affects development. Having access to means of communication and being close to large world markets are also crucial factors. Countries whose populations are located no further than 100 kilometers from the ocean have average per capita incomes close to $8,000 (1987 parity), while those where 20 percent or less of the population is near the sea have incomes of only some $1,500 (Figure 1.42). Transportation problems raise costs, reduce possibilities of trade and specialization, and isolate countries from information and technological developments. Being located far from the major centers of world consumption is another constraint, one which may well have been reinforced over time. For the most part, developed countries are quite close to one another, while the poorest and slowest-growing countries in sub-Saharan Africa are far from the centers of development (Figure 1.43).

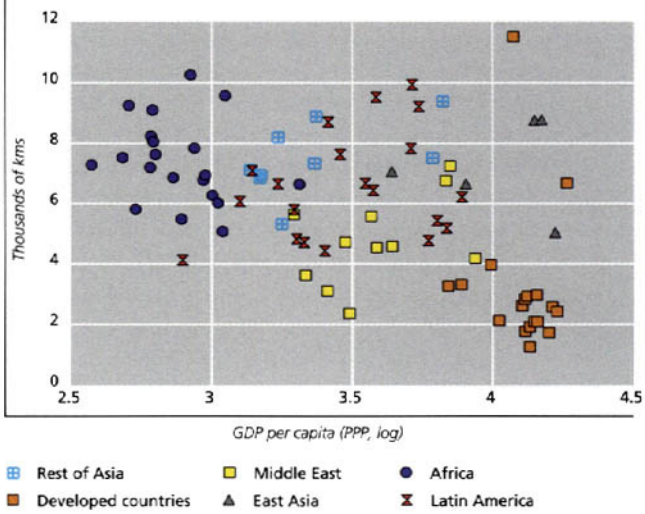
Many other geographical variables, both natural and man-made, can influence economic and social development, often paradoxically. While greater reserves of exploitable natural resources such as oil or minerals constitute a potential source of revenue, they can also constrain development of other factors of

**Figure 1.41 Latitude and Economic Development**



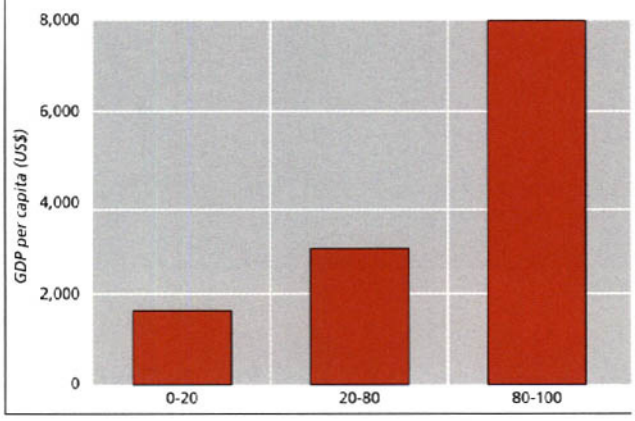

Source: Gallup, Sachs and Mellinger (1999) and Penn World Tables (1998).

**Figure 1.43 Distance to Main Markets**




Source: Gallup, Sachs and Mellinger (1999) and Penn World Tables (1998).

**Figure 1.42 Coastal Density and Per Capita GDP**




Source: Gallup, Sachs and Mellinger (1999) and Penn World Tables (1998).

production. Greater population density and urbanization may reduce transportation costs and increase the size of markets, facilitating specialization and economies of scale. But they can also cause diseases to spread more rapidly and increase costs related to overcrowding and environmental damage.

All of this is not to say that geography cannot be controlled, or that its effects will get you one way or another. To take one example, investments in infrastructure or technological advances in transportation can not only lower transportation costs, but also moderate the impact of diseases, improve housing conditions, and boost people's productivity.

Many effects of geography are not adequately reflected in international comparisons because of the heterogeneity of geographical conditions within countries, and because these effects can cut different ways, for better or for worse, depending on how they interact with one another and with such factors as infrastructure. Chapter 3 of this report uses information broken down by states, municipalities, and even families for various Latin American countries in order to analyze in greater detail the impact of geography on development and to assess the potential for investing in infrastructure and basic services directed at taming geographic conditions. It also discusses the serious consequences of natural disasters in Latin America because of a combination of geographical and institutional factors.

For several decades, geography took a back seat in economic analyses because of the presumption that it implied either unacceptable fatalism or racial or cultural prejudice against poor countries. While neither of these two critiques applies to modern approaches to the effect of geography on development, it is true that geography and race are not independent variables. For historic reasons in Latin America, indigenous populations are located in mountainous regions, and black populations in parts of the Caribbean and other tropical parts near coasts where

Box 1.3

## The Importance of Institutions in Development

The most important institutions for development are those that ensure that people and their enterprises can benefit from their productive efforts, which in turn makes them more willing to invest in education, technology and physical capital. That process entails protection of property rights, respect for the law and for contractual commitments, and the absence of corruption.

The subjective indicators of the quality of institutions such as those summarized in the text have been used in various studies to test the importance of these institutional factors. Hall and Jones (1999) have proven that differences in the levels of human capital and productivity between countries of all regions in the world are closely associated with indicators of institutional quality that reflect whether economic effort can be focused on productive activities. Many studies have proven that the quality of institutions affects the growth rates and investment ratios of economies around the world. Knack and Keefer (1995,1997a and 1997b) have found that economic growth and investment are sensitive to the degree of respect for the law, corruption and the risk of expropriation and repudiation of contracts. Utilizing surveys of business people from around the world, Brunetti, Kisunko and Weder (1997) find that investment and economic growth are sensitive to the credibility of the rules—understood as the predictability of laws and court decisions, the perception of political stability, respect for life and property, and absence of corruption. Mauro (1995) has likewise proved the harmful effect of corruption on investment and growth. In his ambitious studies of the determinants of growth, Barro (1997) has verified the importance of respect for the law, while Goldsmith (1997) has found that property rights are decisive for growth. Several authors have come to similar conclusions based not on subjective indicators, as in the studies just mentioned, but directly on measurable variables that are likely to be affected by the same kinds of institutional factors (Leblang, 1996; Clague et al., 1997).

The most recent studies have sought to establish with precision the channels through which institutions affect economic and social performance. Since statistical associations do not prove causality, researchers have sought to establish the channels through which institutions can affect development, and if these channels are statistically verifiable. The results are positive and quite robust: institutions cause growth and levels of economic and social development, measured in terms of income, health and education statistics (Chong and Calderón, 1999; Kaufmann, Kraay and Zoido-Lobatón, 1999a). Other studies have established that the channels of this influence operate through the amount and quality of social public spending (Mauro, 1998), financial and capital market development (Levine, 1997; La Porta et al., 1998), and amounts of foreign investment (Wei, 1997).

In short, an avalanche of studies from very diverse angles has established that institutions are essential for economic and social development, and that there are strong channels of causality of institutions upon development.

slavery existed. This association between race and geographical conditions may help explain differences of economic performance between racial groups that can still be seen today in Latin American countries. However, although the origins of this connection may be tied to geographical conditions, the association has largely been reproduced over time by institutional factors, as we will see in Chapter 3. The systems of *encomienda* and slavery established to exploit indigenous and black labor, respectively, conditioned the subsequent development of institutions, the effects of which can still be observed today.

### *Effects of Public Institutions*

Institutions represent the formal and informal rules and practices by which individuals relate with one another in order to attain economic and social objectives. It stands to reason, then, that institutional quality and development are largely synonymous. The relevant question is not whether development requires effective institutions, but which institutions can best serve the various dimensions of economic and social development. This question does not allow for a precise answer, in part because the quality of institutions is not easily measurable and is subject to subjective biases. However, the international evidence summarized in Box 1.3 makes clear that economic and social development is closely connected to the quality of public institutions.

It is important to note that public institutions are only a subsample of the broader scope of formal and informal institutions that exist in any society. Recent research has emphasized the importance of this social capital, understood as trust in others, willingness to follow societal norms, and the disposition of

people to freely cooperate without compensation.[17] This report recognizes the important role that social capital—or more generally speaking, culture, of which social capital is one dimension—can play in the most diverse aspects of development. But the focus will be on public institutions for both practical and political reasons. The practical reason is that there is a broader base of accepted indicators to measure the quality of public institutions across countries than there is to measure social capital. The political reason is that public policies can be more effective in modifying government institutions than in manipulating social capital, whose determinants are more difficult to verify and control.

Figures 1.44a-c show the close relationship between overall governability and several indicators of economic and social development. The countries with the highest levels of per capita income and the best outcomes in health and education have public institutions of outstanding quality. The indicator used to measure governability is a combination of four indices that reflect essential aspects of the quality of government and have been constructed using information from many international rating sources that have emerged in recent years.[18] The indices are the rule of law, control of corruption, quality of the regulatory framework, and the effectiveness of public administration. Figures 1.45a-d show the strong connection of each of these indicators to per capita income.

The rule of law and control of corruption indicators reflect the respect that citizens and the state have for the institutions that govern relationships between them. The rule of law measures the extent to which individuals respect and have confidence in laws, and hence their capacity to function in an environment where rules are known, stable and accepted. Indicators of the rule of law are the predictability of the judicial system, respect for contracts, and the use of criminal methods for solving conflicts. Control of corruption

**Figure 1.44a** GDP and Institutional Quality

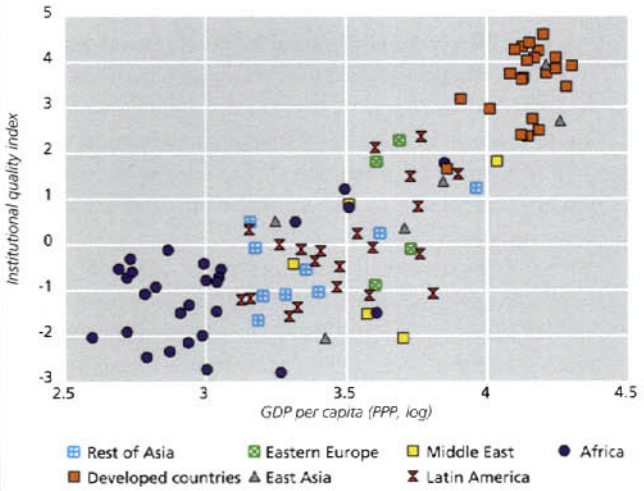



**Figure 1.44b** Life Expectancy and Institutional Quality

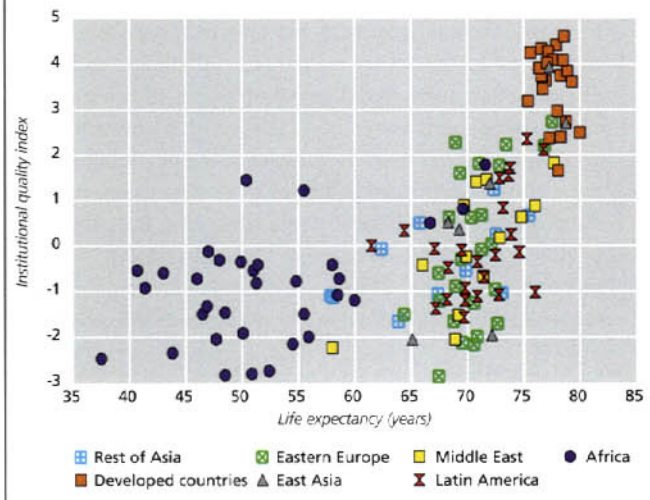
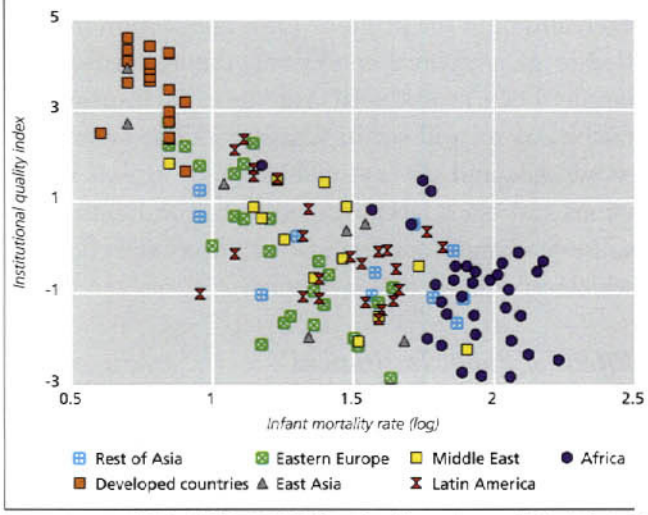



**Figure 1.44c** Infant Mortality and Institutional Quality




Source: Penn World Tables (1998), UNDP (1998) and Kaufmann, Kraay and Zoido-Lobatón (1999a).

[17] See Coleman (1990) and Putnam (1993). Knack and Keefer (1997b) discuss diverse measures of social capital and their relationship to economic performance in 29 countries.

[18] The indices for Figures 1.45a-d have been estimated by Kaufmann, Kraay and Zoido-Lobatón (1999a and 1999b) by means of an econometric method of nonobserved components that allows information from the different sources to be combined to obtain estimates for a broad sample of countries. The compound index that summarizes these indicators is the result of an estimate using the main components method. The works cited also present two indicators of democracy and political stability and of violence, which are not included in our compound index.

**Figure 1.45a** GDP and the Rule of Law

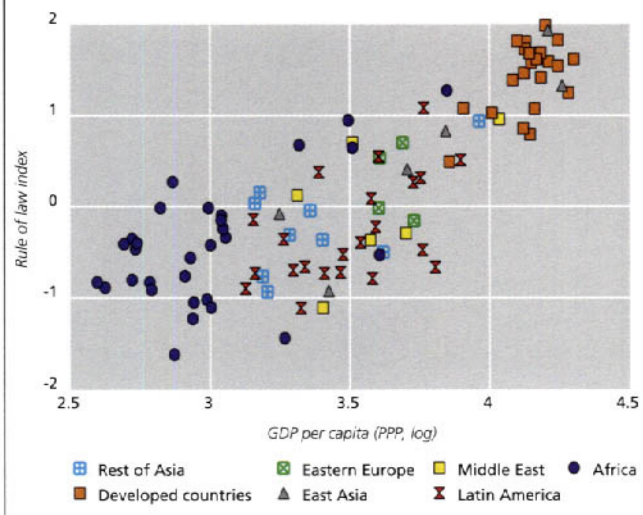



**Figure 1.45c** GDP and the Regulatory Burden

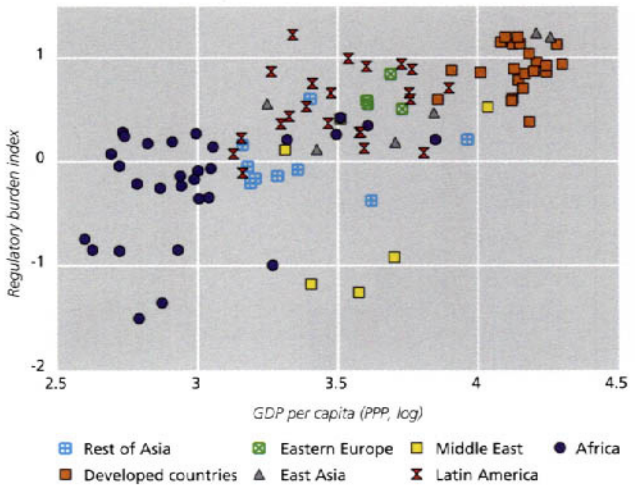



**Figure 1.45b** GDP and Corruption

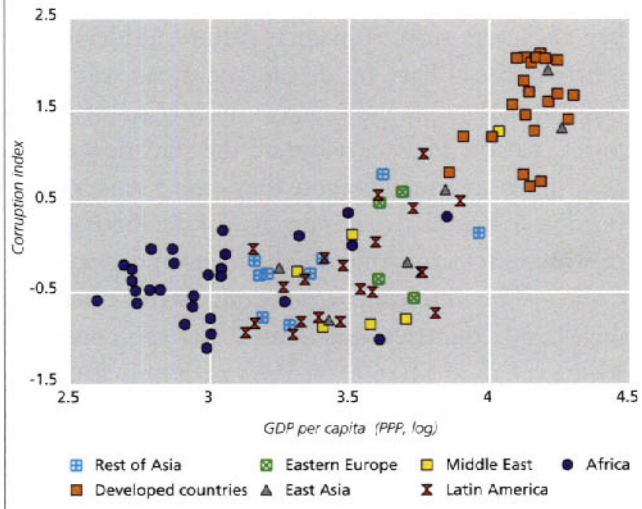
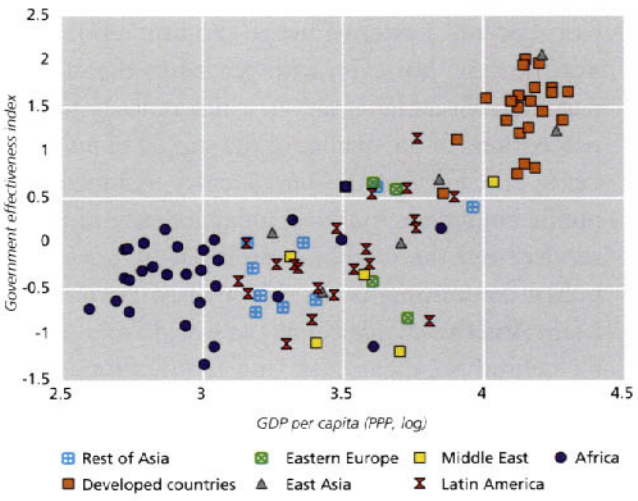



**Figure 1.45d** GDP and Government Effectiveness



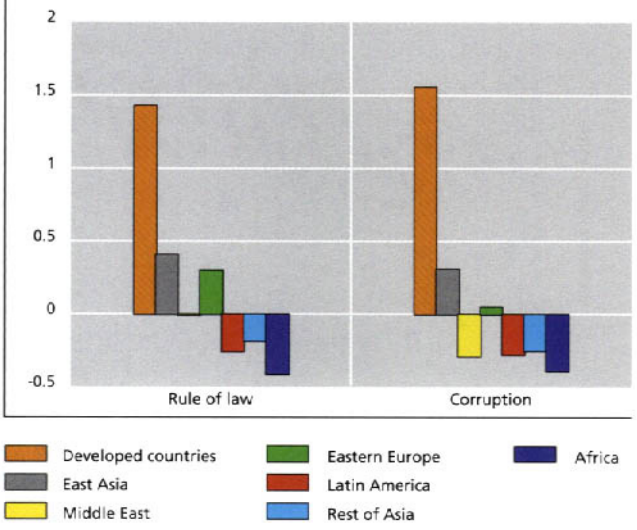

*Source: Penn World Tables (1998) and Kaufmann, Kraay and Zoido-Lobatón (1999a).*

means preventing the use of public power for private gain. Corruption implies failure to observe the laws governing the relationship between individuals, and between them and the state. It is measured with indicators that determine the frequency of irregular practices for private gain in public administration.

In terms of the rule of law and control of corruption, Latin America ranks lower than any other region except Africa (Figure 1.46). Note that the scales of the indices can be compared with one another and that the zero value represents the world mean.

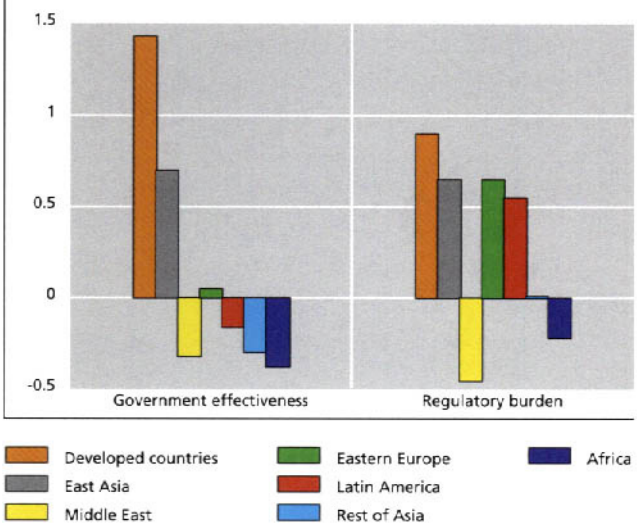
Indicators of the quality of the regulatory framework and the effectiveness of public administration reflect a country's ability to formulate adequate policies and put them into practice. The quality of the regulatory framework refers to the legal environment in which markets operate and the degree of government interference in economic decisions. In this regard, Latin America today presents indices far above the world average and relatively high in comparison with various groups of countries, although somewhat lower than the average for developed countries, South-

**Figure 1.46** Rule of Law and Corruption




*Source: Kaufmann, Kraay and Zoido-Lobatón (1999a).*

**Figure 1.47** Government Effectiveness and Regulatory Burden




*Source: Kaufmann, Kraay and Zoido-Lobatón (1999a).*

east Asia and Eastern Europe (Figure 1.47). That is not the case, however, with regard to the effectiveness of public administration, which reflects combined perceptions of the quality of the supply of public services, efficiency of the bureaucracy, competence of public employees, political independence of the civil service, and the credibility enjoyed by government policy commitments. In this area of governability, Latin America stands below the world average, and is far behind Southeast Asia and the developed countries (Figure 1.47).

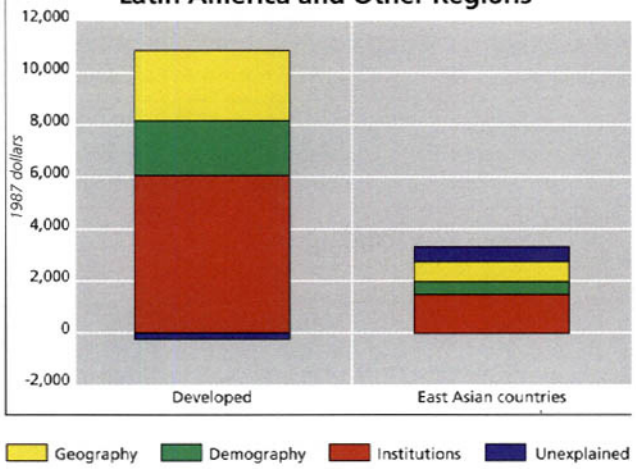
## How Important Are Demography, Geography and Institutions?

It is surprising that these three groups of factors, which have received such little attention in the recent design of development policies, are found to be so closely associated with differences in levels of development both within Latin America and between Latin America and other regions. In fact, at least from a statistical standpoint, the three can to a great degree explain the gaps in economic and social development. Before presenting some statistical results, it is necessary to note that their purpose is merely illustrative and that, as we will discuss further on, these results must be taken with certain caution for various reasons. They fail, for example, to recognize the influence that a diverse number of factors such as history, culture, leadership or innovation can have on development, since it is not possible to separate these factors in exercises of an empirical nature. Having said that, the statistical results that follow are useful because they offer a sense of proportion of the relative importance of the three groups of structural factors that are the focus of this study.

The difference in per capita income between developed countries and Latin American countries, which stands at $10,600 (at 1987 parity prices), is related to a great extent to differences in demography, geography and institutions (Figure 1.48). Latin American populations are younger and sustain even greater rates of demographic dependence, so their ability to generate per capita income is $2,000 lower than that of the developed countries. And because of their tropical and otherwise less advantageous geographical location, their more limited access to transportation, and their greater distance from the centers of world trade, Latin American countries have per capita income $2,200 lower than that of developed countries. Finally, around $6,000 of the income difference is due to the fact that Latin American countries have less effective, predictable and transparent public institutions than developed countries. The differences in per capita income vis-à-vis East Asian countries can also be explained to a large extent by these structural factors.

These calculations come from econometric estimates for a broad sample of countries from all re-

**Figure 1.48** Breakdown of Differences in Per Capita Income between Latin America and Other Regions




*Source: IDB calculations.*

gions of the world, the methodology and results of which are presented in the Technical Appendix to this chapter. The methods attempt to measure the effect that these structural factors have on development by isolating in the best manner possible the effect in the opposite direction, which may be important, as we will discuss further on.

The three groups of structural factors considered take into account not only the differences of average income between Latin America and other groups of countries, but between individual countries in the world or the region. Indeed, 87 percent of the variance in per capita income levels of all the economies of the world is associated with the demographic, geographical, and institutional variables considered. Within the Latin American region itself, even though many countries are in many respects more homogeneous, these factors explain 55 percent of the differences in their levels of development.

With similar exercises it can also be established that demography, geography and institutions explain other development outcomes in areas such as health or education. The Technical Appendix presents regression results for infant mortality and secondary schooling rates, on the basis of which the differences in these indicators between Latin America and other regions can be satisfactorily explained. For infant mortality, geographical conditions explain 6 percent of the average difference between Latin America and developed countries and 15 percent of the difference between Latin America and the East Asian countries. Practically all the remaining differences are due to the quality of institutions (Table 1.2). For secondary schooling, the comparison between Latin America and the developed countries indicates that demography explains 22 percent of the difference, geography 33 percent, and institutions the remainder.[19] Although a great deal of the impact of demography, geography and institutions on health and education may take place through income, as can be seen in the econometric estimates in the Technical Appendix, the effects do not seem to be limited solely to this channel. Indeed, the relative importance of each of these factors in explaining differences in health or education between Latin America and other regions is very different from the importance of these factors in explaining income differences. The results clearly suggest that the quality of public institutions plays a more important role in health outcomes than in levels of income or education, while geography has a less important effect on health than on income or education.

Notwithstanding the statistical significance of these econometric results, they should be interpreted as merely illustrative and necessarily imprecise estimates of the effects of geography, demography and institutions; that is, they do not constitute definitive proof of causality. It must be kept in mind, first, that the influence of these structural factors is mediated by more specific conditions of the countries that cannot be reflected in variables as general as those utilized. This is especially true for the characteristics of geography and for the quality of institutions, which can only be expressed in quantitative indicators by accepting some degree of reductionism.

Second, it must be remembered that causality between structural factors and development outcomes moves in both directions. The econometric methods employed seek to capture the channels of causality that go from structural factors toward the different areas of economic and social development. Nevertheless, as indicated by Panel a in Figure 1.49, and as we will discuss in greater detail in the following chapters, these channels of causality are numerous and complex, and

[19] Comparisons with East Asia are not significant and hence have been omitted from the table.

**Table 1.2** **What Explains Latin America's Development Gaps? Decomposition of Differences between Latin America and Other Regions**
*(In percent)*

| | With respect to developed countries | | | With respect to East Asia | |
|---|---|---|---|---|---|
| Components | Income per capita | Infant mortality | Secondary education enrollment | Income per capita | Infant mortality |
| Demography | 19.7 | - | 22.5 | 16.7 | - |
| Geography | 25.1 | 6.2 | 33.4 | 22.1 | 15.5 |
| Institutions | 57.4 | 96.7 | 53.0 | 42.5 | 95.9 |
| Total explained | 102.2 | 102.8 | 108.9 | 81.2 | 111.5 |
| Not explained/ excess(-) | -2.2 | -2.8 | -8.9 | 18.8 | -11.5 |
| Total percent difference | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Memo: | | | | | |
| Absolute differences (Unit of measure) | 10,629 (1987 US$) | -25.1 (per 1,000 live births) | 49.6 (%) | 2,886 (1987 US$) | 8.9 (per 1,000 live births) |

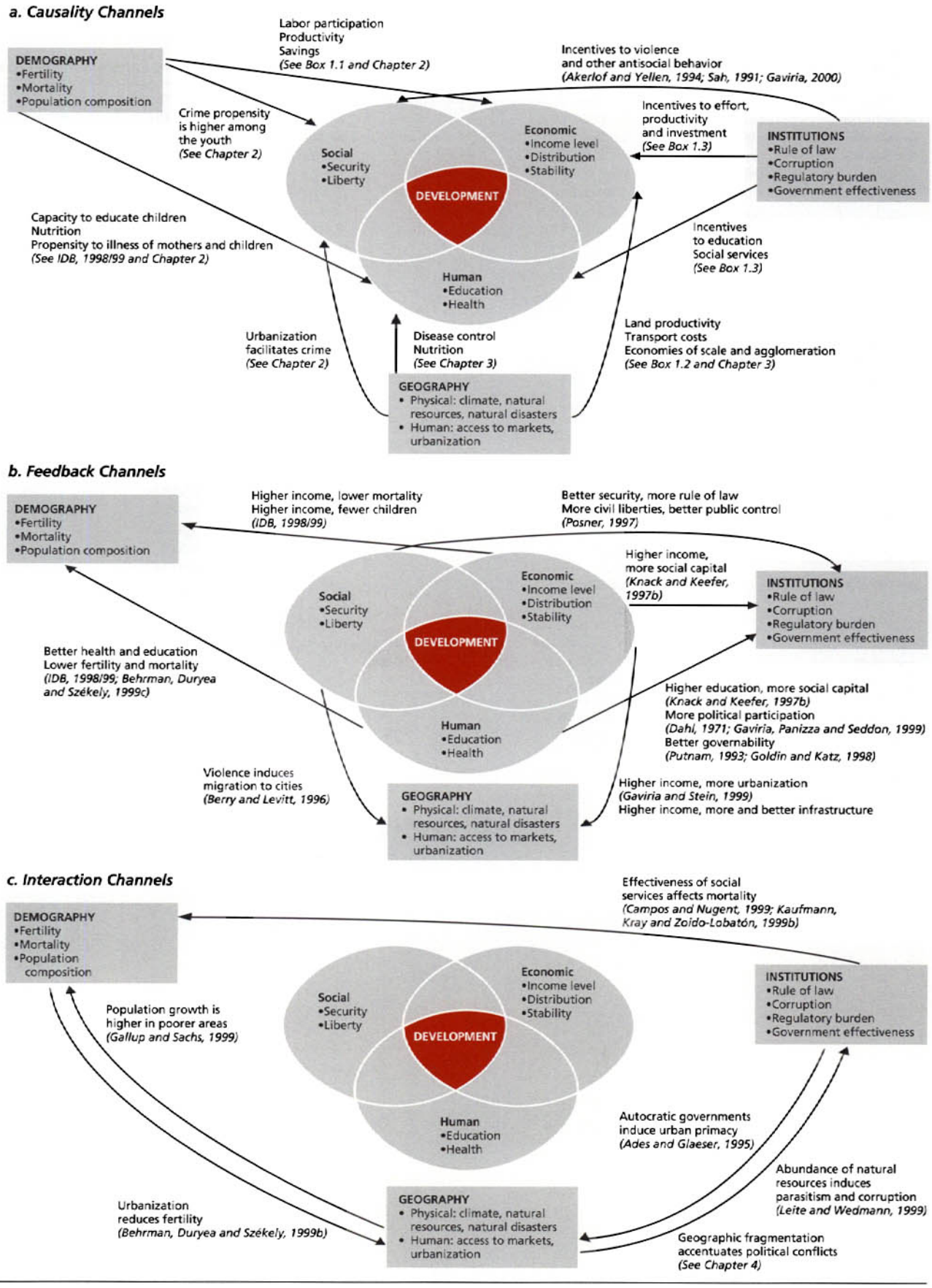
*Source: IDB calculations using regression results presented in the Technical Appendix.*

in many instances difficult to measure. Although this report focuses on the direction of causality, it does not seek to ignore that there are strong feedback mechanisms of development outcomes affecting the three groups of structural factors, some of which are represented in panel b of Figure 1.49.

Third, it must be recognized that these groups of factors are less neatly separated than may appear at first sight due to the various channels of interaction between them. As was pointed out above, the institutions that countries have adopted in the course of their history have not been independent of their location and climatic conditions. Likewise, demographic development varies between countries, depending, for example, on urbanization patterns, which are largely the result of geographical factors. In the opposite direction, countries with poorer geographical conditions tend to have a higher population concentration than those with more favorable conditions. Similarly, the effectiveness of government in providing certain basic social services may have influenced demographic conditions through its effect on mortality. Or the presence of corrupt and parasitical institutions may accelerate migration toward the centers of power, changing urbanization patterns. These interactions, which are supported by a wide range of research (and are represented in panel c of Figure 1.49), make it difficult to separately quantify the importance of each of the three groups of factors considered.

It should be kept in mind that the influence of these different structural factors on development outcomes depends greatly on policies, which are not incorporated into these analytical frameworks. Two countries with similar geographies may achieve very different outcomes in health and productivity, depending, for example, on their policies on public spending and investment in basic services and infrastructure. They may also achieve very different productivity outcomes depending on the quality of their macroeconomic and structural policies (which are partly, but not totally, the result of the quality of government institutions). Likewise, there is no assurance that the mere aging of a population will lead it to attain the levels of schooling or per capita income of other more mature countries, since that will depend on education, labor and financial policies, along with many other factors. Finally, not only is the quality of institutions modifiable through policy actions, but how it impacts the various dimensions of development can vary from one society to another, depending on a country's resource endowment and other geographical factors, demographic stage, and more specific features of its social and political institutions.

**Figure 1.49** **Structural Determinants of Development**



Appendix 1.1

## COUNTRY CLASSIFICATION BY REGION

| Latin America and the Caribbean | Developed | Africa | East Asia | Rest of Asia | Eastern Europe | Middle East |
|---|---|---|---|---|---|---|
| Antigua & Barbuda | Australia | Angola | Hong Kong | Bangladesh | Albania | Algeria |
| Argentina | Austria | Benin | Indonesia | Bhutan | Armenia | Bahrain |
| Bahamas | Belgium | Botswana | Malaysia | Brunei | Azerbaijan | Djibouti |
| Barbados | Canada | Burkina Faso | Philippines | Cambodia | Belarus | Egypt |
| Belize | Denmark | Burundi | Singapore | China | Bulgaria | Iran |
| Bolivia | Finland | Cameroon | South Korea | Fiji | Croatia | Iraq |
| Brazil | France | Cape Verde | Thailand | India | Cyprus | Israel |
| Chile | Germany | Central African Rep. | | Korea | Czech. | Jordan |
| Colombia | Greece | Chad | | Laos | Estonia | Kuwait |
| Costa Rica | Iceland | Comoros | | Maldives | Georgia | Lebanon |
| Cuba | Ireland | Congo | | Mongolia | Hungary | Libya |
| Dominica | Italy | Cote d'Ivoire | | Myanmar | Kazakhstan | Oman |
| Dominican Rep. | Japan | Congo | | Nepal | Kyrgyzstan | Qatar |
| Ecuador | Luxembourg | Equatorial Guinea | | Pakistan | Latvia | Saudi Arabia |
| El Salvador | Netherlands | Eritrea | | Papua | Lithuania | Sudan |
| Grenada | New Zealand | Ethiopia | | Samoa | Macedonia | Syria |
| Guatemala | Norway | Gabon | | Solomon | Malta | UAE |
| Guyana | Portugal | Gambia | | Sri Lanka | Moldova | Yemen |
| Haiti | Spain | Ghana | | Vanuatu | Poland | |
| Honduras | Sweden | Guinea | | Vietnam | Romania | |
| Jamaica | Switzerland | Guinea-Bissau | | | Russia | |
| Mexico | United Kingdom | Kenya | | | Slovakia | |
| Nicaragua | United States | Lesotho | | | Slovenia | |
| Panama | | Madagascar | | | Tajikistan | |
| Paraguay | | Malawi | | | Turkey | |
| Peru | | Mali | | | Turkmenistan | |
| St. Kitts & Nevis | | Mauritania | | | Ukraine | |
| St. Lucia | | Mauritius | | | Uzbekistan | |
| St. Vincent & the Grenadines | | Morocco | | | | |
| Suriname | | Mozambique | | | | |
| Trin. & Tob. | | Namibia | | | | |
| Uruguay | | Niger | | | | |
| Venezuela | | Nigeria | | | | |
| | | São Tome | | | | |
| | | Senegal | | | | |
| | | Seychelles | | | | |
| | | Sierra Leone | | | | |
| | | South Africa | | | | |
| | | Swaziland | | | | |
| | | Tanzania | | | | |
| | | Togo | | | | |
| | | Tunisia | | | | |
| | | Uganda | | | | |
| | | Zambia | | | | |
| | | Zimbabwe | | | | |

## TECHNICAL APPENDIX
## Estimates of the Effects of Demography, Geography and Institutions

### Per Capita Income Estimates

A two-phase method designed to avoid the problems of endogeneity between explanatory variables and the dependent variable was used to estimate the effects of the three groups of dependent variables on per capita income.

In the first phase, the effect of demographic structure on per capita income was estimated by a panel regression with fixed effects (controlling also for nonobserved trend effects) in a sample of 138 countries and 1,117 five-year observations since 1950. Alternatively, the average age, the total dependency rate and the infant dependency rate were used as indicators of the demographic structure, revealing equally solid and consistent results among themselves (Technical Appendix Table 1). The panel method with fixed effects is not subject to problems of endogeneity between demographic structure and income because changes in demographic structure are predetermined for each country separately by its demographic history, and therefore cannot be the result of contemporary changes in per capita income levels.

In the second phase, the coefficient of the infant dependency rate was used for estimating per capita income in order to calculate the "demographically-adjusted per capita income." Accordingly, the product of the coefficient resulting from the difference between the country dependency rate and the 1995 world average was subtracted from the per capita income of each country for the same year. The adjusted per capita income was used as a dependent variable to estimate in a cross-sectional regression the effect of a set of geographic variables and a synthetic quality indicator of public institutions. This indicator is the first principal component of the following four quality indices of institutions constructed by Kaufmannn, Kraay and Zoido-Lobatón (1999a and 1999b): the rule of law, control of corruption, the quality of the regulatory framework, and the effectiveness of public administration. Because the quality of public institutions is endogenous to per capita in-

Table 1 **Fixed Effects Panel Regressions for Real Per Capita Income, 1950-95**
*(t-statistic)*

| Dependent variable: Log (PPP per capita real income) | | | |
|---|---|---|---|
| **Independent variables** | **1** | **2** | **3** |
| Dependency ratio for youth (0-1) | -1.026* (-10.26) | | |
| Dependency ratio (0-1) | | -0.778* (-7.55) | |
| Average age of population (years) | | | 0.092* (34.35) |
| Trend | 0.017* (26.59) | 0.018* (29.49) | 0.015* (53.54) |
| Constant | 7.827* (96.88) | 7.692* (84.89) | 4.839* (75.38) |
| Number of countries | 138 | 138 | 138 |
| Number of observations | 1,117 | 1,117 | 5,241 |
| $R^2$ within countries | 0.56 | 0.54 | 0.61 |
| $R^2$ between countries | 0.51 | 0.40 | 0.46 |
| Total $R^2$ | 0.39 | 0.24 | 0.53 |

*Note: t-statistic in parentheses.*
** Significant at 5 percent or more.*
*Source: IDB calculations.*

Table 2 **Cross-section Regressions for Income Adjusted by Demography, 1995**
*(t-statistic)*

| Dependent variable: Log (per capita real income adjusted by demography) | | | | |
|---|---|---|---|---|
| **Independent variables** | **1** | **2** | **3** | **4** |
| **Geography** | | | | |
| % of area in the tropics | -0.876* | | -0.365 | -0.302 |
| | (-6.01) | | (-2.19) | (-1.61) |
| % of population within 100 kms of the coast | 0.622* | | 0.162 | 0.148 |
| | (2.57) | | (0.84) | (0.73) |
| Distance to main markets | -0.051 | | -0.027 | -0.013 |
| | (-1.80) | | (-1.36) | (-0.68) |
| Oil exports (% of GDP) | 3.785* | | 4.711* | 4.522* |
| | (4.23) | | (5.02) | (4.45) |
| Population density (%) | 0.252* | | 0.104* | 0.117 |
| | (8.98) | | (2.36) | (1.40) |
| Area (log) | 0.077* | | 0.045* | 0.038* |
| | (2.66) | | (2.57) | (2.46) |
| Africa dummy | -0.67* | | -0.624* | -0.670* |
| | (-3.80) | | (-4.76) | (-5.08) |
| **Institutional quality** | | | | |
| Institutional index | | 0.435* | 0.268* | 0.257* |
| | | (10.35) | (4.05) | (2.06) |
| Constant | 9.336* | 8.618* | 9.075* | 8.972* |
| | (37.08) | (127.91) | (46.39) | (43.17) |
| Regional dummies | No | No | No | Yes |
| Adjusted $R^2$ | 0.76 | 0.65 | 0.87 | 0.88 |
| Number of observations | 74 | 97 | 72 | 72 |

*Note: t-statistic in parentheses.*
** Significant at 5 percent or more.*
*Source: IDB calculations.*

come, the estimate was performed with instrumental variables comprised of a set of dummies derived from the countries' legal codes. Tests on the instruments revealed a close relation with the instrumented variable and the absence of a direct relation between these instruments and the dependent variable.

The results of the second phase regressions for per capita income estimates are shown in Technical Appendix Table 2. The first regression in the table contains only geographic variables, while the second regression contains only the synthetic indicator of the institutional variables. Both groups of variables are combined in the third regression and then used in the decomposition of the per capita income differences among the regions discussed in the text of this chapter. The results obtained with the inclusion of dummy variables for regions in regression 4 are robust vis-à-vis the nonobserved factors common to the regions. The regression selected for the decompositions explains 87 percent of the variance in per capita income levels of the total world sample and 49 percent of the variance among Latin American countries.

## Infant Mortality Estimates

Cross-sectional regressions for 1995 with explanatory variables for estimating income were used to measure the influence of geographic and public institutions on the countries' infant mortality rate. Demographic variables were not included because of the obvious problems of endogeneity that they cause from being determined by the same structural factors as the dependent variable.

Technical Appendix Table 3 shows the results of a series of regressions that reveal the individual ef-

Table 3 **Cross-section Regressions for Infant Mortality**
*(t-statistic)*

| Dependent variable: Log (Infant mortality rate) | | | | | | |
|---|---|---|---|---|---|---|
| **Independent variables** | **1** | **2** | **3** | **4** | **5** | **6** |
| **Log (real per capita GDP)** | -1.077* | | | | | |
| | (-22.64) | | | | | |
| **Geography** | | | | | | |
| % of area in the tropics | | | 0.885* | -0.011 | 0.017 | -0.022 |
| | | | (4.15) | (-0.05) | (0.07) | (-0.07) |
| % of population within 100 kms of the coast | | | -1.062* | -0.344 | -0.363* | -0.400* |
| | | | (-3.49) | (-1.86) | (-2.11) | (-2.31) |
| Distance to main markets (log) | | | 0.065 | 0.027 | 0.028 | 0.012 |
| | | | (1.64) | (0.96) | (1.07) | (0.39) |
| Oil exports (% of GDP) | | | -0.249 | -1.615* | -1.572* | -1.400* |
| | | | (-0.37) | (-3.49) | (-3.49) | (-2.09) |
| Population density (%) | | | -0.275* | -0.004 | -0.013 | -0.730 |
| | | | (-6.27) | (-0.06) | (-0.19) | (-0.71) |
| Area (log) | | | -0.061 | 0.002 | | |
| | | | (-1.45) | (0.09) | | |
| Africa dummy | | | 0.567* | 0.589* | 0.590* | 0.633* |
| | | | (2.55) | (4.10) | (4.20) | (3.90) |
| **Institutional quality** | | | | | | |
| Institutional index | | -0.365* | | -0.464* | -0.450* | -0.395* |
| | | (-6.91) | | (-5.02) | (-5.04) | (-2.46) |
| Constant | 11.978* | 3.311* | 2.930* | 3.355* | 3.340* | 3.501* |
| | (29.44) | (61.46) | (8.67) | (14.75) | (14.76) | (13.07) |
| Regional dummies | No | No | No | No | No | Yes |
| Adjusted $R^2$ | 0.84 | 0.59 | 0.67 | 0.86 | 0.86 | 0.88 |
| Number of observations | 104 | 145 | 80 | 77 | 77 | 77 |

*Note: t-statistic in parentheses.*
** Significant at 5 percent or more.*
*Source: IDB calculations.*

fects of per capita income, geography and institutional quality on infant mortality. Because income is a function of geography and institutions, the first regression contains only the first of these variables, while the other regressions exclude income. Although the regression adjustment that combines geography and institutions is similar to the regression adjustment that uses only income, it does not follow that the effect of the first variables on mortality occurs exclusively through income, as may be deduced when analyzing the decomposition results, which are based on regression 5 in the table (see discussion in main text).

As in the income level regressions, the variable of institutional quality was instrumented with dummies derived from the legal code, after verifying the validity of the instruments and the robustness of the explanatory variables.

## Estimates of the Rate of Secondary Education Coverage

The effects of income, demography, geography and institutional quality were determined using cross-sectional estimates and 1995 instrumental variables. Although the infant dependency rate may have endogeneity with school enrollment, no adequate instrument that could pass the standard tests for measuring it was found, and accordingly it was not instrumented. As in the previous regressions, the results were presented using first only income as an explanatory variable and then other variables, excluding income (Technical Appendix Table 4). Regression 5 was used for the decomposition exercises discussed in the text. That regression explains 82 percent of the variance at the world level as well as one-third of the variance among Latin American countries.

Table 4 **Cross-section Regressions for Secondary Enrollment, 1995**
*(t-statistic)*

| Dependent variable: secondary enrollment | | | | | | |
|---|---|---|---|---|---|---|
| **Independent variables** | **1** | **2** | **3** | **4** | **5** | **6** |
| **Log (real per capita income)** | 0.327* (15.46) | | | | | |
| **Log (real per worker income)** | | 0.173* (2.46) | | | | |
| **Demography** | | | | | | |
| Dependency ratio for youth (0-1) | | -0.858* (-3.16) | | | -0.396 (-1.67) | -0.363 (1.75) |
| **Geography** | | | | | | |
| % of area in the tropics | | | -0.416* (-7.44) | | -0.185* (-3.24) | -0.094 (-1.32) |
| % of population within 100 kms of the coast | | | 0.358* (5.49) | | 0.039 (0.67) | 0.026 (0.40) |
| Distance to main markets (log) | | | -0.022 (-1.95) | | -0.006 (-0.84) | 0.002 (0.24) |
| Area (log) | | | 0.025* (3.40) | | 0.002 (0.31) | -0.005 (-0.94) |
| **Institutional quality** | | | | | | |
| Institutional index | | | | 0.083* (3.77) | 0.083* (2.40) | 0.085 (1.75) |
| Constant | -2.064* (-11.69) | 0.208 (0.25) | 0.713* (8.44) | 0.604* (26.25) | 0.889* (5.17) | 0.785* (5.47) |
| Regional dummies | No | No | No | No | No | Yes |
| Adjusted $R^2$ | 0.71 | 0.82 | 0.65 | 0.34 | 0.82 | 0.86 |
| Number of observations | 100 | 103 | 83 | 138 | 80 | 80 |

*Note: t-statistic in parentheses.*
** Significant at 5 percent or more.*
*Source: IDB calculations.*

## BIBLIOGRAPHY


Ades, Alberto and Edard Glaeser. 1995. Trade and Circuses: Explaining Urban Giants. *Quarterly Journal of Economics* 110(1): 195-228.

Akerlof, G. and J. Yellen. 1994. Gang Behavior, Law Enforcement and Community Values. In Henry Aaron, Thomas E. Mann and Timothy Taylor (eds.), *Values and Public Policy*. Washington, DC: Brookings Institution.

Asian Development Bank (ADB). 1997. *Emerging Asia. Changes and Challenges*. Manila: ADB.

Astorga, Pablo and Valpy FitzGerald. 1998. *The Standard of Living in Latin America During the Twentieth Century*. Development Studies Working Paper No. 117. Centro Studi Luca d'Agliano and Queen Elizabeth House, Oxford.

Barro, Robert J. 1997. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge: MIT Press.

Barro, Robert J. and Jon-Wha Lee. 1996. International Measures of Schooling Years and Schooling Quality. *American Economic Review*, AEA Papers and Proceedings 86(2) May.

———. 1994. Data Set for a Panel of 138 Countries. Mimeo.

Behrman, Jere R., Suzanne Duryea and Miguel Székely. 1999a. *Human Capital Accumulation and Macroeconomic Conditions: A Micro-Macro Approach to the Case of Latin America*. OCE Working Paper, Inter-American Development Bank.

———. 1999b. *Aging and Economic Options: Latin America in a World Perspective*. OCE Working Paper, Inter-American Development Bank.

———. 1999c. *Decomposing Fertility Differences Across World Regions and Over Time: Is Improved Health More Important than Women's Schooling?* OCE Working Paper, Inter-American Development Bank.

Berry, Julien and Steve D. Levitt. 1996. *Crime, Urban Flight, and the Consequences for Cities*. Discussion Paper No. 199, John M. Olin Center for Law, Economics and Business, Harvard Law School.

Bloom, David E. and Jeffrey D. Sachs. 1998. *Geography, Demography and Economic Growth in Africa*. Brookings Papers on Economic Activity 2.

Brunetti, Aymo, Gregory Kisunko and Beatrice Weder. 1997. *Credibility of Rules and Economic Growth*. Policy Research Working Paper No. 1760. World Bank, Washington, DC.

Buvinic, Mayra. 1999. La Violencia en América Latina y el Caribe. Inter-American Development Bank. Unpublished.

Campos, Nauro F. and Jeffrey Nugent. 1998. A Development Performance and the Institutions of Governance: Evidence from East Asia and Latin America. *World Development* 27(3): 439-52.

Cassen, Robert. 1994. *Population and Development: Old Debates, New Conclusions*. New Brunswick: Transaction Publishers.

Chong, Alberto and César Calderón. 1999. Empirical Tests on the Causality and Feedback Between Institutional Measures and Economic Growth. World Bank, Washington, DC.

Clague, Christopher, Philip Keefer, Stephen Knack and Mancur Olson. 1997. Institutions and Economic Performance: Property Rights and Contract Enforcement. In Christopher Clague (ed.), *Institutions and Economic Development. Growth and Governance in Less-Developed and Post-Socialist Countries*. Baltimore: Johns Hopkins University Press.

Coale, Ansley, and Edgar Hoover. 1958. *Population Growth and Economic Development in Low-Income Countries*. Princeton: Princeton University Press.

Coatsworth, John H. 1998. Economic and Institutional Trajectories in Nineteenth-Century Latin America. In John H. Coatsworth and Alan M. Taylor (eds.), *Latin America and the World Economy since 1800*. The David Rockefeller Center Series on Latin American Studies, Harvard University.

Coleman, James S. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.

Collier, Paul and J. W. Gunning. 1999. Why Has Africa Grown Slowly? *Journal of Economic Perspectives* 13(3) Summer.

Dahl, Robert. 1971. *Participation and Opposition*. New Haven: Yale University Press.

Deininger, K. and L. Squire. 1996. A New Data Set Measuring Income Inequality. *World Bank Economic Review* 10(3) September: 565-91.

Freedom House. 1999. *Freedom in the World: The Annual Survey of Political Rights and Civil Liberties 1998-1999*. New York: Freedom House.

Gallup, John Luke. 1998. Agriculture Productivity and Geography. HIID. Unpublished.

Gallup, John Luke, Jeffrey D. Sachs and Andrew D. Mellinger. 1999. Geography and Economic Development. In Boris Pleskovic, and Joseph E. Stiglitz (eds.), *World Bank Annual Conference on Development Economics 1998*. Washington, D.C.: World Bank.

Gaviria, Alejandro. 2000. Increasing Returns and the Evolution of Violent Crime. *Journal of Development Economics*.

Gaviria, Alejandro and Carmen Pagés. 1999. Patterns of Crime Victimization in Latin America. Background paper for the Office of the Chief Economist, Inter-American Development Bank.

Gaviria, Alejandro, Ugo Panizza and Jessica Seddon. 1999. Patterns and Determinants of Political Participation. Background paper for the Office of the Chief Economist, Inter-American Development Bank.

Gaviria, Alejandro and Ernesto Stein. 1999. Urban Concentration in Latin America and the World. Background paper for the Office of the Chief Economist, Inter-American Development Bank.

Goldin, Claudia and Lawrence Katz. 1998. *Human Capital and Social Capital. The Rise of Secondary Schooling in America: 1910 to 1940*. Working Paper 6439, National Bureau of Economic Research.

Goldsmith, Arthur A. 1997. Economic Rights and Government in Developing Countries: Cross-National Evidence on Growth and Development. *Studies in Comparative International Development* 32(2): 29-44.

Hall, Robert E. and Charles I. Jones. 1999. Why Do Some Countries Produce So Much More Output Per Worker Than Others? *Quarterly Journal of Economics* 114(1).

Inter-American Development Bank (IDB). 1998/99. *Facing Up To Inequality in Latin America. Economic and Social Progress Report.* Washington, DC: Inter-American Development Bank.

———. 1996. *Economic and Social Progress Report.* Washington, DC: Inter-American Development Bank.

Jaggers, Keith and Ted Robert Gurr. 1995. Tracking Democracies: Third Wave with the Polity III Data. *Journal of Peace Research* 32(4): 469-82.

Kaufmann, Daniel, Art Kraay and Pablo Zoido-Lobatón. 1999a. Aggregating Governance Indicators. World Bank, Washington, DC. Unpublished.

———. 1999b. Governance Matters. World Bank, Washington, DC. Unpublished.

Kelley, Allen C. and Robert M. Schmidt. 1998. Economic and Demographic Change: A Synthesis of Models, Findings and Perspectives. Duke University, Durham, NC. Mimeo.

Knack, Stephen and Philip Keefer. 1997a. Why Don't Poor Countries Catch Up? A Cross-National Test of an Institutional Explanation. *Economic Inquiry* 35.

———. 1997b. Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics* 112: 1251-288.

———. 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics* 7(3): 207-27.

Latinobarómetro. 1996-1998. Latin American Public Opinion Survey. Corporación Latinobarómetro, Santiago, Chile.

La Porta, Rafael, Florencio Lopez de Silanes, Andrei Shleifer and Robert Vishny. 1998. The Quality of Government. Harvard University and University of Chicago. Mimeo.

Leblang, David A. 1996. Property Rights, Democracy, and Economic Growth. *Political Science Quarterly* 49(1): 5-26.

Levine, Ross. 1997. Law, Finance and Economic Growth. World Bank, Washington, DC. Unpublished.

Leite, Carlos and Jens Wedmann. 1999. *Does Mother Nature Corrupt? Natural Resources, Corruption and Economic Growth.* IMF Working Paper WP/99/85.

Lora, Eduardo and Gustavo Márquez. 1998. *El problema del empleo en América Latina: percepciones and hechos estilizados.* Working Paper No. 371, Office of the Chief Economist, Inter-American Development Bank.

Lora, Eduardo and Mauricio Olivera. 1998. *Las políticas macro y el problema del empleo en América Latina.* Working Paper No. 372, Office of the Chief Economist, Inter-American Development Bank.

Maddison, Angus. 1997. *La Economía Mundial 1820-1992. Análisis y Estadísticas. Perspectivas.* Paris: OECD.

Mauro, Paolo. 1998. Corruption and the Composition of Government Expenditure. *Journal of Public Economics* 69: 263-79.

———. 1997. The Effects of Corruption on Growth, Investment, and Government Expenditure. In Kimberly Ann Elliott (ed.), *Corruption and the Global Economy.* Washington, DC: Institute for International Economics.

———. 1995. Corruption and Growth. *The Quarterly Journal of Economics* (August): 681-712.

Murray, Christopher and Alan López. 1996. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020.* Cambridge: Harvard University School of Public Health.

Pagés, Carmen and Gustavo Márquez. 1998. *Lazos que atan: protección del empleo y resultados laborales en América Latina.* Working Paper No. 373, Office of the Chief Economist, Inter-American Development Bank.

Penn World Tables. 1998. Website.

Posner, R.A. 1997. Social Norms and the Law: An Economic Approach. *American Economic Review* 87 (Papers and Proceedings): 365-69.

Putnam, Robert. 1993. *Making Democracy Work: Civil Traditions in Modern Italy.* Princeton: Princeton University Press.

Sah, R. 1991. Social Osmosis and Patterns of Crime. *Journal of Political Economy* 99(6): 169-217.

Sen, Amartya. 1992. *Inequality Reexamined.* Oxford: Clarendon Press.

———. 1985. *Commodities and Capabilities.* Amsterdam: North-Holland.

Sender, J. 1999. Africa's Economic Performance: Limitations of the Current Consensus. *Journal of Economic Perspectives* 13(3) Summer.

Székely, Miguel and Suzanne Duryea. 1998. *El mercado laboral en América Latina: Una explicación de oferta.* Working Paper No. 374, Office of the Chief Economist, Inter-American Development Bank.

United Nations. 1998. World Population Prospects. Electronic data. United Nations, New York.

United Nations Development Programme (UNDP). 1998. *Human Development Report.* New York: United Nations.

Wei, Shang-Jin. 1997. *How Taxing is Corruption on International Investors?* National Bureau of Economic Research Working Paper No. 6030.

Chapter 2

# Demography: Threat or Opportunity?

Chapter 1 showed that demographics account for an important part of the difference in the level of development between Latin America and the Caribbean and the developed world. Does this mean that the region is the way it is just because its population is young? Or that the region has not fully developed its potential due to the high number of children per working-age adult?

To an important degree, the answers to these questions are yes. The huge demographic transformation already taking place in many countries, which will intensify during the first half of the next century, provides a unique opportunity for development. There will be more people in age categories where productivity and savings peak; fewer children to educate and provide for with expensive health services; and a still relatively small number of older people demanding pensions and social security benefits.

But in some senses, the answers are no. Demography is one of the main factors in the development process, but it is not the only one. Even if demographic conditions are right, wrong policies or unexpected negative shocks could counteract any potential benefits. If there are not enough jobs for the growing numbers of young adults entering working age, the demographic change may trigger unemployment, social violence and crime. If society and families do not save enough, they won't have the resources to support the elderly. If the fewer children per taxpayer do not receive a better education, the chances for improving the standard of living of the new generations will be wasted.

Over the next half century, the most significant demographic changes in the world will take place in Latin America. This makes it essential for today's policymakers to ground their strategic thinking in knowledge about demographics. Without understanding what demography is telling them, they are piloting their countries blindly, without instruments or even charts. And they will almost certainly end up planning for yesterday's world and not tomorrow's.

This chapter discusses why demography will be either a unique opportunity or an increasing threat to Latin America. It argues that there is enormous scope for translating the potential threat into opportunity through policy action. The current demographic conditions of the region and the conditions projected for the near future are to a large extent predetermined by changes in fertility and mortality that took place decades ago. The region can either accept these conditions passively, or adapt its policies to the new demographic challenge. This chapter points out the policy areas where adapting to demography can yield greater benefits.

The chapter consists of seven sections. The first illustrates why demography matters, and in what sense demographics matter most. The second section (page 45) examines the nature of the demographic transition across the region and the demographic window of opportunity that is opening.

The third through seventh sections explore the practical policy challenges created by changing demography. Section Three (page 59) concentrates on the interaction between demographics and labor market policies. The labor market is one of the main mechanisms that can be used to translate demographic changes into accelerated development. Demographic changes will result not only in an expansion of the size of the labor force, but most importantly, in big changes in age composition. The shift from large pro-

portions of young workers to greater proportions of older ones is already becoming apparent. Considering that income protection mechanisms in Latin America have not protected the most vulnerable sectors of society (among them the youngest workers), the policy debate on how to reconcile demographics and labor markets should focus on modernizing labor regulations, enhancing the effectiveness of collective bargaining, and expanding income protection coverage.

Section Four (page 71) examines the relationship between demographics and crime, relevant because younger adults are much more prone to crime than older people. An increase in the population weight of the most crime-prone age group puts additional pressures on crime rates. Thus, if the economic environment encourages anti-social behavior, the demographic trends in Latin America will exacerbate crime and delinquency. These potential negative outcomes can be avoided by employing a comprehensive approach that emphasizes crime prevention policies; better training and labor market opportunities for socio-demographic groups more prone to criminal activities; more effective and decentralized prevention measures; creation and strengthening of inter-agency groups working on different aspects of the problem; better diagnosis of the nature and causes of crime in specific locations; and the design and implementation of crime program evaluations.

One of the main opportunities that the demographic change conveys is that the share of the population of school age is declining, while the potential tax base to finance human capital investment is widening. This opens up the possibility of improving the quality and coverage of public education systems, and is the focus of Section Five (page 78). But demography also brings major challenges, since the demand for different types of public education services will also change rapidly with the shifts in the age structure of the school-age population. The principal objectives for policymakers trying to improve education under changing demographic conditions are *flexibility* to meet changes in demand, *diversity* to provide education to heterogeneous age groups, and *efficiency* to make better use of public and private resources. A new organizational paradigm is needed that focuses on strengthening the users of services, gives more autonomy to providers, and redefines the role of the state. Technological progress can facilitate this process and should be drawn upon for improving access to and the quality of basic educational levels as well as higher and adult education. A variety of organizational schemes can be put in place to make better use of private and public efforts to expand and improve education at all levels.

Section Six (page 87) addresses health, another important service closely linked to the demographic transition. Changes in the age structure of the population have enormous implications for the demand for different kinds of health services, so it is crucial that policymakers in this sector adapt to demographic shifts. The region is moving toward having a greater share of the working-age population that contributes more to financing public health, but demands less of the services than the younger and older age groups. This provides a unique opportunity for preparing for the future, when there will be growing demand by the population over 65. Public health policies will have to address three major challenges: i) escalating medical costs due to the growing importance of noncommunicable diseases associated with aging; ii) growing reliance of the population on public and private insurance mechanisms due to the increased cost of medical services; and iii) the growing need for new models of health organization and delivery to provide a wider range of health services. Any national framework to address these challenges should reinforce essential public health functions, improve the information available through research and review of new technologies, strengthen the regulatory framework for public and private health insurance, improve the efficiency of the use of public resources, and adopt flexible health service models that are adaptable to changing demographic conditions.

Finally, Section Seven (page 92) deals with one of the major challenges posed by an aging population, which is the growing demand for pensions and retirement benefits. These demands have traditionally been met by public social security institutions in the region. What is alarming is that even though the share of the over 65 age group is still not high by international standards, most countries already carry large deficits in social security obligations. With the aging of the population, these deficits are bound to become unmanageable unless financially sustainable pension systems are put in place soon. The most widely embraced alterna-

tive has been to shift to privately funded pension systems. But even with this shift, the state still has a very important role in ensuring that this potential time bomb becomes an opportunity. First, the public sector must regulate and monitor the workings of the system to protect society's savings, and secondly it must promote and facilitate the development of financial markets so that the resources accumulated by saving become productive investments to finance development as well as retirement obligations. An additional and more promising factor in this mix is that in a globalized world, where the demographic characteristics of one region may have implications for others, the demographic mismatch between Latin America and the developed economies may actually *widen* the window of opportunity for the region. Large shares of the population in developed countries are already making use of the savings accumulated in the past for their retirement. This tends to reduce the returns to capital in those countries. In contrast, in Latin America, the unusually low levels of capital per worker due to the expansion of the labor force increase the return to capital. If long-term capital flows between regions at different stages of the demographic transition increase, the demographic mismatch may help to finance retirement in the oldest regions, while fueling growth in developing areas such as Latin America.

## Why Demography Matters

Demography shapes everyday life both today and in the future in many crucial ways. It changes the number of people in each country, the rate of population growth, and most importantly, the age structure of the population.

Perhaps the most obvious way in which demography affects daily life is through population growth. This can be a threat when populations grow faster than the capacity of governments to provide public services and the technological progress needed to make better use of available resources.

Population growth was in fact the main reason why people started worrying about demographics centuries ago. The fear of overpopulation has been much debated ever since the ideas of Thomas Malthus gripped the western intellectual imagination (Box 2.1). Malthus believed that population size would ultimately be limited by famine. Resources were fixed, so scarcity would always knock populations back to a sustainable size. His ideas live on. In 1968, for instance, Paul Ehrlich opened his influential book *The Population Bomb* with the words "The battle...is over. In the 1970s hundreds of millions of people are going to starve to death." More recently, as India's population has surpassed 1 billion and the world population 6 billion, media interest has again stoked Malthusian fears.

On the whole, however, these concerns have proved unfounded. In the past 30 years, the world's population has increased by 2.3 billion, but average incomes have risen by about two-thirds in real terms during the same period. Massive numbers of workers have become more productive. They have shifted from agriculture to industry and services, become more highly educated, and used technology to increase the value they add through the work they do. Natural resources, meanwhile, have not been depleted. To the contrary, world prices for natural resources have followed a long-term downward trend. Environmental concerns remain about *how* resources are used, but predictions that resources such as oil would run out in the 1970s have proved off the mark. Even so, controversy about the effect of population growth on development remains.

The most crucial way in which demographics affects everyday life is through the dynamics of the age structure. Populations are rarely stable—the fertility, mortality and net migration rates that determine growth and age structure are always in flux. Changes in age structure exert profound influences across a society, interacting with various features of the social and economic landscape in complex ways that can multiply or mitigate their effects on society.

### *Age Structure Affects Economic Outcomes*

In the same way that individuals change their needs, resources and behavior through their life cycle, countries also change as their age structure shifts. When people are young, they have little capacity to generate resources, but they have considerable needs. They are at a stage in life when their family or society has to invest in them so that they can become productive adults. Adults support their offspring in the same way they were supported by their parents, and they usually

Box 2.1

## The Population Debate

The economic literature has varied considerably over time in terms of the importance given to demographic factors in the process of economic development. While population growth at times has been considered a major determinant of economic options, most of the mainstream economic literature of the last half century has treated demographic considerations as but one of many factors that might shape aggregate options. In the 1990s, however, there has been increased emphasis on the role of demographic factors in conditioning economic development, particularly in terms of how the shifting age structure during the demographic transition may offer medium-term economic opportunities.

The population debate traditionally pits the pessimists against the optimists. The pessimist argument originated with Thomas Malthus, who in 1798 predicted that while populations would continue to grow because of normal human reproduction, land, physical capital and knowledge would not increase at the same pace. Famine, he reasoned, would then force population levels back down. Escape from subsistence would be possible for only a tiny fraction of a country's population.

The second school—population optimism—is associated most prominently with the work of Ester Boserup, Simon Kuznets and Julian Simon. They argue that need is the mother of invention. Rapid population growth and increasing population density will stimulate technological change and institutional innovation. Boserup argues that primitive agriculture was born as traditional hunter-gatherers faced the challenge of having to feed more people, with modern agriculture later evolving as a further response to population growth. Larger populations should also be better at generating knowledge. They have more "geniuses," people whose creativity can transform the way their society operates, and they can use size as an advantage to capture economies of scale, making them more productive.

Since the 1950s, economists have tended towards population neutralism, which is rooted more in econometric evidence than theoretical reasoning. It argues that the pace of economic growth bears no systematic association to population growth among similarly situated countries. Policymakers in developing countries have been heavily influenced by this perspective, as has the international development community.

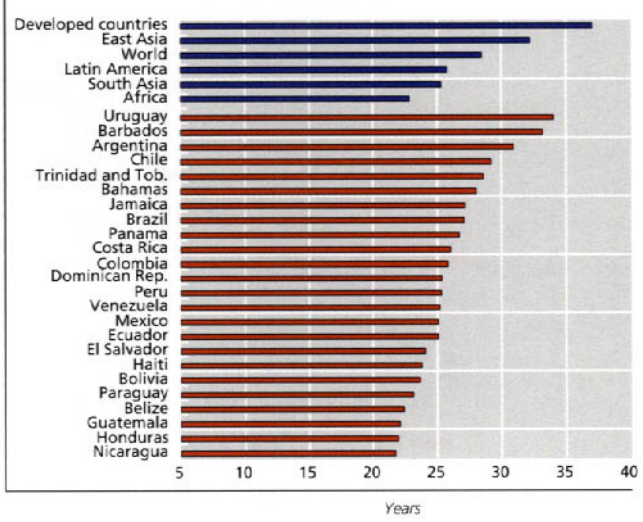
Only recently, economists have revived the idea that population change does have important effects on economic growth and development. But these effects are associated more with the dynamics of a changing age structure than they are with the rate of population increase. Malthusian effects are possible, but so is real demographic gain. The challenge is to policymakers. Can they adapt to a changing environment? Or will the promise of demographic change pass them by?

pay back part of what was given to them by providing support for their elderly. To close the circle, the elderly who are fortunate enough support themselves after they have lost their capacity to work, while others rely on family or society to fulfill their needs.

The life cycle of a country is similar, except that countries do not age and die in the way individuals do. In fact, they can sometimes even become younger. Like individuals, the needs of countries and their capacity to generate resources change depending on the relative sizes of the age groups going through different stages of their life cycle. The dynamics of shifts in age structure can be triggered by mortality reductions or—less commonly—by fertility increases that create a bulge in the population structure, a "baby-boom" generation that can cause far-reaching social change. At first this generation needs educating, imposing additional costs on society, although arguably offering an opportunity to make much-needed educational breakthroughs as well. The generation gradually reaches working age and, in a favorable labor market, becomes economically productive. With the right incentives, this generation also starts to save a considerable proportion of its income, increasing investment in the economy and helping to cushion society against the final stage of the demographic transition—a large increase in the number of elderly people who need financial support, care and companionship through their retirement.

Within Latin America, there are a wide variety of age structures. Figure 2.1 shows that some countries in the region are among the youngest in the world (Belize, Guatemala, Honduras and Nicaragua), while others (Uruguay and Barbados) have average ages similar to the developed countries. In other words, there are at present huge differences in the stages of the demographic life cycle through which different countries in the region are passing.

**Figure 2.1 Average Age of the Population**




*Source: Behrman, Duryea and Székely (1999b).*

These differences are the outcome of events that occurred some time in the past. Today's age structure is largely the result of past fertility and infant mortality rates that were determined by the economic, social and cultural circumstances prevailing at that time. In turn, the current age structure may have a deep influence on many aspects of the economic and social environment. This report mainly focuses on how demographics affect economic and social outcomes.

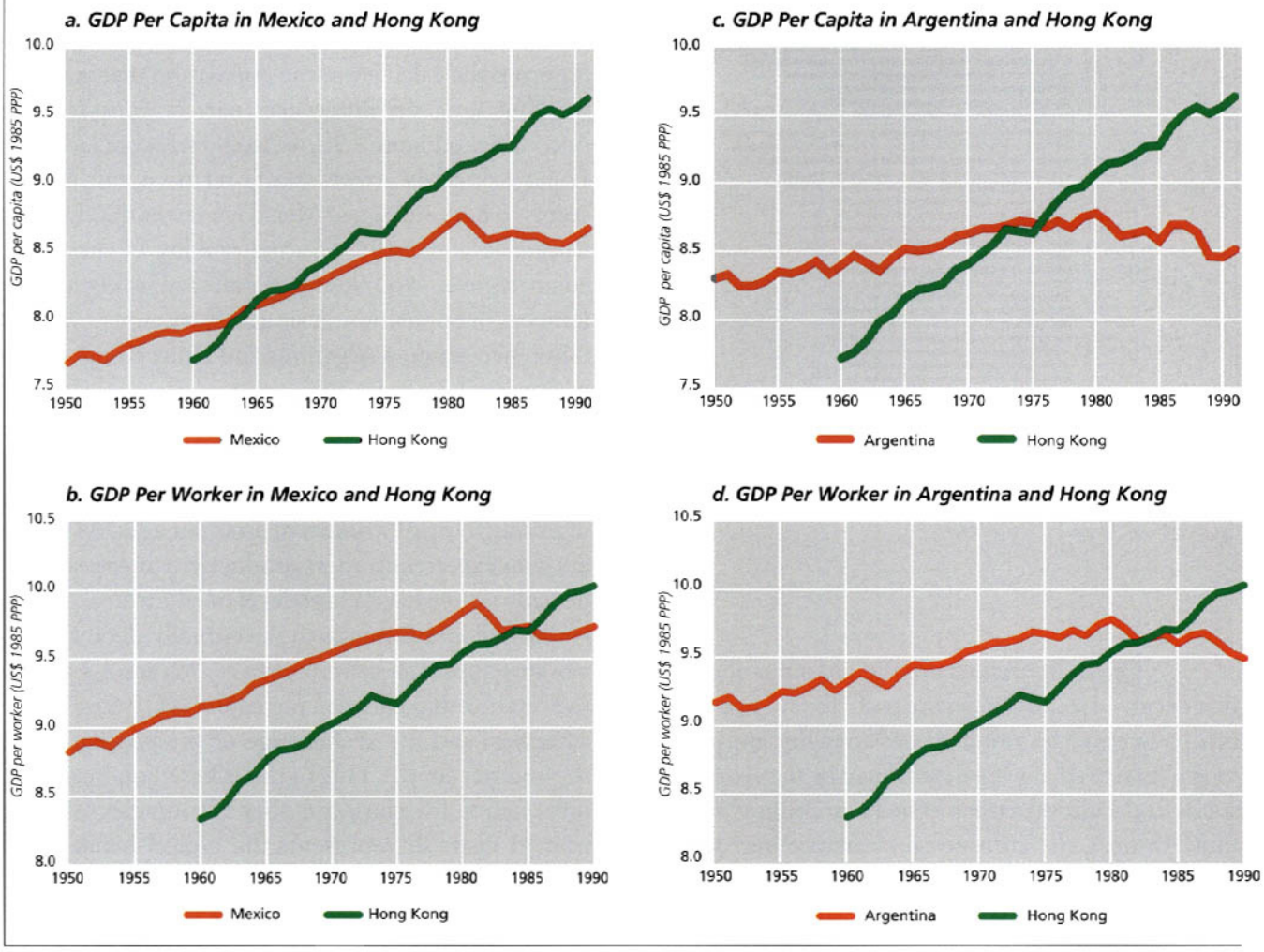
### *Macroeconomic Consequences of Age Structure*

Do differences in age structure really matter for today's economic outcomes? Yes, they do, and through several channels, the first of which is a purely accounting one. If there are two countries with identical average productivity per worker and labor force participation rates, their GDP per capita still differs if one has a larger share of its population of working age than the other. For instance, Figures 2.2a-d compare Hong Kong (one of the fastest growing economies with one of the oldest populations) with Mexico (a relatively young population) and Argentina (one of the oldest populations in Latin America, but still young in comparison with developed countries). Figure 2.2a shows that GDP per capita in Hong Kong has been greater than that in Mexico since 1965. However, in Hong Kong a larger proportion of the population has been of working age. Therefore, if we plot the GDP per worker (which is similar to extracting from the calculation the population that is not of working age), the differences narrow considerably. According to Figure 2.2b, we would still conclude that Hong Kong has grown at a faster pace, but it only seems to have surpassed Mexico in terms of GDP per worker in about 1985. So the ranking of these two countries over 1960-90 changes after adjusting for differences in population. A similar story applies for the difference between Argentina and Hong Kong shown in Figures 2.2c and 2.2d.

Income per capita changes with age structure not only because the share of those of working age changes, but also because of the different levels of productivity of workers of different ages. As workers gain experience, their productivity increases, especially if they have a high level of education. A peak is reached and productivity eventually decreases as workers approach retirement age. Figure 2.3 shows the relationship between per capita GDP (and other variables) and the average age of the population at the country level.[1] This figure is based on historical information for a large number of countries over the past 45 years. It represents the typical behavior of the variables plotted as countries age, that is to say as older age groups become more important in size than younger ones. When the average age of the population reaches around 26, GDP per capita starts to increase and continues to do so as the country ages. (The figure stops at around age 39, which is slightly above the average age of populations of the developed countries.) Some Latin American countries already are old enough to be in the range where GDP per capita increases with age. But in the region's

[1] See Appendix 2.1 for a description of the methodology. The average age patterns refer to the average trend shown in about 150 countries during the period 1950-95, net of all country differences and year-specific events. Recall from Chapter 1 that the average age is a synthetic indicator of age composition, because it is negatively correlated with the share of population in the 0-15 group, and strongly positively correlated with the share of working-age population and with the 65 and over group. The horizontal axis of the graphs shows where Latin America and other regions stand in terms of average age of population in 1995. The average for East Asia refers only to Hong Kong, Korea, Singapore and Taiwan, the four fastest growing economies for 1965-95 and the ones recently experiencing the fastest demographic transition.

**Figure 2.2** The Effect of Population Composition: GDP Per Capita and Per Worker




*Source: IDB calculations based on Penn World Tables (1998).*

youngest countries that point is still further away, as young workers are still entering the labor market in large numbers, outweighing the productivity gains of the relatively small numbers of mature workers. In comparison, the average age of the fast-growing East Asian countries is around 33 years, which is beyond that of the oldest Latin American countries (Barbados and Uruguay) and well in the range where GDP per capita is favored by the higher productivity of the mature workers.

At an aggregate level, GDP per capita increases with average age not only as a result of age composition changes but also due to the fact that more capital becomes available to each worker. This is possible because aggregate savings also show a very distinct age pattern. The domestic saving rate is one of the variables most closely related to the life cycle because people usually save little or dis-save at young ages when their earning capacity is low. The same person has greater saving capacity in prime age. But at retirement age there is lower income-earning capacity, and past savings, if available, will be drawn down to compensate for the mismatch between income and needs. In the same way, a country with a large proportion of children or elderly saves less than when it has a larger share of its population in working age. As the average age of a country's population increases from the low 20s on, the savings rate increases sharply and reaches a peak at around 33 years of age on average, and then declines somewhat. Countries

with young populations, such as those in the African and South Asian regions, have mean ages associated with relatively low saving rates. The Latin American population is on average 27 years old, five years older than Africa, which implies a larger proportion of the population in the prime working ages and higher saving rates. East Asian economies, on the other hand, have much larger domestic saving rates than the average Latin American country. An important part of the difference is that the average individual in these fast-growing East Asian economies is at a later stage of the life cycle, which is characterized by higher saving rates.

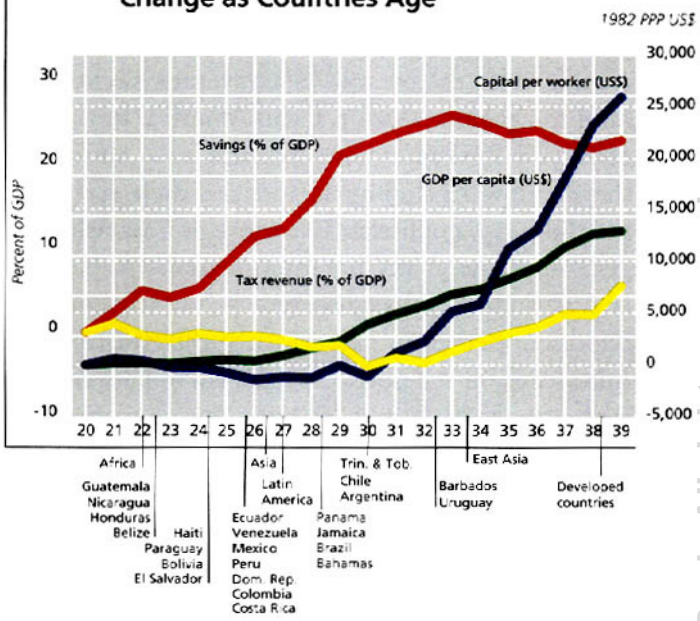
### *Social Expenditures Change as Countries Age*

Another obvious effect of shifts in the age structure is a change in the provision of different types of governmental services. Countries with young populations where the proportion of children is large face greater demand for educational expenditures, which would be reflected in a larger share of these in GDP. Similarly, in very young and very old countries, the demand for health services is expected to be larger than if most of the population is of working age.

Figure 2.4 shows that the average age pattern for public expenditures on education is basically flat. Apparently the aging of countries has not been associated with a significant reduction in public educational expenditures as a share of GDP. But this figure also includes the historical pattern followed by public expenditures on primary education per primary school-age child. As the average age of a country increases, public expenditure on primary education per school-age child increases. If the share of education expenditures remains constant as the average age of the country increases, expenditure per child remains relatively low in countries with young populations but increases as the relative size of this group falls with the demographic transition. If increased public expenditures per primary school age child improves the quality of basic public schooling, then the demographic change has had an important impact on productivity and other outcomes for these children.

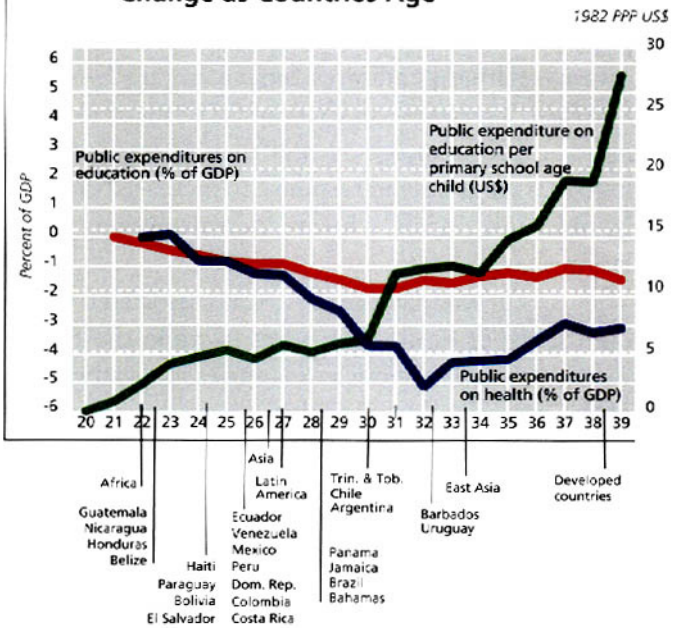
East Asia on average has benefited from the average-age related increases in expenditure per school age child for some time, though with considerable potential for further benefits as the average

**Figure 2.3 How Macroeconomic Variables Change as Countries Age**




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

**Figure 2.4 How Social Expenditures Change as Countries Age**




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

age approaches that of current developed countries. On average, Latin America is just entering the stage of the average-age profile where this variable increases, with the overall Asian average slightly behind the region. Within Latin America, only Uruguay and Barbados have average ages above the sharply upward sloping segment in their early 30s, but these two countries, like those of East Asia, still generally have many potential benefits to be realized as their average ages increase towards those of the developed countries. Most of the rest of Latin America is on the portion of the curve between the average ages of 24 and 30, but a few countries (Argentina, Chile, Trinidad and Tobago) are poised to move to the average ages with larger positive effects on expenditures in education.

Public provision of health services also changes with the prominence of different age groups. If countries have low average ages and high young dependency ratios, health expenditures as a share of GDP tend to be high, reflecting the demand for public health services that is typical of the initial stages of the demographic transition, with high fertility and high infant mortality. As the average age and the population share of the working-age population increase, health expenditures decline. Figure 2.4 shows that health services as a share of GDP tends to reach its lowest level at age 32 and then starts rising for higher average ages in response to increased demand by older individuals, who are increasing their population share.

The average age in Africa is associated with a high share of health expenditure, while the typical Asian and Latin American countries are at the stage of the demographic transition where the aging process is associated with declining health expenditures as a share of GDP.

### *Effects of Age Structure on Unemployment, Crime and Inequality*

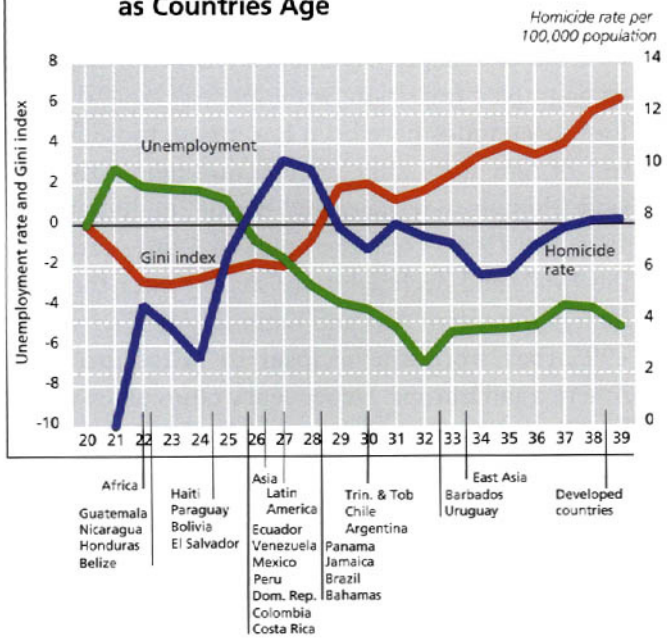
Age structure has strong effects on unemployment rates because different age groups have very different probabilities of becoming unemployed. Figure 2.5 shows that when the working-age population of a country is relatively young, unemployment rates are higher. But unemployment decreases as the age structure becomes older. Unemployment rates are higher among younger workers because when individuals enter the labor market for the first time they spend more time searching for the best job to match their skills. It is also cheaper to dismiss them, and their potential employers know less about them. For ages 33 and higher, unemployment rates start increasing again, reflecting that it may be increasingly difficult to find employment at older ages.

Africa, Asia and Latin America are on average at the point when, as average age increases, there may be further declines in unemployment rates. East Asia, in contrast, already is near the lowest point of the unemployment pattern, and the developed countries are on the increasing segment. For most countries in Latin America, increases in average ages in the medium run will tend to reduce unemployment.

A similar story applies to the link between crime rates and demography. Crime rates tend to be higher among juveniles, so crime surges with an increase in the relative importance of the crime-prone age groups, then falls as the population shifts to older ages. Figure 2.5 shows that homicide rates tend to peak when the average age is around 27 years, near the average for Latin America as a whole. This does not imply that homicides must necessarily soar when countries are at this stage of their demographic transition, but only that there are some demographic forces that, if unchecked, can produce that undesirable effect, especially if combined with other intervening factors such as poor macroeconomic performance or major deficiencies in key institutions.

Finally, Figure 2.5 presents the average age pattern for the Gini inequality index. There is a clear increase in inequality after an average age of 27, the average for Latin America. This pattern suggests that as a population ages, there is an age structure effect that generates pressures toward increasing inequality. This is particularly disturbing for Latin America, which is already the most unequal region of the world. The main reason for this pattern is that inequality within cohorts usually increases with age. In part, this increase is produced by the differences in income profiles across the life cycle for different education groups. The life-cycle pattern of earnings is typically flat for unskilled people, while the profile for those with more education typically increases throughout the life cycle and levels off at retirement age. If two individuals, one with college education and the other with incom-

**Figure 2.5** How Social Indicators Change as Countries Age




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

plete primary schooling, are compared at 25 years of age, the income difference between them in the typical Latin American country is four to one. As time goes by, the individual with higher education will receive substantial pay increases, while the unskilled person will not. By the time they are around 45 years of age, the highly educated person will be typically earning about eight times more, because he or she will have been able to receive the returns to the education investment.[2] Additionally, inequality within older cohorts tends to be higher because of the persistent effects of good and bad shocks experienced early in the life cycle (e.g., good or bad luck in the initial job match, bad luck in experiencing chronic illnesses or disabilities).

Thus, when the population weight of older and more unequal age groups increases, inequality tends to rise. This does not imply that a country will necessarily become more unequal as it ages, but simply that there are unequalizing age structure factors that will predominate unless there are other stronger effects in the opposite direction.

## The Demographic Transition in Latin America

Demography matters for many reasons, ranging from productivity and savings to unemployment, crime and inequality. This implies that at least some of the differences in economic, human and social development between Latin America and other regions in the world are due to the fact that Latin America is going through a different stage of the demographic transition. But, by the same token, most Latin American countries are at the point where the transition could play in favor of accelerating the development process, if appropriate policies are in place. How quickly will they enter the stage where they stand to reap these benefits? When will they be in the best position to take advantage of the opportunity?

To answer these questions, this section explores the key demographic changes that have taken place and will take place in Latin America. It also asks the most critical question of all: Has Latin America benefited from its demographic transition so far? And, if so, by how much?

### *What Sets the Pace of Transition?*

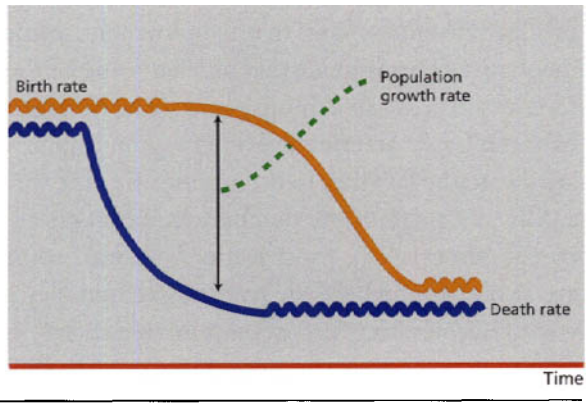
The typical demographic transition begins with a sharp fall in mortality rates as improvements in public health and medicine contribute to longer life expectancy. Infant and child mortality fall especially quickly, which in turn has an effect on fertility, which falls—fundamentally challenging the Malthusian view that only limited resources will limit people's capacity to have children. The relationship is not a simple, mechanical one, however. It relies on a shift in perceptions. As families become aware that their children are more likely to survive, there are fewer births.

The lag between falling mortality and total fertility rates means that countries first see a rapid growth in population, which then gradually declines as the demographic transition matures (Diagram 2.1).[3] At this initial stage, the dependency ratio of the

[2] Duryea and Székely (1998) show these effects for several Latin American countries.

[3] The total fertility rate refers to the number of children a woman can expect to have in her lifetime given current age-specific fertility rates. It is thus independent of the age distribution of the population, unlike the crude birth rate, which is highly dependent on age structure.

**Diagram 2.1 Stylized Model of a Demographic Transition**




young with respect to those of productive age surges. But in the next stage, fertility declines faster than mortality, population growth falls and the dependency ratio of the young starts decreasing. The faster the decrease in the dependency ratio of the young, the greater the demographic opportunity presented by having a large working-age population and low dependency ratios. But as the population continues to age, the dependency ratio of the old with respect to those in productive age increases, eventually offseting the decline in the dependency ratio of the young. At this point the window of demographic opportunity has closed.

### *Speed of the Transition*

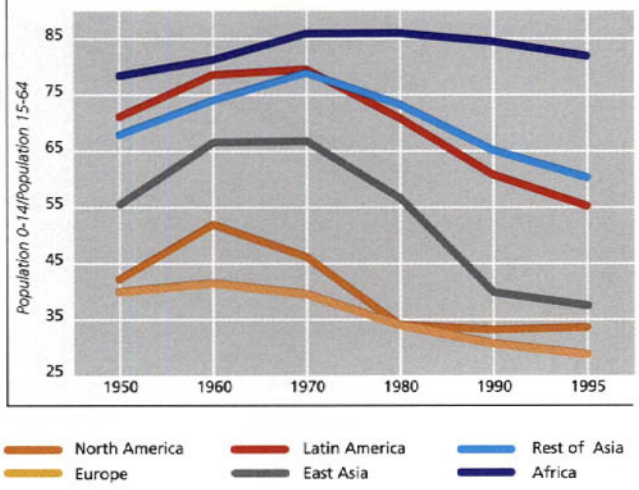
The time paths of dependency ratios of the young and old across regions over the past half-century vary widely. Figure 2.6 plots these ratios for Latin America, North America, Europe, East Asia and other major world regions. Africa has the highest dependency ratio of the young throughout this period—in 1995, it was about 3.4 times larger than that of Europe, the region with the lowest ratio. The African dependency ratio also has changed relatively little in comparison with the other developing regions. It increased a little until about 1980, but currently remains high, since high fertility rates only recently have started to decline.

Dependency ratios of the young in Asia and Latin America throughout this half century have been below those for Africa, but considerably higher than those of North America and Europe. They show the inverted "U" shaped trend that is characteristic of the demographic transition, with the peak around 1970. East Asian ratios have been lower than those for the rest of Asia and Latin America throughout this period, though they increased considerably between 1950 and 1960. They then peaked a little earlier in the 1960s and declined more sharply after the peak than in the rest of Asia and Latin America, so that by 1995 they were much closer to ratios in North America and Europe. Dependency ratios of the young for North America and even more so for Europe have been below those for developing countries throughout the past half-century (generally considerably below, with the sole recent exception of East Asia). They both had a peak around 1960 due to the "baby boom" and tended to decline, but with lesser rates of decline than the somewhat later declines in Asia and Latin America.

Thus, since the sharpest decline in dependency ratios for the young between 1970-90 occurred in East Asia, this region had the greatest demographic opportunity among all of the world regions. The next sharpest decline was in North America over 1960-80 due to the "baby boom" generation (the generation born during 1945-55, when fertility rates surged temporarily). Latin America has had an ongoing and substantial decline since around 1970, but it has not been as fast as those of East Asia and North America. Therefore, although Latin America has had an ongoing demographic opportunity, and currently is experiencing the fastest decline in the dependency ratios of the young among all of the regions, this opportunity is not as large as experienced earlier by East Asia, because the decline has been less rapid.

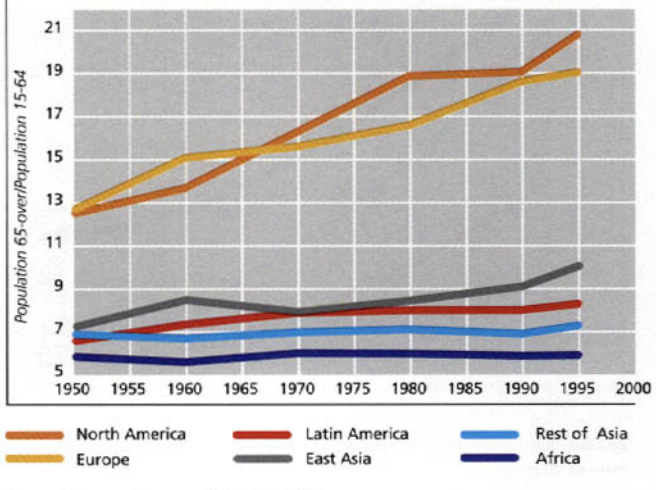
Figure 2.7 presents the dependency ratios of the elderly by region. Europe and North America have elderly dependency ratios way above those of the other regions, and, moreover, their ratios have been increasing at more rapid rates than other regions for most of the 45-year period covered. The differences among the developing regions are very small in comparison with the differences between the developing and the developed regions. Thus, what primarily differentiates the age structure and dependency ratios in East Asia from the other developing regions is the relative size of its working age population.

**Figure 2.6** Dependency Ratios for Youth Worldwide
*(In percent)*




*Source: Behrman, Duryea and Székely (1999b).*

**Figure 2.7** Dependency Ratios for Older Persons Worldwide
*(In percent)*



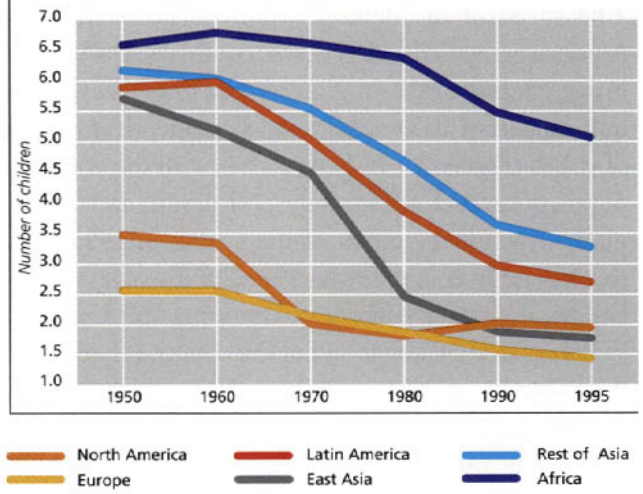

*Source: Behrman, Duryea and Székely (1999b).*

Changes in fertility and mortality trigger the demographic changes that translate into the dependency ratios of the young and the elderly. Fertility and mortality determine the population growth rate and thus the relative size of each generation and the population weight of each age group. Differences in the speed at which fertility and mortality shift determine the speed of the demographic transition that is observed later.

The transition in Africa has been slow. Indeed, this is the developing country region with the highest fertility, and where fertility has declined most slowly (Figure 2.8). The second highest fertility rates are found in Asia (excluding East Asia) and Latin America, despite their decline since the 1950s. This is because the transition is well advanced in Europe, where fertility declined earlier, and because the changes registered in East Asia were very fast, actually the fastest recorded up to date. Thus, the difference between Latin America and East Asia was 0.2 in 1950, but had increased by a factor of over four to almost 1.0 in 1995.

The differences in mortality across regions are currently much smaller than in the past and also smaller in relative terms than those for fertility (Figure 2.9). While fertility rates have diverged significantly between East Asia and Latin America since 1950, crude mortality rates have converged since the mid-1970s. Differences in recent years are quite small

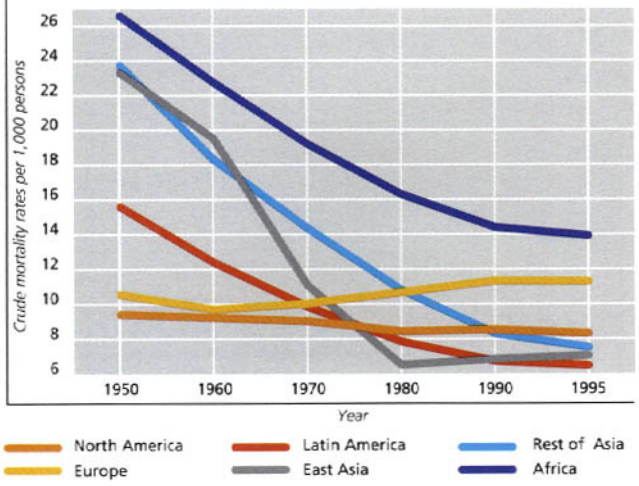
**Figure 2.8** Decline of Fertility Rates Worldwide




*Source: Behrman, Duryea and Székely (1999b).*

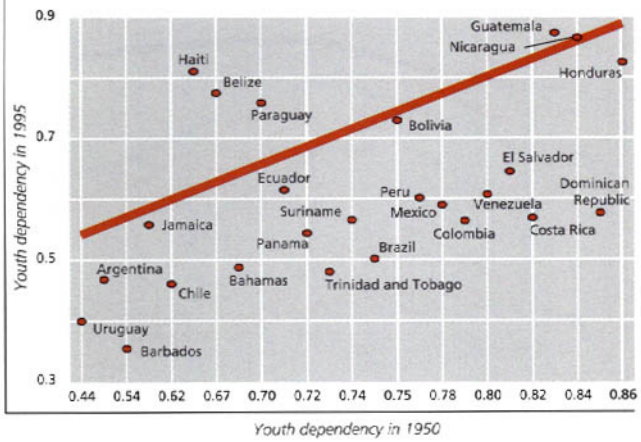
between East Asia and Latin America, and between Europe and North America, with the former group having lower crude mortality rates than the latter because mortality rates increase substantially as old age dependency ratios increase. Therefore, the differences currently observed in age structures, dependency ratios and average ages of the population are due much more to different fertility rates than to different mortality.

**Figure 2.9** Convergence of Crude Mortality Rates




Source: Behrman, Duryea and Székely (1999b).

**Figure 2.10** Dependency Ratios for Youth in Latin America




Source: Behrman, Duryea and Székely (1999b).

### *Uneven Demographic Transition*

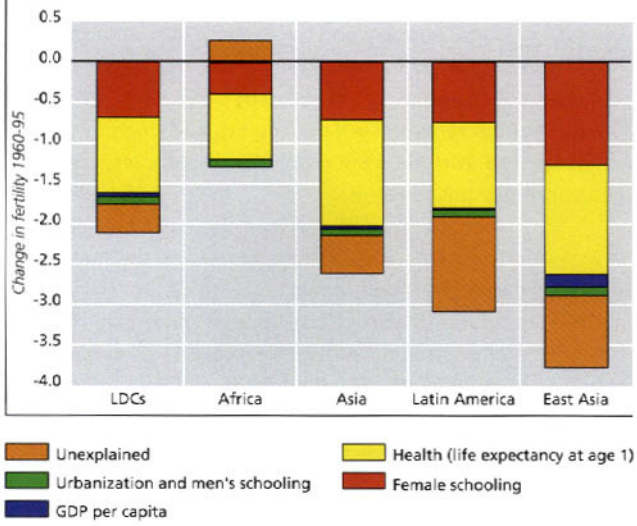
The speed of the demographic transition in Latin America has varied widely across countries. Differences in age structure in the region, as seen in Figure 2.1, are quite apparent also when looking at dependency ratios of youth (Figure 2.10). In countries with the youngest populations, such as Honduras, Nicaragua and Guatemala, dependency ratios of the young in 1995 were twice as large as in the countries with the oldest populations, including Barbados, Argentina and Uruguay. Whereas in 1950 about half of the countries had youth dependency ratios between 0.7 and 0.8 (which suggests that some decline in these ratios already had occurred), by 1995 the ranking among this group of countries had changed significantly due to differences in the paces at which fertility had fallen.

The largest fertility declines in Latin America have been in the countries with the highest fertility in 1950. One might expect the countries with the highest initial fertility to register a larger decline because fertility has a lower bound, and fertility rates across countries therefore tend to converge. The correlation between the change and the level of the total fertility rates in 1950 is -0.83, which suggests that the Latin American countries are in fact converging to lower fertility levels. Countries such as the Dominican Republic, which had the highest fertility in 1950, had the largest decline; Uruguay, which had the lowest rate in 1950, had the smallest change. However, there are also countries such as Haiti, Guatemala, Paraguay and Bolivia, which had some of the highest rates in 1950, yet whose fertility decline has been slower than expected on the basis of this correlation.

With the exceptions of Haiti, Uruguay and Argentina, which have high mortality rates, current differences in this variable are relatively small within Latin America. (Death rates are high in Haiti because this country has the highest infant mortality rate, and high in Uruguay and Argentina because relatively large proportions of their populations are old). There were much sharper differences within the region in 1950, but death rates declined more in the countries with higher mortality in 1950, and convergence has been faster in terms of death rates than for fertility. An extreme case is the comparison between Guatemala and Barbados. Guatemala had death rates almost twice as large as Barbados in 1950, but by 1995 the death rates for the two countries were very similar. In contrast, fertility in Guatemala was 1.5 times higher than Barbados in 1950, but almost three times higher in 1995. This is just one example that shows that the age structure differences observed within Latin America today are primarily due to differences in fertility rather than mortality rates.

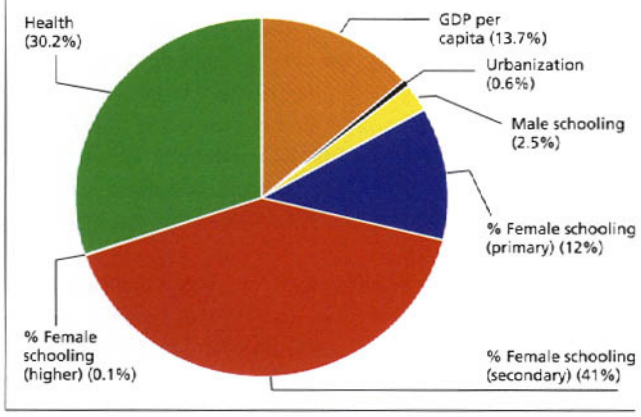
Since the demographic change implies different numbers of children per household, it normally is accompanied by other far-reaching societal changes,

**Figure 2.11** Factors Behind the Decline in Fertility between 1960 and 1995




*Source: Behrman, Duryea and Székely (1999c).*

**Figure 2.12** Why Fertility Fell Faster in East Asia




*Source: Behrman, Duryea and Székely (1999c).*

including family arrangements. The East Asian countries that experienced the fastest demographic transition have also been going through intensive changes at the family level, such as later marriages, that reinforce changes in fertility (Box 2.2).

### *What Triggered the Demographic Transition?*

We have seen that the pace of the demographic transition is set by the gap between the rates of fertility and mortality. In Latin America and even worldwide, current differences in the demographic transition are due much more to differences in fertility rates than to unequal mortality rates. Then, we may ask, what explains these differences in fertility? The fall in the mortality rate—which can be attributed to economic and technical developments—is itself part of the explanation. But there are other social and cultural forces at work.

Figure 2.11 decomposes the change in total fertility rates of regions of the world between 1960 and 1995.[4] In all the developing regions taken together, fertility declined by 2.1 children during this period. Most of the decline seems to be associated with improvements in health and education, with health gains accounting for around 45 percent and female schooling 35 percent (secondary, 22 percent, and tertiary, 14 percent). This general pattern holds across all developing regions, albeit with some differences in the relative importance of the factors. In Africa, health improvements played a larger role than in other regions, and gains in female primary schooling were the most important educational factor. In East Asia, the effect of female secondary schooling was larger both in absolute and relative terms than in any other developing region, accounting in large part for the dramatic decline in that region's fertility rates since 1950 (Figure 2.12).[5]

Within Latin America, the relative importance of female education and health improvements varies widely from country to country in explaining fertility declines between 1960 and 1995 (Figure 2.13). On average, health improvements were the most important factor, explaining 38 percent of the declines from a statistical point of view, followed by female secondary (13 percent) and tertiary schooling (12 percent). The largest fertility declines within the region took place in the Dominican Republic and Costa Rica, where fertility was reduced by more than 4 children. Nevertheless, there are some cases that deviate from the general pattern. In Argentina, Barbados, Costa Rica, the Dominican Republic, Ecuador, Jamaica,

[4] See Behrman, Duryea and Székely (1999a). See Appendix 2.2 for the technical details of the decomposition.

[5] These three associations total more than 100 percent but are offset primarily by unobserved differences in the changes that are 41 percent of the total.

Box 2.2

## Changes in the Structure of Families

One of the most dramatic shifts to accompany the demographic transition over the past few decades has been the change in family living arrangements. For example, women are now marrying at older ages, which is one of the forces behind the fertility decline. In Venezuela, 63 percent of women between the ages of 15 and 45 were married in 1981, while only 55 percent of the same group were married in 1995 (see Figure 1).

Another dramatic shift has been the decline in the percentage of children residing with two parents. This is a well-known trend in the industrialized world. By 1990, approximately 73 percent of children under 18 years of age were residing in two-parent families in the United States,[1] whereas 20 years earlier the share had been approximately 85 percent. As in the United States, the trend in Latin America is driven by the absence of fathers in the family. From 1977 to 1996, the percentage of children younger than 18 living with two parents in Brazil fell from 82 to 76 percent.[2] For younger children the trend is even more dramatic. Whereas 90 percent of children below the age of 6 lived with two parents in Brazil in 1977, by 1996 the percentage had fallen to 80 percent. In Chile (77 percent) and Venezuela (71 percent), even smaller percentages of children under age 6 currently reside with two parents.

Single parenthood is the result of a number of social behaviors: divorce, separation, widowhood, and childbirth without marriage or consensual union. In Latin America, increasing proportions of women are raising children outside the formal institution of marriage.[3] This is a very recent change, however, for while Europe, Canada and the United States have witnessed these types of changes in the basic structure of households over the past few decades, the classification of living arrangements by household type has remained quite stable in Latin America.[4] This is somewhat surprising given the aging of the population as well as changes in formal and informal marital patterns, but it reflects the persistent role of the household as a provider of social protection in Latin America.

The trend in the United States, Canada and Europe is toward single-parent households as well as single-person households. For example, in the United Kingdom the share of single-parent households among households with children rose from 7.6 percent in 1971 to 12.7 percent in 1987. In the United States the share rose even more dramatically, from 11 percent in 1970 to 23 percent in 1988.[5] Even in Japan, where the traditional two-parent family remains strong, the extended family household (additional relatives beyond the immediate nuclear family) is declining rapidly.[6]

The share of single-person households is over 25 percent in Canada, the United States, Germany, Sweden, United Kingdom, Denmark and the Netherlands. In contrast, for Latin American countries with national data, fewer than 10 percent of households are formed by one person. Even in Greater Buenos Aires and urban Uruguay, both high-income countries well into the demographic transition, less than 5 percent of persons live alone.[7]

The only discernable shift in the basic household structure in Latin America is a slight increase in the share of persons living in extended family households, as witnessed in Chile, Honduras, Mexico, Uruguay and Venezuela. Over half the total population currently resides in an extended family household in the 16 countries for which nationally representative data is available. Among children 18 and younger, over 50 percent live in extended households in Colombia, Nicaragua, Peru, El Salvador and Venezuela, while that figure is over 40 percent in Brazil, Chile, Costa Rica, Ecuador, Mexico and Paraguay. In other words, while the share of children without fathers present is growing in Latin America, these children and their mothers tend to be absorbed into the households of other family members. That does not mean, however, that all is well. While the extended family can buffer some of the loss of a father's income and schooling, studies have found that children in fatherless households perform more poorly in school, even after controlling for other socioeconomic characteristics of the family.[8]

**Figure 1. Venezuelan Women Ages 15-45 Who Are Married**

*(In percent)*


*Source: Household surveys*

**Table 1. Population Over Age 60**
*(In percent)*

| | | Female percentage of total population | Percent without own income source | |
|---|---|---|---|---|
| | | | Male | Female |
| Argentina[1] | 1996 | 59.47 | 11.99 | 30.67 |
| Bolivia | 1996 | 52.24 | 18.77 | 55.96 |
| Brazil | 1995 | 55.13 | 4.21 | 20.93 |
| Costa Rica | 1995 | 56.09 | 3.88 | 28.97 |
| Chile | 1996 | 56.93 | 3.42 | 24.83 |
| Colombia | 1997 | 52.71 | 24.61 | 59.02 |
| Mexico | 1994 | 52.28 | 19.29 | 62.04 |
| Panama | 1997 | 51.17 | 16.21 | 39.49 |
| Paraguay | 1995 | 53.66 | 13.86 | 40.97 |
| Peru | 1996 | 50.79 | 10.59 | 42.06 |
| El Salvador | 1995 | 56.03 | 22.27 | 47.91 |
| Uruguay[2] | 1995 | 59.71 | 1.90 | 11.44 |
| Venezuela | 1995 | 54.04 | 23.51 | 58.10 |
| United States | 1996 | 56.86 | 1.99 | 3.50 |
| Latin America[3] | | 53.90 | 14.60 | 43.66 |

[1] *Greater Buenos Aires only.*
[2] *Urban areas only.*
[3] *Average is for nationally representative surveys.*
*Source: IDB calculations based on household survey data.*

Thus, providing resources to children in female-headed households, as has been common in developed countries, is an inadequate targeting mechanism for Latin America because many fatherless children would not qualify for benefits. Approximately 25 percent of children living with mothers but without fathers live in male-headed households in Brazil, Chile and Venezuela.

The extended family is also a vital survival mechanism for another at-risk population in Latin America: the elderly. Over 30 percent of the population over age 65 lives alone in Canada, the United States, Germany, Sweden, the United Kingdom, Denmark and the Netherlands,[9] while in Latin America, those figures range from under 10 percent in Colombia, Honduras, Mexico, Paraguay, El Salvador and Venezuela, to nearly 20 percent in urban areas of Uruguay and Argentina.

In the developed world, poverty rates among elderly women are higher than their male counterparts. As in the rest of the world, women in Latin America earn less on average than men but live longer. Table 1 shows the share of men and women over age 60 who do not report any income source at the individual level. Although elderly women in Latin America are much less likely to have an income source than elderly men, neither sex is over-represented in the lower income deciles relative to their population shares. However, should the extended family in the future diminish the protective role it has traditionally provided to relatives, poverty among the elderly could become a serious concern, particularly for elderly women.

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[1] The share of children living without one biological parent was approximately 40 percent. See Lerman (1996).

[2] The term "father" includes stepfathers, biological fathers, adoptive fathers and consensual partners of the children's mothers.

[3] See UNFPA (1998).

[4] Households can be classified into five categories: 1) one-person; 2) nuclear (formal or informal marital union and/or parent and child); 3) extended family (nuclear plus another relative); 4) composite (relatives and nonrelatives); and 5) co-residential (no individual is related to the head of the household).

[5] In Canada, the United States, Germany, Sweden, United Kingdom, Denmark and the Netherlands, 85 to 90 percent of the heads of single-parent households are women.

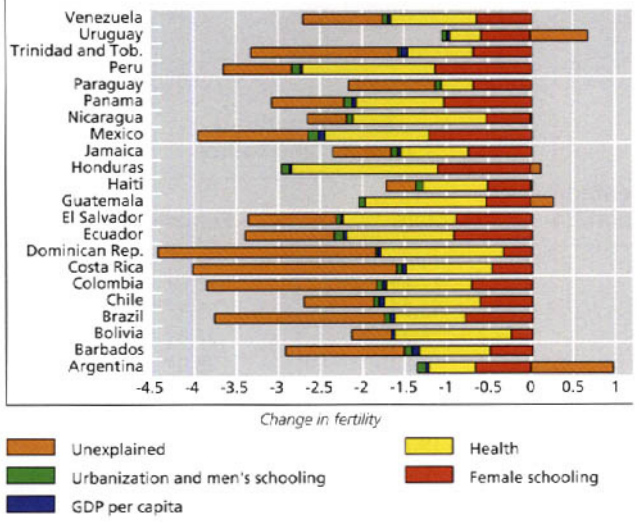
[6] See Sorrentino (1990).

[7] Approximately 14 percent of all households are single-person households.

[8] See Garasky (1995) and Garfinkel and McLanahan (1986).

[9] See Sorrentino (1990).

**Figure 2.13** Causes of the Decline in Fertility in Latin America between 1960 and 1995




*Source: Behrman, Duryea and Székely (1999c).*

Panama, Trinidad and Tobago and Uruguay, there was a reduction in the proportion of females with primary schooling, and because primary schooling is associated with lower fertility, this variable has a positive association with fertility. However, this reduction corresponds to a shift toward secondary schooling, which completely compensates for the effect. Two other cases that deviate from the general pattern are Bolivia and Brazil, where the proportion of females with secondary schooling is associated with an increase in fertility rather than a decline.

The figures reveal that part of the decline in fertility remains unexplained. The availability of contraceptives is one of the candidates to account for this part of the shift. In Ireland, for example, after modern contraception was legalized—first among married couples, and then generally— there was a steep decline in fertility in the mid-1970s. Moreover, recent studies indicate that virtually all of the unexplained part of the reduction in fertility in Latin America is attributable to increased contraceptive use.[6] Total desired fertility in the region is likely to still be lower than actual fertility levels, but growing contraceptive prevalence will continue to close this gap.

[6] See Bongaarts and Bulatao (1999).

### *Health Improvements Critical to the Demographic Transition*

The improvements in health conditions that triggered reductions in fertility gained momentum following the Second World War. Newly developed antibiotics, antimicrobials and insecticides all contributed to major health improvements in the developing world. Penicillin, sulfa drugs, streptomycin, bacitracin, chloroquine, tetracycline, and DDT were all discovered and introduced between 1920 and 1950. Crucial public health improvements probably had an even greater effect, with safe water, better sanitation and widespread immunization all helping to keep people alive. These improvements have been behind the epidemiological transition that preceded the huge fertility decline (Box 2.3).

In Latin America, health has improved steadily throughout the century—slowly during the early decades and then accelerating after World War II. Life expectancy increased from just over 50 years in 1950 to just over 70 in 1990. This trend is expected to continue, with life expectancy in the region steadily approaching the average in the developed world. Improvements have been about average for the developing world, although East Asia performed more strongly in the 1950s and 1960s, overtaking Latin America around 1965. However, life expectancy in both these regions is expected to be virtually identical by 2015, at around 78 years.

In Latin America, infant mortality has fallen dramatically since 1950, from 124 to just 35 deaths per thousand births. The pace of this decline has been constant, with the rate halving in the 25 years to 1975, and halving again since then. Taken together, declines in infant and child mortality account for over half of Latin America's improvement in life expectancy during the past half-century.

### *Where Is Latin America Going?*

As described above, the lag between falling mortality and fertility rates leads directly to a burst in population growth, which occurred across Latin America up to the early 1960s, at which point growth slowed as fertility reductions began to kick in. Yet Latin American population levels will continue to grow for at least 30 years despite the completion of the fertility transi-

Box 2.3

## Two Transitions to a New Equilibrium

The epidemiological transition runs parallel to and is partly determined by the demographic transition. It consists of changing from predominantly infectious diseases as sources of morbidity and death to degenerative and noncommunicable illnesses. Part of this shift is due to changes in environmental and societal behaviors that reduce infection and boost immunity. The shift is reinforced by the resulting survival of children into adulthood and adults to more advanced ages, when noncommunicable illnesses are more common. Consequently, as the population ages and improves in health, the proportion of deaths due to noncommunicable diseases increases steadily (see Figure 1).

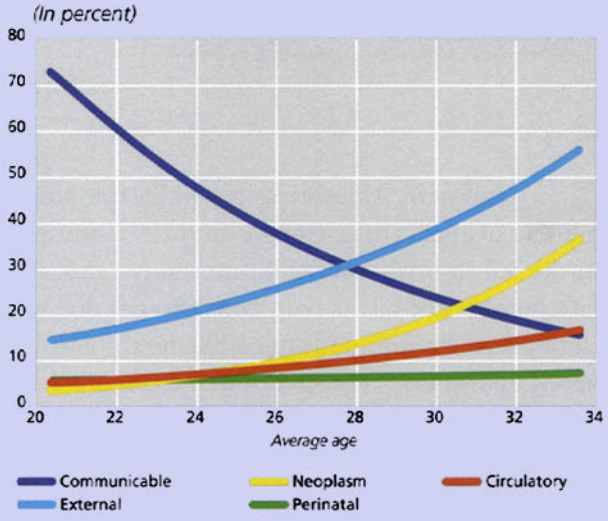
Mortality data can be classified into five categories according to the cause: communicable diseases, conditions originating in the prenatal period, malignant neoplasm, circulatory diseases, and external causes (e.g., accidents, homicides). With increased life expectancy and reductions in communicable and prenatal illnesses, the epidemiological profile of the Latin American population is shifting towards more chronic and degenerative diseases.[1] In many countries, noncommunicable diseases and injuries are already the leading causes of mortality (see Figure 2).

All of this is good news. Continued growth in income and improvements in nutrition, along with advances in medical technology, will push countries further along the epidemiological transition. And this transition is itself a shift toward improvements in the overall quality and length of life.

[1] See Larrieu and Levine (1999).

**Figure 1. Cause of Mortality by Age in Latin America**

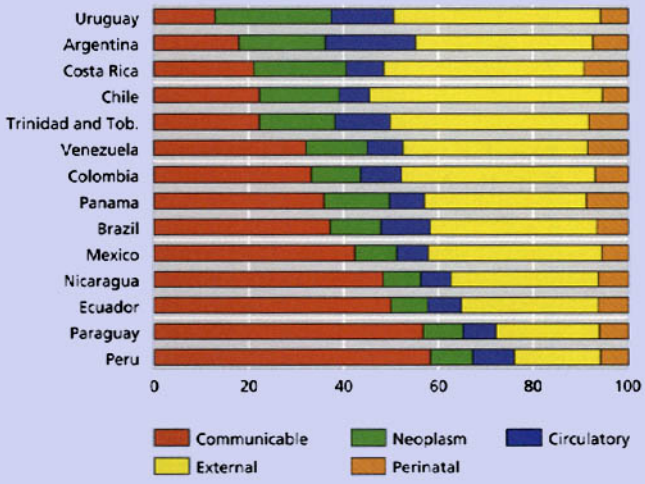
*(In percent)*




*Source: IDB calculations based on United Nations (1998) and Larrieu and Levine (1999)*

**Figure 2. Epidemiological Transition in Latin America: Mortality by Cause**

*(In percent)*

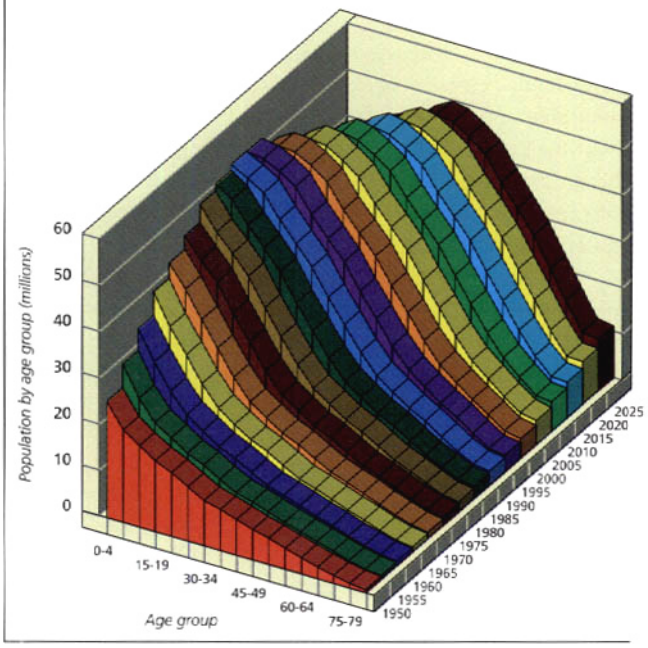



*Source: Larrieu and Levine (1999).*

tion due to the effect of population momentum. Fertility is projected to decline and reach a replacement level (about two births per woman) between 2005 and 2010. However, the total number of births is unlikely to decline until around 2020 because there will be a large proportion of women of childbearing age in the population. So while death rates will increase from around 2010 on as the proportion of the elderly increases, the total Latin American population is not expected to stabilize until about 2040 at approximately 660 million people—up from just under 500 million in 1995. Only then will the Latin American demographic transition be truly complete.

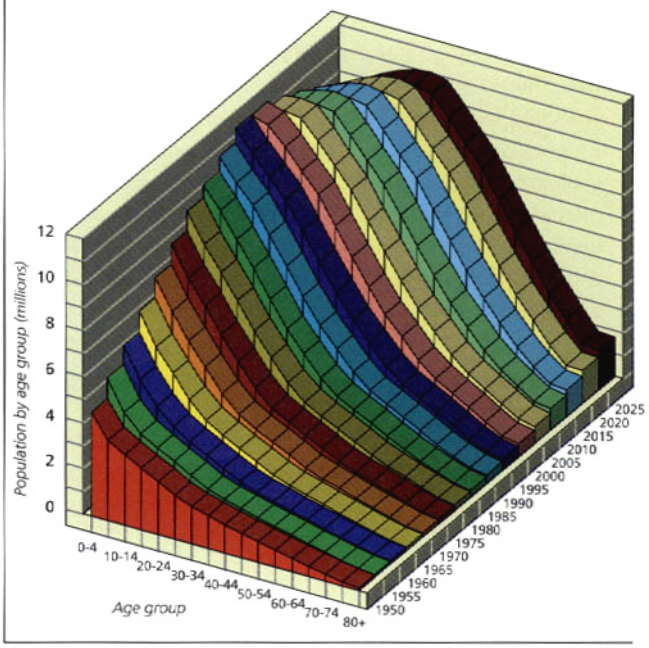
By historical standards, Latin America's transition will have occurred relatively quickly. The currently developed countries had much slower transitions. In Western Europe, for example, the process started in the mid-18th century, and lasted nearly 150 years. In Sweden, the transition took even longer, occupying the better part of 300 years. Modern tran-

**Figure 2.14** The Wave of Demographic Transition in Latin America




*Source: Bloom et al. (1999) based on United Nations (1998).*

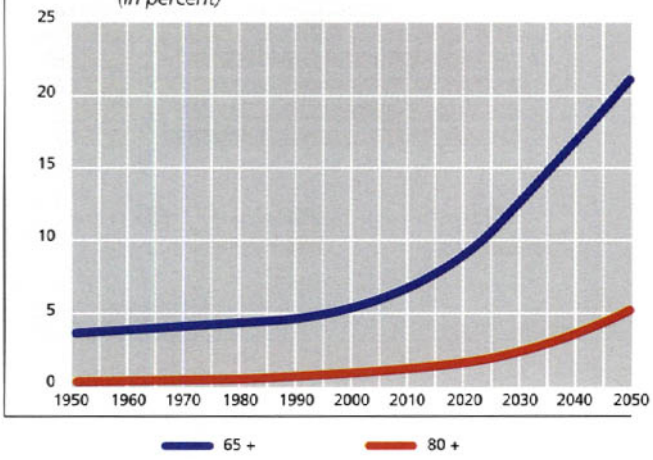
**Figure 2.16** The Wave of Demographic Transition: Low Life Expectancy Countries (Group I)




*Note: Group I includes Bolivia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua and Peru.*
*Source: Bloom et al. (1999), based on United Nations (1998).*

**Figure 2.15** Population Share of the Elderly in Latin America

*(In percent)*




*Source: United Nations (1998).*
*Note: The low variant of the population projections was used for years after 1995.*

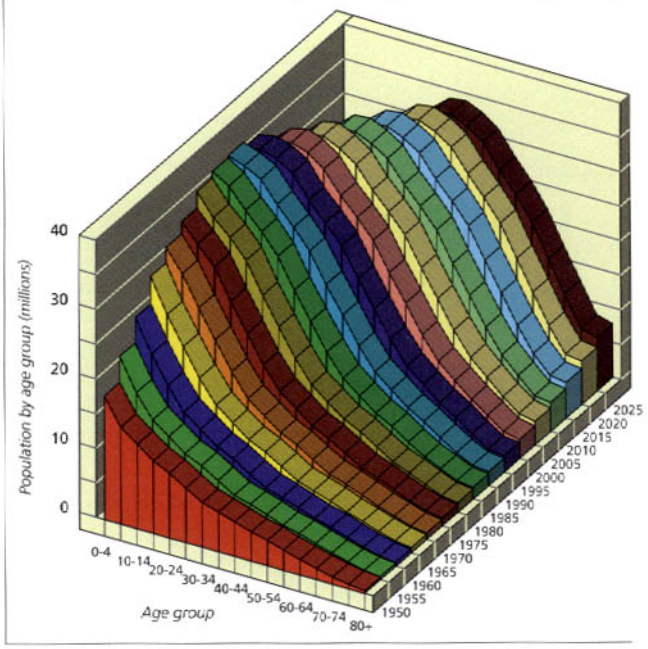
sitions have been much faster because countries had the benefit of knowledge, experience and technology developed by others. In East Asia, for example, the demographic transition occurred within the space of 50 to 75 years, making it the fastest known demographic transition to date.

In Latin America as a whole, the absolute number of infants rose strongly until 1995, due mainly to the fall in infant and child mortality rates. Absolute numbers of births then began to fall due to declining fertility rates, and after 2000 the absolute number of infants is also projected to fall (Figure 2.14).

The age structure changes in the region are already significant and will accelerate between 2025 and 2050. This period will see the numbers of young (under 15) fall dramatically to just 20 percent of the total population in 2050 (from twice that level in 1950). So in 2050, there will be just 100 million (of a projected 660 million) young Latin Americans, well below the peak of 150 million (out of 500 million) reached in 1995. Equally dramatic will be a tripling in the share of the elderly (65 or older) to more than 15 percent of the population by 2050 (Figure 2.15).

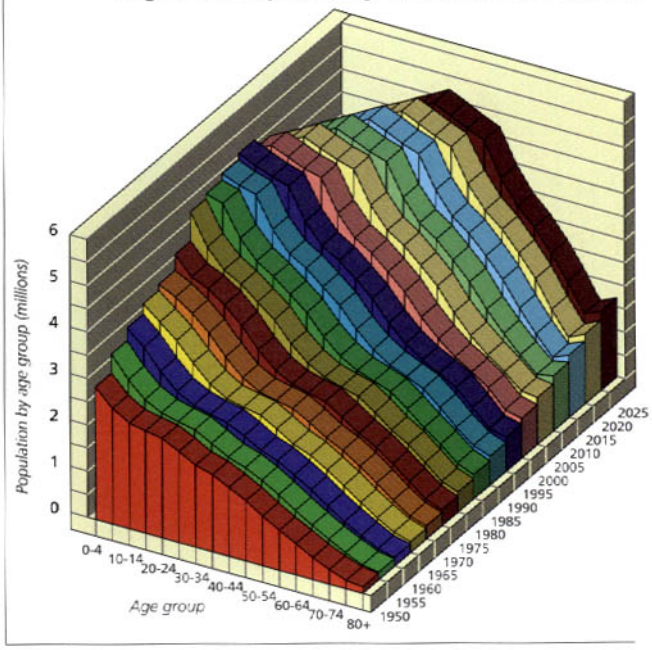
Currently, 60 percent of Latin Americans are of traditional working age (15-65), 35 percent below it, and 5 percent above it. However, the demographic transition will lead to dramatic declines in this dependency burden in years to come. In 2020, the young will form only 21 percent of Latin America's population, and while the proportion of old people will have

**Figure 2.17** The Wave of Demographic Transition: Middle Life Expectancy Countries (Group II)




*Note: Group II includes Brazil, Belize, Chile, Colombia, Guyana, Mexico, Panama, Suriname and Venezuela.*
*Source: Bloom et al. (1999) based on United Nations (1998).*

**Figure 2.18** The Wave of Demographic Transition: High Life Expectancy Countries (Group III)




*Note: Group III includes Argentina, Bahamas, Barbados, Costa Rica, Jamaica, Paraguay, Trinidad and Tobago and Uruguay.*
*Source: Bloom et al. (1999) based on United Nations (1998).*

increased to 9 percent, 70 percent of the population will then be of working age.

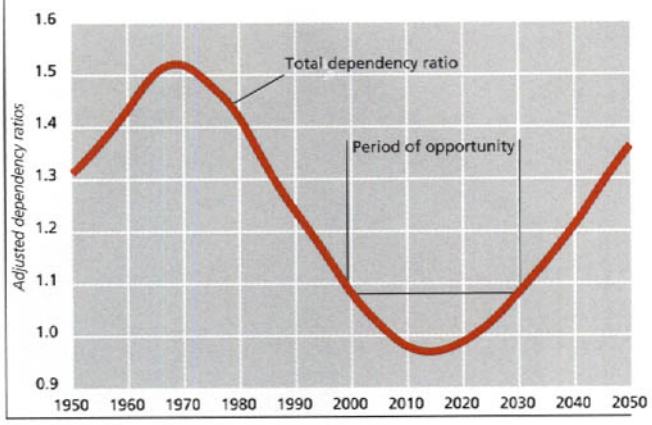
This basic pattern is stable across the region, though it varies in detail, size and maturity. Fertility rates are still especially high in parts of Central America.[7] In Bolivia, Guatemala, Haiti, Honduras and Nicaragua, fertility rates are around five children. In these countries, the demographic transition is strikingly incomplete. By contrast, in Argentina, Chile and Uruguay the transition is mostly complete. Mexico falls in between, with the mortality component of its transition complete and the fertility component well under way.

Dividing Latin American countries into three groups based on their life expectancy in 1950 is illuminating. In the low life expectancy group, the age structure changes are not as dramatic, with the population wave emerging around the year 2000 (Figure 2.16). In the middle group, the wave is already working its way through the working-age population (see Figure 2.17). Finally, in higher life expectancy countries, the main wave emerged around 1990, earlier and more sharply than for both middle and low life expectancy groups (Figure 2.18). It is being echoed by a second wave, as this large baby boom generation, in turn, has children.

A population's age structure and the variations across these waves are connected with labor supply in a number of ways. One is a pure accounting identity, while others reflect decisions made by individuals and families. Participation in the labor force is, of course, much higher among 15-64 year olds than other age groups, but their participation can vary. The 15-34 and 50-64 year old subgroups tend to have significantly lower participation rates than 35-49 year olds. As 60 percent of Latin America's working-age population is currently concentrated below the ages associated with peak participation (35-49), overall participation rates can be expected to increase as the labor force ages. Thus the basic accounting impact of chang-

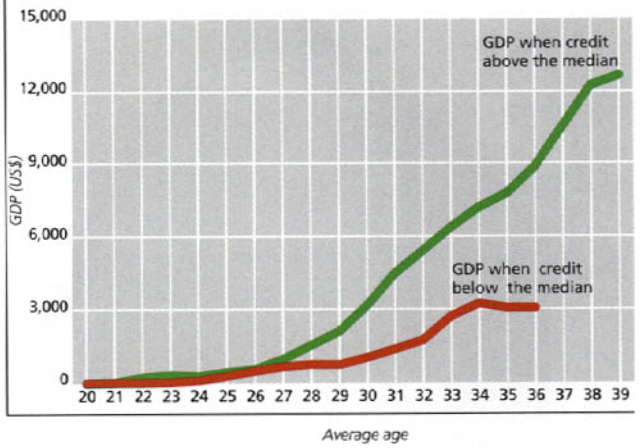
[7] The fertility projections reported and analyzed here are based on the low-fertility variant of United Nations' projections. This assumes fertility rates will eventually drop below replacement levels. By contrast, the medium-fertility variant assumes replacement fertility will be attained. Although this is a plausible focal point, it is contradicted by the experience of most other countries whose demographic transitions are more advanced, and whose fertility rates are now below replacement levels, as in Italy, Sweden and Germany.

**Figure 2.19** The Demographic Window of Opportunity In Latin America




Source: Duryea and Székely (1998).

**Figure 2.20** When Credit Markets Work Well, Per Capita GDP Grows More as Countries Age




Source: Behrman, Duryea and Székely (1999b).
Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.

ing age structure is amplified by increased labor force participation rates as the population ages.

The demographic transition also changes the rate of female participation in the labor market in each age group. Labor force participation is linked to the need to look after children in the home. A smaller dependency ratio of the young may decrease women's household duties and facilitate their entrance into the workforce. The share of children in the labor force is also falling, from 15 percent of 10-14 year olds in 1960 to 10 percent today. These trends will give an additional boost to female participation in the labor market.

### *The Window of Opportunity for Latin America*

The evidence presented in the first section of this chapter indicates that a number of key variables for the development process follow clear average age-related patterns. Latin America is entering the stage where some of the strongest (mostly positive) age structure effects start to be perceived, but the region has thus far realized only a portion of the growth potential inherent in its changing demography. Does the Latin American case challenge the contention that demography matters, or does it merely indicate that the demographic gift is far from automatic? It may be that policy in Latin America has yet to efficiently exploit the positive patterns of demographic change, and that it therefore has failed to turn the first part of the demographic gift into a demographic dividend.

Fortunately, a sizable portion of the region's demographic gift will come during the next two decades. Figure 2.19 shows that on average, total dependency ratios in Latin America for the period 2000-30 will be at historically low levels.[8] This translates into a unique demographic window of opportunity to improve growth, saving and education. Substantial benefits await the region if the policy environment improves. Failing such improvement, however, the forgone opportunities will be dramatic and Latin America's demographic window will close without any significant benefits having been delivered.

What are the policies needed to transform this opportunity— this favorable pattern of changing age structure—into greater living standards for the people of Latin America? It is clear that the benefits of the demographic transition are not automatic. They are reaped only when policies are in place to effectively translate opportunity into higher productivity, more savings, less unemployment and, in general, better economic and social outcomes.

Perhaps the most powerful example of a region taking advantage of its demographics in terms

[8] The dependency ratio is calculated by dividing the number of individuals in the country's 0-15 and over 65 age groups over the working-age population. The ratio is adjusted by weighting every individual over 65 by a factor of four to account for the fact that public expenditures on the elderly are usually much larger than the cost of children. See Duryea and Székely (1998).

of GDP growth is East Asia. This region matched a beneficial set of policies to its demographic changes, boosting its rate of income growth to a degree that has dramatically changed the quality of life of its people. East Asia's baby boom generation entered the workforce starting in the mid-1960s, so the working-age population grew more than twice as fast as the dependent population between 1965 and 1990. These workers had been reasonably well educated, and good policies ensured that they were now gainfully employed. Their contribution to the region's growth goes a long way to explaining the "East Asian miracle." At least 2 percent of annual growth—the one-third of East Asia's phenomenal burst of growth during this period that was once written off as "unexplained"—is now believed to have been a demographic dividend.[9]

Many studies on economic growth have shown that one of the crucial ingredients of a successful policy mix is opening the economy to international trade. A nation that opens up to the world economy transforms the globe into a market for its products. This results in larger demand for these products, which in turn creates a larger demand for, among other things, its workers. Thus, openness creates the employment opportunities that harness the growing working-age population—an especially important policy decision if increasing numbers of workers are to be absorbed into the economy. Econometric analysis by Bloom et al. (1999) shows that a country with a working-age population that is growing by 3 percent a year will see its growth boosted by 0.5 percent a year if its economy is closed, but by 1.5 percent if its economy is open (Appendix 2.3). In other words, a policy of openness can triple the size of a country's demographic dividend.

How are these results relevant to Latin America? Over 1965-85, Latin America enjoyed a modest demographic gift but was largely closed off from the world economy. The econometric results suggest that if the region had been completely open to the world economy, as had East Asia throughout most of the period, Latin America's growth rate would have averaged 0.9 percentage points per annum higher. This would have doubled growth from 0.9 to 1.8 percent each year during that period.[10] These results are consistent with several other works that have shown that the structural reforms adopted by Latin America since the late 1980s, among which trade liberalization was central, have substantially increased the region's growth possibilities. More specifically, growth potential has increased by 1.9 percent as a result of these reforms, of which 0.8 points have been due to the adoption of trade liberalization policies.[11] At least in this respect, Latin America is now much better poised to take advantage of the demographic opportunity than it was between 1965-85.

Bloom et al. (1999) find that the direct effect of changing age structure accounts for only 11 percent, or 0.6 percentage points, of the growth gap between Latin America and the East Asian economies. But when the interactive effect of policy and demography is taken into account, 50 percent of the gap can be explained. Latin America's lagging performance relative to East Asia is therefore a product of policy—especially Latin America's trade policy—that until the mid-1980s failed to take advantage of demographic change. In short, East Asia used policies that effectively exploited its demographic window of opportunity, while Latin America started to do so only recently.

Other types of policies also matter, and identifying which ones can be done by verifying if the average age patterns of some variables change under different policy scenarios. For example, if a country has largely developed and efficient financial systems, it will be able to finance new investment opportunities to absorb the growing numbers of working-age adults. Countries where financial systems are less developed will have bottlenecks in expanding the labor market. Firms will find it more difficult to finance their expansion, and individuals will have fewer means to create their own job opportunities. Figure 2.20 shows the average age pattern of per capita GDP (similar to the pattern in Figure 2.3) for countries with the most and least developed financial markets.[12] The figure shows that financial markets play an important role in assuring that the expansion of the working-age population is translated into greater economic activity. Where financial markets are relatively more de-

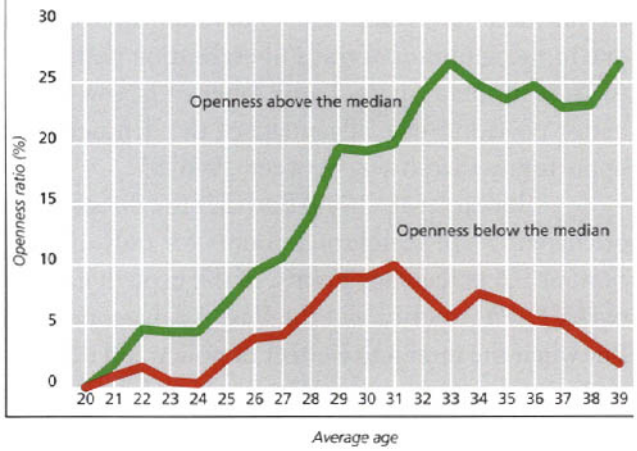
[9] See Bloom et al. (1999).

[10] Measured in 1985 purchasing power parity (PPP) international dollars. See Summers and Heston (1991).

[11] See IDB (1997, Part II).

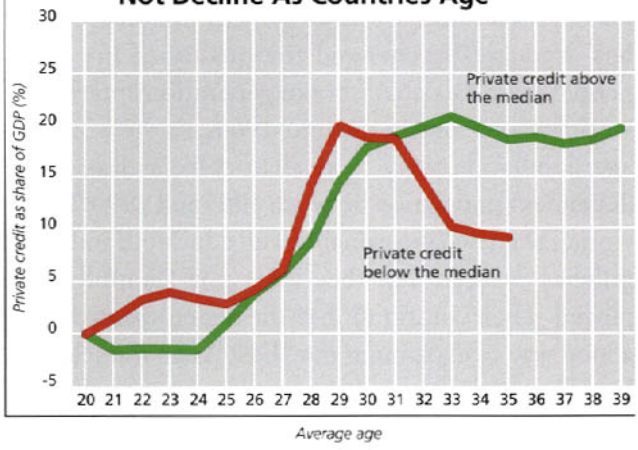
[12] Appendix 2.1 explains the methodology to obtain the results in this and the following four figures. The results are taken from Behrman, Duryea and Székely (1999).

**Figure 2.21 When Policies Encourage Trade, Savings Increase More As Countries Age**




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

**Figure 2.22 If Policies Promote Credit Market Development, Savings Need Not Decline As Countries Age**




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

veloped, the country's average age pattern of GDP is positive from age 27 on and is much steeper. For countries with relatively low financial development, the average age pattern is much flatter.

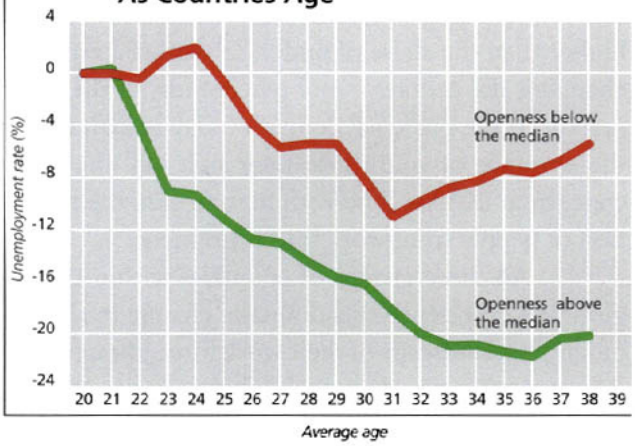
One of the most emphasized aspects of a changing age structure, as noted earlier, is the change in savings that occurs during the life cycle. However, the extent to which savings patterns change as the age structure shifts may depend importantly on aspects of the economy that are related to major policy choices. As shown previously, there is evidence of a somewhat inverted "U" pattern between a country's average age and domestic saving. Figure 2.21 plots the pattern for two sub-samples of countries defined by being above or below the median for trade openness. In the countries that have been relatively more open to trade, the shift toward an older age structure has been translated more into higher savings than in the countries that have been less open. Part of this difference is due to the increase in productivity that trade openness conveys. If during periods of low dependency ratios productivity is high, it is possible to save more.

However, it will only be possible to save more if the financial markets of the country are developed enough to be able to capture these additional savings and to promote more saving and investment. Figure 2.22 shows that the pattern of saving for countries where financial market development is above the median increases substantially as a country ages, while the pattern for countries with poor credit market development deviates substantially after age 29, with a sharp decline in domestic saving after this age. Thus, when financial markets are more developed, individuals have more opportunities to save and are better able to adjust their saving patterns to their life cycle needs. The aggregate result is that savings need not decline as countries age if policies have previously facilitated the development of financial markets.

Unemployment rates are also associated with policy alternatives. If a country is open to international trade when large shares of the population are of working age, it will be more able to expand its labor opportunities at the speed required by the demographic changes. Figure 2.23 shows the average age pattern of unemployment rates when countries are divided into those where trade openness is above and below the median. Unemployment and age seem to have a much closer relationship in countries with less openness in trade. Rates are high at young ages and relatively low at older ones in countries with relatively high and low openness, but the decline in unemployment associated with aging is much steeper in countries where openness is above the median. Therefore, adequate macro policies, especially trade policy, may help release pressure from the labor markets at a time when large shares of the population are entering working age.

All of these examples suggest that Latin America cannot simply wait passively for the increased

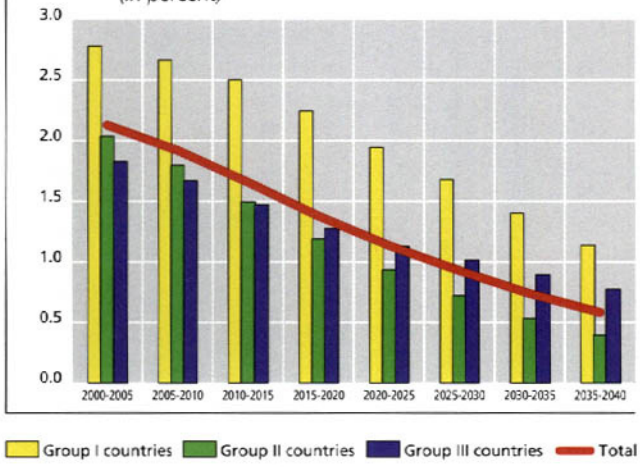
**Figure 2.23** When Policies Encourage Trade, Unemployment Declines Faster As Countries Age




*Source: Behrman, Duryea and Székely (1999b).*
*Note: The vertical axis measures changes with respect to a hypothetical country where the average age of the population is 20 years old.*

**Figure 2.24** Labor Force Growth Rates in Latin America

*(in percent)*




*Source: IDB calculations based on United Nations (1998).*

potential benefits generated by changes in age structure, but rather should actively pursue policies that help reap those benefits. The main policy areas that require immediate attention in Latin America in order for its countries to exploit the window of demographic opportunity include labor, crime, education, health, saving and pensions. This does not imply that macroeconomic policies or several structural policies not discussed in detail in this chapter—such as trade, tax or privatization—are unimportant. It is just that most Latin American countries are well advanced in macroeconomic and structural reforms, and there is widespread understanding of their importance among policymakers and the public at large. But as the rest of this chapter will make clear, macroeconomic stability and market-friendly policies will not be enough to reap all the benefits of the demographic window of opportunity.

## Demographics and Labor Policies

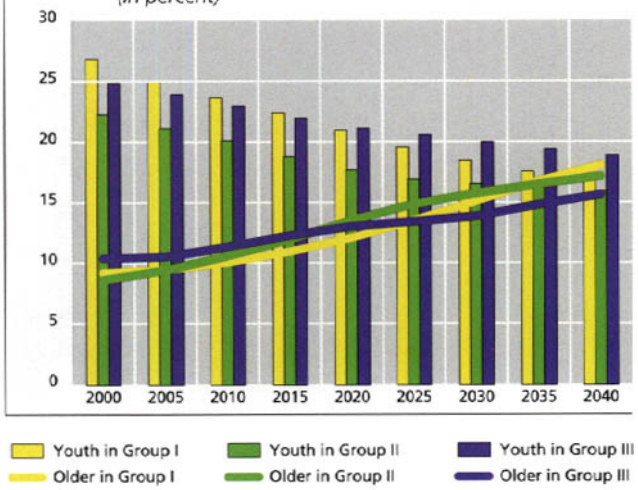
Because the change in the size of the working-age population affects employment prospects, it is the demographic shift that most affects everyday life. Depending on labor market conditions, the transition to older ages can either foster or constrain improvements in Latin America's standard of living.

The demographic transition in Latin America is beginning to manifest itself in slower growth of the work force, a smaller share of under-age population and, somewhat menacingly, a larger share of the elderly. As already noted, 70 percent of the Latin American population will be of working age by 2020, and a larger portion of that group will be concentrated in the highest participation age brackets. The decline in dependency rates of the young will boost female participation rates, increasing the labor supply even more. The total work force in the region, which today is around 195 million workers, will reach 330 million by 2040. The median age of workers will go from 34.2 years today to 39.5 in 2040, and around 39 percent of all workers will be female (from 34 percent today).

The consequences of these dramatic changes in the size, growth and composition of the work force will challenge traditional views of the region's labor markets. First, the vision of a seemingly inexhaustible labor supply fed by a fast-growing labor force will begin to fade in face of the facts: in all countries, the rate of growth of the work force will decline (Figure 2.24). For the region as a whole, growth of the work force in 2040 will be less than a third of what it is today, falling from 2.1 percent to 0.6 percent annually. This dramatic decline will of course occur in varying magnitudes across countries, depending on the stage of the demographic transition of the country.

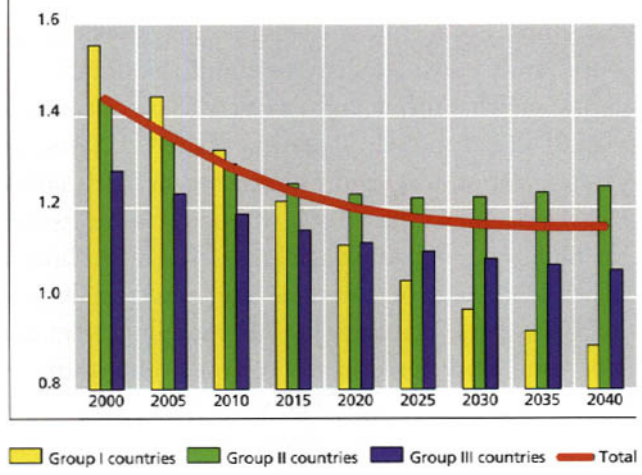
**Figure 2.25** Share of Younger and Older Workers in the Labor Force

*(In percent)*




*Source: IDB calculations based on United Nations (1998).*

**Figure 2.26** Nonworking Population Per Worker




*Source: IDB calculations based on United Nations (1998).*

The speed of growth of the work force in the two groups of countries less advanced in the demographic transition will fall from 2.8 to 1.1 percent, while in the group of most demographically mature countries, it will decline from 1.8 to 0.8 percent.

Dramatic age composition changes will follow suit, challenging the traditional vision of a youthful work force with ever-larger groups of young people trying to break into the job market. The aging of the region's work force will translate into the share of under-25 workers falling from almost a quarter today to around one-sixth of the total work force in 2040. At the same time, the share of over-55 workers will increase from less than one in ten today to more than one in six in 2040. By the end of the period, the share of over-55 workers in the total labor force will be higher than the share of under-25 workers, radically changing the problems and perceptions of the labor market. If the principal concern today is with easing the entrance of youth into their first job, the likely concern in 2040 will be with how to ease the transition of people from work into retirement.

All three groups of countries within the region will experience this dramatic change in the demographic landscape of their work force, though with different intensity (Figure 2.25). Countries less advanced in the demographic transition will experience the largest reduction in the share of youth in the work force, while countries in the other two groups will double their share of workers over 55.

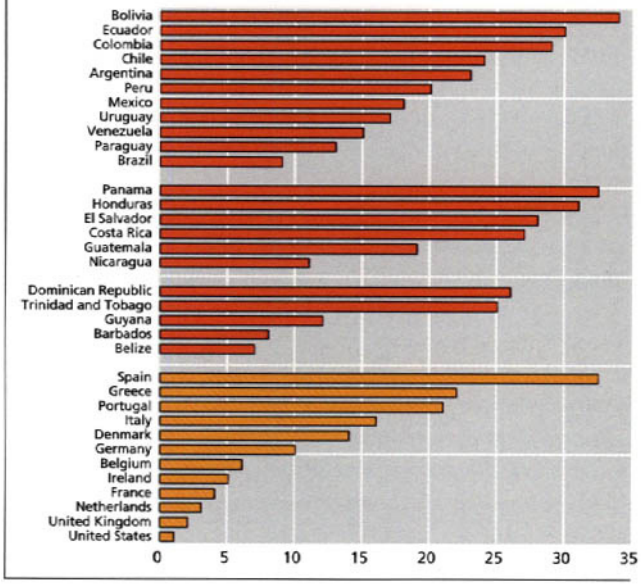
### *A Declining but Stabilizing Dependency Rate*

The demographic transition will have the beneficial effect of reducing the number of nonworking members of the population that each worker needs to support. For the region as a whole, the support rate (the ratio of nonworking population to the total work force, not to be confused with the dependency rate, which is a purely demographic indicator) will decline over the next 40 years from 1.4 nonworking people per worker to 1.2 (Figure 2.26). The implication is that the effects of increasing productivity on the standard of living will be amplified by the decline in the ratio of dependents per worker. The poorer countries of Group I will benefit the most from this change, and their support ratio will be reduced to around half of what it is today. For them, each 1 percent increase in productivity (product per worker) over this 40-year period will be translated into a 2 percent increase in the availability of goods and services per inhabitant. Countries in Groups II and III, more advanced in their demographic transitions, will benefit much less, as their support rates will fall only slightly, to around 85 percent of what they are today. This is particularly true of Group II countries, which will begin to show increasing support ratios by 2030.

### *Policies Will Make the Difference*

The changing rhythm of growth, age structure and relative size of the labor force creates enormous op-

**Figure 2.27 Index of Formal Employment Protection**




*Source: Updated from Lora and Márquez (1998).*

portunities for the region. An increase in the proportion of the working-age population means that more potentially productive workers will be available to sustain a smaller share of nonworking people. The smaller relative size of young cohorts in the labor force will reduce the strain of incorporating new entrants into the labor market. An increase in the share of experienced workers will enhance the effects of innovations on productivity and, thus, on living standards.

But these same forces will also create significant challenges. If there are not adequate investments in physical capital, a good number of those potentially productive workers will be condemned to low-productivity jobs and low incomes, with the resulting frustration and potentially dramatic consequences for social cohesion. The larger share of workers over 55 will increase the demand for mechanisms to provide income to those members of society in the process of leaving the work force. And unless there are adequate labor policies, the region will fail to create the growing number of productive and decent jobs needed for an expanding labor force.

A failure to face the challenges and profit from the opportunities presented by the demographic transition in Latin America will put at risk the advances of decades of painful macroeconomic stabilization and microeconomic restructuring. The increasing number of job seekers will enter labor markets that have been sluggishly generating employment in spite of the enhanced opportunities that solid macroeconomic policies and deeper integration in the world economy have created over the last decade. Without far-reaching labor market reforms, unemployment and low-quality employment will increase to fill the gap between supply and demand in the labor market.

This dismal panorama is avoidable, but the actions needed to counteract these trends have been difficult to implement. In contrast to the progress in trade and financial liberalization and macroeconomic stabilization, little has been done to improve the regulatory framework of the labor market in order to enhance employment generation. With very few exceptions, the acrimonious debate surrounding labor market modernization has not led to the reforms needed to improve labor outcomes.

### *Failure of Traditional Income Protection Mechanisms*

The high level of macroeconomic volatility of Latin American economies has generated a strong social demand for mechanisms to protect the working population from the resulting risk of income losses. Traditionally, this demand has been met by enacting employment security regulations that penalize termination either through high severance payments when termination is allowed, or through direct prohibition of termination altogether. For workers in regulated contracts, severance payments are quite high and employment protection regulations are strictly enforced both in the workplace and the courts. Figure 2.27 lists both Latin American and OECD countries according to the strictness of their employment protection (i.e., how difficult and how expensive it is to dismiss workers when the firm faces adverse economic conditions). Latin America has notoriously high levels of employment protection, even relative to those enjoyed by workers in the more developed OECD countries,[13] and even though some countries have introduced reforms that allow more flexible labor contracts.

The social justice rationale behind these employment security regulations is quite well known.

[13] See Márquez (1997) and IDB (1997).

Box 2.4

## Who Benefits and Who Suffers from Tenure-based Job Security?

In labor markets characterized by high youth unemployment rates, a critical issue is the differential effects of job security provisions along the worker life cycle. A recent study of the Chilean labor market finds that job security is associated with a substantial decline in youth employment-to-population rates and an increase in middle-age and older employment-to-population rates.[1]

In Latin America, the most important job security provision in labor legislation is that severance payments (the indemnity that workers receive in the case of firing) increase proportionally with the worker's tenure. Tenure-based job security biases employment in favor of middle-age and older workers and reduces long-run aggregate employment rates.[2]

In contrast, a flat severance pay would have little effect either on the age composition of employment or on aggregate employment and unemployment rates. These results have two important implications for the design of future labor market reforms.

First, reforms should aim at delinking severance pay and tenure. This could be achieved by mandating a flat severance pay, reducing the maximum amount a worker can receive as severance pay, or reducing the rate at which severance pay increases with tenure. Such a reform would bring an expansion in youth and overall employment rates, but would come at the cost of lowering employment rates of older people. Yet, in most OECD countries, retirement incentives have already pushed many older people out of work. Additional reforms may be required to bring some older workers back to work.

Second, a labor market reform that reduces the link between job security and tenure would have important redistributive effects. These effects are likely to get in the way of reforms. Thus, while young workers could benefit from the measure, they are less likely to vote or to organize themselves to support the reform process. In contrast, middle-age and older workers are more likely to be unionized or to exert pressure on policymakers to block any attempt to undermine their status in the labor market. Indeed, this greater political power likely explains why job security provisions are tied to tenure in almost all OECD and Latin American countries. In this context, understanding the political economy of the reforms may help policymakers design compensation packages aimed at attaining overall employment gains.

[1] See Pagés and Montenegro (1999).
[2] Ibid.

Firms enjoy rents that arise from high tariffs and other forms of privileged access to financial and nonfinancial resources in a context of state protection, and employment security is just one form of sharing those rents with employees. In a sense, the system works as privately-implemented unemployment insurance, with coverage limited to those workers in a regulated employment contract. These workers are protected both because the firm has a positive cost associated with termination (ensuring that layoffs and firings will be used sparsely as adjustment mechanisms), and because workers who end up unemployed receive an income transfer through severance payments.

This model of regulation provides effective protection against income losses to a minority of highly organized and vocal workers, while leaving a large portion of the working population uncovered, including those in unregulated employment contracts or who are self-employed (Box 2.4). A group that particularly suffers is young workers, whose unemployment rates are more than 1.5 times the general rate. Women also suffer because the high cost of terminating contracts makes them less employable than men, who usually have more continuous working lives. Thus, larger numbers of women are confined to informal activities.

In the cozy environment of a semiclosed economy, this model was possible because demand-boosting government policies, however unsustainable, protected the domestic market against external shocks. Workers who lost their jobs received severance payments and could find or invent an alternative job in the unregulated sector of the economy. In an inflationary environment, real wages could be adjusted by raising nominal wages more slowly than the general price level. Therefore, employment in the regulated sector was quite stable, unemployment was low, and the adjustment variable in the labor market was the real wage.

To the extent that demand-boosting government policies deepened the misallocation of resources resulting from protectionism and other forms of state intervention, the growth performance of the region

deteriorated during the 1980s. As a consequence, employment in the regulated sector remained stagnant, and employment in unregulated jobs without any form of protection against income losses grew to almost half of the working population.[14] Therefore, the protection against income volatility ended up covering just the fraction of the labor force employed in the bigger and more closely regulated firms.

In the more dynamic environment that resulted from economic liberalization and stabilization at the beginning of the 1990s, the relevance of this model of protection came into question because of the increase in the procyclicality and level of unemployment. What caused these changes in unemployment? First and foremost, structural reforms and macro stabilization changed the relative prices of capital and labor in favor of the former.[15] In and by itself, this increased the use of physical capital and slowed employment generation. But macro stabilization also implied important changes in the employment behavior of the public and private sectors.

Public sector retrenchment resulted in the displacement of workers, increasing the stock of unemployed. More importantly and of larger consequence, fiscal discipline imposed low or zero deficits, making it impossible for governments to act as employers of last resort, as they had done directly or indirectly during the crisis of the 1980s.[16]

Lower inflation reduced the latitude that private (and public) employers had enjoyed to reduce real wages through nominal wages lagging behind inflation. The increased nominal rigidity made employment—and not real wages—the adjusting variable in the labor market during economic downturns. Therefore, shocks translated themselves into more unemployment, rather than into a collapse of real wages.[17] Once this higher level of unemployment was reached, slower employment generation made its reduction a more protracted and prolonged process over time.[18]

From a world where unemployment was almost absent, and where low quality jobs in the unregulated sector were the crux of the problem, Latin America jumped into a brave new world of growing unemployment. By the end of 1998, a record number of countries were experiencing double-digit unemployment, the most notorious being Argentina, Colombia and Venezuela. Of greatest concern, unemployment remained high even when economies recuperated after each shock. Although macro and financial policies are used to limit the domestic vulnerability to external shocks, the fact remains that the recessionary environment of 1999 is translating itself in most countries into more unemployment and falling wages, particularly for the less skilled workers.

Perhaps the most damaging blow to the relevance of severance payment-based income protection has been the recognition that privately insuring workers against income losses may hurt the ability of firms and workers to profit from the enhanced opportunities associated with a more open and competitive economic environment. Colombia in 1990, Peru in 1991, Nicaragua and Argentina in 1995,[19] and Venezuela in 1997 enacted labor regulation reforms aimed at creating more flexible forms of employment contracts, both through the reduction of firing costs and through the introduction of promotional contracts with lower payroll taxes.

One of the impacts of these reforms has been a further reduction in the share of full-benefit contracts in total employment, and a corresponding expansion of more precarious forms of employment. The introduction of more flexible employment contracts has not in fact weakened the employment protection enjoyed by workers in the old full-benefit, full-protection employment contracts. With relatively few exceptions, the labor reforms enacted during the 1990s have aimed to make hiring and firing conditions at the margin more flexible, without diminishing the legal protection enjoyed by workers already employed. Making the changes binding only on new labor contracts has in fact grandfathered employees already in the job.

However, the new contractual forms have cost advantages for firms, so employers have substituted workers in full-benefit contracts with workers under the more flexible contracts. In Argentina, for instance, promotional employment contracts generate lower payroll taxes and do not generate rights to severance

[14] See Márquez (1997).

[15] See Lora and Olivera (1998).

[16] See Lora and Márquez (1998).

[17] See Márquez and Pagés (1998).

[18] See Márquez (1998).

[19] Some of the Argentine reform measures were partially reversed in 1998.

payment upon termination. According to official information, the number of new jobs created under promotional contracts more than doubles the number of new full-benefit contracts, while the opposite is true regarding the number of workers terminated under each type of contract.[20]

In summary, as the century ends Latin America finds itself in a situation where unemployment is higher and more sensitive to economic downturns, and where more than half of the employed do not have any protection against the risk of income loss associated with unemployment. Economic downturns may result in very large income losses for both the unemployed and for workers in more precarious employment contracts. And society does not offer them any formal mechanism to insure against that risk.

### *Labor Policies for a Changing World*

How to create more productive jobs has been a challenge for Latin America for a long time. What has changed today is the world in which these better jobs need to be created. It is moot to debate changes in the regulatory framework for the labor market if half the work force does not qualify for the protection enshrined in the labor laws. The relevant policy question is how to produce and enforce a regulatory framework that effectively protects more of the work force without unduly hindering the creation of new jobs in highly productive sectors.

Reforms in labor market policy must broker a compromise between the different interests and perceptions of workers, firms and the population at large. Unions sometimes emphasize the negative distributional effects of economic restructuring. Businesses in turn have to cope with employment, wages and working conditions more directly linked to productivity in the context of economies subject to international competition. For the large numbers of workers in unregulated employment, the question is whether reforms will bring better protection against income volatility.

The basic moral and political condition for any productive discussion on changes in labor regulations is the acceptance by all parties involved of labor standards as established in the Core Conventions on Labor Rights of the International Labour Organization (ILO). Although countries in the region have signed any number of these international conventions, much has yet to be done to put words into practice. Child labor, for example remains a major concern (see Box 2.5).

While modernizing labor regulations may be beneficial both to workers (by helping to generate more employment) and firms (by increasing their ability to deal with a more competitive environment), it has complex effects that vary across different population groups. Key to successful modernization is a thorough revamping of collective bargaining that enhances its effectiveness and broadens its scope. More autonomy in collective bargaining systems can increase flexibility if it expands the object of negotiation beyond wages and towards employment levels and working conditions, while at the same time helping the parties internalize the costs and benefits of their negotiations.

Although modernization of labor regulations has a positive effect on employment rates for youth and women, it also has the effect of churning the job market, thus putting more workers at risk of unemployment and its associated income losses. New and more effective income protection mechanisms are needed to deal with this risk, such as higher quality training opportunities to facilitate entry and placement of workers in new jobs in expanding sectors, or various forms of income transfers.

### *Modernizing Labor Market Regulations*

That the job stories of yesterday result in the workers of today is an aphorism that policymakers cannot afford to ignore. The future productivity of young workers is determined to a large degree by how they enter the labor market, the different job paths they follow, and the learning opportunities offered by jobs in the early stages of their working lives.

More productive workers with better job stories will have an easier time with their transition out of the labor force at the end of their working lives. For Latin America, this in turn will make it easier to devise mechanisms to provide old age security for the expected wave of over-55 workers several decades down the road. Therefore, it is crucial to take advantage of today's demographic opportunity by designing labor

[20] *Encuesta de Indicadores Laborales* (1998).

policies that will lay a solid foundation for the future of current generations of young workers.

The high degree of job security established in most of the regulatory systems in the region has the effect of creating long waiting lines for young workers to enter into protected jobs, and long tenures for the older workers who already have them. This results in young people swelling the unemployment rolls or busying themselves in low productivity and precarious jobs in the unregulated sector of the economy—job stories that do not bode well for their future as mature workers.

Changing the levels of labor protection in Latin America would have a number of consequences. Lowering job security increases churning, as lower dismissal costs stimulate both job creation and destruction.[21] In Colombia and Argentina, for instance, a reduction in job security has spurred the creation of new jobs. After Colombia enacted laws in the early 1990s reducing mandatory severance payments, increasing numbers of the unemployed found jobs in the formal instead of the informal sector. Similarly in Argentina, job creation increased and remained high following passage of a 1995 law allowing firms to hire workers under temporary contracts that do not involve severance pay obligations.

However, reducing mandatory severance pay also destroys jobs. In Colombia and Peru (which also reduced job security in the early 1990s), job stability fell markedly through the decade. Similarly in Argentina, the probability of losing a job increased in 1995 and has remained high since. Because less employment protection increases both job creation and destruction, its effect on employment rates is uncertain, depending, among other things, on the overall state of the economy. The studies on Argentina, Colombia and Peru indicate that lower job security is associated with higher employment rates, although the evidence is not as strong as that for churning.

The effects of employment protection are different for groups in different stages of their working lives and with different labor market insertions, particularly youth and women (see Boxes 2.5 and 2.6). The experiences of Colombia and Peru show that women and youth employment rates benefit from deregulation. In Colombia, labor reforms increased job instability for men but not for women, and were associated with a decline in unemployment duration for women but not for men. In Peru, wages and employment-to-population ratios following the reforms increased faster for women than for men.

The young benefit from lower severance pay more than the old, since more job creation facilitates the entry of youth into the labor market. In Colombia, the workers who benefited most from more job creation were those under 25. In Peru, the employment-to-population ratio increased for young workers and declined for workers older than 45.

The ways these regulatory changes are implemented also have a bearing on their effects. Temporary contracts, a tool of choice for many recent reforms, concentrate the cost of deregulation on temporary workers instead of on a reduction of severance pay for all workers. Consequently, increased job instability was more evenly spread in Colombia and Peru than in Argentina, where workers hired under temporary contracts bore all the burden. In addition, reforms based on temporary contracts tend to reduce the potential benefits of deregulation for youth and women, since these are precisely the workers more likely to be hired temporarily.

Payroll taxes have also been used to strengthen job security and to finance benefits for workers in protected employment contracts. These taxes have important effects on employment than can be estimated through the analysis of the effect of wage hikes. Studies for Argentina, the Caribbean, Peru and Uruguay suggest the upper bounds of the response of employment to payroll taxes. In general, the short-term estimates are rather low: on average, a 10 percent increase in taxes can result, at most, in a 3 percent decline in employment rates. However, for some countries, the long-run estimates are much larger—on the order of a 10 percent decline in employment in Argentina, for example. Furthermore, in Peru the response of employment to wage hikes increased in the 1990s, and therefore payroll taxes could bite more in the future.

[21] The remainder of this section is based on a group of studies undertaken by the IDB Network of Research Centers, coordinated by J. Heckman and C. Pagés.

Box 2.5

## Why Do Children Work?

Many Latin American countries have ratified basic labor standards as established in International Labour Organization (ILO) conventions 87 and 98 (freedom of association and the right to collective bargaining), 138 (minimum working age), 29 and 105 (prohibition of forced labor), and 100 and 111 (prohibition of discrimination). On average, countries in the region have ratified six out of the seven core conventions, in contrast to an average of three ratifications by Asian countries (excluding Japan and Central Asia).[1]

In the Final Declaration of the Second Summit of the Americas in 1998 in Santiago, Chile, the heads of state of the region also committed their governments to the elimination of all exploitative forms of child labor. Despite these commitments, however, large numbers of Latin America's children continue to work. Employment rates for 15-year olds in urban areas are 30 percent or higher in Brazil, Ecuador, Honduras and Paraguay, and 20 percent or higher in Costa Rica, Peru and El Salvador (Table 1). For children between 10 and 14—an even more critical age in terms of human capital formation—the general pattern follows that for the 15-year old children (Table 2).

Since children from poorer households are more likely to find jobs to supplement low family income, child labor force participation would be expected to be higher during bad economic times. However, the price effect (children's employment falls as the wage in the labor market falls) dampens the effect of a decline in per capita family income. Research in the United States indicates that college students react strongly to the price effect. School attendance in Latin America is surprisingly elastic at young ages. Recent research for Mexico and Brazil shows that, after controlling for the income effect, children's school attendance increases as labor market opportunities (measured as market wages) fall.[2] In other words, while more children attend school as parental incomes rise in good times, some children are enticed into the booming labor market and leave school prematurely, dampening the effect on school attendance.

Remunerated participation by young people over 15 years old in the work force is not harmful per se if the experience complements school performance and provides training for future endeavors. But while labor market participation does not necessarily require dropping out from

### Table 1. Employment Rates for Urban 15-Year Olds

*(In percent)*

| Country | Survey years | Early 1980s | | Early 1990s | | Mid-late 1990s | |
|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls |
| Argentina | 1980, 1996 | 35 | 15 | | | 8 | 3 |
| Bolivia | 1996 | | | | | 15 | 25 |
| Brazil | 1981,1992, 1996 | 37 | 22 | 42 | 23 | 30 | 17 |
| Chile | 1987, 1996 | 2 | 3 | | | 5 | 3 |
| Colombia | 1997 | | | | | 11 | 9 |
| Costa Rica | 1981,1995 | 22 | 8 | | | 22 | 7 |
| Dominican Republic | 1996 | | | | | 20 | 4 |
| Ecuador | 1995 | | | | | 45 | 25 |
| El Salvador | 1995 | | | | | 24 | 12 |
| Honduras | 1989, 1998 | 28 | 15 | | | 33 | 17 |
| Mexico | 1994, 1996 | | | 14 | 9 | 16 | 7 |
| Nicaragua | 1993 | | | 18 | 9 | | |
| Panama | 1997 | | | | | 2 | 4 |
| Peru | 1985, 1997 | 34 | 24 | | | 24 | 22 |
| Paraguay | 1995 | | | | | 51 | 33 |
| Uruguay | 1981, 1992, 1995 | 21 | 10 | 16 | 5 | 18 | 11 |
| Venezuela | 1981, 1995 | 16 | 5 | | | 18 | 5 |

*Source: IDB calculations based on national household surveys.*

school, these two trends are often synonymous in Latin America. The correlation between employment and school attendance for 15-year old boys is -.6, indicating a strong negative tradeoff between work and school. However, it should be kept in mind that this might reflect the fact that low parental income simultaneously determines lower school attendance and more child labor.

Policies that facilitate both working *and* attending school would help separate these two trends by reducing the burden that children experience in bad times, and the negative consequences of the pull towards paid employment in good times. Particularly important would be to regulate casual work by young people who attend school through special labor contracts with exceptions from minimum wages, flexible hours, and penalties for firing or quitting. These contracts would allow youngsters to enter the labor market in good times, which they do anyway, but without the penalty of having to quit school.

Another measure of interest would be to include mandatory school attendance in emergency training programs for unemployed youth. The experience of Mexico in 1995 suggests that these emergency programs can help counteract the forces that pull poor children out of school.[3]

Moreover, legal and regulated participation by youth in the labor market may be the most practical way to direct their labor toward activities that are safe and nonexploitative, while also enriching the nation's human capital. At the same time, while work experience early in life can play a useful role in a young person's future in the labor market, staying in school should be required of those participating in youth training and apprenticeship programs.

[1] See Belser (1998).

[2] See Duryea and Arends-Kuenning (1999) and Binder (1999).

[3] See IDB (1998-99, Box 4.1).

**Table 2. Employment Rates for Urban 10-14 Year Olds**
*(In percent)*

| Country | Survey years | Early 1980s | | Early 1990s | | Mid-late 1990s | |
|---|---|---|---|---|---|---|---|
| | | Boys | Girls | Boys | Girls | Boys | Girls |
| Argentina | 1980, 1996 | 6 | 1 | | | 2 | 1 |
| Bolivia | 1996 | | | | | 13 | 8 |
| Brazil | 1981,1992, 1996 | 13 | 8 | 15 | 8 | 11 | 5 |
| Chile | 1987, 1996 | 1 | 0 | | | 1 | 0 |
| Colombia | 1997 | | | | | 4 | 2 |
| Costa Rica | 1981,1995 | | | | | 6 | 1 |
| Dominican Republic | 1996 | | | | | 7 | 1 |
| Ecuador | 1995 | | | | | 25 | 15 |
| El Salvador | 1995 | | | | | 7 | 5 |
| Honduras | 1989, 1998 | 6 | 4 | | | 10 | 7 |
| Mexico | 1984, 1994, 1996 | 6 | 3 | 6 | 2 | 6 | 3 |
| Nicaragua | 1993 | | | 7 | 3 | | |
| Panama | 1997 | | | | | 1 | 1 |
| Peru | 1985,1997 | 21 | 17 | | | 13 | 10 |
| Paraguay | 1995 | | | | | 25 | 14 |
| Uruguay | 1981, 1992, 1995 | 3 | 1 | | | 2 | 1 |
| Venezuela | 1981, 1995 | 2 | 1 | | | 4 | 1 |

*Source: IDB calculations based on national household surveys.*

Box 2.6

## Can Better Policies Help Integrate Women into the Labor Market?

Women are participating in Latin America's labor market in increasing numbers as they have fewer children and become more educated. However, the traditional gender-based division of labor still attributes a greater responsibility in childrearing and homemaking to women. This results in difficult choices for women wanting to participate in the labor market. For some, particularly married women with children, the choice is between pursuing a career or devoting time to the home. For others, working more hours is not a choice but a necessity, yet employment still involves big opportunity costs in terms of home production.

This state of affairs places women at a disadvantaged position in the labor market. Employers may perceive or come to expect different behavior from their respective male and female employees, resulting in a preference for men or lower wages for women. One study finds, for example, that the presence of children in a family increased days lost from work for women but not for men.[1]

Throughout Latin America, there are large wage gaps between male and female workers. In addition, women are more likely to be employed in the informal sector and in low paying professions that tend to be women-dominated. In fact, there is an astonishing correlation between the share of women employed in an occupation and its pay relative to other professions.

A combination of appropriate labor market regulations and affordable childcare facilities could do much to ameliorate this situation. Unfortunately, the region scores quite poorly in both areas. Labor codes generally have not yet caught up with increased female participation, dating for the most part to a time when women made up only a small share of the work force. Because they were drafted to protect "breadwinners," labor codes favor permanent jobs, arrangements unfavorable to workers who need to juggle time between their jobs and other activities such as childrearing. Legislation in most countries allows for part-time contracts, yet they are relatively underused. In Chile, for instance, there are no differences between part-time or full-time contracts with regard to social security or severance payment benefits. But those contracts are hardly ever used, probably because of the cost for an employer to hire two part-time workers relative to hiring one full-time worker .

Women often turn to working in small, informal firms where laws that supposedly protect them are less likely to be enforced, but where there is more flexibility in terms of work schedules. Since small firms are on average less productive, the higher share of women in the informal sector is another factor that explains why women earn on average less than men do.

Regulations that favor permanent jobs are also likely to reduce employers' incentives to hire women. In most countries, labor codes mandate firms to pay large severance payments to workers in case of dismissal. These large penalties may reduce the incentives to hire workers considered to be a high risk. The reasons outlined above suggest that women may fall in that category more often than men do. In addition, since dismissal penalties increase with tenure and women tend to be less attached than men to the labor market (and therefore accumulate less seniority), women may suffer a disproportionate share of layoffs during recessions.

Poor labor market regulation has also been a problem for women, even when lawmakers may have had good intentions. Compulsory maternity leaves, for instance, make good social policy—much evidence shows the importance of early childhood care for child development.[2] However, if the burden of the cost falls on the employer, the policy backfires on women, reducing their chances of becoming employed in jobs where regulations are enforced. The same is true for laws that mandate nursing facilities in the workplace. In Peru, a law in force until 1991 required firms with more than 25 female employees to set up nursing rooms, thus creating large incentives for employers to hire fewer than the minimum number of female workers.

However, appropriate regulations can be more help than hindrance if drafted correctly. Recent evidence from Peru and Colombia, countries that have undergone major labor mar-

### *Expanding Coverage of Income Protection Mechanisms*

Because of Latin America's changing demographic panorama, protecting workers from the effects of income volatility is more important than ever. Fewer children per family caused by falling fertility is the correlate of the shrinking portion of youth in the labor force. This reduction will in turn make it more difficult for families to cope with unemployment arising from systemic or idiosyncratic shocks, since they will be less likely to be able to deal with it by simply sending more workers (usually young ones) into the labor market. Without mechanisms to protect the income of workers, volatility will therefore have an increasingly negative impact on families.

Traditionally mandated severance payment mechanisms have failed to provide the income sup-

ket reforms, suggests that reducing dismissal costs improves women's standing in the labor market. From 1992-96 in Peru, during a time when dismissal costs were substantially reduced, employment-to-population ratios increased more for women than for men, and so did wages.[3] In addition, the percentage of female workers in the informal sector fell from 48.6 percent in 1991 to 44.7 percent in 1996, whereas the share of women in the formal sector increased from 33 to 35 percent. And within the formal sector, the percentage of women increased in high paying sectors such as finance, transportation and communications, and wholesale trade, whereas their participation declined in retail trade and other services, sectors traditionally associated with female occupations.

Similarly in Colombia, where labor reform was passed in 1990, there are indications that women are faring better than they did prior to the reforms. The duration of unemployment for instance, has declined for women but increased for men. Average tenure also increased for women but declined for men, suggesting that men bore a much larger share of the churning of the labor market rotation induced by the reforms.[4]

Neither mandatory leaves nor nursery facilities in the workplace necessarily result in negative outcomes for women if the incentives are set up correctly. A recent study covering nine European countries found that mandatory parental leave increased female employment-to-population ratios by 3 to 4 percent, with larger effects for women of childbearing age.[5] The study also found that short leave periods did not have a significant effect on female wages, while longer leaves were associated with some reduction in earnings. This effect is not surprising if one considers that in all the countries studied, mandatory parental leaves are funded by some combination of general revenues and special payroll taxes. Presumably employers still bear a small cost associated with replacing the absent worker, yet this effect seems to be small compared to the labor supply effects of such a policy. Nursery facilities in turn may result in productivity gains that may outweigh the possible costs to employers. These gains are more likely if facilities are negotiated as part of the overall compensation package at the level of the firm, instead of being mandated by law. Regardless of the process, the existence of such facilities should not be tied to the number of employed women, since the Peruvian experience showed how such a link reduces the probability that women will be hired in the first place.

Good-quality and affordable childcare can also do much to alleviate the tradeoff faced by many working women. Unfortunately, this issue is still pending in most Latin American countries, especially for poor families. Public childcare is in short supply in general, and since the work schedules of poor women often do not coincide with normal work schedules, their chances of finding public childcare are that much more remote. There are, however, plenty of circumstances where subsidized childcare would likely make for efficient public policy, particularly with its positive benefits on child development or on the potential social gains from female participation in the labor force.

Although such policies could do much to improve the standing of women in the labor force, there remain many social constraints and stigmas attached to women working in certain occupations, or for that matter to men taking care of housework and childrearing. Public policy should address these issues by making laws as gender-neutral as possible, and by disseminating information about women's rights and opportunities. Policies that include parental leave for fathers and mothers alike should be considered. Such policies break down the stereotypical notion that only women take time off for childcare, while also allowing fathers who want to take care of their children to do so without having to do it on their own time. However long term their effect, such policies go in the direction of equalizing the position of women and men in the labor market.

[1] See Primoff (1997).
[2] See Deutsch (1998).
[3] See Saavedra (1998).
[4] See Kugler (1999).
[5] See Rhum (1998).

port needed by unemployed and displaced workers. This failure has led governments that have been faced with sharp economic instability since 1995 to develop programs to support the incomes of hitherto unprotected groups of the population hurt by unemployment and declining incomes.

These programs present policymakers with a unique opportunity to widen the scope of protection to more workers. However, because they were developed as emergency programs, little attention was paid to the potential labor market distortions they introduced, and even less to their ability to expand and contract in a counter-cyclical fashion. Moreover, the scarcity of resources available at the moment of their implementation called for narrow targeting to the poor, as the programs were conceived as emergency devices to protect people without the resources to protect themselves. The underlying implication was

that the traditional income support mechanism based on severance payments was protecting the non-poor rather than those most in need.

The starting point for a new income support system is recognition that workers in general, and not only the poor, need dependable mechanisms to help them cope with economy-wide and idiosyncratic shocks that result in income losses and unemployment. As has been argued extensively elsewhere,[22] more socialized forms of income protection such as unemployment insurance can provide effective protection and cost less in terms of labor market distortions. In this sense, some of the recent labor market reforms (such as the Venezuelan reform of 1997), which reduce legally mandated severance payments and create a system of unemployment insurance, represent a step in the right direction.

However, unemployment insurance coverage will not be wide enough to protect all workers, particularly the younger ones. Part of what differentiates the young from more mature workers is the nature of their introduction to the labor market and, therefore, the mechanisms that need to be devised to insure them against the risk of income loss. Younger and less experienced workers must rely on alternative mechanisms to protect themselves, since they cannot afford unemployment insurance or are in employment situations (self-employment or causal work in unregulated contracts) where insurance is essentially unavailable.

For these workers, a menu of alternatives can be provided based on the existing mechanisms for income support. At the center of the scheme is a well-designed unemployment insurance system that covers the group of workers who, given their employment contracts and their productivity, can "buy" the insurance. Both individual accounts and collective insurance are needed in order to prevent moral hazard and extend system coverage as widely as possible. The rationale for implementing the collective insurance component is that workers who suffer more frequent or prolonged unemployment episodes can "borrow" against future deposits. The Chilean Ministry of Labor proposed this type of unemployment insurance in 1993.[23]

For workers without access to unemployment insurance, a variety of mechanisms can be put in place, depending on the reasons why access is lacking. First, short-term training courses could provide new and low-skilled entrants with the training, job search assistance and labor market experience necessary to access a regular job. However, scholarships should be set at a level low enough as to not discourage people from searching in the local labor market,[24] and targeting should concentrate resources on unemployed youth who are out of school in order not to encourage dropping out. Funding of such programs should be provided in sync with their demand—that is, more funding during economic downturns and less during expansions. Decentralized provision of these services can be combined with the regular training programs aimed at helping all workers deal with normal job churning (see the section on education policies later in this chapter).

For displaced low-skilled workers, labor-intensive public works are the tools of choice to provide employment at the local level. The design of these programs must take into account the level of development of local governments as well as the nature of their financial and political relationship with the central government. Many employment generation initiatives have failed because they did not take into account the organizational and political dimension of the separation between financing and execution. Again, wage levels in the programs should be low enough so as not to crowd out alternative employment opportunities. Funding should be provided from general revenues and not, as is normally done, from payroll tax revenue.[25] Again, funding should be provided in sync with demand, with expenditure adjusted according to the evolution of the general or, if available, local unemployment rates.

The other member of the family of employment generation programs—wage subsidies— should be used sparingly if at all, in spite of the conceptual attractiveness of generating private sector "real" jobs (as opposed to temporary types of jobs associated with labor-intensive public works). The distortions caused by meddling with the relative wages of dif-

[22] IDB (1997).

[23] Cortázar, Lustig and Sabot (1998).

[24] The main criteria here is that the scholarship should be below the market wage that *equivalent workers* obtain in the labor market, and not a function of the overall average wage.

[25] The use of payroll tax resources to generate jobs is somewhat contradictory, since they increase the cost of labor and therefore reduce employment generation.

ferent types of workers are important enough as to counsel caution in this area. Besides, the sophisticated enforcement and supervision system needed to mitigate the deadweight and substitution effects of these subsidies is not present in most Latin American countries.

Finally, cash transfers to poor families are the mechanism of last resort to support those families that fall through the other support mechanisms. Low coverage is the sign that a last-resort mechanism is being used appropriately. If coverage expands into a well-defined poverty headcount, it is a clear signal that other components of the income support system are failing, and too many workers are falling through. Design and implementation of cash transfer programs can be complicated, and extreme caution is recommended in using them, given that such programs can create dependency traps for beneficiaries.

Most components of this comprehensive income support system exist in one form or another in most countries in the region. Achieving some of the others—such as replacing legally mandated severance payments with unemployment insurance or savings-based separation funds—will require far-reaching political agreements. Such consensus can be reached only if there is a shared vision of the end product as a system to protect all workers against income volatility. For other components—such as emergency employment programs—the pitfalls of designing in the context of an emergency can to some extent be mitigated if there is a clear sense of how such programs ultimately will fit into the context of a new and more effective income protection system.

### *Improving Transparency of the Labor Market*

New labor policies should also be aimed at improving job placement opportunities in the labor market. Quite often, qualified or able workers seeking to better their status in the labor market do not know where to turn, or whom to contact to find a job. A recent survey, for instance, indicates that about 67 percent of Latin Americans believe that success depends on social connections and networking. In contrast, less than 50 percent of those interviewed think that hard work is enough to succeed.[26]

Poor or inefficient formal placing mechanisms result in poorly matched workers and jobs, reducing the potential incomes of workers. This phenomenon is especially acute in the case of young workers and new entrants from less advantaged families. These workers, lacking an established record in the labor market and the connections to find a good job, may end up settling for worse jobs and lower pay than they could potentially attain. Therefore, improving job placement services contributes to leveling opportunities in the labor market.

In addition, devising mechanisms that help workers find a suitable match becomes particularly relevant in the current context of increased churning. Thus, the insecurity associated with the loss of a job can be greatly mitigated if a new and appropriate job is quickly located.

In this context, current efforts to streamline and in some cases decentralize job placement systems to improve their efficiency are greatly welcome. These efforts should be aimed at improving coordination between job placement services and training initiatives, increasing the participation of firms and workers in such services, and, last but not least, performing regular evaluations of their matching performance.

## The Demographics of Violence and Crime

Crime and violence have become staple features in most Latin American countries. Despite the persistent lack of reliable data, what statistics are available indicate that the region has one of the highest crime rates in the world. The median rate of homicides in Latin American countries is the highest of all the principal regions of the world, while the average rate is second only to sub-Saharan Africa.[27]

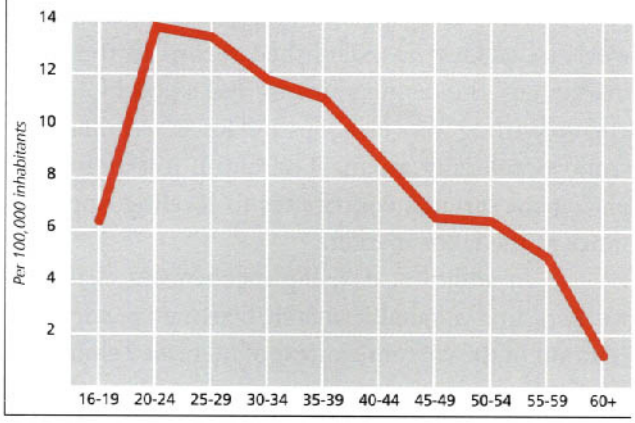
Latin America also has high rates of other types of crime. Some recent studies based on household surveys indicate that the percentage of victimization is staggering. Almost 40 percent of the residents in San Salvador have been victims of some type of crime, while 30 percent of residents have been victimized in Bahia (Brazil), Cali (Colombia) and Caracas (Venezuela).[28] Similarly, surveys show that over 50

[26] Latinobarómetro (1998).

[27] See Murray and López (1996).

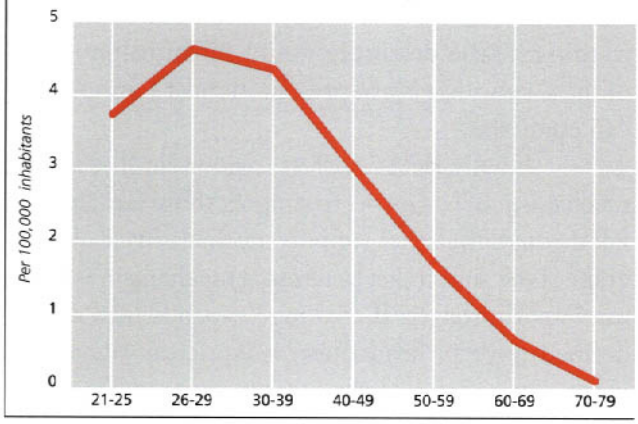
[28] See Cruz (1999).

**Figure 2.28** Arrests for Murder by Age Group, Mexico, 1997




Source: INEGI, Mexico.

**Figure 2.29** Arrests for Murder by Age Group, Argentina, 1999




Source: Ministry of Justice, Argentina.

percent of urban households in Guatemala and 40 percent in Mexico and Ecuador have been victims of some type of crime.[29]

There is evidence that shifts in average age structure are accompanied by changes in some types of crime. Since young people tend to be more actively involved in crime, younger populations suffer higher aggregate crime rates. The evidence suggests that the propensity of the young to commit crimes is higher in Latin America than elsewhere in the world, making the presence of a particularly large young cohort in the region a particular concern.

The size of the cohort most likely to be involved in crime reached a peak during the 1990s in Latin America and will continue to be large over the next 30 years. Unless innovative crime prevention and control policies are implemented, homicide rates will increase in some countries and remain painfully high in the others.

Prevention policies designed to address the root causes of crime have so far proven more cost-effective than traditional control policies. However, law enforcement expenses are still mostly allocated to control. In the future, the region should allocate more resources to the design and implementation of crime prevention programs while rationalizing control expenditures. The region should also implement far-reaching reforms in the criminal justice systems in order to deter crime; promote equal treatment of all citizens before the law; and increase community involvement in crime prevention and control. Finally, nations need to better monitor the performance of crime programs and agencies, carry out extensive program evaluations, and create internal and external organisms to monitor law enforcement as well as the judicial and corrections systems.

### *The Peril and Promise of Demographics*[30]

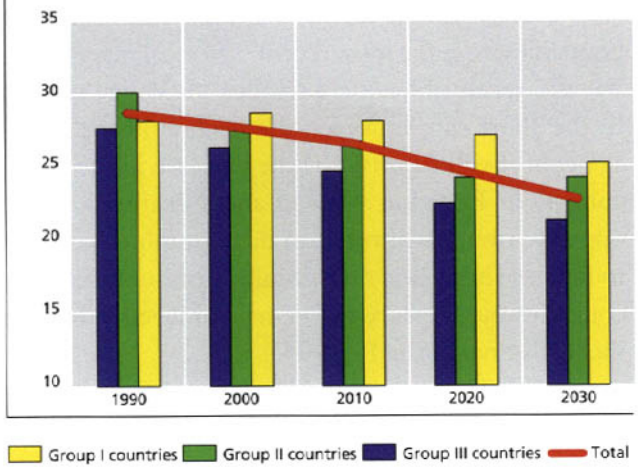
Demographic trends matter for crime because age is a fundamental determinant of the propensity to engage in criminal activities. All over the world, adolescents and young adults commit a high percentage of all crimes. In Mexico, for example, arrests for murder peak at a young age and decline quite rapidly for older age groups (Figure 2.28). Similarly, in Argentina, data on incarceration rates per age group peak for the 26-29 age bracket and then make a marked decline for older ages (Figure 2.29). Thus, as the structure of the population changes, the numbers of people likely to engage in crime changes as well, bringing important changes in the aggregate crime rate.

For the region as a whole, changes in the population structure in the years ahead will have mixed effects on crime rates. On the one hand, the share of the population aged 10-29 will decline (Figure 2.30); on the other, the share of the popula-

[29] See Gaviria and Pagés (1999).

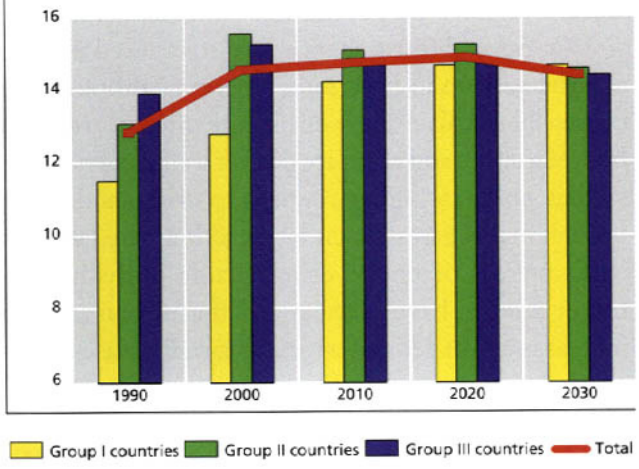
[30] This section is based on Morrison and Pagés (1999).

**Figure 2.30** Share of Population 10-29 Years Old
*(In percent)*




*Source: United Nations (1998).*

**Figure 2.31** Share of Population 30-39 Years Old
*(In percent)*




*Source: United Nations (1998).*

tion aged 30-39, still quite involved in crime, will increase until the year 2020 and decline afterwards (Figure 2.31). These changes in the population structure will differ across countries in different stages of the demographic transition. The countries less advanced in the demographic transition (Group I countries) face the worst scenario: the share of the 15-29 cohort reached a peak in the 1990s and will decline very slowly in the future, while the share of the 30-39 cohort will continue increasing over the next 30 years. In contrast, the scenario is benign for the countries most advanced in the transition process (Group III): the share of the 15-29 cohort will decline rapidly, while the share of the 30-39 cohort is already peaking and will decline in the future.

While the impact of demographics on crime has received considerable attention in the United States, it has not been studied in Latin America, nor for that matter in the developing world as a whole. The bottleneck has been, and continues to be, the lack of reliable data on crime rates by age group. When such information is available, it is possible to compute the impact of changing demographic structure on aggregate homicide rates. Although the estimates made here are based on the limited data available, they nevertheless shed some light on the magnitude and nature of the demographic effect, and underscore the importance of improving crime data collection in the future.

The relationship between homicide rates and the age structure of the population is estimated using international data on intentional homicide rates and cohort size. (See Appendix 2.4 for a description of the statistical methodology.) The estimates show that the size of the young age cohorts can explain differences in aggregate homicide rates. For the world as a whole, the effect of the cohort size peaks between ages 15 and 19, declines somewhat in the 20-29 age group and, surprisingly, increases again (although to levels below those of the 15-19 age group) for the 30-39 age group. After 40, cohort size no longer affects homicide rates.

Once region-specific relationships between the homicide rate and cohort size are taken into account, the analysis shows that the effect of the young cohort size on crime is higher in Latin America than anywhere else in the world. These results suggest that the propensity of young people to commit crimes is higher in Latin America.

What's behind these higher crime rates in Latin America? The literature on the roots of violence and crime points to poverty, income inequality, youth unemployment and low education as sources of violence and crime among the young. Data limitations preclude analysis of the impact of poverty and young unemployment rates, but the role of inequality and low education has been examined. Although some studies have found a positive correlation between inequality and crime,[31] data examined here show no such

[31] See Fajnzylber, Lederman and Loayza (1998).

relationship. Nor is any relationship found between education—measured as the percentage of the population with secondary education—and homicide rates.

Several researchers have also stressed the role of urbanization in high rates of crime, although the causes that explain the well-documented correlation between crime and cities are not yet well known. Some studies point to higher rewards to crime and lower probability of arrest in cities, as well as the fact that cities attract or create crime-prone individuals.[32] Other studies have emphasized that urban growth increases urban density, which in turn increases stress and frustration, resulting in higher rates of violence.[33] More urbanization is in turn associated with lower social control on individuals. Young people may be especially sensitive to all these factors. They are likely to feel as much as anyone the stress and the frustration resulting from high population density. And at the same time, lower social control may result in less supervision and more of a likelihood that the young will engage in criminal activities.

Do Latin America's relatively high rates of urbanization explain the region's high crime rates? Our results suggest that while urbanization is not associated with overall homicide rates, it is associated with higher rates of crime committed by young people. Thus, the presence of a large youth and young adult cohort is especially important in highly urban societies. However, according to our data, this relationship seems to hold worldwide. Consequently, high urbanization rates per se cannot explain the relatively higher criminality rate by the young in the region.

Therefore, while our analytical results shed some light on the possible causes of crime, they do not say much about the causes behind the high criminality among the young in Latin America. More detailed data on economic opportunities, educational achievement and employment rates of the young could bring some answers to this question.

Our analysis, however, underscores the importance of changes in the structure of the population to explain overall homicide rates. Quantifying the size of this effect can be done by simulating the impact of population trends on future homicide rates in Latin America. For this purpose we use our estimates of the relationship between crime and cohort size in the region (see Appendix 2.3) and United Nations population projections for the years 2000-30. The results are shown in Figure 2.32.

Most countries show a long-run decline in homicides from the most recent historical rates (1990-94) as a result of having a smaller 15-39 age cohort. In the short run, however, the decline in the 15-29 age cohort will be offset by the increase in the 30-39 cohort. In Ecuador, Mexico and Nicaragua, these opposite trends will result in demographic pressures to increase homicide rates, while in most of the other countries the pressure will remain at levels similar to those observed over 1990-94.

These results should be interpreted with caution because of the strong assumptions underlying this exercise. First, instead of using observed crime rates per age, we have estimated these numbers out of an international sample. Obviously, the availability of such numbers at the national or subnational levels would substantially improve the ability of each country to predict the impact of demographics on homicide rates. Second, in the simulation we have assumed that the number of crimes committed by a person in the 15-29 or 30-39 cohort remains constant over time. However, well-designed violence prevention programs targeted at these age groups could modify the situation.

### *Complex Problem, Multifaceted Solutions*

Traditional strategies against crime have emphasized the role of criminal justice over crime prevention policies. For instance, at the beginning of the 1990s, expenditure on crime control in the United States—that is, strategies dealing with crime once it has already occurred—accounted for more than 94 percent of the total U.S. law enforcement budget.[34] In Latin America, the proportion of resources directed to crime control is likely to be even larger, given the scarce amount of resources devoted to crime prevention policies.

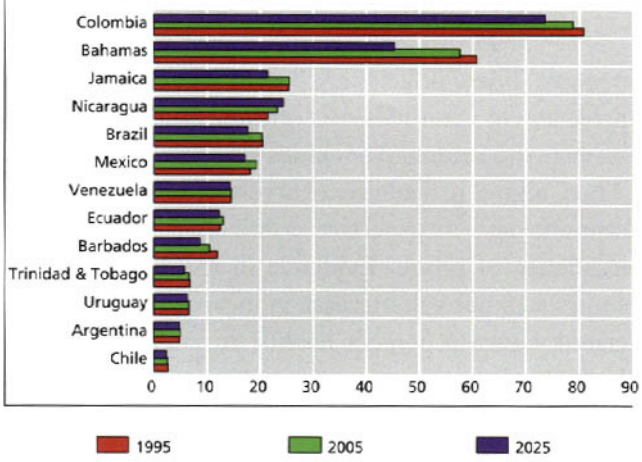
Recent evidence indicates that the disproportionate allocation of resources to crime control is not cost-effective. A recent study by the Rand Corpora-

[32] See Glaeser and Sacerdote (1996).

[33] See Buviníc and Morrison (1999, Technical Note 3).

[34] See McDonald (1992) cited in Buviníc and Morrison (1999, Technical Note 6).

**Figure 2.32 Expected Effects of Demographic Change on Homicide Rates**
*(Percent change)*




*Source: Morrison and Pagés (1999).*

tion compared the cost-effectiveness of five alternative U.S. programs: life sentences for repeat offenders (the three-strike law), supervision of at-risk adolescents, training parents of children who exhibit violent behavior, incentives for youth to complete high school, and home visitations for single mothers. The study indicated that the most cost-effective program was giving incentives to youth to complete high school, followed by parental training and at-risk adolescent supervision. Life sentences for repeat offenders were much less cost-effective than these three crime prevention programs.[35] Thus, there seem to be higher dividends from crime prevention policies—that is, any type of policy that reduces delinquency, violent crime and insecurity by successfully addressing the scientifically identified causes of crime.[36]

The international experience offers an array of lessons on how to design and implement crime prevention programs. First, across the world, successful and effective experiences have been characterized by being local in scope. Municipalities are the ideal administrative units to lead and coordinate crime prevention strategies. However, municipalities may not have the autonomy or the resources to implement such programs. It is therefore crucial to decentralize crime prevention budgets and bring the know-how to the city level.

Second, there is a need to create inter-agency working groups that include representatives of government agencies, local businesses, community-based organizations, the police, and the judiciary. The most effective approach often sees affected communities develop the strategies while government agencies play a secondary role funneling funds and overseeing projects.

Third, there is no one solution that fits all countries, cities or neighborhoods. The experience in industrial and developing countries shows the value of undertaking a careful diagnosis of the nature and causes of crime in particular locations. While some cities may have a severe problem of youth gang violence, others may suffer most from house burglaries or street robberies. While in some cities crime may be restricted to specific problem areas, in others it may be more geographically scattered. This process of collection, analysis and interpretation of data is often referred as an "epidemiological approach" because it has its origins in public health. It is executed in four stages: (1) definition of the problem and data gathering, (2) identification of causes and risk factors, (3) design and implementation of programs and policies, and (4) evaluation of the effectiveness of the interventions.[37]

Fourth, research shows that intervening in the early stages of the problem is the key. The best time to prevent future increases in crime is when crime rates are low. All too often, these initiatives are implemented when crime rates have reached unbearable levels and the solution to the problem becomes much more costly and difficult.

Finally, the experience in industrial countries shows the value of performing program evaluations in order to learn what works and what does not. While few such evaluations have been undertaken in developing countries, a number of crime prevention programs have been evaluated in the industrial world. In the future, evaluation should be incorporated into the design stage of anti-crime programs. This can be done by creating control and experimental groups and by allocating a suitable amount of resources to monitor the performance and cost-effectiveness of the program.

The multi-disciplinary nature of crime prevention programs has led to a wide array of alternative policies. These can be classified into five groups:

[35] See Greenwood et al. (1996) cited in Waller and Welsh (1999) and Buvinić and Morrison (1999, Technical Note 5).

[36] See Waller and Welsh (1999).

[37] See Buvinić and Morrison (1999, Technical Note 5).

*1. Developing individuals and families.* These policies intervene at the personal and family levels to prevent high-risk individuals from engaging in violent behavior. Research shows that violence is a learned behavior and that, as such, it can be unlearned. Evaluations indicate that programs that intervene early in a person's life are the most effective. These initiatives include pre- and post-natal care for high-risk single mothers, special education programs for high-risk children and teens, and programs to develop skills for peaceful conflict resolution.[38] Although there are few of these types of programs in Latin America, industrial countries have had considerable success with them. In the United States, a program that arranged for nurses to visit single mothers during their pregnancies and until their children reached 2 years old reduced child neglect and abuse by 75 percent, in turn reducing the risk of future violent behavior by the children who would have been abused. Another U.S. program provided high-quality preschool education to children at risk, reducing by 50 percent the probability that these children would be arrested as adults.[39]

*2. Increasing social control.* These policies intervene at the community level to increase citizen involvement in crime and violence prevention. The communities promote programs themselves in partnership with the police, the judiciary, business representatives and city officials. Initiatives include community crime-watch groups and business improvement districts aimed at increasing vigilance, reducing crime and providing work opportunities.

*3. Altering the situation.* These policies attempt to change the context in which crime occurs in order to reduce opportunities for crime and violence. Examples include gun control policies, improved street lighting, surveillance cameras, drinking age laws, increased police presence in the streets, self-protection measures and after-school programs.

*4. Improving economic opportunities.* These policies are based on the premise that prospective criminals balance gains and penalties associated with crime, discussed further in the next paragraph. By increasing labor market opportunities for potential criminals, these policies increase the opportunity cost of crime and reduce its incidence. Examples are initiatives to provide training and jobs to people at risk. An evaluation of the Job Corps, a U.S. program that provides training to unemployed and disadvantaged youths, showed that participants were one-third less likely to have been arrested one or more times relative to the control group.[40]

*5. Increasing the probability and duration of punishment.* These policies are based on the premise that prospective criminals are rational individuals who balance the gains and penalties associated with crime. Thus, higher probability of arrest and longer imprisonment deter prospective criminals and reduce the incidence of crime. Evidence in the United States shows a 10 percent increase in incarcerations is associated with a 4 percent decline in violent crimes.[41] However, it is a priori unclear whether this reduction in violence is due to a deterrent effect (prospective offenders are dissuaded) or an incapacitation effect (people in jail do not commit crimes). The evidence shows that the balance of these two effects depends on the type of crime. For emotional violence, such as rapes, the decline in crime associated with increased incarceration seems to be mostly due to an incapacitation effect. For property crimes and robberies, the decline in crime associated with incarceration is mostly attributed to a deterrent effect.[42] These conclusions suggest that criminal justice actions might be effective in preventing larcenies, robberies and burglaries, whereas homicide and rapes can be more effectively prevented with alternative policies.

One major problem with law enforcement in Latin America is that decades of police corruption, brutality and repression have eroded trust in the police (Figure 2.33). According to Latinobarómetro surveys covering 1996-98, almost 80 percent of the urban residents in Argentina do not trust the police. The data show similarly low levels of trust in Mexico, Venezuela, Bolivia and Brazil. Other countries in the region show somewhat higher levels of trust in the police, but still very low levels compared to Spain, the only country included in the sample that is not in the region. Low levels of trust result in extremely low reporting rates and little cooperation with the police. This in turn results in a low percentage of crimes

[38] Ibid.

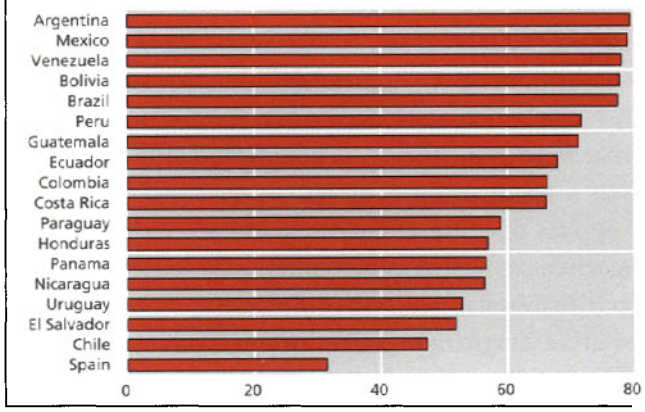
[39] See Waller and Welsh (1999).

[40] Ibid.

[41] See Levitt (1995).

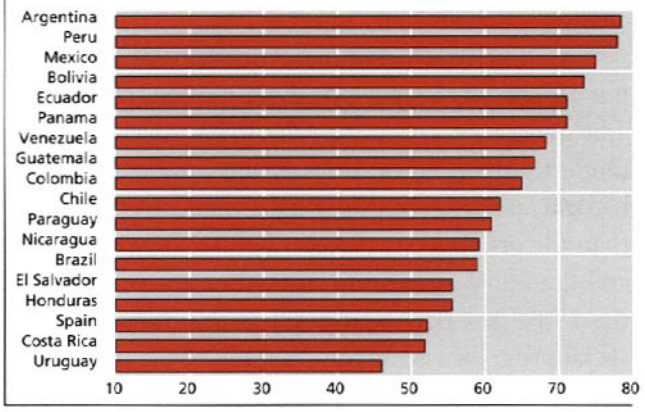
[42] See Levitt (1998).

**Figure 2.33 Survey: Percentage of the Population that Mistrusts the Police**



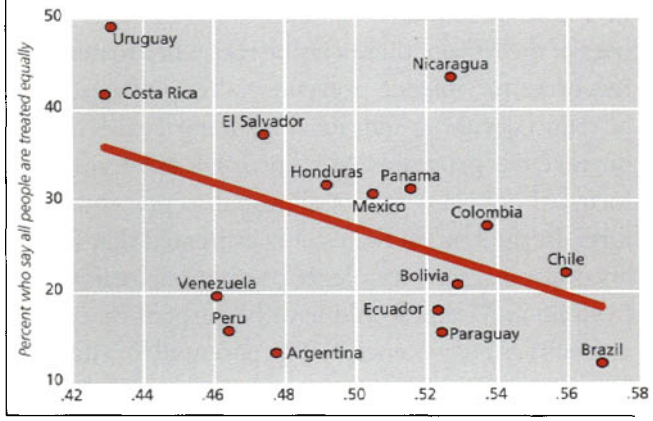

*Source: Latinobarómetro, various years.*

**Figure 2.34 Survey: Percentage of the Population that Mistrusts the Judiciary**




*Source: Latinobarómetro, various years.*

**Figure 2.35 Gini Coefficient and Perceptions of Legal Equality**




*Source: Latinobarómetro, various years, and Deininger and Squire (1996).*

solved, which contributes to an overall perception of impunity and high crime rates.[43] To break this cycle of low trust and high crime rates, it is necessary to introduce substantial reforms in the police departments of virtually all cities in the region. New approaches should include better training for police officials, better supervision of police activities, and new approaches to reach the community. In Costa Rica and the United States, community policing has significantly improved the relationship between communities and the police. In Boston, a new problem-solving strategy based on forming partnerships with the community improved the effectiveness of the police and led to substantial reductions in crime.[44]

Another problem is the revolving door nature of the judiciary system in most countries of the region. Low reporting rates and little collaboration with the police results in lack of evidence in court. This, in turn, leads to low conviction rates and low levels of trust in the judiciary. According to Latinobarómetro, more than 70 percent of the people in Argentina, Bolivia, Ecuador, Mexico, Panama and Peru mistrust the judiciary system. In contrast, Uruguay and Costa Rica exhibit the lowest percentage of mistrust among the countries included in the sample (Figure 2.34). In addition, the perception is that the judiciary does not treat all individuals equally. Thus, barely 12 percent of Brazilians and 13 percent of Argentines believe that all individuals are equal before the law. Equality before the law is also negatively associated with income inequality, suggesting that judicial systems in unequal countries may respond more swiftly to the needs of the middle and upper classes than to the needs of the poor (Figure 2.35).

[43] Gaviria and Pagés (1999) estimate the impact of low trust in the police on high crime rates. The study finds a positive and statistical relationship between these two variables. This relationship is robust to statistical methods that account for the reverse causality between high crime and low trust in the police.

[44] See Kennedy (1998).

### *Financing Crime Prevention and Control Policies*

In a time of serious fiscal constraints in many countries of the region, there may be resistance to devoting resources to violence prevention. Yet violence could be reduced without additional spending if expenditures on reactive programs (e.g., prisons and traditional forms of policing) were reallocated to prevention efforts. In the United States, it is estimated that for every dollar invested in violence prevention, society saves from $6 to $7 that would have been spent on control or treatment of violence.[45] The potential for such savings is particularly large in countries like Colombia, which devoted over 6 percent of its 1996 GDP to expenditures on criminal justice and private security.

Rationalizing expenditures on traditional reactive programs would also liberate resources for innovative control programs. For instance, for crimes for which imprisonment has mostly an incapacitation effect—that is, where imprisonment reduces crime only to the extent that a jailed person would be committing crimes if free—it may prove cost-effective to reduce the length of sentences, since the probability of committing these crimes declines substantially with age. The savings could be devoted to improving rehabilitation programs or to underwriting the costs of increasing the length of sentences for crimes for which longer incarceration *is* more cost-effective.

## Demographic Opportunity to Improve Education

In the past few decades, education systems in Latin America would have had to walk very fast simply to stay in the same place. In the countries that were further behind in the demographic transition process around 1950, the basic school age population (4-15 years old) increased at a rate of 2.7 percent between 1960 and 1990. Even in countries further along in the transition, the growth rate was 1.8 percent.

Besides this demographic growth, countries of the region have also had to deal with the fact that average education of Latin Americans born around 1960 has reached 8.2 years, almost 20 percent higher than the 6.9 years reached by those born 10 years earlier, and 55 percent higher than the 5.3 years of those born around 1940.

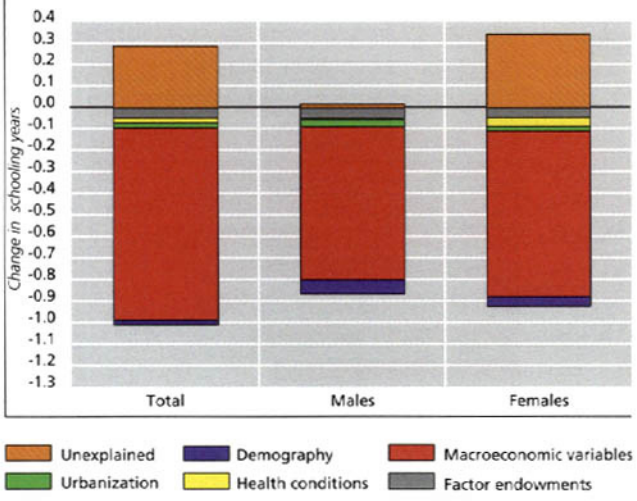
Given the demographic circumstances, such rapid progress undoubtedly constituted a true revolution that opened great opportunities for those who joined the labor force between the early 1970s and the beginning of the next decade. Not surprisingly, however, such fast-paced progress produced results that were quite uneven in quality and efficiency. This was a result of institutional weaknesses and limited supplies of resources, particularly properly prepared teachers, as well as limited physical resources (schools and materials), and scientific and technological resources (curriculum programs and teaching methods). The initial success of educational expansion was made possible by the centralized manner in which the education system had been organized, facilitating the establishment of uniform curricula, and making it possible to hire a growing number of teachers and to build thousands of schools in a few years. But centralized organization also produced a series of rigidities that would ultimately make it hard to adapt the system to changing demands.

The macroeconomic volatility of the 1980s put an end to this period of educational revolution. The generations born after the 1970s advanced more modestly than the previous groups: on average they had only 8.8 years of schooling, a scant 7 percent more than the group from 10 years before. In government and academic circles in Latin America, the crisis of the 1980s has been identified as the moment when social progress lost its way. A study of the macro factors associated with dropping out of school, for example, cites macroeconomic instability as the principal cause.[46] Starting with the education and age of millions of current Latin Americans (according to household survey information from 18 countries), the approximate year when each person left school can be deduced, adjusting in each country for the usual patterns of starting school and repeating grades. This information serves as the basis for detecting the factors that may have had an impact on the probability of dropping out. Although individual, family or social factors are important, only macroeconomic volatility is able to explain the changes in educational progress. Demographic conditions were also inimi-

[45] See McDonald (1992).

[46] See Behrman, Duryea and Székely (1999).

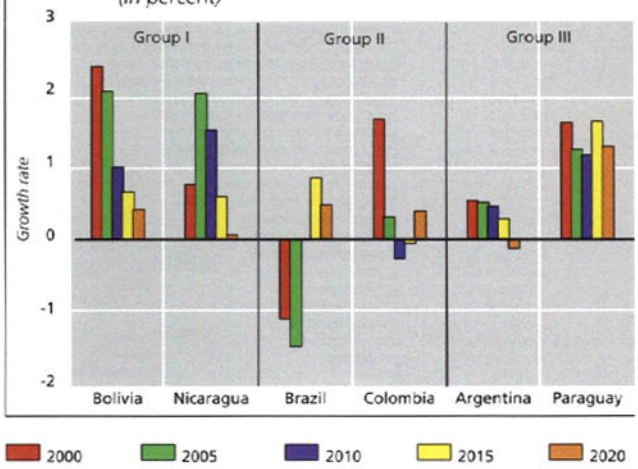
**Figure 2.36** Factors Behind the Slowdown in Schooling Progress in Latin America




*Source: Behrman, Duryea and Székely (1999c).*

**Figure 2.37** Changing Trends: Population Growth of 10-14 Year Olds

*(in percent)*




*Source: IDB calculations based on United Nations (1998).*

cal to educational progress, but they explain only a tiny fraction of the change (Figure 2.36).

### *Scanning the Horizon*

Over the next few decades, demographic conditions in most countries in the region will be favorable for advancing more rapidly in education. During the demographic opportunity period, the proportion of persons dependent on those who are economically productive will remain low, which implies better family and social opportunities for increasing education. With smaller families than in the past, parents will be able to devote greater resources to the education of each of their children. And more funds will be available for that purpose, since many more women will be able to join the labor market, and the economic burden of older people who need to be supported will still be low.

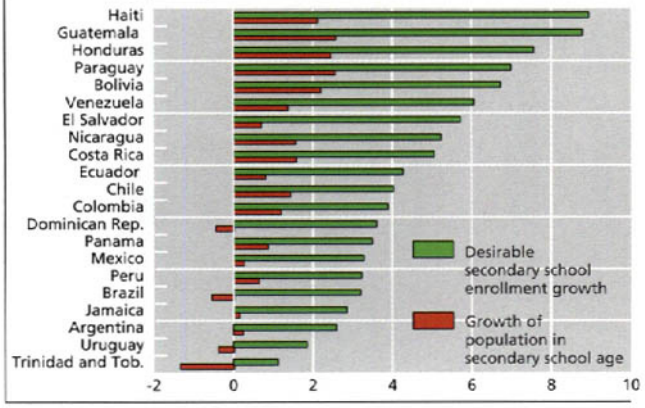
This is the unique opportunity enjoyed by the parents of the current generation: they have more siblings than children, and hence have fewer economic burdens from above and below. In aggregate terms, this is also a potential privilege for current governments, which have a growing tax base at the same time when the population demanding education is declining in relative terms and the population of retirees is still relatively small.

Whether the benefits of this opportunity are realized in terms of education remains to be seen. It would be a mistake to regard the demographic changes ahead as a simple slowdown in educational demand that will make it possible to ease up and devote these resources to other more immediate matters. The demographic shift is part of a wave of very rapid changes that are not necessarily continuous. It is true that in countries like Bolivia, there may be a continual decline in the growth rate of the population aged 10-14, most critical for improving educational gains (Figure 2.37). But the same group of countries that are not far along the demographic transition process also includes Nicaragua, where a marked *acceleration* of that same age group is likely before rates lower than the current ones can be expected some 15 to 20 years down the line. And there may be even bigger surprises. According to demographic projections by the United Nations, the population aged 10-14 in Brazil will fall over the next 10 years but then rise again, while in Colombia, where this age group is still growing rapidly, there will be a sharp slowdown until the year 2010 and then another increase.

The examples could continue, but the point is the same: changes will not be continuous. Furthermore, just as there are quite notable differences between countries that in principle belong to the same demographic group, there can be similar and even greater differences between regions in the same country, and even more between strata in the same region or city.

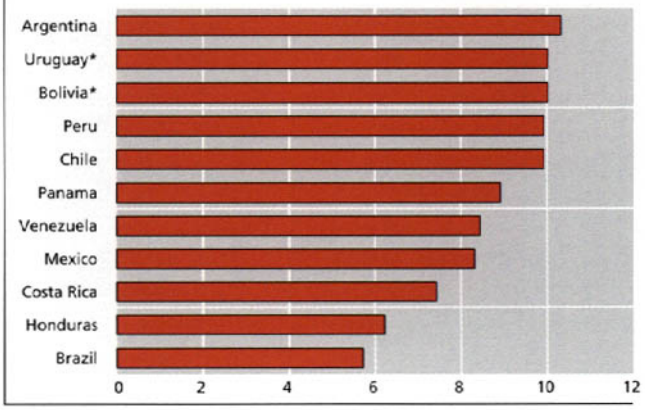
**Figure 2.38** Secondary School Enrollment Will Outgrow Population Trends

*(In percent)*




*Source: Wolff and Castro (1998).*

**Figure 2.39** Average Years of Education of the Population Age 18 and Over




*Source: Behrman, Duryea and Székely (1999a).*
** Urban data only.*

The opportunity to improve education could also be missed if there is not an awareness that this demographic horizon is just as varied with regard to the educational situation of age groups between countries, between regions and within each one of these same groups. Consider the case of children who were 8 years old in 1995 or 1996, and who now therefore comprise part of the 10-14 year old group. According to household surveys for these years, all but 1 percent of these children in Chile, Panama and Peru finished the first grade of school. But in Honduras they represented 6 percent and in Brazil the figure was 20 percent. Hence, for these latter two countries, demographic trends are only a portion of the information that will have to be kept in mind for responding to educational demands.

In light of the slow progress with secondary education in most Latin American countries, a marked acceleration in secondary education enrollment during the next few years would be expected, notwithstanding demographic trends in many countries pointing to deceleration of such age groups. To meet future social and economic demand, it has been estimated that rates of secondary education enrollment should be increased by 20 percent over 1995-2005.[47] Such an increase would have important implications, however, since enrollment rates rose only 4 percent in the last decade. The number of children enrolled in secondary education would have to rise from 25 million in 1995 to 36 million in 2005, an increase of 44 percent, even though the population for that age group would increase less than 8 percent, from 46 million to 48.5 million (taking into account the length of secondary schooling in each country). In countries such as Brazil and Uruguay, the population in the secondary age group would even be expected to decrease (Figure 2.38).

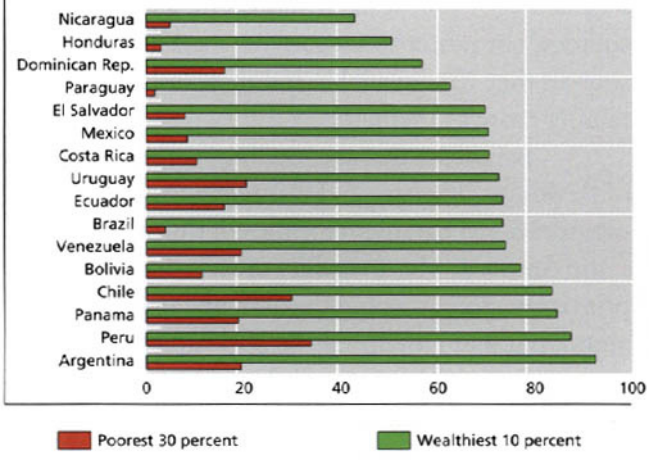
Favorable demographic conditions notwithstanding, it is clear that a substantial effort will be required to increase enrollment rates from 55 to 75 percent in 10 years. The Inter-American Development Bank projects that total expenditure should be increased from $11.6 billion to $16.2 billion, and that the number of teachers should go from 1.8 million to 2.6 million. Taking into consideration replacement needs, some 1.7 million teachers would need to be trained just for secondary schools.

The more dynamic segments of educational demand may be beyond the conventional school ages. Because of the combination of demographic trends and Latin America's characteristically high dropout and repetition rates, much of the immediate pressure on education systems in the region will come from the age group over 18 years old. Since many young people in Latin America have been forced to join the work force without having completed even a basic education, average education of 18-year olds in the region is only 8.5 years, and in countries such as Brazil and Honduras it is barely 6 (see Figure 2.39).

[47] See Wolff and Castro (1998).

**Figure 2.40 Rich and Poor 20-25 Year Olds with Complete Secondary Education**

*(In percent)*




*Source: IDB calculations based on household surveys.*

Shortcomings in schooling are also very marked between the poorest groups. Even in countries with better secondary school coverage, such as Chile and Peru, only 30 percent of young people between 20-25 from the poorest 30 percent of the population have completed secondary school. In Honduras, Paraguay and Brazil, not even 5 percent of poor youths have completed secondary school (see Figure 2.40). Surprisingly, even among high-income groups there are serious educational shortcomings in many countries of the region. In Mexico and in six Central American and Caribbean countries, at least 30 percent of young people aged 20-25 from the wealthiest decile of the population have not completed secondary school.

For all these reasons, the education market for young people and adults will be quite dynamic in the years ahead, as it already is in a number of countries. The dividing lines traditionally drawn in Latin America between education for youth and training for adults will not be adequate for dealing with the challenges of these groups. And again, all these are simply aggregate histories based on national data. The heterogeneity inside each country is infinitely greater.

### *The Challenges*

Latin America's education systems are facing basically three challenges imposed by demographic change: flexibility to respond to changing demands; diversity to respond to the heterogeneity of demand; and efficiency to make better use of public and private resources.

*Flexibility* will be required in the fiscal domain to have resources available and to allocate them to the places, levels and types of education where they are needed at each moment. Human resources, educational materials and hundreds of other inputs will have to be mobilized under constantly changing conditions. Education programs will have to be adapted continually, particularly for adults, in order to respond to immediate conditions that are difficult to foresee or plan for, since they will depend not only on already known factors such as demography and people's educational past, but also on labor market conditions, the needs of productive sectors, developments in technology, and changing expectations.

*Diversity* will be especially important for basic education aimed at young people and adults who have fallen behind or dropped out of the system. For these groups, it is neither efficient nor feasible to replicate the traditional patterns of education aimed at conventional age groups (which, paradoxically in Latin America, are often in a minority, especially among the poor).

*Efficiency* in the use of resources is important considering how much is currently being wasted because of grade repetition and dropping out. Mentioning this challenge may seem to be a cliché, because it has been repeated so often in evaluations of the education sector. But efficiency is critically important, as can be illustrated from a calculation of its fiscal impact on Brazil, where repeating and dropping out means that the unit costs per student are approximately double what they would be without these problems. Inasmuch as such sources of inefficiency are not reduced overnight, it is helpful to understand their impact over time. In Brazil, 47 percent of the expansion of demand for secondary education could be met with the resources that would be saved by lowering grade repetition in primary school by 1 percent a year in each grade.[48]

[48] See Rodríguez and Herrán (1999).

### *Toward a New Organizational Paradigm*

The centralized way in which the education system is organized in most countries of the region will not make it easy to respond to these challenges. Centralization may have been effective during the period of rapid educational expansion, but it is not likely to be helpful in meeting the challenge for flexibility, diversity and efficiency posed by the current mix of educational and demographic conditions, technological changes, and globalization trends.

Flexibility requires that schools or other education service providers be closer to the students and parents demanding education. In many current centralized systems, schools cannot easily respond to demand because the most important decisions on financing, hiring, supplies and maintenance are made by a centralized education ministry. Neither is it likely that a central entity will be able to respond to diverse local needs and conditions. Because centralized systems do not delegate important decisions to the schools, principals or teachers, important information from those closest to users is left unaddressed. Finally, centralized systems for labor negotiations with teachers and other groups of workers in the sector can also be inflexible.

Several countries have opted to decentralize decisions by assigning them to department or municipal governments. But for the most part, this has simply replicated the difficulties of centralized organization at a lower level, where administrative capability is often even more limited. This kind of decentralization has created greater coordination problems by involving several levels of government, especially when different types of education (as in Brazil or Colombia) are assigned to different levels of government. The problems are complicated even more when, as a result of a fragmented decentralization of tax resources, education is financed with budget items from different sources. Under such conditions, a good portion of the efforts of local administrators must be directed toward these funds and assigning them to different units of control and influence. It is no surprise, then, that these decentralization practices become politicized, isolating the efforts of schools and education staff even further.

For these reasons, both centralization and the type of pseudo decentralization described above do little to improve the quality of education. Under such systems, school principals and teachers respond not to challenges that lead to more efficient use of resources, but rather to incentives to maximize the resources they have available and their influence in obtaining more of them.

It is clear that responding to the challenges of flexibility, diversity and efficiency demands a new organizational paradigm for the education systems of Latin America. This paradigm must be based on three principles: strengthening the user, giving the provider autonomy, and redefining the government's role.

*Strengthening the user.* Users become empowered if they have information, a voice, and a choice. Evaluating schools and standardized national test scores enables parents and teachers to exert pressure to improve the quality of education. If the users of educational services are taken into account (with voice, if not with vote) in choosing principals and other major decisions in running schools, the schools will likely respond better in meeting their needs. Ideally, parents ought to also have the option to choose the school or type of education for their children, since this gives them the chance to "vote with their feet" if they find better options.

*Giving the provider autonomy.* Schools are likely to provide higher quality education and meet their students' needs more efficiently if they can make their own basic operating decisions, particularly regarding allocation of budget resources for staffing, maintenance and training; hiring, evaluation and promotion of teachers; and innovation in pedagogical practices.

*Redefining the government's role.* Bureaucratic control should not be the government's central task in education, as is now the case. The government must continue financing basic education, but through a system that lessens the government's bureaucratic load and generates adequate incentives so that suppliers can expand and improve their services. Such a system involves allocating resources to schools in accordance with what is produced, that is, according to the number of children enrolled and their educational achievements, and not according to the expenses incurred by schools for various spending categories, as is done now. Relieved of the tasks of bureaucratic control, the government can reorient its efforts toward generating the information needed by users, schools and teachers to make their own decisions, including standardized tests,

school and teacher evaluation, analysis of educational practices, and options for teaching and organizing schools. The government must also set quality standards for determining which schools may operate and under what conditions they may receive public financing.

This new paradigm for organizing education is no doubt ambitious and may not be suited to the realities of all countries. Nevertheless, it provides a useful frame of reference for designing other arrangements, although it must be kept in mind that the various components of an education system always need to be coherent. There is little point in strengthening the user if the schools have no decisionmaking ability. And nothing is gained by granting schools autonomy if users cannot express their demands, or if the government cannot demand standards of quality or provide schools the information and support they need to meet those demands.

Because a new paradigm needs this coherence, gradual reforms that introduce only some elements or reform are inclined to fail. Having said that, radical reform may be rash if not impossible. So an advisable option is to introduce a reform package that is complete in conception but limited in coverage. For example, it could be implemented initially only in regions or schools where there is particular interest and where prospects for success seem most viable. Or encouragement could be given to private initiatives that have emerged initially without state support, such as *Educo* in El Salvador or the *Fe y Alegría* system of schools in several countries of the region.

### *New Educational Possibilities*

The conventional arrangement for basic education in Latin America involves a uniform curriculum and the division of students by grade level, each with teachers covering the different subject areas. This arrangement will undoubtedly continue as is for the foreseeable future for many children. Yet it may not be best suited for typical Latin American students, many of whose studies may have been periodically interrupted because they have had to go to work or could not otherwise afford to continue their schooling.

For this great number of young people who are significantly behind educationally for their age, new means of teaching are needed. The demographic opportunity will not be reaped unless new options are developed quickly to make it possible to improve the work prospects of this population group, the most numerous in Latin America.

Education by television is the prime example of an innovative means with possibilities that have yet to be fully exploited. Although many countries in the region have made use of television as an educational tool, the best examples are in Mexico and Brazil. It is no coincidence that they are large counties, since developing educational programs for television requires large investments that are often, but not always, beyond the reach of small countries. *Telecurso 2000* in Brazil, for example, involves some 1,200 programs of 15 minutes each, entailing an investment of over $30 million.

*Telecurso* has been used for 15 years, and the Mexican program *Telesecundaria* for 30 years. Both are basically though not exclusively secondary school courses that lead to a traditional diploma and involve the presence of students in a classroom with the help of a teacher. The Mexican program is a government initiative funded from the budget, while *Telecurso* is run by a private foundation financed by a television company.

*Telesecundaria* is offered primarily to rural schools created solely for the purpose of housing it. The program is provided at the request of local communities, and is staffed by teachers outside the regular system. Because these schools require only one teacher per classroom, they operate efficiently and their levels of quality basically come ready-made in the television programs and accompanying textbooks. *Telesecundaria* thereby allows for mass coverage without sacrificing quality, and is free of many of the rigidities of the traditional system.

Due to the success of the Mexican program, a large industrial conglomerate decided to finance a new version of the program in Brazil—*Telecurso 2000*—which serves young workers looking to finish their secondary education. Instead of using a traditional format with a teacher in the classroom, these programs are tailored to adults, using participatory methods such as *telesalas*. The programs are organized by the various sponsoring enterprises and entities as a service for their workers and affiliates. It is projected that 200,000 students regularly attend *Telecurso* classes. Based on the number of textbooks sold or distributed

from 1995-99, it is estimated that the program has reached 5.2 million people, although it is known that many more watch the programs.

Various versions of these types of television or video programs have been introduced recently in traditional schools throughout the region, some with a training component for certain groups of workers, others with new approaches to providing the same courses. Television as an educational tool is certainly just one of many methods of distance education. In many countries, radio programs continue to serve as a viable alternative.

### *How to Catch Up in Training*

The Latin American countries were pioneers in the developing world in creating different kinds of training to facilitate the entry of young people into the labor market. The approach that has been used in most countries of the region since the 1940s is based on two components: secondary technical studies generally offered by public schools and financed by the education budget, and training centers operated by a government entity with a monopoly and financed by a payroll tax (typically 1 percent of wages) under the responsibility of the labor ministry. These centers were initially conceived as providers of apprenticeships for manual labor jobs and specific occupations.

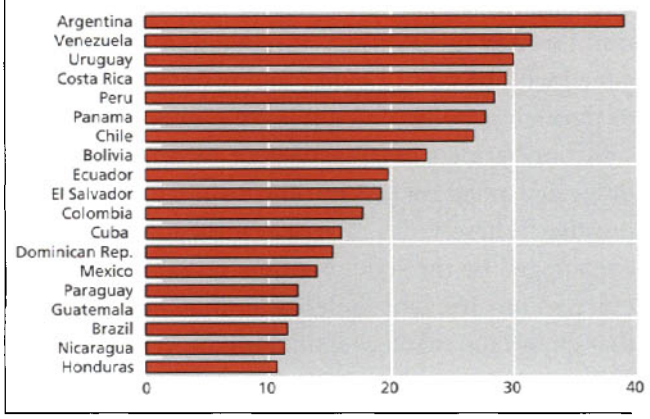
Although these types of training were successful in their early decades, they have experienced serious problems since the late 1970s, essentially because they been unable to adapt to the needs of users, and because their efficiency has been eroded by problems typical of centralization and a lack of adequate economic incentives. Technical education programs became obsolete, if not simply incoherent, when they began to mix academic secondary education, technical training and job preparation. In the case of apprenticeship services, centralized agencies continued to provide programs for the more standard and less technologically dynamic types of work, but they were unable to respond to the fast-paced technological change in many industries, nor could they prevent their rising budgets from being devoured by inefficiency and overstaffing.

In short, Latin America's traditional types of preparation and training have come up short in meeting the challenges of flexibility, diversity and efficiency. Successful training programs in recent years have been those that have managed to solve these challenges through organizational systems that strengthen the user (in this case, businesses), grant autonomy and adequate incentives to training providers, and assign to the state the tasks of stimulating competition, providing information, paying for services provided, and setting high quality standards.

Two examples of this new organizational approach are the Young Chile Project *(Proyecto Chile Joven)* created in 1992 and Argentina's Youth Project *(Proyecto Joven)* begun in 1996. Their target population is unemployed young people who are inadequately trained to be employable. The two fundamental elements of these projects are the contracting out of training service providers (by the Ministry of Labor) on a purely competitive basis, and the condition that providers guarantee that the young people they train will be enrolled as temporary apprentices or hired by companies. Although the companies are not directly involved in the programs, their demands are implicitly recognized because the providers must monitor the market closely, even making prior agreements with companies to hire their trainees.

These projects do not replace centralized training agencies, but they at least reduce their monopoly power. Several countries are beginning to experiment with variations of this organizational approach so that their training agencies will have better incentives for operating. One approach involves allowing companies to hire their own training services, or creating trade organization training centers paid for with the payroll taxes originally intended for the centralized agency. Assuring the quality of services has been difficult, however, and has often led to requiring prior authorization by the centralized apprenticeship agency, which neutralizes the very incentive that was intended to be introduced. In some countries this has prompted public debate over whether payroll taxes should be used to finance training. First, it is difficult to use a tax as a market signal, and second, because training generates benefits for the company and the worker, there is a question as to whether a tax is the appropriate way to finance it. The argument that training generates externalities is not a sufficient justification to impose a tax, since it is likely that other government activities (and other types of education) generate much greater externalities and hence ought

**Figure 2.41 Higher Education Enrollment Rates**
*(In percent)*




Source: SDS/IDB (1997).

to be given priority in the allocation of public resources. Also, because of worker mobility, the type of externality most important from training is the benefit reaped by the companies in a branch of industry as a whole, not by an individual company. This justifies not a general tax but a contribution by businesses in that branch, operating jointly (which may or may not require involvement by the state). Finally, debate in some countries has focused on whether payroll taxes by their very nature work against generation of formal employment and discriminate against the very workers who have less training, since their services are most easily replaceable or can be subcontracted through informal enterprises.

### *University Education*

From the standpoint of the growing number of private providers, the university system in Latin America demonstrates flexibility, adaptation and efficiency. But its quality deficiencies are a symptom of serious shortcomings from a social standpoint.

University enrollment in the region is estimated at 7.4 million students, which as a proportion of the potential population (by age) is 20.7 percent. This rate is much higher than the 15 percent regarded internationally as the threshold after which higher education is considered to be mass-based. The countries furthest along in extending higher education are Argentina, Venezuela, Uruguay, Costa Rica, Peru, Panama and Chile. Even relatively poor countries like Guatemala and Paraguay have enrollment rates close to 15 percent (Figure 2.41).

The region has over 5,000 institutions of higher learning, more or less evenly divided into public and private entities. Of these, 300 are public universities (with 3.5 million students) and some 500 are private universities (with 1.5 million students).[49] The rest are technological institutes, training centers and other kinds of educational institutions. This variety of educational entities ranges from institutions of international academic excellence to tiny organizations of questionable quality and origin. It is estimated that the demand for university slots in the region is growing at a rate of over 3 percent a year, thus entailing a doubling in size in the next two decades. Adding to population pressure caused by the growth of the population of university age will be the effect of increasing secondary education.

The diversity and coverage of higher education in Latin America has been a dynamic but not entirely satisfactory response to private and public demands for education and training. Despite the size of enrollment, and even though public spending for higher education in many countries exceeds international averages,[50] Latin America has the greatest relative scarcity of highly qualified personnel in the world. This is reflected in wage gaps between administrative and manual occupations, which are the largest in the world, and which have increased since the region began to adopt more open trade policies.[51] Naturally, this is only one performance indicator, and it does not reflect the progress or lack of it toward other goals of higher education, such as theoretical research, technological development, training of leaders, or the creation of critical, creative and tolerant minds.

While a comprehensive diagnosis of university education in Latin America goes beyond the limited scope of this report, it can be said that its most notable shortcomings relate to inadequate incentives for the operation of public universities and the ineffectiveness of governments in creating a framework that encourages competition, providing information,

[49] SDS/IDB (1997).

[50] See IDB (1996, Part 3), and IDB (1998-99, Chapter 5).

[51] See IDB (1998-99, Chapter 2).

and promoting standards of quality for private institutions. These problems are not easy to remedy because different types of higher education require different incentives and mechanisms for the level of competition, information and control that is needed.

For education that develops *academic leadership*—for which basic and applied research of international quality plays a central role—the market cannot provide basic incentives. Neither can control be exercised directly by the state. This has led to an organizational arrangement in public universities in which funding comes almost exclusively from the government budget, sometimes even guaranteed by constitutional mandate. These universities enjoy a great deal of autonomy, and in the absence of incentives and controls, many have become serious budgetary dead weights, with little capability even to train the academic elites who represent their core constituency, much less to provide lower-level professional or technical education.

Incentives for academic activity can be introduced through mechanisms for competition for public funds to finance research, methods of teacher remuneration based on academic performance, and research results based on international standards. Because elite academic training is a source of important future benefits for the students, there is no reason why all costs must be borne by the state. In many countries, private universities that cover a significant portion of their costs through tuition payments provide this type of education. Access to this type of education can be guaranteed through credit systems and with merit-based scholarships to stimulate academic performance. In several countries in the region, university loan programs are operating successfully. An exemplary case is Icetex in Colombia, which since 1952 has financed tuition and room and board for over 400,000 students from all social strata in public and private universities.

By definition, education in academic leadership cannot be extended to the masses and hence its rules of operation cannot be extended mechanically to other types of education. In *professional training programs*, on the other hand, the goal is to prepare students for occupations that require an advanced formal education, and where the market may consequently play a much more important role. As such, private universities have been more successful operating in this educational realm, although it has also been the sector where a number of poor-quality institutions have operated. The market can provide signs for this type of education through mechanisms of reputation (as has happened with successful public and private universities) or through accreditation systems sponsored by professional or business organizations or by other (national or foreign, public or private) universities of recognized prestige. These indirect market mechanisms may be encouraged by the state, but they do not actually require its involvement (unless it is a public institution that enjoys the market reputation). Nevertheless, the state can support this type of education by establishing or regulating credit systems and creating additional competition mechanisms. One example would be to provide public funds for developing applied research projects or for establishing new programs in areas where there are known shortcomings.

In the smaller countries in the region, these indirect market mechanisms can be difficult to develop for reasons of scale and because of conflicts of interest of the businesses or individuals involved. This is an area where integration with other countries could be useful, and where the government should establish a regulatory framework that corrects quality deficiencies found in private universities. In consultation with the private sector, the government should set high standards and have the authority to enforce them. And it should make available information to facilitate public monitoring of universities.

Some public universities in the region, and many private institutions, offer *technical training and development services* that to some extent overlap with the apprenticeship type of training discussed in the previous section. Provided it is based on incentives that encourage closeness to the market and efficient use of public resources, such competition is healthy because technical training complements technological development, where universities may have a comparative advantage over training centers. This complementarity can bring universities closer to companies, helping both to enhance sources of income, and introducing further market incentives that promote efficiency and orient activities to the needs of users.

## Health Care Policy and Demographic Change

Just as Latin America is going through more rapid demographic transition than did the developed countries, so is it going through a quicker epidemiological transition. This creates serious challenges for public health policy. Some countries in the region are still at the beginning of *both* of these transitions, while others are well advanced and have already started to experience the structural changes in health service demand that comes with evolving age and health profiles. Nevertheless, the causes of morbidity and mortality that characterize less developed societies are still present.

Demographic changes affect needs for health services, since newborns, children and the elderly are likely to demand more services than young and middle-aged adults. Latin America's age profile is becoming increasingly older, which means that for a limited time the region will benefit from a growing population of people in their most productive years, with reduced health care claims and higher contribution potential. However, the opportunity comes only once. Since the financial burden of health care is borne by the working-age population, health systems will face increasing pressures both from a reduced tax base and higher demand for services as the dependency ratio starts to rise again.

The good news is that future income growth and further advances in medical technology will push countries further along the epidemiological transition. And this transition is itself a shift toward improvements in the overall quality and length of life.

Longer and healthier lives will also mean new challenges to public policy, health systems and society. The needs of the elderly will become an increasing concern for governments because health systems will have to respond to demands for care of noncommunicable and degenerative diseases. And the family structure will have to respond to an age profile more evenly balanced between older and younger generations. These changes in the epidemiological profile, along with new knowledge about the causes and treatment of illnesses, will require innovation that goes beyond the current mode of health service organization.

In broad terms, the region's future public health policies will have to address three major challenges: escalating costs, growing reliance on insurance, and how to provide new models of medical attention.

*Escalating costs.* Treating the increase in noncommunicable disease that results from the demographic and epidemiological transitions will be ever more costly. Countries that currently find it difficult to dedicate 3 to 5 percent of GDP to health care will have to consider the implications of spending upwards of 8 to 10 percent. The inevitable increase in health expenditures actually derives from three positive trends: rising income, improved medical technology, and longer life expectancy.

As income rises, people spend ever greater shares of that income on health care. This explains in part why the Western European countries, the United States and Canada spend a greater share of GDP on health care than developing countries, despite the fact that their income is higher in absolute terms. Improvements in medical technology make it possible to treat illnesses that were previously untreatable, or to treat them in new ways. These technological advances are welcome because they improve and prolong life. But they come with a price tag.

Finally, longer life expectancy means that the elderly will represent ever-increasing shares of the population. Data from the world's industrial countries show that health care expenditures are roughly three times higher for the elderly on a per capita basis than for the rest of the population, largely because of the kinds of illnesses to which the elderly are prone.

The growing number of noncommunicable illnesses that are expensive to treat (such as diabetes, heart disease and cancer) account in large measure for the projected upward pressure on Latin America's health care costs. Knowing that health care costs will rise, countries in the region would do well to anticipate these changes by improving the efficiency of health care spending.

*Growing reliance on insurance.* In most countries in the region, public health services are of such low quality that private health services have flourished. Spending on private services represents almost half of all health spending in the region. Although much of this spending is on doctor visits and medications, an increasing share is going into private health insurance plans.

Unlike treatment of relatively simple infections or gastrointestinal diseases that predominate

early in the epidemiological transition, the noncommunicable diseases that will predominate in the future are costly to treat. The price is generally too large for most individuals or families to bear on their own. Hence, the demand for effective health insurance that provides access to quality services is going to expand not only as a consequence of rising incomes, but also as a consequence of shifts in the kinds of illnesses against which individuals want to be insured.

However, private insurance markets are notoriously problematic because of adverse selection, moral hazard, and poor enforceability of contracts. The absence of effective public regulation of health insurance has allowed insurers to limit coverage and cream lower-risk clients. In fact, governments have largely ignored the private health insurance markets, seeking instead to provide a kind of "insurance" to the population, particularly lower-income groups, by building and staffing hospitals and clinics in order to provide high-cost medical treatments directly. Unfortunately, most countries have found it difficult to do this with much efficiency. Absenteeism is high in many public health systems, medications and equipment frequently disappear, and mismanagement is widespread. Furthermore, the limited number of public facilities that do provide high-quality services are likely to be treating higher-income individuals who find ways to get privileged access.

The choice facing countries in the region is to find ways to better provide effective insurance. If not through public insurance, then alternative models of public management have to be found that address the problems of mismanagement that are so common. Governments looking for alternatives to providing services directly need to create effective regulatory frameworks for health insurance. Chile has the most experience with this endeavor, having created a superintendency (ISAPRES) for private health insurance companies that cover some 30 percent of the population. Colombia's recent health reform explicitly relies on multiple insurance firms (private and public), and the country is currently grappling with the challenges of implementing effective regulation. In Brazil, where some 44 million people purchase private health insurance despite constitutionally guaranteed access to free health care, the government has recently passed legislation concerning the regulation of health plans.

*New service models.* Latin American health systems have tended to be organized around a clinical model of treatment that relies heavily on doctors in individual practices and hospitals. This structure may be effective for dealing with acute health problems, but it is not the best way to organize either public health promotion or the treatment of chronic illnesses. New models for care and for the organization of health care providers may be needed as an aging population requires a wider range of services. For example, addressing diabetes and high blood pressure requires public health promotion to alter eating and exercise habits, individual screening for people at risk, and outpatient treatments and follow-up for those who ultimately develop the illness. For people with disabilities or chronic illnesses, hospice and home care may be more appropriate venues than hospitals.

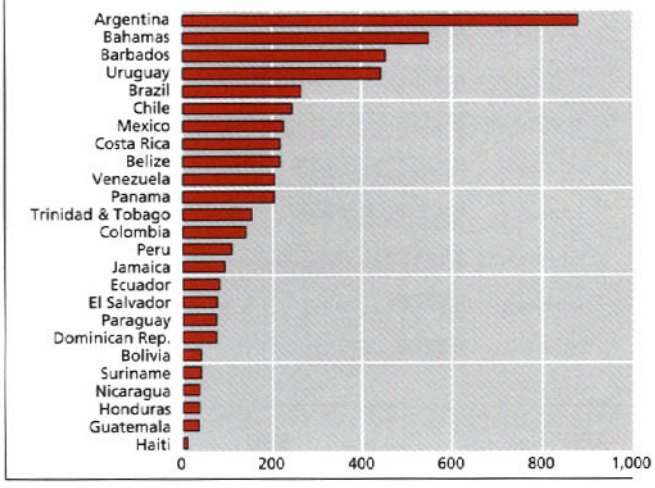
### *Which Suit Will Fit?*

The institutional strength and character of health care sectors varies significantly from country to country in Latin America. It is no coincidence that countries that have progressed farther in terms of their age and health profiles—such as Argentina, Chile, Uruguay and Barbados—are among those with the highest incomes and educational attainments. These countries also provide the most effective and equitable health services, and they spend more on them, averaging between 8 and 10 percent of GDP dedicated to health services (Figure 2.42).

On the other extreme are most of the Central American countries, Bolivia, Haiti and Paraguay. Despite progress in recent years, these countries continue to have very high fertility rates, as well as infant and child mortality rates that are as much as 10 times higher than those of the developed countries. These countries have relatively low income levels and lower educational attainments. Their health systems are highly fragmented, generally divided between social security institutes that cover a small share of the population with generous benefits, a centralized public system that is unable to effectively reach its beneficiaries, and a private sector that is sought out by rich and poor alike.[52] Health systems in these

[52] For a discussion of fragmented health systems, see IDB (1996).

**Figure 2.42 Per Capita Health Expenditures**
*(In current US$)*




*Source: World Bank (1998).*

countries tend to be inequitable, uneven in quality, and poorly financed, with expenditures of less than $100 per capita.

In the middle are the other countries, such as Brazil, Mexico, Venezuela, Colombia, Ecuador and Peru, which are still dealing with a significant burden of infectious diseases, particularly among the poor, while also confronting growing demands for treatment of chronic and degenerative illnesses more characteristic of developed countries. Incomes are relatively high in some cases, but very unequally distributed. Spending on health ranges from $106 per capita in Peru to over $223 in Mexico. The institutions of the health system are generally stronger, but are still segmented. In each case, reforms to decentralize services or restructure health system incentives have been hotly debated and, to varying degrees, implemented. The need to reform in these countries may be more apparent because of the dual pressures created by the epidemiological transition.

With such diversity, there is no simple recommendation that will suit every country. Yet it is also clear that they all need to prepare for the inevitable challenges posed by the epidemiological and demographic shifts ahead. There are lessons that, if heeded, can help any country address these challenges, even if the particular form of that response is tailored to a nation's own social, geographic, economic and institutional setting. First, governments need to effectively provide essential public health functions, even those that are most advanced in the epidemiological transition. Second, governments need to improve information through support and incentives for research and new technologies. Third, regulatory frameworks have to be improved. Fourth, public resources need to be mobilized and spent more efficiently. And finally, health service models must change and adapt to new demands from users.

*Providing essential public health services.* Specific health promotion activities will vary according to the epidemiological profile and institutional and financial capacities of each country. However, public health interventions need to be a high priority throughout the region.

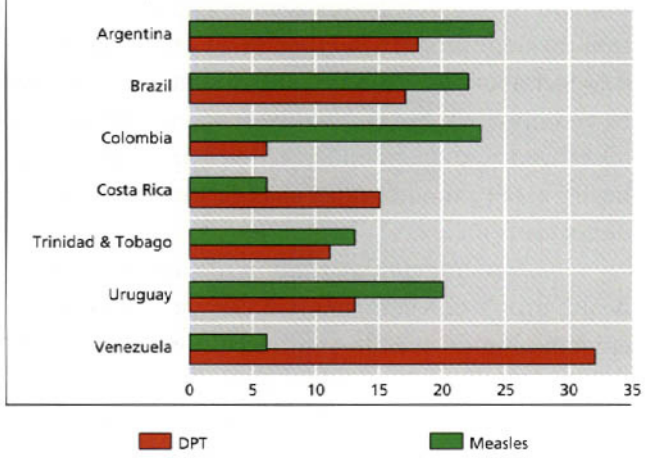
For those countries that are least advanced along the epidemiological transition, priority must be given to control vectors for infectious diseases like Chagas', malaria, or gastrointestinal parasites. Basic nutritional education, prenatal screening, growth monitoring, and treatment of tuberculosis are other health promotion activities that are important for such countries. Even in the most developed countries of the region there are still groups of the population that are not being covered by immunizations against contagious diseases (Figure 2.43).

In countries more advanced along the epidemiological profile, the character of public health interventions may have to be oriented toward a different range of illnesses. Educating the population about risk factors that lead to the onset of diabetes or high blood pressure is important, as are efforts to reduce smoking and alcohol abuse. It has been estimated that in Latin America, alcohol use accounts for almost 10 percent of the total burden of disease and injury (Figure 2.44).[53]

Carrying out these health promotion activities does not require enormous amounts of money. However, their value and impact are rarely foremost in the minds of politicians, voters and bureaucrats. Therefore, governments need to make a concerted effort to structure these activities in such a way that they are well supported and relatively insulated from other demands, while still holding them to standards of accountability and efficiency. This challenge is not

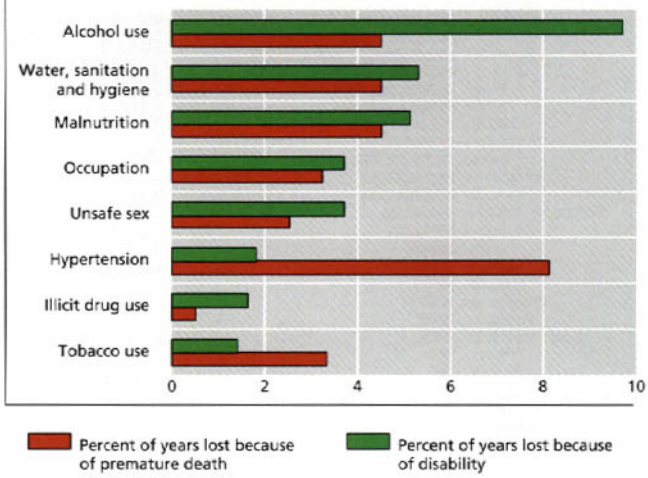
[53] See Murray and López (1996).

**Figure 2.43** Children Under 12 Months Old Who Are Not Immunized
*(In percent)*




*Source: World Bank (1998).*

**Figure 2.44** Burden of Disease by Risk Factor
*(In percent)*




*Source: Murray and López (1996).*

unique to Latin America, but given the impending shift in disease burden and the unfinished business of the epidemiological transition, it is of particular importance to the region.

*Encouraging research on new technologies.* As will be discussed at length in the next chapter, the disease burden faced by countries in the tropics is different in many ways from that faced by countries in temperate regions. The workings of the market clearly encourage research into diseases and illnesses of the wealthier nations located in temperate regions. Governments in Latin America, therefore, must find ways to encourage research into the diseases that are specific to their region. There have been many successes in the past, such as the work of Oswaldo Cruz, Carlos Chagas, Manuel Patarroyo, Arnoldo Gabaldón and Jacinto Convit.

Research and development of new technologies and medications is expensive and may be beyond the financial capacity of most governments. So innovative ways must be found to encourage research into these illnesses. For example, regional coalitions could be formed to guarantee effective demand from the public sector for particular remedies as a spur to private research and development efforts.

*Strengthening the regulatory framework.* No public health system in the region provides effective, quality health care to all its citizens. Instead, people obtain health care from a variety of providers, insurers and facilities. Most countries in the region have begun to recognize this, and are seeking to shift the role of their national health ministries from being managers of health services toward being institutions that regulate and lead the health sector. Monitoring and regulating the health sector is difficult by nature, requiring development of guidelines, protocols and accreditation processes as well as standard reporting processes for patient profiles, illnesses and treatments. Encouragement should be given to formation of private associations that can develop quality measures, disseminate best practices, and encourage new ways of organizing and managing providers.

To the extent that private or nongovernmental organizations are relied upon—a growing trend in countries as diverse as the United States and Colombia—regulation requires monitoring and enforcing contracts between purchasers and providers, expanding and standardizing the kinds of information provided to consumers, and assuring the existence of channels for grievance and redress.

To the extent that public providers are relied upon, regulation requires applying performance standards that are just as stringent as those demanded of private providers. This can be done through performance contracting or some other technique to encourage efficient use of public resources. Among developed countries, there are experiments in the use of internal markets (e.g., Sweden) and gatekeepers (e.g., Great Britain). In Latin America, several countries are

experimenting with corporatizing hospitals and introducing notions of performance contracts.

*Improving the efficiency of public resource mobilization.* Countries vary significantly in the amount of resources that they dedicate to health, not only because of their different income levels but because of the wide range in the shares of national income spent on health. Some countries clearly need to spend more, such as Guatemala, which spends a mere 2 percent of GDP on health ($30 per capita). In other countries, health services are already consuming a large share of national income. Argentina spends over 10 percent of GDP, or $877 per capita, on health. No matter how much a country spends, however, financial resources must be mobilized efficiently because of the macroeconomic impact, and they must be spent efficiently because of the extensive demands involved in treating the illnesses of an ever-aging population.

Mobilizing resources efficiently requires heeding the lessons of public finance. Health services can be financed by almost any tax or fee structure, but some of these have worse impacts than others on employment or provider incentives. In general, the countries that have moved away from financing health through payroll taxes and toward using value-added taxes have had greater success in making their health systems more equitable.[54] Looking ahead to having an older population, some countries may want to consider medical savings accounts that would encourage the working-age population to save for the higher cost care they will need in their old age. There are better and worse ways to do this, and much can be learned from experiences in other regions.[55] In any case, the particular choice will depend on the pace of the demographic transition, the character of the labor market, and the structure of the economy.

The other lesson is not to earmark financing to providers in such a way that they are not accountable for the use of those funds. The poor performance of many social security institutes in the region, which enjoy guaranteed income flows independent of the performance of their services, provides one such object lesson.[56]

*Changing and adapting health service models.* Health services in Latin America are characterized by their variety of organizational forms, payment mechanisms and outcomes. However, in most countries the failures of public provision have led to the creation of segmented systems, where fragmentation and inefficiency abound. The organizational structure and the particular forms of allocating resources encourage rising costs, inhibit efforts by providers to improve quality, and result in inequitable coverage across income groups and regions. Whether the main problem with the health system is costs, quality or coverage depends on the particular characteristics of each country.

Traditionally, governments in the region have tried to provide similar health services to all population groups, regardless of geographical, cultural or age differences. Shifting toward decentralization, when supported with effective regulation, research and public health promotion, is one way in which governments are encouraging health services to change and adapt to the needs of their particular populations. But other approaches, such as purchasing services from a variety of providers (public, for-profit or nonprofit), also allow for such adaptation and innovation. Similarly, subsidizing service demand (purchasing health insurance premiums for the poor) rather than subsidizing supply (contracting and staffing public health posts) provides strong incentives for providers to seek out and listen to their clients.

To the degree that such reforms enable providers to review and respond to health needs in new ways, better and more efficient treatment of illnesses can be expected in the future. This might involve moving away from the current service model based on clinical practice toward a model that incorporates new kinds of health professionals (e.g., nurse practitioners or trained midwives), facilities (e.g., hospice care), and organizations (e.g., integrated service organizations).

In sum, where health is concerned, the region cannot sit still. Despite the range of income levels, institutional development, and disease burdens, every country in the region must make improvements in the five areas mentioned above. For some, the goal will be both to increase public health spending and make it more efficient. For others, the goal will be to

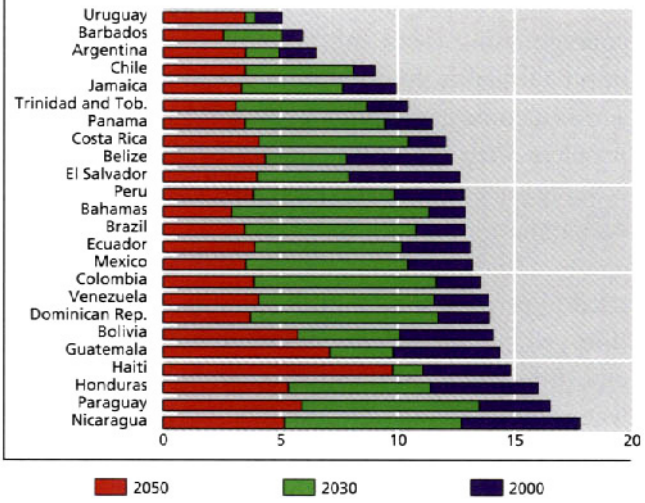
[54] For a discussion of the equity implications of different tax schemes and redistributive policies, see IDB (1998/1999, Chapter 8).

[55] See Prescott and Nichols (1998).

[56] For data on the inefficiencies found in the *Instituto Dominicano de Seguro de Salud*, see Santana (1998).

**Figure 2.45** Working-age Population Older than 60 Years of Age

*(in percent)*




*Source: IDB calculations based on United Nations (1998).*

make the existing flow of financial resources more efficient, thereby liberating resources to be used to meet new demands. While the demographic and epidemiological transitions are positive trends—greater longevity and improvements in the quality of life—they also create challenges that can be better addressed through prevention than cure.

## Worrisome Future: Pension Systems in Latin America

Although still young in age, Latin American populations are aging rapidly. Increased life expectancy and a decline in fertility over time will lead to a population made up of fewer young people and more older ones relative to the working-age population (15-64).

The demographic transition will cause the aging of Latin America and would by itself seem reason enough for policymakers to begin planning for the long term. First, the large working-age populations that currently exist in many countries will grow old, making for a bulge in the elderly population. Second, declining mortality rates among the elderly will extend their retirement years. Third, declining fertility will reduce the population of children (or already has), resulting in a lower number of productive people of working age in the future.

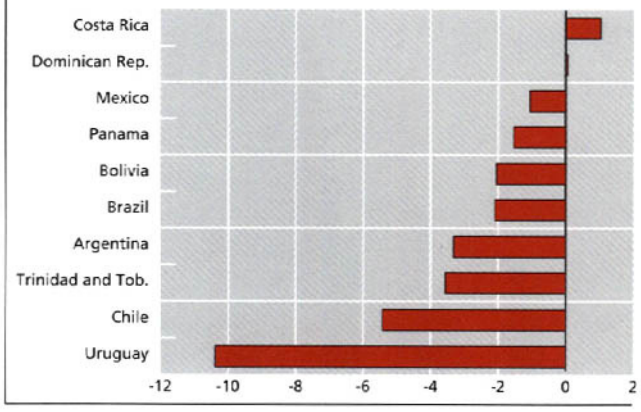
Thus the ratio of persons of productive age to those of retirement age will drop sharply. Currently, for every person over 60 (the approximate average retirement age in current pension systems) there are on average some 10 people of working age in Latin America. But in 30 years this ratio will have dropped to below eight, and in the year 2050 it will be between four and five (Figure 2.45). Uruguay, Barbados and Argentina are facing this situation already: their ratios of workers over 60 to younger productive-age workers is approximately 6 to 1. Over the next few decades practically all countries in Latin America will be in this situation. By 2050, only Guatemala and Haiti will have a ratio of over 6 to 1. Hence, social security systems could quickly become an unsustainable burden for workers.

This is one of the main reasons why the demographic transition may jeopardize the region's growth in the future. Growing proportions of people of retirement age will exacerbate the financing problems that the region's pension systems are already suffering. Of 10 countries in the region for which the International Monetary Fund has comparable information, only Costa Rica showed a surplus working balance for the pension system in 1995. The system in the Dominican Republic was practically in balance, while the remaining countries showed a deficit, sometimes a huge one (Figure 2.46).

Some of these deficits were partly the result of converting pay-as-you-go public systems into wholly or partially private individual capitalization account systems. As a result, the public system received less or stopped receiving contributions from active workers, but was still left with the burden of existing pensions. In the other instances, the deficits were direct proof that despite favorable demographic conditions, the system's resources were insufficient to pay the proportionally small number of pensioners. In either case, the demographic opportunity in Latin America has not been exploited at a time when the ratio of the number of active workers to retirees is temporarily high. During this period, large savings could be generated that could be used to finance higher investment rates and generate high productivity jobs. At the end of this period, the accumulated savings would begin to be used to cover the pensions of the growing proportion of retirees, lightening the burden for young workers.

It should also be kept in mind that in a glo-

**Figure 2.46 Public Social Security System Balances, 1995**
*(Percent of GDP)*




*Source: IMF (1997).*

bally connected world, policies and conditions in one country can have important implications for the development of others. One of the best examples is the gap in the demographic transition in the different regions of the world and, in particular, between developed countries and Latin America. This in turn widens the demographic opportunity, because while developed regions have large retirement-age populations who are making use of a big pool of savings, Latin America is just starting to accumulate those savings for the future. Because of this gap, the need for greater capital returns in the developed world is occurring just as Latin America may offer greater returns due to its demographic conditions. If long-term investment flows were channeled to the region, chances of exploiting the demographic opportunity would be enhanced considerably.

### *Choices for Action*

Any growth in the retirement-age population in the region will aggravate the financial commitments of pension systems that are already stretched to the limit. The basic question is whether Latin American governments are going to take the steps necessary to assure that older people have sufficient economic resources when they reach retirement. Some argue that this is a matter for the private sector, and that the state ought not to play any role whatsoever. Some Latin American leaders have gone so far as to say that the state would do better to withdraw from social security mechanisms because its intervention weakens incentives for work and savings. However, it will be very difficult for governments to ignore the presence of so many elderly people with little or no income. Hence, it is undoubtedly better to take the steps needed now rather than wait for the problem to become unmanageable.

What are the practical alternatives? Two extreme approaches to financing pensions are the collective pay-as-you-go system with defined benefits and potentially adjustable contributions, and the individual capitalization account based on fixed rules for contribution. Under the first system, the state commits itself to pay certain benefits to all participants who have worked for a defined minimum time period in the system. Under the second approach, typically run by private companies, the benefits received are directly related to the sum of contributions, augmented by the income yielded by the funds invested.

In principle, simple pay-as-you-go systems offer advantages, particularly their flexibility and redistribution capacity. As the ratio between members and retirees declines, contribution rates or retirement conditions can be adjusted to preserve the stability of the system. Moreover, during the early decades of operation, these systems can generate large reserves that can lower the needs for subsequent adjustments. Rarely have these elements of flexibility been an advantage, however. Low initial contribution rates are unlikely to be adjusted as quickly as needed, while the initial financial affluence leads to the granting of excessive benefits, which then cannot be reversed.

Although some systems succeed in garnering what appear to be significant savings, they usually only manage to cover a modest portion of current or future obligations. An example of this is Panama, where, thanks to good financial management, the Social Security Fund had over $1.4 billion in reserves at the end of 1998, equivalent to 15 percent of GDP. According to ILO calculations, however, pension liabilities toward those who are already retired are 38 percent of GDP, and the actuarial value of all obligations to current pensioners represents 90 to 120 percent of GDP.

In countries that have had less macroeconomic stability than Panama, it is not uncommon for the social security system reserves to have been eaten away by inflation and to have been used for questionable or low-yield financial investments. In Peru, Venezuela and

Ecuador, real annual yields of the investments of social security agencies for the 1980s were -37.4 percent, -15.3 percent and -10 percent, respectively.

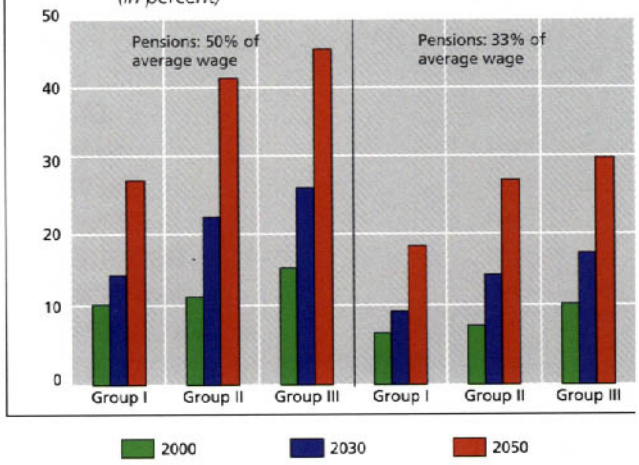
Hence, the potential flexibility of pay-as-you-go systems has rarely been adequately realized. Something similar applies to their redistributional potential. Pay-as-you-go systems redistribute both between generations and within each generation. Redistribution between generations takes place because current workers pay for the pensions of those who are retired. To the extent that the population structure remains unchanged, this redistribution system works the same for any generation and hence it is intrinsically equitable. But this does not happen during a period of demographic change such as that which is occurring now. Because the current generation of productive age workers is very large, its contribution to this system of intergenerational transfers is much lower because the proportion of pensioners today is low. By contrast the arrival of this generation at old age will entail a large burden for the next generation, which will be relatively smaller. Therefore, this redistribution mechanism is not equitable because it favors current generations at the expense of their children.

Neither has redistribution within each generation proved more equitable. Pay-as-you-go systems make provision for a number of progressive factors, such as setting minimum pensions that benefit those who receive smaller incomes, and the fact that women have earlier retirement ages even though their life expectancy is greater. Nevertheless, many other factors tend to operate in less desirable directions. Because retirement amounts depend on pay level, any implicit transfer system tends to be regressive. Other factors that contribute to making the system regressive are the longer life expectancy of the better off; the shorter duration of the working life of the rich because they spend more time in the education system; the exclusion from the system of those who do not have permanent labor contracts, who tend to be the poorest; the ways pensions are calculated, which tend to take into account only the contributions in the final years of working life; and the existence of special systems for groups of workers with more clout, such as public employees and certain professional sectors.

Nowhere is the failure of the pension system to redistribute better illustrated than in Brazil. According to 1996/97 household surveys, 63.9 percent of benefits paid went to the richest 40 percent of the population and only 9 percent went to the poorest 40 percent.[57]

**Figure 2.47 Required Contribution Rate in Pay-as-you-go Systems**

*(In percent)*




*Source: IDB calculations based on United Nations (1998).*
*Note: The contribution rate is the product of the relation between the population over 65 years old and the population 15-65 years old, and the replacement salary rate (50 or 33 percent).*

Pay-as-you-go systems will be hard to sustain in the future, even though under present demographic conditions they might still be viable because they would not entail excessive burdens for workers. For countries furthest along in the demographic transition process, like the Bahamas, Costa Rica or Jamaica, a contribution rate equal to 16 percent of the wages of active workers would suffice to provide those over 65 with pensions equaling 50 percent of their wages (or 11 percent if pensions were 33 percent of average wages) (Figure 2.47). But because these calculations are based simply on a comparison between the relative sizes of the working and retirement age populations, they do not reflect the current financial situation of simple pay-as-you-go systems. Nor do they take into account the real numbers of contributors and retirees. In some countries, much greater contribution rates may be required because of the specific conditions regarding contributions and access to retirement. In Uruguay, one of the countries furthest along in the transition process and one whose distribution system was very generous, the required rates had already surpassed any reasonable level in 1996,

57 See Paes de Barros and Corsueil (1999).

when it was necessary to introduce a mixed system with contributions of 27 percent of wages to assure minimum pensions for everyone (and the option of a complementary pension based on individual capitalization for higher-income workers).

Despite these concerns, let us assume that these calculations are an adequate measure of the effort that would be required to achieve universal coverage under pay-as-you-go systems. In countries not so far along in the transition process, as are most in Central America, this effort would be quite manageable at first. The contribution rates required would be around 11 percent to attain a 50 percent average salary replacement rate, or 7 percent for a 33 percent replacement rate. However, both in the more demographically advanced countries and in those further behind, this initial affluence would quickly disappear. In 2030, the more demographically mature countries would need contribution rates of 27 percent to attain a 50 percent replacement rate, and 20 years later they would find themselves collecting 46 percent of wages to pay for pensions. Even in countries less further along in the transition, contribution rates would have to be raised to 28 percent to pay pensions at 50 percent of average wages, or 19 percent to offer some modest pensions at 33 percent of the average wage.

### *Possibilities for Individual Capitalization*

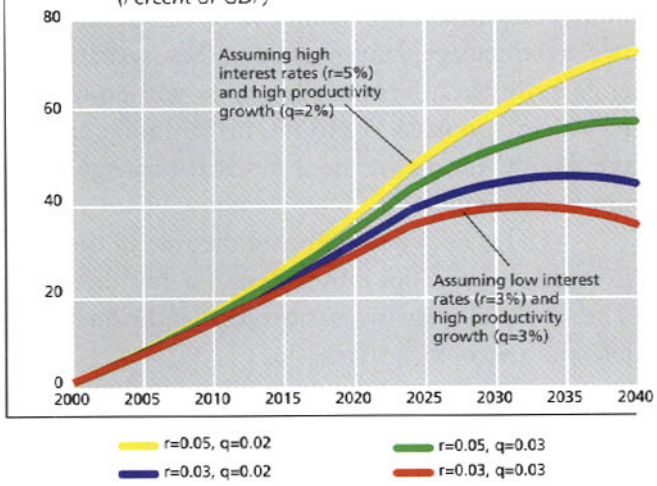
Under current demographic conditions in most countries in the region, simple pay-as-you-go systems are an opportunity squandered. Because most of the population is now at the more productive ages, these systems are not taking advantage of the possibility of workers' savings, nor are they offering long-term savings alternatives that would make it possible to finance higher investment rates that would lay the financial foundation for future pensions.

One alternative is to consider the savings potential of an individual capitalization account system introduced by obligation for all workers under 40 when the reform begins. Suppose an assessment rate is set to allow capitalization of 10 percent of wages (as it is in the individual capitalization account systems in Chile, Colombia and Peru, after the part set aside for administration and disability and survivors' insurance is subtracted from the total rate of capitalization). With the demographic conditions and labor participation typical of these Latin American countries, this system would make it possible to generate annual savings equivalent to 1.2 percent of GDP (also assuming a coverage of 50 percent of the working population, which is approximately the rate of formal employment). If this reform were to take place in the year 2000, the cumulative savings around the year 2015 would be between 20 and 25 percent of GDP (with rates of real yield of 3 to 5 percent and productivity growth of between 2 and 3 percent, which are consistent with GDP growth rates of from 3 to 5 percent). In many countries, these cumulative savings would be sufficient to double the size of the financial sector in relation to GDP, multiplying sources of financing and possibilities of investment. Fifteen years later, the cumulative savings could amount to between 40 and 60 percent of GDP, although by that time they would be paying the pensions of the first retirees of the new system. Although simulations with more distant horizons are very sensitive to the assumptions on financial yield and productivity growth, the amounts accrued in capitalization funds would still be at least 35 percent of GDP and could plausibly reach over 70 percent (Figure 2.48).

Hence, individual capitalization account systems, because they enable the savings that workers accumulate during their working lives to finance their pensions, are better able to exploit the potential for

**Figure 2.48 Potential Impact on Savings of a Pension System Reform**

*(Percent of GDP)*




*Source: IDB calculations based on United Nations (1998), and country household surveys.*
*Note: The figure shows the stock of savings (under alternative assumptions on interest rates and productivity growth) of a fully-funded pension system introduced in the year 2000, covering all formal workers under 40 years old at that moment.*

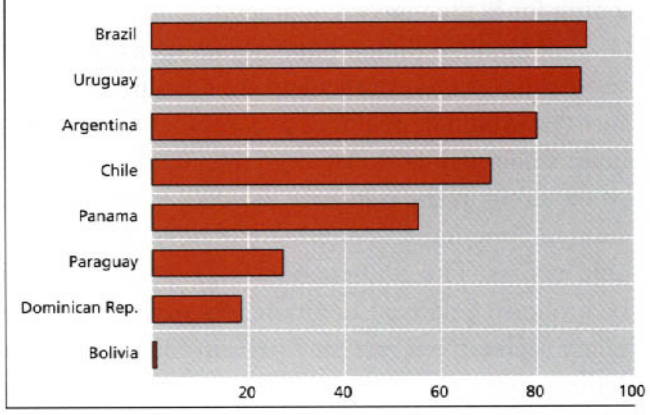
generating savings during the period of demographic opportunity. Because they are based on a principle of individual worker ownership and on competition between the management companies, these systems generate more incentives than do pay-as-you-go systems for workers to make contributions faithfully, and for the administrators of these funds to manage them more efficiently.

This does not eliminate the role of the state in social security, but rather gives it a new direction. The state must play two basic roles in individual capitalization account systems.

First, it must regulate and oversee operation of the system to protect workers' savings, which entails capitalization requirements, regulations on the investments allowed, and prudential supervision. From a broader standpoint, it also means promoting and facilitating development of the capital market so that the funds accumulated may find their way into productive investments, which in turn are sustainable in the long run.

Second, the state must maintain a subsidiary role to guarantee social protection for poor workers when they reach retirement age. Latin America is still far from achieving a universal safety net for old age. In countries like Bolivia, Paraguay and the Dominican Republic, income from pensions represents less than half of incomes for persons over 65 within the poorest 20 percent of the population. Most of these people are forced to live precarious and dependent lives because they lack a minimum stable income. By contrast, in Argentina, Brazil, Chile and Uruguay, pension incomes represent between 70 and 90 percent of the incomes of poor people over 65 (see Figure 2.49).

**Figure 2.49** **Pensions as a Share of Income of the Poorer 20 Percent of the Population over 65**
*(In percent)*




*Source: IDB (2000).*

### *Latin America Leads the Way*

Starting with Chile's pioneering reform in 1981, Latin America has gradually been shifting from traditional pay-as-you-go systems to systems that are based partially or wholly on individual capitalization, with the state guaranteeing a safety net for low-wage workers. During the 1990s, seven countries moved in this direction: Peru (1993), Colombia (1993), Argentina (1994), Uruguay (1996), Mexico (1997), Bolivia (1997), and El Salvador (1998).[58] A law was also passed authorizing creation of the capitalization account system in Venezuela, but as of 1999 it had not been applied, and legislative reform proposals were under public discussion during that year in the legislatures of Brazil, Costa Rica, Guatemala, Ecuador, Nicaragua, Panama, Paraguay and the Dominican Republic.

Individual capitalization account systems are not problem-free, however. A major criticism is that they have succeeded neither in significantly broadening social security coverage nor in assuring faithful compliance by members in making payments. In Peru, for example, real rates of contribution have been estimated at 44 percent, and in Argentina and Chile around 50 percent.

Because businesses have various incentives to operate off the books in order to avoid various tax obligations and function with greater flexibility, it is also difficult under these systems to extend coverage to informal workers, who would thus be subject to other taxes and payments. Some countries have introduced special contribution conditions for such workers, but the problem goes deeper than just avoidance of taxes and other formalities. It may simply be that the kind of savings required by pension funds is not attractive to informal workers, whose incomes are uneven and who may have better options for such resources. While pension fund yields

[58] For a description and comparison of these reforms in several counties, see IDB (1996, Part 2, Chapter 7).

may be 5 percent, the opportunity cost of the liquid resources of informal workers is estimated to be around 18 to 20 percent. Bearing in mind the savings horizon in the pension system, this means that the implicit tax is on the order of 80 percent, since while such savings provide income for informal workers at retirement age, they do nothing to protect them from all the other risks inherent in their daily economic instability.[59]

A broader concern regarding pensions, enormously important from the standpoint of Latin America's demographic opportunity, is that because they offer only an investment portfolio to their members, regardless of their age and situation, pension funds are failing to take advantage of a great potential for savings and yield. Informal and younger workers, who are the vast majority of potential members, would be willing to assume greater risks in exchange for greater yield during their first years of membership. Greater diversity in the investment opportunities of the funds would also further spur development of the capital market, although it would obviously require greater oversight and supervision.

Individual capitalization account systems are also criticized for their high operating costs. No doubt this has been the greatest problem with the Chilean system, where management costs are from 20 to 30 percent of contributions. Some countries have tried to head off this problem by limiting the number of pension fund management companies, introducing mechanisms for centralized collection of contributions, or placing limits on the frequency with which members can change fund managers.

A problem faced by countries considering taking steps toward pension reform is the massive cost of converting the simple pay-as-you-go system into an individual capitalization account system. During the transition period, the contributions of active employees are deposited in private accounts, while the state is obliged to pay all the pensions of retirees under the old system. The cost bequeathed by such obligations can be as high as 200 percent of GDP (as in Uruguay) or as low as 30 percent in Peru. Countries have dealt with the problem in different ways. Chile, Colombia, El Salvador and Peru have opted to issue public recognition bonds to all those who chose to switch from the pay-as-you-go to the capitalization account system. The state must recognize the value of these bonds at the moment of retirement. Argentina for its part offers to pay a compensatory pension through the public funds of the system. Because payments are monthly during the retirement period, the state limits its immediate financial obligation and stretches payments out. Instead of offering compensation, Uruguay uses public funds to pay the benefits flowing from the previous system, an approach that has been successful because the private system is small in Uruguay. In Mexico, workers can compare the benefit package of both systems and choose which they prefer when they reach retirement, which naturally entails major financial uncertainty for the state.

Just as each country that has opted to reform its pension fund has created a combined private and public system, it is also possible to consider alternate options for extending the safety net to those who are poorest. In most countries that have undertaken reforms, the state guarantees payment of a basic pension to those who have contributed a minimum number of years to the system. Nevertheless, this measure only protects those who belong to the system, providing no solution to the many problems faced by the elderly poor who are on their own.

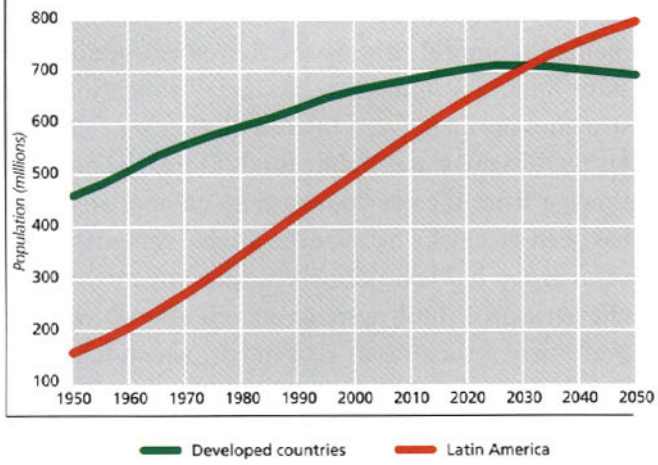
### *Demographic Opportunity in a Globalized World*

The differences in demographic composition between various regions of a globalized world can actually serve to widen the window of demographic opportunity. In Latin America, the increase in the working-age population is occurring at the same time that populations in the developed countries are aging. This implies that while the balance of saving in developed countries is quite high, the yield is limited—the opposite of the situation in Latin America.

Both developed and developing countries alike stand to benefit if capital is allowed to flow from the regions that have in the past generated substantial savings to the regions where capital yield is greater due to demographic reasons. In Latin America, capital would be available to raise the productivity of a larger number of workers, while in the industrial world, access to capital yield would provide adequate resources for the older population to retire.

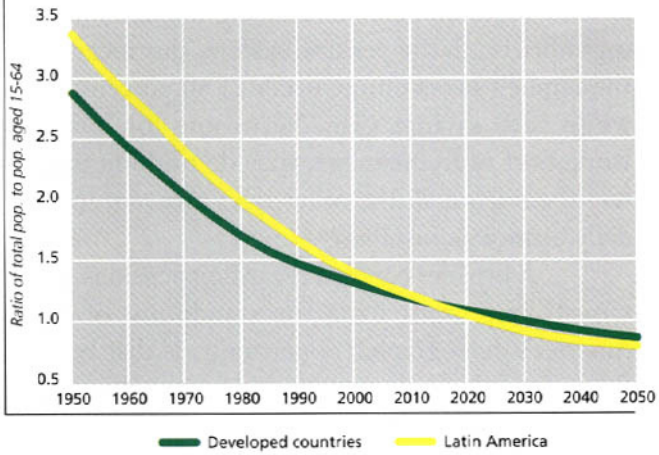
[59] Holtzman and Packard (1999).

**Figure 2.50** Population in Latin America and in Developed Countries




Source: United Nations (1998).

**Figure 2.51** Share of the Working-age Population in Latin America and in Developed Countries




Source: United Nations (1998).

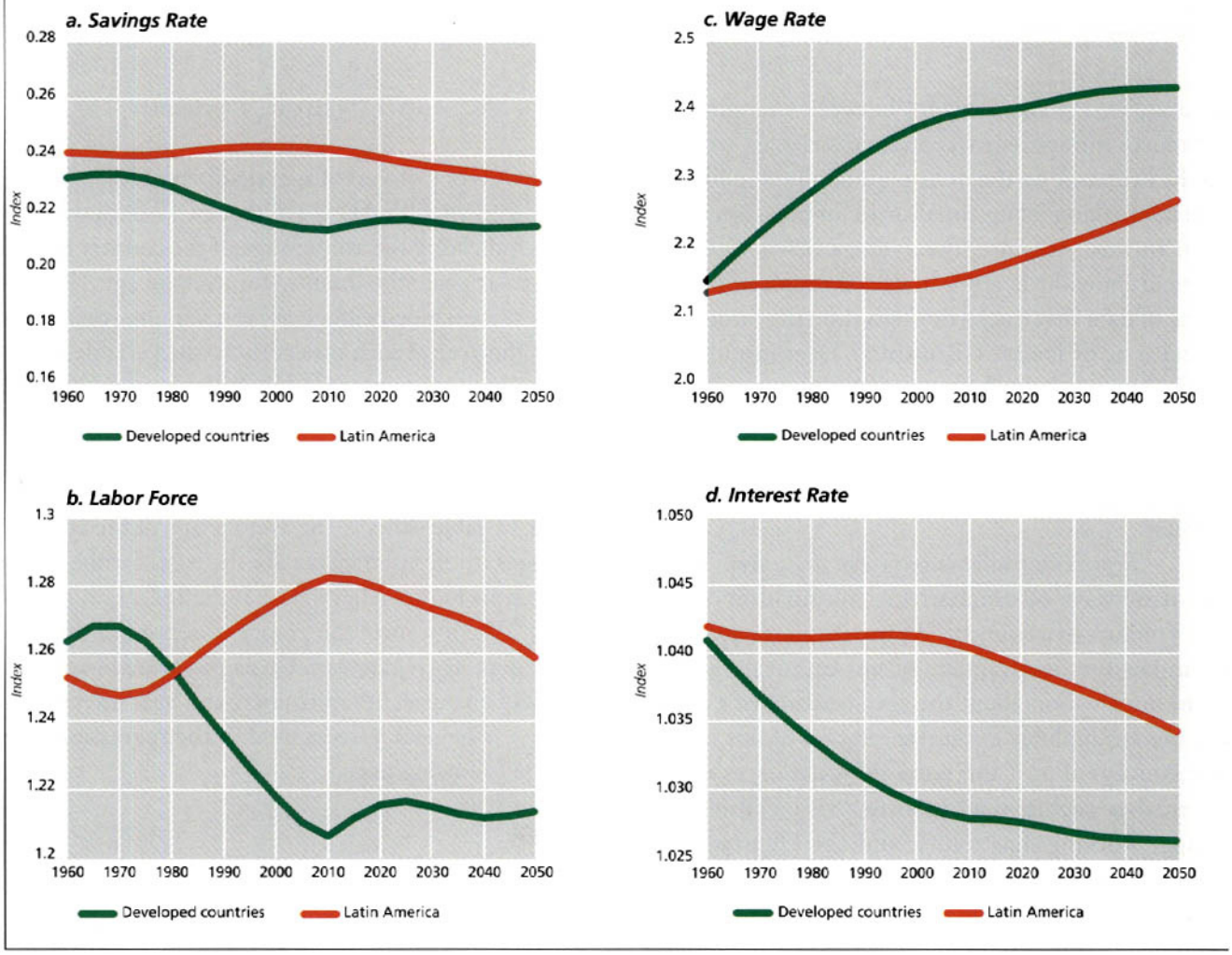
Figure 2.50 illustrates the demographic gap between the developed countries and Latin America. The rate of population growth has slowed down in the developed world, while the rate of growth in Latin America is rising in comparison. By the year 2030, the total population in the countries of these two regions will be almost the same. However, as shown in Figure 2.51, Latin America will continue to have a relatively larger share of young people, while the developed countries will have the larger share of ages 65 and older.

A simulation model by Attanasio and Violante (1999) gives an approximate idea of the importance of policies under this scenario. Figures 2.52a-d show the rate of savings, a standardized measure of the labor force, average wages of the economy, and interest rates for both Latin America and developed countries in a hypothetical world where it would not be possible to transfer capital from one region to another. Salary and interest rate differentials under this scheme are vast. The rate of capital growth per worker will rise at the same time as the rate of interest declines. When the working-age population in the developed world declines, interest rates are significantly reduced. That is, the rate of return of past saving continues to fall, which makes it difficult to maintain the standard of living for generations of retirement age. An individual belonging to the large generation will live in the worst of the two worlds. On the one hand, when he or she is at working age, the flow of entry to the working force will be higher, which will lead to salary reduction in the economy. On the other, when he or she reaches retirement age, interest rates will be depressed due to the increase in the ratio of capital-to-labor that results when working-age generations are relatively small in number.

However, there is hardly a country in the world that is totally closed to the international flow of capital. Thus, when capital yield declines in a country, it commonly is reallocated to other regions where the rate of return is higher. If long-term capital flows are allowed to be channeled to higher-return regions, relatively larger generations would cease to be subjected to the worst of two worlds. In regions where the working-age population is less dominant, capital will flow to the country where a large percentage of the population belongs to the 15-65 age group. Whenever a large generation reaches retirement age, savings flowing to other regions may alleviate the decline of capital return, which in turn would help to finance a dignified retirement and at the same time boost resources in economies where more capital would be needed for development.

In practice, capital flows among regions have been quite limited to date, principally due to limitations in the financial sectors and exchange systems in the developing world. It is also fair to conclude, however, that the international financial climate has not

**Figure 2.52** Macroeconomic Effects of Demography: A Tale of Two Regions




*Source: Attanasio and Violante (1999).*

been conducive to the stabilization of capital flows from developed countries to the other regions.

The demographic gap existing between the developed and developing countries is a significant, but until now neglected, reason to reap the joint benefits from a steady and long-term increase in capital flows. Latin America could better profit from its present demographic circumstances if a steady flow of long-term capital were made available from more advanced countries experiencing a demographic transition. At the same time, it would benefit from a higher capital yield.

In sum, taking into account the role of demography in savings and capital flows, as well as in the other economic and social areas discussed in this chapter, would open up a number of opportunities to policymakers in Latin America and beyond.

## APPENDIX 2.1.
## Average Age and Economic Outcomes[1]

To examine the relationships between changing age structures and aggregate economic variables, we draw on the literature on the dynamic analysis of individual decisionmaking using time series' of cross-sectional data. In this literature, the average behavior of cohorts of individuals are followed through in the absence of data that tracks through time the same individual as he or she ages (Browning, Deaton and Irish, 1985). In a similar fashion, we follow the average behavior of a set of variables as countries go from a stage when large proportions of their population are young to later stages when the relative shares of older groups increase.

*Representation of country age structures.* There are many ways of summarizing information on the age structure of a country. We use the mean age. The mean has the disadvantage of not capturing all relevant information about the age structure of a country, but it simplifies the interpretation of our results and conveys almost the same information as would alternatives such as the tripartite division among the young, working-age adults, and the elderly.[2] The mean age is in fact highly correlated with the population shares of these broad groups. The correlation coefficients between the country average age and the share of the population in the 0-14, 15-64, and 65 and over groups, are .97, .89, and .96, respectively, for 1950-95.[3]

*Basic specification for estimates.* To look at the relation between mean country ages and economic variables for the period 1950-95, we estimate regressions in which the dependent variable is the economic indicator of interest, and the right-side variables are average country ages, country fixed effects and year fixed effects:

$$(1) \qquad X_{i,t} = \alpha AD_{i,t} + \beta year_{,t} + \gamma country_i + \varepsilon_{i,t}$$

where X is one of a set of aggregate variables for country 'i' and year 't'; AD is a vector of 19 dummy variables indicating the average age of the country in that particular year (the dummy for average age 19 is always the excluded category), the variable year indicates the year of each observation, the variable country indicates the country of each observation, and $\varepsilon$ is the error term. The coefficient estimates for the elements in the AD vector reveal whether, after controlling for country fixed characteristics and time effects, the X variable shifts as the average age of the country changes (these coefficients are the basis for the series plotted in Figures 2.3, 2.4, 2.5, 2.20, 2.21, 2.22 and 2.23).[4] We interpret the graphs to represent the pattern of an aggregate variable as the average age of a country changes, net of country and year effects.

The data sources used in the regressions are on the following page.

[1] This appendix is taken from Behrman, Duryea and Székely (1999).

[2] Regressions using the shares of different population subgroups rather than country mean ages (not presented) are not significantly more consistent with variations in the dependent variables that are discussed in the next two sections.

[3] Correlations for finer disaggregations of the age groups to the age ranges 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-60 and 60-64 are .36, .30, .41, .65, .81, .88, .91, .93, .94, .77, .6, .50, .51 and .54, respectively. Note that the correlations between the average and the division of the population into young, working age and 65 and over are quite strong, but the correlations decline if the working-age population is split in finer partitions. Therefore, our results mainly capture shifts among the three broad age groups mentioned in the text.

[4] Note, however, that some scales have been shifted in order to facilitate presentation.

## Data Sources

| Variables | Source |
|---|---|
| All age structure variables | United Nations (1998) |
| Domestic savings as a share of GNP | World Bank World Development Indicators (1998) |
| PPP adjusted GDP per capita | For 1950-92, Penn World Tables. The World Bank Development Indicators (1998) provide a series of PPP adjusted GDP per capita for the period 1980-97. We use the growth rates from the World Bank (using the same definition as in the Penn World Tables) to extend the Penn World Tables series through 1995. |
| Capital per worker | Penn World Tables |
| Tax revenue as a share of GDP | World Bank World Development Indicators (1998) |
| Public expenditures on education as a share of GDP | World Bank World Development Indicators (1998) |
| Public expenditure on primary education per primary school-age child as a proportion of GDP | World Bank World Development Indicators (1998) |
| Health expenditures as a share of GDP | World Bank World Development Indicators (1998) |
| Gini coefficients | "Good quality" distribution data from Deininger and Squire (1996) |
| Unemployment rates | ILO (1997) |
| Homicide rates | Fajnzylber, Lederman and Loayza (1998), who combine homicide rates from the United Nations Surveys of Criminal Trends and Operations of Criminal Justice Systems, and data from the World Health Organization. |
| Probability that a student belonging to the cohort that is of school age in the year of reference progresses to grade 4 | World Bank World Development Indicators (1998) |
| Trade openness (imports plus exports)/GDP | Penn World Tables |
| Private credit as a share of GDP | World Bank World Development Indicators (1998) |
| Macro volatility | Constructed from the Penn World Tables and World Bank data |
| Expenditures on education as a share of GDP | World Bank World Development Indicators (1998) |

## APPENDIX 2.2. Decomposing Fertility Changes[1]

To examine associations between a number of aggregate variables that relate to possible fertility determinants, we regress the total fertility rate on various socioeconomic variables using random effect specifications (see Table 1).[2] Because variables such as urban population share and average schooling levels change slowly over time, we use observations for every five years from 1960-95, with each country contributing up to eight observations.

Apart from traditional socioeconomic characteristics such as schooling, we add some health indicators to the equation. Regression 1 includes the share of the population with access to potable water to proxy health conditions, which has the expected negative relationship with fertility. The overall results in regressions 2 and 3, where we use different proxies for health conditions, are similar to those just discussed.[3] The health indicators have significant negative associations with fertility, while female schooling remains significant in all cases.

Unfortunately most of the measures of health conditions included so far are unavailable for the full period and incomplete for the full sample of countries. Given these limitations, we prefer to use a health measure, labeled $e_1$, constructed based on parents' survival expectations for their children (see Behrman, Duryea and Székely, 1999a). We do not use the infant mortality rate or life expectancy at birth as measures of improvements in survival because high rates of fertility also cause high infant mortality rates associated with close birth spacing. Instead we purge the life expectancy measure of the influence of mortality before age 1 to investigate associations between fertility and improvements in health outcomes after age 1.[4]

Equation 4 presents the results of using $e_1$ as a proxy for health, which increases the number of countries and observations for 1960-95. The sign, magnitude and statistical significance of coefficients for religion, urbanization and schooling variables do not vary significantly between equations 1 and 4, indicating that these coefficients are robust to different ways of incorporating information on health variables. However, the coefficients for latitude and GDP per capita remain insignificant but change from negative to positive, and from positive to negative, respectively. This shows that $e_1$ is capturing some aspects of health correlated with geographic conditions and GDP that are not accounted for by the proportion of the population with access to potable water.

To test whether the magnitudes and significance of the coefficient estimates are sensitive to the method of estimation, we also present country fixed effect regressions in columns 5 and 6. The first of these excludes the health-related variables, while the second uses $e_1$. Apparently there are country-specific characteristics that are strongly correlated with urbanization and schooling. Excluding them biases these coefficients downward. Perhaps the most surprising of these results is the effect on male schooling. Because the coefficient estimate is not significant, it supports the hypothesis that, after controlling for income, male schooling has no additional association with fertility. Comparing regressions 5 and 6 shows that once survival after age one is included in the regression, men's schooling is associated with an insignificant but positive increase in fertility. The coefficients on women's schooling are diminished slightly by the addition of the health indicator but are higher in the fixed effect specification than in the random effect specification.

The regression coefficient estimates in column 4 are used to decompose the differences in fertility across regions presented in the main text. We multiply each coefficient by the mean of the variable in question to obtain the "predicted" fertility in 1960 and the 1990s. We then decompose the change into the effect of each of the independent variables.

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[1] This appendix is taken from Behrman, Duryea and Székely (1999a).

[2] All the demographic variables are taken from United Nations (1998). The religion variables are from La Porta et al. (1998). The data on geography are taken from Sachs and Warner (1995). The data on the proportion of urban population is taken from United Nations (1998). For 1950-92, the source for the PPP adjusted GDP per capita is the Penn World Tables. World Bank (1998) provides a series of PPP adjusted GDP per capita for the period 1980-97. We use the growth rates from the World Bank (using the same definition as in the Penn World Tables) to extend the Penn Tables series up to 1995. The measure of schooling is from Barro and Lee (1994).

[3] All health-related variables are taken from World Bank (1998).

[4] All information on life expectancy and infant mortality is taken from United Nations (1998).

**Table 1** **Regressions Explaining Total Fertility Rates**

| Variable | Random Effects Regressions (1) | (2) | (3) | Fixed Effects Regressions (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| % Muslim religion | 0.0087* | 0.0058 | 0.0029 | 0.0037 | | |
| | *22.22* | *1.42* | *0.59* | *1.13* | | |
| % Catholic religion | 0.0106* | 0.0100* | 0.0072* | 0.0107* | | |
| | *3.59* | *3.14* | *2.22* | *4.10* | | |
| % Protestant religion | 0.0171* | 0.0166* | 0.0153* | 0.0113* | | |
| | *3.50* | *3.45* | *3.15* | *2.80* | | |
| Latitude | -0.9371 | -16.538* | -15.262* | 0.1646 | | |
| | *-1.53* | *-2.55* | *-2.21* | *0.34* | | |
| PPP GDP per capita (multiplied by 1,000) | 0.0017 | 0.0104 | 0.0021 | -0.0187 | -0.0383* | -0.0204 |
| | *0.05* | *0.47* | *0.08* | *-1.08* | *-2.10* | *-1.16* |
| % urban population | -0.0072 | -0.0123* | -0.0130* | -0.0022 | -0.0305* | -0.0114 |
| | *-1.40* | *-2.30* | *-2.29* | *-0.56* | *-5.20* | *-1.82* |
| Avg. schooling population >25 Avg. schooling males >25 | -0.0396 | -0.0129 | -0.0699 | -0.0251 | -0.0114 | 0.0640 |
| | *-0.51* | *-0.19* | *-0.79* | *-0.53* | *-0.21* | *1.19* |
| Avg. schooling females >25 % of females >25 with primary | -0.0332* | -0.0397* | -0.0333* | -0.0273* | -0.0502* | -0.0408* |
| | *-6.80* | *-7.30* | *-4.89* | *-7.72* | *-12.16* | *-9.80* |
| % of females >25 with secondary | -0.0317* | -0.0394* | -0.0232 | -0.0408* | -0.0615* | -0.0593* |
| | *-3.00* | *-5.34* | *-1.94* | *-6.80* | *-8.99* | *-9.04* |
| % of females >25 with higher education | -0.0386* | -0.0328* | -0.0265 | -0.0566* | -0.0892* | -0.0814* |
| | *-2.14* | *-2.16* | *-1.34* | *-5.53* | *-7.96* | *-7.56* |
| % population with access to potable water | -0.0204* | | | | | |
| | *-6.15* | | | | | |
| % of children under 12 immunized for DTP | | -0.0047* | | | | |
| | | *-2.13* | | | | |
| % of children under 12 immunized for measles | | -0.0037 | | | | |
| | | *-1.78* | | | | |
| % population with access to sanitation | | | -0.0116* | | | |
| | | | *-2.83* | | | |
| Health conditions (Life expectancy purged from infant mortality rate) | | | | -0.0909* | | -0.0800* |
| | | | | *-9.11* | | *-7.04* |
| Constant | 7.5* | 7.1* | 7.3* | 11.7* | 9.2* | 12.6* |
| | *25.54* | *21.65* | *19.54* | *22.50* | *47.22* | *24.37* |
| Number of observations | 197 | 195 | 106 | 631 | 631 | 631 |
| n | 86 | 91 | 79 | 96 | 96 | 96 |
| T | 1.82 | 1.83 | 1.21 | 6.27 | 6.57 | 6.57 |
| $R^2$ within | 0.70 | 0.67 | 0.46 | 0.69 | 0.67 | 0.70 |
| $R^2$ between | 0.87 | 0.81 | 0.85 | 0.83 | 0.76 | 0.80 |
| $R^2$ overall | 0.85 | 0.77 | 0.86 | 0.80 | 0.74 | 0.77 |
| $chi^2$ (3) | 763 | 541 | 403 | 1594 | 180 | 176 |

*Source: Authors' estimates.*
*Note: 'z' statistic presented in italics below the coefficients.*
** Significant at 5 percent or more.*

## APPENDIX 2.3. Demography and Economic Growth[1]

This appendix discusses the effects of demographic factors on economic growth on the basis of cross-country regressions. The approach used here is to explain the cross-country variation in the growth rate of per capita income between 1965 and 1990. The income levels are measured at purchasing power parity, so that real incomes are measured across countries, corrected for country-specific differences in prices. (Using exchange rate conversions to obtain real incomes can be very misleading.)

Our basic approach to explaining economic growth is to allow growth to depend on the initial level of income and a number of explanatory factors, $X_1, X_2, ..., Xn$. These explanatory variables are suggested by economic theory. For example, they may describe trade policy, geography, the quality of institutions, and any other characteristics of an economy that might affect its long-run growth rate. The inclusion of the initial level of per capita income is important. Neoclassical economic theory predicts that poorer countries will grow more quickly than richer countries, holding other things constant. In this case, the coefficient on the initial level of per capita income will be negative. An implication of this theory is that we can solve a steady-state level of income. At the steady state, the effect of the level of income just counterbalances the effect of the $X$ variables, to give zero growth. Alternatively, endogenous growth theory does not imply any convergence to steady state. In this model, the initial level of income does not affect the growth rate of the economy, and different countries can have persistent differences in growth rates.

The sample consists of 80 countries from around the world; these countries were selected on the basis that all the required data could be obtained. The $X$ variables used as regressors are suggested by economic theory. In most cases explanatory variables are measured at the beginning of the period (in 1965). This rules out any reverse causality between the variable and the growth rate over the period from 1965–90. This is true of initial per capita income; the initial ratio of working age to total population; the percentage of land area in the tropics; the initial gross enrollment in secondary schools; and life expectancy. Openness is the percentage of years a country is classified as open to international trade over the sample period, while institutional quality is measured in 1982, the earliest year for which data are available.

Measures are also included of total population growth, and growth in the population aged 15 to 64, in order to capture the effects of demographic change. To avoid the problem of reverse causality from economic growth to demographic change, both population growth rates are instrumented. We instrument the population growth rate over the period in the regression with the log of the initial fertility rate, the initial youth dependency rate, and the lagged growth rates (between 1960 and 1965) of working-age and total population. All these instruments are measured prior to the economic growth actually occurring, and a first-stage regression of our population growth rates on these instruments suggests that instrumentation provides a good fit to the data.

The base regression is shown in Column 1 of Table 1. There are significant positive effects on economic growth of openness and institutional quality, and a negative effect of initial level of income. Total population growth, entered alone, does not have a statistically significant effect on economic growth. However, demography is multi-dimensional and may affect human development in other ways. As well as the initial age structure, the growth rates of the working-age and total populations over the period are added in order to capture the effect of demographic change. In Column 2 of Table 1, the growth rate of the population in the 15–64 age group is added. This variable is statistically significant and improves the fit of the regression markedly, as shown by the $R^2$ statistic.

The coefficients on total population growth and the growth of the working-age population are approximately equal and opposite. This means that the demographic effect can be simplified into the difference between the growth rates of the working-age and total populations, as seen in Column 3 of Table 1.

[1] This appendix is taken from Bloom et al. (1999).

Table 1 **Basic Specification for Growth, 1965-90**

| | Regression (1) (2SLS) | Regression (2) (2SLS) | Regression (3) (2SLS) |
|---|---|---|---|
| Constant | -0.407<br>(-0.07) | 9.777**<br>(2.08) | 9.608**<br>(2.15) |
| Log of initial GDP per capita | -2.114***<br>(-5.45) | -1.896***<br>(-5.74) | -1.913***<br>(-6.18) |
| Log of ratio of total population to population aged 15 to 64 | -8.639*<br>(-1.72) | 4.655<br>(0.82) | 6.117**<br>(2.26) |
| Percent of land area in the geographical tropics | -0.614<br>(-1.30) | -0.850**<br>(-2.28) | -0.862**<br>(-2.39) |
| Log of gross enrollment rate | 0.532*<br>(1.84) | 0.204<br>(0.75) | 0.202<br>(0.76) |
| Openness indicator | 1.635***<br>(3.67) | 1.332***<br>(3.71) | 1.332***<br>(3.77) |
| Index of institutional quality | 0.268***<br>(2.84) | 0.144*<br>(1.86) | 0.145*<br>(1.91) |
| Log of life expectancy | 2.946<br>(1.43) | 1.870<br>(1.19) | 2.065*<br>(1.75) |
| Growth rate of total population[1] | -1.000<br>(-1.44) | -3.008***<br>(-4.38) | |
| Growth rate of population age 15 to 64[1] | | 2.826***<br>(3.90) | |
| Difference between growth rates of total population and population aged 15 to 64[1] | | | 2.928***<br>(4.62) |
| $R^2$ | 0.57 | 0.72 | 0.73 |
| Number of observations | 80 | 80 | 80 |
| F-Statistic | 11.5 | 20.2 | 24.5 |

*Source: Bloom et al. (1999).*

*Note: All results were estimated using heteroskedastic-consistent t-ratios.*

*[1] The growth rates of the total population and the population age 15 to 64, and the difference between the two, were instrumented using the 1965 infant mortality rate, the log of the 1965 fertility rate, the 1965 youth dependency ratio, average growth of total population from 1960 to 1965, and average growth rate of population age 15 to 64 from 1960 to 1965.*

** Significant at the 10 percent level.*

*** Significant at the 5 percent level.*

**** Significant at the 1 percent level.*

Once we control for the dynamics of age structure, we find that demography matters, a result that is robust across a variety of specifications. Countries that have favorable patterns of demographic change grow faster on average. Rising levels of working-age individuals per capita raises per capita GDP. The coefficent on the initial level of workers per capita has a positive and statistically significant coefficient in our preferred specification (Table 1, Column 3). This implies that the effect of changing age structure is not just transitional, but has a long-run steady-state effect.

The evidence suggests that the dynamic effect of demographic change is more than just an accounting effect: that is, favorable demographic change appears to generate significant positive externalities—patterns of cumulative causality. Demography has many effects which appear to be important, such as its effects on savings and education. These empirics suggest that demography matters. Accounting for all the specific pathways through which this operates is considerably more difficult, though the discussion above outlines some of the most important channels. Savings and school enrollment rates over the period have been deliberately excluded from the regressions; our demographic factors may be influencing economic growth through savings rates and school enrollment rates.

This basic analysis, as reported in Table 1, includes variables to control for policy and institutional quality. These variables have been found by many researchers to be important for growth (Sachs and Warner, 1995; Knack and Keefer, 1998). The basic specification presented here is consistent with this literature. Policy matters for growth, and a sizable fraction of relative growth experiences across nations, regions and time can be traced to differences in policy and the quality of institions. An interesting question is how much of the demographic effect on growth depends on the policy environment. We have argued that demographic change creates the possibility of greater employment, savings and investment in human capital, but this potential needs mechanisms through which actual change can be realized.

Table 2 presents regressions in which the differential growth rate of the working-age and total population is interacted with the policy variables of openness and institutional quality. The effect of demographic change then has two components: a base component that measures the effect when the policy variable is set at zero (the worst-policy indicator), and an interactive effect that increases as policy improves. When the policy variable takes a value of 1 (the best-policy indicator), the total demographic effect is just the sum of the base effect and the interactive effect.

In Column 1 of Table 2, an interactive term is added between demographic change and openness. This indicates that open economies gain more from demographic change than closed economies. In fact, the effect of differential growth in the working-age population in an open economy is estimated to be three times larger than in a closed economy. Similar results are obtained in Column 2 of Table 2, where the differential population growth is interacted with institutional quality. In this case, the results suggest that demographic change has no effect in a poor policy environment.

In Column 3 of Table 2, interactions are added with both openness and institutional quality to see which of the two policy variables appears to be more important. While openness seems more robust, it loses its statistical significance in this specification. Experimentation with other policy variables suggests that while there is a robust interaction, with demographic change being a more potent force in a good policy environment, our macroeconomic cross-country data are not rich enough to pinpoint exactly which policies are most important in times of demographic change.

Columns 4 and 5 in Table 2 provide a robustness check by adding interactive terms between initial income and the policy variables, as well as between demographic change and policy. If good policies are more important in poor countries than rich countries, the exclusion of this factor could bias the results obtained. While there is some evidence for such an effect, the interaction between demographic change and policy appears very robust to including it.

One way of expressing the interaction term is to say that demographic change has a greater effect when policies are good; another way is to say that good policies have a larger effect in times of rapid demographic change.

In the results presented above, we have tried to control for obvious problems in the estimation of the models by using techniques to control for endogeneity and omitted variables. The results pre-

Table 2 **Policy Interaction Specification for Growth, 1965-90**

| | Regression | | | | |
|---|---|---|---|---|---|
| | (1) (2SLS) | (2) (2SLS) | (3) (2SLS) | (4) (2SLS) | (5) (2SLS) |
| Constant | 6.084<br>(1.35) | 8.173*<br>(1.70) | 6.043<br>(1.37) | 4.782<br>(1.16) | 2.806<br>(0.55) |
| Log of initial GDP per capita | -1.799***<br>(-6.04) | -1.929***<br>(-6.36) | -1.792***<br>(-5.62) | -1.71***<br>(-5.49) | -1.272**<br>(-2.30) |
| Log of ratio of population aged 15 to 64 to total population | 5.03*<br>(1.88) | 5.295*<br>(1.87) | 5.048*<br>(1.87) | 4.971*<br>(1.94) | 4.952*<br>(1.80) |
| Percent of land area in the geographical tropics | -1.058***<br>(-3.27) | -0.956***<br>(-2.82) | -1.059***<br>(-3.28) | -1.058***<br>(-3.27) | -1.001***<br>(-3.06) |
| Log of gross enrollment rate | 0.284<br>(1.12) | 0.281<br>(1.10) | 0.282<br>(1.11) | 0.235<br>(0.90) | 0.279<br>(1.10) |
| Openness indicator | 0.443<br>(0.93) | 1.188***<br>(3.24) | 0.415<br>(0.70) | 3.835<br>(1.34) | 1.335***<br>(3.81) |
| Index of institutional quality | 0.106<br>(1.28) | 0.052<br>(0.56) | 0.111<br>(1.22) | 0.156*<br>(1.69) | 0.909*<br>(1.74) |
| Log of life expectancy | 2.666**<br>(2.37) | 2.432*<br>(1.95) | 2.663**<br>(2.35) | 2.791***<br>(2.61) | 2.485**<br>(2.13) |
| Difference: Growth of pop. aged 15 to 64 and growth of total pop.[1] | 1.449<br>(1.48) | -0.013<br>(-0.01) | 1.621<br>(0.80) | 1.467*<br>(1.69) | -0.73<br>(-0.46) |
| Log of initial income times openness | | | | -0.414<br>(-1.14) | |
| Difference times openness | 2.849***<br>(2.61) | | 2.977*<br>(1.66) | 2.346**<br>(2.35) | |
| Log of initial income times institutional quality | | | | | -0.11*<br>(-1.67) |
| Difference times institutional quality | | -0.038<br>(-0.10) | 0.465*<br>(1.90) | | 0.541***<br>(2.81) |
| $R^2$ | 0.74 | 0.74 | 0.738101 | 0.75 | 0.740732 |
| Number of observations | 80 | 80 | 80 | 80 | 80 |
| F-statistic | 22.3 | 22.1 | 19.7 | 20.5 | 20.1 |

*Source: Bloom et al. (1999).*

*Note: All results were estimated using heteroskedastic-consistent t-ratios.*

[1] *The difference between the growth rates of the total population and the population age 15 to 64 was instrumented using the 1965 infant mortality rate, the log of the 1965 fertility rate, the 1965 youth dependency ratio, average growth of total population from 1960 to 1965, and average growth rate of population age 15 to 64 from 1960 to 1965.*

* *Significant at the 10 percent level.*

** *Significant at the 5 percent level.*

*** *Significant at the 1 percent level.*

sented are reasonably robust to appropriate estimation strategies; that is, the results are not likely to be an artifact of estimation bias or measurement error, but rather reflect real economic phenomena. However, it is important to remember that these empirical models describe the broad features of cross-national data and thus represent average relationships between economic phenomena. For example, on average, model 1 in Table 1 indicates that moving from a closed to an open economy boosts growth by 1.6 percentage points per year. However, this is an *average* relationship. In a given country, the growth dividend from trade policy reform may vary dramatically due to a host of country-specific factors that a cross-national model cannot plausibly account for. Therefore, it is most appropriate to view these results as illustrative of broad cross-country patterns of growth, and informative of those factors that drive the growth process, but not as representative of "growth" in any individual country.

## APPENDIX 2.4.
## Crime and Demographics[1]

Changes in the age structure of populations can lead to substantial changes in aggregate crime rates if there are large differences in criminal involvement by age group. Since the age-specific crime rate is difficult to obtain for most countries in the region, we try an alternative approach to gauge the impact of demographic trends on homicide rates. We use international data on homicide rates and population age groups to estimate the sensitivity of homicides to changing population structure. We then use these estimates to project the impact of future changes in demographics on crime.

### *Methodology*

Following Levitt (1995), aggregate crime rates can be expressed as

$$C_{it} = \sum_s \alpha_{its} * P_{ist} \quad i=1,...N, \quad t=1...T \quad (1)$$

where $C_{it}$ is the aggregate homicide rate in country $i$ in period $t$, $\alpha_{its}$ is the number of crimes committed by a person in age group $s$, and $P_{ist}$ is the proportion of total population in age group $s$. Using U.S. data on $\alpha_{its}$ and $P_{ist}$, and applying equation (1), Levitt computes changes in U.S. homicide rates driven by demographic changes. Unfortunately, the lack of similar data for developing countries in general, and for Latin American and Caribbean countries in particular, means that this simple accounting procedure cannot be used to infer the impact of demographic changes on homicide rates in the region.

An alternative approach is to use available international data on $C_{it}$ and $P_{ist}$ to estimate the $\alpha_{its}$. Assuming that $\alpha_{its} = \alpha_s$ for all $i$ and all $t$, and allowing for the fact that $C_{it}$ may be reported with error, we have

$$C_{it} = \sum_s \alpha_s * P_{ist} + \varepsilon_{it} \quad i=1,...N, \quad t=1...T \quad (2)$$

In addition, since $\sum_s P_{ist} = 1$, expression (2) can be rewritten as:

$$C_{it} = \alpha_1 + \sum_{s=2}^{s} (\alpha_s - \alpha_1) * P_{ist} + \varepsilon_{it} \quad i=1,...N, \quad t=1...T \quad (3)$$

In practice, two types of problems may hinder this estimation procedure. First, age-specific crime rates may vary across countries and years and bias our results. This is a common problem that arises in most panel data studies in which the coefficients are assumed to be constant across countries and years in order to maximize degrees of freedom. There is very little we can do to solve this problem, since data limitations do not allow us to estimate this specification country by country or period by period. Nonetheless, we provide some estimates in which we allow the coefficient $\alpha_s$ to vary between regions of the world. Second, trends in homicides might be "explained" by trends in demographics without a causal relationship between these two variables. To minimize this problem we include fixed effects and time trends in our specifications.

### *Data Description*

Official crime data are often inaccurate because many crimes are not reported to the authorities. Homicide rate data, however, are considered more reliable than data on other crimes. We therefore restrict our analysis to international homicide rates. The homicide variable measures reported intentional homicides per 100,000 inhabitants and comes from Fajnzylber, Lederman and Loayza (1998). This database combines homicide data from the Surveys of Criminal Trends and Operations of Criminal Justice Systems (United Nations) and from the World Health Organization. Five-year averages are used for the periods 1970-74, 1975-79, 1980-84, 1985-89 and 1990-94. The same five-year averages were used for all the other variables. Data on population cohorts comes from the United Nations. Data on schooling enrollment for young men and GDP growth was obtained from the World Bank. Urbanization data was obtained from the UN. Finally, data on income distribution (Gini index) was obtained from the

[1] This appendix is taken from Morrison and Pagés (1999).

Deininger and Squire (1996) "good quality" income distribution data.

### *Empirical Results*

Table 1 shows the results of estimating equation (3) using country fixed effects, GDP growth and a linear trend as controls. Table 2 shows the results of estimating equation (3) allowing different $\alpha_s$ per region of the world including GDP growth and time trends as controls. The regions considered are the OECD countries (excluding Mexico), Latin America, East Asia, and the rest of the world. The omitted region is the OECD. The statistical procedure to allow for different $\alpha_s$ is to add interaction terms of the form Population 14 to 34 x REGION. Table 3 reports the results of including additional variables to the specifications reported in Table 2 with the objective of explaining away Latin American youth interaction.

**Table 1** **Demographics and Homicide Rates**
*(Dependent variable: Intentional homicides per 100,000 inhabitants)*

| | Regression | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Share of pop. 15 to 19 | 84.49<br>(1.707) | 92.88<br>(1.65) | 77.29<br>(1.510) |
| Share of pop. 20 to 29 | 33.03<br>(1.532) | 41.85<br>(1.58) | 27.35<br>(1.149) |
| Share of pop. 30 to 39 | 55.36 ***<br>(2.085) | 70.73 ***<br>(2.229) | 45.31<br>(1.41) |
| Share of pop. 40 or over | 18.6<br>(0.791) | 18.4<br>(0.715) | 8.78<br>(0.3) |
| GDP growth | | -0.102<br>(-2.62) | |
| Linear trend | | | 0.23<br>(0.56) |
| Constant | -18.79 ***<br>(-2.05) | -22.2 ***<br>(-2.27) | -13.85 ***<br>(-2.09) |
| Number of observations | 374 | 340 | 374 |
| Number of countries | 115 | 106 | 115 |
| $R^2$ within | 0.04 | 0.08 | 0.04 |
| $R^2$ between | 0.04 | 0.06 | 0.02 |

*Note: All specifications include country fixed effects. t-statistics are in parentheses. The omitted age category is the share of the population younger than 15.*

** Significant at the 10 percent level.*

*** Significant at the 5 percent level.*

**** Significant at the 1 percent level.*

Table 2

**Demographics and Homocide Rates Allowing for Differences across Regions of the World**

*(Dependent variable: Intentional homicides per 100,000 inhabitants)*

| | Regression | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Share of pop. 15 to 29 (15 to 29) | -22.25 (-.58) | -11.26 (-.26) | -33.88 (-.87) |
| Share of pop. 30 to 39 (30 to 39) | -20.44 (-.52) | -10.74 (-.26) | -50.55 (-1.16) |
| Share of pop. 40 or over (40+) | -0.63 (-.02) | 1.61 (0.062) | -12.47 (-.05) |
| Latin America and Caribbean (LAC) | -52.53 * (-2.85) | -48.91 * (-2.40) | -56.35 ** (-3.04) |
| East Asia (EASIA) | 36.73 (1.874) | 42.14 (2.00) | 33.65 (1.71) |
| Rest of the world (RWORLD) | -12.85 (-.75) | -14.91 (-.7) | -17.63 (-1.02) |
| LAC*15 to 29 | 138.56 * (2.746) | 132.82 ** (2.379) | 138.66 ** (2.750) |
| LAC*30 to 39 | 246.125 * (3.58) | 227.32 * (3.133) | 243.7 *** (3.554) |
| LAC*40+ | -27.96 (-.6) | -26.66 (.541) | -19.09 (-.411) |
| EASIA*15 to 29 | -80.03 (-1.52) | -91.76 (-1.6) | -78.02 (-1.48) |
| EASIA*30 to 39 | -1.65 (-.027) | -11.12 (-.17) | 16.33 (.26) |
| EASIA*40+ | -54.76 (1.3) | -58.16 (-1.4) | -57.56 (-1.471) |
| RWORLD*15 to 29 | 38.4 (.859) | 51.54 (.99) | 38.02 (.84) |
| RWORLD*30 to 39 | 18.85 (.4) | 12.08 (.22) | 29.84 (.64) |
| RWORLD*40+ | 5.19 (.18) | 4.01 (.1) | 12.43 (.44) |
| Constant | 14.45 (.99) | 9.94 (.611) | 24.3 (1.58) |
| GDP growth | | -0.071 * (-2.015) * | |
| Linear trend | | | 0.497 (1.571) |
| Number of observations | 374 | 340 | 374 |
| Number of countries | 115 | 106 | 115 |
| $R^2$ within | 0.2 | 0.23 | 0.2 |
| $R^2$ between | 0.08 | 0.05 | 0.1 |

*Note: Country fixed effects were included in all the specifications. t-statistics reported in parentheses. The omitted age category is the share of the population younger than 15 and the omitted region is OECD.*

** Significant at the 10 percent level.*

*** Significant at the 5 percent level.*

**** Significant at the 1 percent level.*

Table 3 **Demographics and Crime Rates, Including Other Explanatory Factors**
*(Dependent variable: Intentional homicides per 100,000 inhabitants)*

| | Regression | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Share of pop. 15 to 34 | -21.68<br>(-1.24) | -10.82<br>(-0.35) | -29.06<br>(-1.50) | -174.44<br>(-3.97) |
| Share of pop. 15 to 34*LAC | 184.18 ***<br>(6.23) | 218.82 ***<br>(4.63) | 184.43 ***<br>(5.92) | 200.89 ***<br>(6.54) |
| Income inequality | | -0.21<br>(-1.05) | | |
| % Urbanization (URB) | | | 0.14<br>(1.50) | -0.61 **<br>(-2.75) |
| URB* share of pop. 15 to 34 | | | | 2.32 ***<br>(3.36) |
| Enrollment in secondary education | | | | |
| Constant | 1.63<br>(0.33) | 3.18<br>(0.28) | -3.47<br>(-0.61) | 42.28 ***<br>(3.09) |
| Number of observations | 374 | 192 | 350 | 350 |
| Number of countries | 115 | 72 | 106 | 106 |
| $R^2$ within | 0.16 | 0.24 | 0.17 | 0.21 |
| $R^2$ between | 0.07 | 0.23 | 0.06 | 0.06 |

*Note: Country fixed effects were included in all the specifications. t-statistics reported in the parentheses.*

** Significant at the 10 percent level.*

*** Significant at the 5 percent level.*

**** Significant at the 1 percent level.*

## BIBLIOGRAPHY


Araujo e Olivera, Joao Batista. 1999. Learn as You Teach: The Accelerated Learning Program in Brazil and Its Approach to Teacher Education. Report presented to the Social Programs and Sustainable Development Department, Inter-American Development Bank, Washington, D.C.

Attanasio, P. Orazio and Gianluca Violante. 1999. Global Demographic Trends and Social Security Reform. University College of London. September.

Behrman, Jere. 1999. *Education, Health and Demography in Latin America around the End of the Century: What Do We Know? What Questions Should be Explored?* Philadelphia: University of Pennsylvania.

Behrman, J., S. Duryea and M. Székely. 1999. Aging and Economic Options: Latin America in a World Perspective. Background Paper for IPES 2000. Inter-American Development Bank, Washington, D.C.

————. 1999a. Decomposing Fertility Differences Across World Regions and Over Time. Background Paper for IPES 2000. Inter-American Development Bank, Washington, D.C.

————. 1999b. Human Capital in Latin America at the End of the 20th Century. Background Paper for IPES 2000. Inter-American Development Bank, Washington, D.C.

Belser, P. 1998. *Does Latin American and Caribbean Unemployment Depend on Asian Labor Standards?* Working Paper Series 380, Office of the Chief Economist, Inter-American Development Bank, Washington, D.C.

Binder, Melissa. 1999. Schooling Indicators during Mexico's "Lost Decade." *Economics of Education Review* 18(2): 183-200.

Bloom, David E., David Canning, David K. Evans, Bryan S. Graham, Patrick Lynch, and Erin E. Murphy. 1999. Population Change and Human Development in Latin America. Background paper for IPES 2000. Harvard Institute for International Development.

Bloom, David E. and Jeffrey Sachs. 1998. Geography, Demography, and Economic Growth in Africa. *Brookings Papers on Economic Activity* 2: 207-73.

Bloom, David E. and Jeffrey G. Williamson. 1998. Demographic Transitions and Economic Miracles in Emerging Asia. *World Bank Economic Review* 12(3): 419-55.

Bongaarts, John and Rudolfo Bulatao. 1999. Completing the Demographic Transition. *Population and Development Review* 25(3) September: 515-29.

Buviníc, M. and A. Morrison. 1999. Prevención de la violencia. Inter-American Development Bank. Unpublished.

Castro, Claudio de Moura. 1999. Secondary Education Using TV? Social Programs and Sustainable Development Department, Inter-American Development Bank, Washington, D.C. Unpublished.

Cortázar, René, Nora Lustig, and Richard H. Sabot. 1998. Economic Policy and Labor Market Dynamics. In Nancy Birdsall, Carol Graham and Richard Sabot, eds., *Beyond Tradeoffs: Market Reforms and Equitable Growth in Latin America*. Washington, D.C.: Brookings Institution Press/Inter-American Development Bank.

Cox Edward, Alejandra. 1997. Labor Market Regulation in Latin America: An Overview. In Sebastian Edwards and Nora C. Lustig, eds., *Labor Markets in Latin America: Combining Social Protection with Market Flexibility*. Washington, D.C.: Brookings Institution Press.

Cruz, J. M. 1999. La victimización por violencia úrbana: niveles y factores asociados en ciudades de America Latina y España. *Pan American Journal of Public Health* 5(4/5).

Deininger, K. and L. Squire. 1996. A New Data Set Measuring Income Inequality. *World Bank Economic Review* 10(3), September: 565-91.

Deutsch, R. 1998. *Does Childcare Pay? Labor Force Participation and Earning Effects of Access to Child Care in the Favelas of Rio De Janeiro*. OCE Working Paper 384, Inter-American Development Bank, Washington, D.C.

Duryea, Suzanne and Mary Arends-Kuenning. 1999. New Gender Gaps in Schooling: Adolescent Boys at Risk in Latin America. Inter-American Development Bank. March. Mimeo.

Duryea, S. and M. Székely. 1998. *Labor Markets in Latin America: A Supply-Side Story*. Working Paper No. 374, Inter-American Development Bank, Washington, D.C.

Ermida, O. 1993. Origen, características y perspectivas. In A. Ojeda and O. Ermida, eds., *La negociación colectiva en América Latina*. Madrid: Instituto Europeo de Relaciones Industriales.

Fajnzylber, Lederman and Loayza. 1998. Determinants of Crime Rates in Latin America and the World: An Empirical Assessment. World Bank Latin American and Caribbean Studies, Washington, D.C. November.

Garasky, Steven. 1995. The Effects of Family Structure on Educational Attainment: Do the Effects Vary by the Age of the Child? *American Journal of Economics and Sociology* 54 (January): 89-105.

Garfinkel, I. and S. McLanahan. 1986. *Single Mothers and their Children*. Washington, D.C.: Urban Institute.

Gaviria, A. and C. Pagés. 1999. Patterns of Crime Victimization in Latin America. Background paper for IPES 2000. Inter-American Development Bank, Washington, D.C.

Glaeser, E. and B. Sacerdote. 1996. *Why Is There More Crime in Cities?* NBER Working Paper 5430, January. Cambridge, MA.

Godio, Julio. 1995. Empresas transformadas y estrategia sindical en América Latina. In Maria Silvia Portella de Castro and Achim Wachendorfer, eds., *Sindicalismo latinoamericano: Entre la renovación y la resignación*. Caracas: Nueva Sociedad.

Holtzmann, Robert and Truman Packard. 1999. Extending Coverage in Multi-Pillar Systems: Constraints and Hypotheses, Preliminary Evidence and Future Research Agenda. World Bank, Washington, D.C. Unpublished.

Inter-American Development Bank. 2000. *Social Protection for Equity and Growth*. Washington, D.C.: Inter-American Development Bank.

————. 1998. *Facing Up to Inequality. Economic and Social Progress in Latin America 1998-99 Report*. Washington, D.C.: Inter-American Development Bank.

———. 1997. *Latin America After a Decade of Reforms. Economic and Social Progress in Latin America 1997 Report.* Washington, D.C.: Inter-American Development Bank.

———. 1996. *Making Social Services Work. Economic and Social Progress in Latin America 1996 Report.* Washington, D.C.: Inter-American Development Bank.

International Labour Organization. 1997. *World Labor Report: Industrial Relations, Democracy and Social Stability.* Geneva: International Labour Organization.

International Monetary Fund. 1997. *Government Finance Statistics.* Washington, D.C.: IMF.

Kennedy, D. 1998. Operation Cease Fire. Boston Police Department. John F. Kennedy School of Government, Harvard University. Mimeo.

Knack, Stephen and Philip Keefer. 1995. Institutions and Economic Performance: Cross Country Test Using Alternative Institutional Measures. *Economics and Politics* 7: 207-27.

Kruger, A. 1999. The Incidence of Job Security Regulations on Labor Market Flexibility and Compliance in Colombia: Evidence from the 1990 Reform. Unpublished.

Larrieu, Monica and Ruth Levine. 1999. *Mortality Trends and the Epidemiological Transition in Latin America: Inter-Regional and Cross-Country Comparison by Cause.* SDS Technical Working Paper, Inter-American Development Bank. October.

Lerman, Robert. 1996. The Impact of the Changing U.S. Family Structure on Child Poverty and Income Inequality. *Economica* 63.

Levitt, S. 1998. Deterrence vs. Incapacitation. *Economic Inquiry* 36(3) July.

———. 1995. *The Effects of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation.* National Bureau of Economic Research Working Paper Number 5268, Cambridge, MA.

Lora, E. and G. Márquez. 1998. *The Employment Problem in Latin America: Perceptions and Stylized Facts.* OCE Working Paper Series No 371, March. Inter-American Development Bank, Washington, D.C.

Lora, E. and M. Olivera. 1998. *Macro Policy and Employment Problems in Latin America.* OCE Working Paper Series No 372. Inter-American Development Bank, Washington, D.C.

Márquez, G. 1998. *El desempleo en América Latina y el Caribe a mediados de los años 90.* OCE Working Paper Series No. 377, Inter-American Development Bank, Washington, D.C.

———. 1997. Protección al empleo y funcionamiento del mercado de trabajo: una aproximación comparativa. In Empleo, flexibilidad laboral y protección social. Proceedings of the II Technical Meeting, Círculo de Montevideo. UNDP, Montevideo.

Márquez, G. and C. Pagés. 1998. Ties that Bind: Employment Protection and Labor Market Outcomes in Latin America. OCE Working Paper Series No. 373, Inter-American Development Bank, Washington, D.C.

McDonald, G. J. 1992. Testimony before the Senate. In *Aggressors, Victims and Bystanders: Thinking and Acting to Prevent Violence.* Newtown, MA: Education Development Center.

Morrison, A. and Pagés, C. 1999. The Demographics of Violent Crime in Latin America and the Caribbean. Background paper for IPES 2000. Inter-American Development Bank, Washington, D.C.

Murray, Christofer and Alan López. 1996. The Global Burden Of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors in 1990 and Projected to 2020. Published by the Harvard School of Public Health on behalf of the World Health Organization and the World Bank.

Paes de Barros and Corsueil. 1999. The Impact of Regulations on Brazilian Labor Market Performance. Inter-American Development Bank. Unpublished.

Pagés. C. 1999. *Apertura, reforma y mercado de trabajo: La experiencia de una década de cambios estructurales en el Perú.* Inter-American Development Bank Working Paper Series No. 397. May.

Pagés. C. and C. Montenegro. 1999. *Job Security and the Age Composition of Employment: Evidence from Chile.* OCE Working Paper Series No. 398, Inter-American Development Bank, Washington, D.C. June.

Prescott, Nicholas and Len Nichols. 1998. International Comparison of Medical Savings Accounts. In N. Prescott, ed., Choices in Financing Health Care and Old Age Security. Proceedings of a Conference Sponsored by the Institute of Policy Studies, Singapore, and the World Bank, November 1997.

Primoff Vistnes, Jessica. 1997. Gender Differences in Days Lost from Work Due to Illness. *Industrial and Labor Relations Review* 50(2): 304-23.

Rhum, C. 1998. The Economic Consequences of Parental Leave Mandates: Lessons from Europe. *The Quarterly Journal of Economics* (February): 285-317.

Rodríguez, Alberto and Carlos Herrán. 1999. Secondary Education in Brazil: Time to Move Forward. Draft Report, IBRD-19409-BR, IDB BR-014.

Saavedra, J. 1998. *Crisis real o crisis de expectativas? El empleo en el Perú antes y después de las reformas estructurales.* OCE Working Paper Series No. 388, Inter-American Development Bank, Washington, D.C.

Saavedra, J. and C. Pagés. 1999. *Apertura, reforma y mercado de trabajo: la experiencia de una década de cambios estructurales en el Perú.* OCE Working Papers Series No. 397, Inter-American Development Bank, Washington, D.C.

Sachs, Jeffrey and Andrew Warner. 1995. Economic Reform and the Process of Global Integration. *Brookings Papers on Economic Activity* 0(1): 1-95.

Santana, Isidoro. 1998. Social Security and Private Prepayment Plans in the Dominican Republic. In B. Savedoff, ed., *Organization Matters: Agency Problems in Health and Education.* Washington, D.C.: Inter-American Development Bank.

SDS/IDB. 1997. Higher Education in Latin America and the Caribbean. A Strategy Paper. Inter-American Development Bank, Washington, D.C. December.

Sorrentino, Constance. 1990. The Changing Family in International Perspective. *Monthly Labor Review* (March).

Summers, R. and A. Heston. 1991. The Penn World Tables (Mark 5): An Expanded Set of International Comparisons, 1950-1988. *Quarterly Journal of Economics* 106: 327-68.

United Nations. 1998. World Population Prospects. United Nations, New York. Electronic data.

United Nations Population Fund (UNFPA). 1998. *The State of World Population, 1998: The New Generations.* New York: UNFPA.

Villavicencio, A. 1993. Intervención y autonomía en las relaciones colectivas de trabajo en Perú. In O. Ermida and E. Ameglio, eds., *Intervención y autonomía en las relaciones colectivas de trabajo.* Montevideo: Fundación de Cultura Universitaria.

Waller, Irvin and Brandon Welsh. 1999. International Trends in Crime Prevention: Cost-effective Ways to Reduce Victimization. In *Global Report on Crime and Justice*, United Nations Office for Drug Control and Crime Prevention.

Wolff, Lawrence and Claudio de Moura Castro. 1998. *Secondary Education in Latin America and the Caribbean: Critical Policies for Growth and Reform.* Inter-American Development Bank Background Education Strategy Paper No. 4.

World Bank. 1998. World Development Indicators. World Bank, Washington, D.C. Electronic data.

Zapata, Francisco. 1995. Reestructuración Productiva en América Latina: Con or Sin la Presencia de los Sindicatos? In Maria Silvia Portella de Castro and Achim Wachendorfer, eds., *Sindicalismo Latinoamericano: Entre la Renovación y la Resignación.* Caracas: Nueva Sociedad.

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Chapter 3

# Geography and Development

The mistaken notion that has long held sway in Latin America is that since geography is unchangeable, there is no reason why public policies should take it into account. The relationship between development and geography has been ignored if not dismissed outright as fatalistic if not racist. While there were undoubtedly some grounds for such criticism decades ago when studies of physical and human geography were influenced by European ethnocentrism, that is no longer the case today.

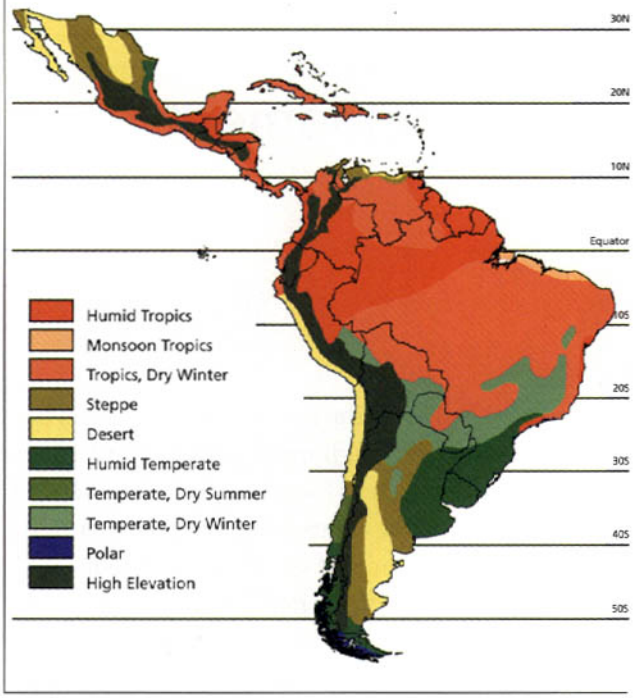
Yet geography remains largely ignored in discussions of public policy in Latin America in the face of considerable evidence and suffering that points to its ongoing relationship to development. Hurricanes and earthquakes cause enormous damage, injuries and death that are preventable; thousands of people suffer every day from endemic diseases for which there is no cure or treatment; farm families throughout the region remain mired in poverty because of the poor productivity of their lands and the lack of appropriate technologies; and countless Latin Americans pile up in cities without access to the basic infrastructure they need for services and transport. Moreover, in several regions in Latin America, there remain the problems of excluding indigenous communities, blacks and other racial minorities who for historical reasons are located in geographically disadvantaged areas. The physical, economic and social isolation of these areas tends to reinforce the development gaps between these groups and the rest of society.

All of these problems and many others that will emerge throughout this chapter are the result of geography and its relationship to the societies of Latin America over the course of history. Many of the painful effects of these problems could have been prevented or mitigated had the influence of geography been better understood. Although many geographical conditions such as climate and location cannot be changed, their influence can be controlled or channeled toward the goals of economic and social development.

Geography affects development through the interaction between physical geography—such as climate, characteristics of land or topography—and human geography, which is the settlement patterns of populations. This chapter looks at the ways these two types of geography affect economic and social development, and examines how different policies can take better advantage of geographical conditions. The objective is not to discuss influences operating in the opposite direction—that is, from development (or lack of it) to geography. Thus, the chapter does not consider the effects of erosion, pollution and overexploitation of natural resources on environmental sustainability, although admittedly they may affect the very possibilities of development over the long run. Curiously, these channels of influence have been subjects of more analysis than has the more immediate effect of geography on development.

Physical geography influences possibilities for economic and social development through three basic channels: productivity of lands, health conditions, and the frequency and intensity of natural disasters. Naturally, these channels interact with other factors such as settlement patterns and the makeup and spatial distribution of productive activities, which are largely the result of historic processes. Settlement patterns in turn influence development in terms of access to markets—especially international markets that are a broader and more dynamic source of exchange of goods, technologies and ideas than domestic mar-

**Figure 3.1** Köeppen-Geiger Ecozones




*Source: Derived from Strahler and Strahler (1992).*

**Figure 3.2** Geographical Zones


*Source: Derived from Strahler and Strahler (1992).*

kets—and through urbanization, which facilitates specialization of labor and makes it possible to generate economies of scale and learning, although it may also entail congestion costs.

These channels of influence can be modified through a variety of policies. Land productivity and health conditions can be changed through technological developments and the provision of certain basic services. The destructive potential of natural disasters can be offset through adequate building standards and safer location of housing. Access to markets can be improved with investments in transportation routes. Urbanized areas can function more effectively if cities have adequate service infrastructure, incentive systems, and public administration. These and other policies can be identified and designed to turn geography into an advantage, but only if, as a first step, there is recognition of the different channels through which physical and human geography influences the potential for economic and social development.

This chapter begins with an overview of the key geographical features of Latin America and their relationship to current development indicators. That is followed by an historical look at the profound and persistent influence of geography in shaping Latin American societies. The chapter then examines each of the five channels of influence of physical and human geography presented in this introduction: productivity of lands; health conditions; natural disasters; access to markets; and urbanization.

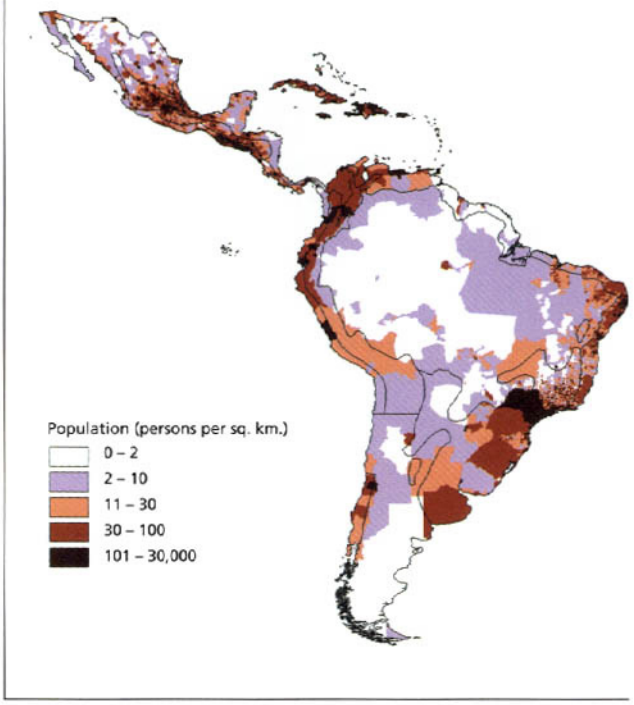
The final sections quantify the impact of these factors on the development potential of Latin America, and then examine the policy implications of areas ranging from technological research to decentralization—making it clear that geographical variables have to be explicitly interjected into the discussion of many if not all public policies in the region.

## The Diverse Geographical Regions of Latin America

Latin America is largely located within tropical zones, but its geographical features span a large variety of climates and ecozones, not all of them characteristic of tropical regions.

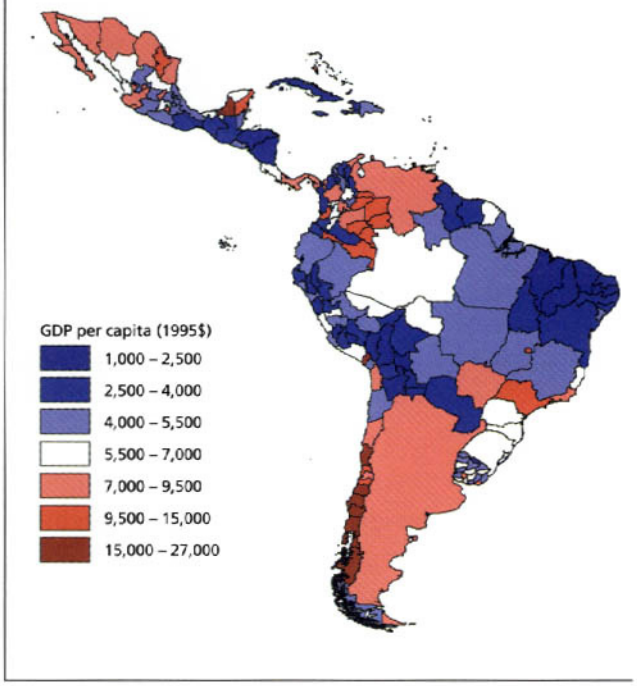
One of the first climatic classification systems was that of Köppen, developed a century ago but still

Figure 3.3 Population Density




Source: Calculations based on Tobler et al. (1995).

Figure 3.4 Regional GDP Per Capita




Source: Summers and Heston (1994); Azzoni et al. (1995); Escobal and Torero (1999); Esquivel et al. (1999); Morales et al. (1999); Sánchez and Núñez (1999); and Urquiola (1999).

the most useful and widely used today. Köppen's ecozones, shown in Figure 3.1, are based on temperature and precipitation data, as well as elevation (as modified by Geiger).[1] The main ecozones in Latin America are tropical (A), dry (B), temperate (C), and high elevation (H). The ecozones allow us to identify the region's major geographical differences: temperate versus tropical, highlands versus tropical lowlands, and dry versus temperate outside of the tropics.

Several other geographical factors besides climate have had a strong impact on economic activity and population distribution in the region. Coastal areas are distinct from the inland; northern Mexico is unique because it borders the huge U.S. market; and direct access by sea to Europe historically has differentiated the Caribbean and Atlantic coast from the Pacific coast. The Köppen ecozones and these simple patterns form the basis of seven broad geographical zones for the region: border, tropical highlands, lowland Pacific coast, lowland Atlantic coast, Amazon, highland and dry Southern Cone, and the temperate Southern Cone (Figure 3.2).

### *Different Geographical Zones, Different Economic Outcomes*

The border zone comprises the arid or temperate climate in the north of Mexico. This zone is sparsely populated, has higher-than-average per capita GDP than the rest of Mexico and Latin America, and contains most of the Mexican *maquiladora* manufacturing assembly industry due to its proximity to the U.S. market (see Figures 3.3 and 3.4).

The tropical highlands cover the highland regions of Central America and the Andean countries north of the tropic of Capricorn. This zone has very high population densities despite its difficult access to the coast, and is home to most of the indigenous people of Latin America. Overall, it has the lowest per capita GDP on the continent, despite including Mexico City and Bogota, which have high-income levels relative to the rest of Latin America. The problems of this zone highlight what happens when populations continue over time to live in areas with geo-

[1] See Strahler and Strahler (1992, pp. 155-60).

**Table 3.1 Characteristics of Latin American Geographical Zones**

| Geographical zone | GDP per capita (1995$) | Population density (persons/sq km) | GDP density ($1,000/sq km) | Area (millions of sq km) | Population within 100 km of coast (%) |
|---|---|---|---|---|---|
| Tropical highlands | 4,343 | 52 | 226 | 1.9 | 11 |
| Lowland Pacific coast | 4,950 | 61 | 302 | 0.8 | 95 |
| Lowland Atlantic coast | 5,216 | 46 | 240 | 2.2 | 83 |
| Amazon | 5,246 | 6 | 31 | 9 | 1 |
| Temperate Southern Cone | 7,552 | 35 | 264 | 3.2 | 31 |
| Mexican-U.S. border | 7,861 | 17 | 134 | 1.1 | 30 |
| Highland and dry Southern Cone | 9,712 | 7 | 68 | 2.2 | 16 |

*Source: Authors' calculations from data in Figures 3.2, 3.3 and 3.4.*

graphical disadvantages. Poverty persists when the geographical barriers people face cannot be overcome, and when they do not move to more geographically favored regions.

The lowland Pacific and Atlantic coastal zones are tropical with some small areas of dry ecozone. The Pacific coast has the highest population density of the seven geographical zones. The Atlantic coast also has dense population, though less so than the Pacific. The two coastal zones have per capita GDP about 20 percent higher than the highland zone they abut, with similarly high population concentrations. The coastal zones have excellent access to the sea and international trade, of course, but must face the burden of disease and agricultural challenges of a tropical environment.

The Amazon zone is still largely uninhabited in comparison with the other geographical zones, despite migration and the accompanying environmental consequences that have occurred over recent decades. Perhaps surprisingly, per capita GDP in the Amazon is higher than adjacent coastal and highland zones. This is due to migration equilibrium and resource rents. Settlers will move to the difficult environment of the Amazon if they expect income opportunities to be better than those in areas from which they migrated. The migrants are also more likely to be working age males with no dependents, resulting in higher average per capita income. However, much of the GDP of the region comes from natural resource rents of mining and large plantations that are often owned by investors who do not reside in the jungle. Thus, GDP per capita is probably higher than average household incomes per capita.

The two Southern Cone zones are both high-income areas, like the northernmost border zone. The temperate Southern Cone has a substantial population density, while the highland and dry Southern Cone has a population density barely higher than that of the Amazon. Average GDP per capita and the population density of the temperate Southern Cone are somewhat less than they would otherwise be because of the inclusion of temperate ecozones in Paraguay and Bolivia.

Looking at the average income levels and population densities of the geographical zones in Table 3.1, the four tropical zones have the lowest GDP per capita, clustered around $5,000 (in 1995 dollars), except for the highlands at $4,343. The three temperate regions in the Southern Cone and northern Mexico have much higher income, averaging from $7,500 to $10,000. Population densities follow a very different pattern, with very low densities in the arid Southern Cone and Mexican border zones, intermediate in the temperate Southern Cone, and higher in the tropical coastal and highland zones.

The result of GDP per capita and population density is the density of economic production by land area. The zones with the highest economic production are the three densely populated tropical zones and the temperate Southern Cone. The Mexican border region is intermediate and the arid Southern Cone and the Amazon very low. Although the GDP densities are similar across these groups of tropical and tem-

perate zones, the temperate regions achieve higher GDP per capita with a lower population density, while the tropical regions struggle with the opposite combination.

The diversity of geographical conditions within Latin America is also apparent in some of its countries. While Uruguay and the Bahamas are homogeneous—that is, most of their territory belongs to only one main ecozone—countries like Bolivia, Brazil, Ecuador, Colombia and Peru show an astonishing geographical diversity. Few other countries in the world offer so many climate zones and landscapes. Peru contains 84 of the 104 ecological regions in the world (according to one classification) and 28 different climates. The geographical diversity of some of the Latin American countries has led to severe geographical fragmentation, as reflected in patterns of population settlement, at times with dire political consequences (see Chapter 4).

## History

The geographical remoteness and isolation of the Americas played a central role in the devastation of the indigenous people at the point of first contact with Europeans. Relative to the historical timeline, humans did not settle permanently in the Americas until quite recently, probably about 11,000 BC.[2] The first settlers were most likely small nomadic groups crossing the cold Bering Straits, so they carried few Old World diseases with them from Northern Asia, in particular, no "crowd" diseases such as smallpox, measles and typhus, and no tropical diseases. When Christopher Columbus arrived, followed by other conquistadors and explorers, the toll of Old World disease was catastrophic to the indigenous peoples of the New World, in some cases wiping out whole tribes before a shot was fired.[3] The implausibly lopsided victories of Cortés over the Aztecs and Pizarro over the Incas are as much attributable to smallpox as to Spanish firearms and horses. The emperors of both the Incas and the Aztecs, along with large proportions of their populations, were killed by smallpox before the decisive battles with the Spaniards even began. By 1618, Mexico's initial population of about 20 million had collapsed to about 1.6 million.[4] According to McNeill, "ratios of 20:1 or even 25:1 between the pre-Columbian populations and the bottoming-out point in Amerindian population curves seem more or less correct, despite wide local variation."[5]

Geography most likely played a hand in the pre-Columbian settlement patterns in the Americas. The main empires—the Aztec and the Inca—were in the tropical highlands, probably due to better climate for agriculture and a more benign disease environment. With no use of seaborne trade, or even wheeled transport, access to the sea was not an economic disadvantage for these civilizations. The major exception to the highland New World civilizations was the Mayans in the tropical lowlands, but the dense population in the Yucatan peninsula mysteriously collapsed before contact with Europeans.[6] The current concentration of indigenous peoples of Mexico, Central America and the Andean countries in the highlands is also a function of where indigenous people survived the introduction of Old World diseases. Highland populations were protected from the lowland tropical diseases of malaria, yellow fever and hookworm, which contributed to the extinction of substantial Amerindian populations from most of the Caribbean islands.

### *Geography and Colonization*

Colonization played a complicated but important role in shaping current patterns of economic development, but it is of little help in explaining the dramatic geographical variation in present-day Latin America. Most of the countries in the region share the same colonial heritage, despite very different economic outcomes. Among the countries with British, French or Dutch rather than Iberian heritage, one can find some of the richest and also some of the poorest countries of the region.

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[2] Diamond (1997, p. 49). However, human arrival in the Americas may have been as early as 25,000 BC, although much debate surrounds these estimates.

[3] Many chilling examples are documented by Crosby (1972, 1986).

[4] Diamond (1997, p. 210).

[5] McNeill (1976, p. 190).

[6] Substantial evidence points to sustained drought brought on by the El Niño climatic oscillation as the cause of the Mayan collapse, due to high population density agriculture on fragile tropical soils. See Fagan (1999, Chapter 8).

Box 3.1

## How the Climate of Haiti Destroyed Two Large Armies[1]

In the general chaos brought on by the French Revolution, the richest of France's colonies, Saint Domingue, later to become Haiti, began to slip from her grasp. With the promulgation of the Rights of Man in a colony based on a brutal system of slavery, armed resistance to the white planters progressed from the mixed-race, pro-slavery, *mulâtres* to a general revolt by the African slaves by 1791.

Britain and Spain, both at war with Republican France in the 1790s, agreed to divide the prize of St. Domingue between them. Spain fought by proxy through the rebel slave bands in the north, but Britain invaded with its own troops in the south in 1793. Realizing that neither Spain nor Britain would brook an end to slavery, the rebels cast off the Spanish and turned to attack the British. Though rarely directly engaged by the rebels until near the end, the British succumbed to the geography of St. Domingue. The British commander had assured London that he could take the territory with 877 troops, but reinforcements could not keep up with the ever increasing toll of yellow fever and malaria. In a typical case, Lieutenant Thomas Howard's regiment of 700 hussars lost 500 men in one month with only seven battle deaths. In the end, disease and the rebels forced the British to evacuate with over 14,000 dead. Edmund Burke summed up the debacle: "The hostile sword is merciful: the country itself is the dreadful enemy."

When Napoleon consolidated his power in France after 1799, he turned to reconquering the prized colony of St. Domingue to use it as a springboard to reassert French control of the Louisiana Territory. His downfall was the same as Britain's. French troops could not survive in Haiti's disease-ridden environment. Leclerc, Napoleon's brother-in-law, quickly occupied almost the whole colony with 20,000 troops in 1802. Then yellow fever and malaria took hold. Mortality from yellow fever exceeded 80 percent, and to hide the losses, the dead were carted away at night and military funerals suspended. With all but two of his corps commanders dead, Leclerc himself would succumb to yellow fever before the year was out.

The French struggled on with massive reinforcements until 1803 before pulling out the surviving remnants of the army. Only 10,000 men made it back to France, with 55,000 dead in the colony. The hemisphere's second independent republic, Haiti, was born. It was to provide refuge and support to Simón Bolívar in his darkest hour in 1815. Napoleon was forced to give up his designs on the Louisiana Territory, which he sold to the United States. The tenacity of the Haitian rebels was essential to the only successful slave revolt in history, but victory depended on Haiti's crushing burden of tropical disease.

[1] Based on Heinl and Heinl (1978).

Moreover, as shown by Diamond (1997), geography had a profound role in determining which countries were colonizers and which countries were colonized. Eurasia was highly favored relative to the other continents in terms of domesticable crops and livestock both by chance and because of its large area of contiguous ecological zones.[7] The constant proximity of settlements to their livestock and their own waste in Eurasia caused new diseases such as smallpox, measles, chickenpox, and a range of intestinal parasites. The concentration of sedentary populations in cities made possible by agricultural advances provided a constant pool of new infectives to sustain "crowd diseases" such as tuberculosis and influenza. This heady brew of infectious disease proved to be devastating to unexposed populations, and largely explains the easy conquest of the Americas and Australasia. The technological advances made possible by the agricultural advantages of Eurasia also explains the eventual European domination of Africa.

When Europeans brought Africans to the New World as slaves, they also imported a panoply of African diseases new to the Americas. Malaria, yellow fever, hookworm, schistosomiasis and other diseases further devastated the indigenous population and have had a persistent impact on the burden of disease since then. Most of these diseases remain major public health and economic problems in the American tropics to the present day.

The imported African diseases also plagued the European colonizers in the tropical regions of the New

[7] The lack of domesticable livestock in the Americas for use in agriculture as well as war was probably due to the impact of the first human settlers of the Americas 13,000 years ago on large mammals, ironically similar to the deadly impact of European settlers on the descendants of the original American settlers. American mammals had no experience of coevolution with humans until the Asian migrants' sudden appearance, and thus no natural wariness and defenses against human attack. In the Americas, as in Australia, the first human settlers brought about the extinction of most of the large mammals. See Crosby (1986, pp. 273-81).

World, especially the Caribbean. Haiti was the graveyard for two large colonial armies (see Box 3.1). Yellow fever and malaria devastated successive invasions by the British and the French, whose losses in Haiti were greater than the losses of either side at Waterloo.[8]

Slavery implied not only a new pool of diseases but profound changes in the composition of populations, the ability to exploit certain lands, and the patterns of institutional development of those countries that absorbed slaves in large numbers. Slavery was not a uniform phenomenon, but one clearly influenced by a combination of geographical, technological and institutional factors (see Box 3.2).

Ever since Eric Williams' insightful analysis nearly a half century ago, it has been generally accepted that the origin of slavery "was economic, not racial; it had to do not with the color of the laborer, but the cheapness of the labor." Nevertheless, "racial differences made it easier to justify and rationalize black slavery." Thus, "slavery was not born of racism: racism was the consequence of slavery." Racism was its longer lasting effect, since racial prejudice did not end with slavery. It continues to affect the lives of the descendants of slaves, thereby limiting their economic and social opportunities (Williams, 1964).

### *The Harsh but Not Indomitable Tropics*

The difficulties of operating in a tropical environment were abundantly clear during the building of the Panama Canal. The effect of the humid tropics on everything from tools to clothing wrought havoc: "Anything made of iron or steel turned bright orange with rust. Books, shoes, belts, knapsacks, instrument cases, machete scabbards, grew mold overnight. Glued furniture fell apart. Clothes seldom ever dried."[9]

Above all, abandonment of the project by the French (1881-89) and the early failures by the Americans (1904-05) showed that intensive disease control, particularly for malaria and yellow fever, was a necessary condition for its completion.

Although the French made major investments in medical care, in the 1880s they did not yet understand the means of transmission of these two major mosquito-borne diseases. Besides the fearsome mortality of workers and the recurrent debilitation of those who survived, many of the most dynamic project leaders and engineers perished from tropical disease. On top of unrealistic technical goals and organizational difficulties, the loss from disease was more than the project could sustain. At least 20,000 lives were lost to disease during the nine years of the French effort.[10]

U.S. President Theodore Roosevelt, the prime mover behind the American attempt to build the canal, immediately recognized the importance of disease control from his own experiences in the tropics: "I feel that the sanitary and hygienic problems...on the Isthmus are those which are literally of the first importance, coming even before the engineering."[11] When the Americans revived construction of the canal in 1904, a crucial element of their success was William Gorgas. He demonstrated in Havana in 1901 what few believed possible: endemic yellow fever could be eliminated by intensive mosquito control. Once Gorgas was given substantial resources and support in 1905, he carried out a similar feat in Panama. In one of the most intensive vector control efforts before or since, Gorgas largely eliminated the threat of both yellow fever and malaria by denying mosquitoes the pools of stagnant water they need to breed. An army of health inspectors was used to go house to house. The provision of clean water and other public health measures reduced the incidence of other diseases. Contrary to popular impression, malaria was a greater threat to health than yellow fever in Panama, as Gorgas recognized, with higher mortality under both the French and American canal projects.[12]

Yellow fever is no longer a major public health problem due to a successful worldwide control effort in the 1930s and the development of an effective vaccine. The story of malaria is completely different. The worldwide eradication effort that started in the 1920s and intensified in the 1950s and 1960s was largely a failure in the tropics, and no vaccine strategies have yet proven viable. Currently, all the inexpensive drugs for treatment of and protection from malaria are losing their effectiveness in the face of resistant strains.

[8] Heinl and Heinl (1978, p. 81).

[9] McCullough (1977, p. 135).

[10] Ibid., p. 235.

[11] Ibid., p. 406.

[12] Ibid., p. 139.

Box 3.2

## Why Slavery Only Developed in Certain Regions

The relationship between geography and slavery has been the subject of extensive debate, motivated by the racist culture that evolved from colonists of European origin in order to justify the exploitation of blacks. The issue is to explain the concentration of slavery in tropical areas, since the large majority of slaves went to the Caribbean islands or Brazil, and in the United States they were concentrated in the subtropical south. The deep-seated justification given by the racist culture is that blacks were better able than whites to endure the unhealthy tropical environment.

Some of the most recent studies, which have their antecedents in the innovative findings of Thompson (1941), Williams (1964) and other authors, base their arguments on the conditions of production on plantations and the scarcity of other types of manual labor. Following this view, Engerman and Sokoloff (1997) have shown that slavery predominated in the tropics not because of its hostile disease environment, but because the institution of slavery was more economically productive on tropical plantations (though disastrous for those who actually did the work), while free labor was more productive in the temperate New World. The tropical climate was suitable for certain crops (sugar, tobacco, cacao, coffee, cotton and rice) that were conducive to production on large-scale plantations, while temperate zones were conducive to grain-based agriculture with efficient smallholder production. Furthermore, the tropical plantation crops could be cultivated by gang labor forced to work rapidly without significant risk of damage to the crops. Hence, Engerman and Sokoloff argue that economies based on slave labor in Latin America and the Caribbean resulted in high levels of inequality with far-reaching consequences for institutions and economic development in these countries. The Spanish colonies had relatively little slavery, but the Amerindians, with a slave or serf-like status, comprised a large percentage of the population in all these colonies until the end of the 19th century. This disparity resulted in high inequality and restrictive economic institutions similar to those in the slave states. According to Engerman and Sokoloff, the institutional environment (due to the historical but not persistent impact of geography) is what explains the divergence between Latin American economic performance and that of the United States and Canada.

Some authors, however, believe that health conditions in tropical areas could have been a factor in the predominance of black slavery over other races. Coelho and McGuire (1997) have argued that as a result of the exposure of many generations to tropical diseases, Africans had both greater genetic and acquired immunity to them, especially malaria, yellow fever and hookworm. Most sub-Saharan African ethnic groups have two blood characteristics: the Duffy factor and the sickle cell trait. The Duffy factor confers immunity to the milder vivax form of malaria, while the sickle cell trait provides partial protection from the more deadly falciparum malaria. Most Africans were immune to yellow fever due to exposure as children (when the disease is milder), and even nonimmune Africans have lower death rates from the disease for poorly understood reasons. Similarly, West Africans, from whom most New World slaves descended, have a clear but poorly understood tolerance to hookworm.

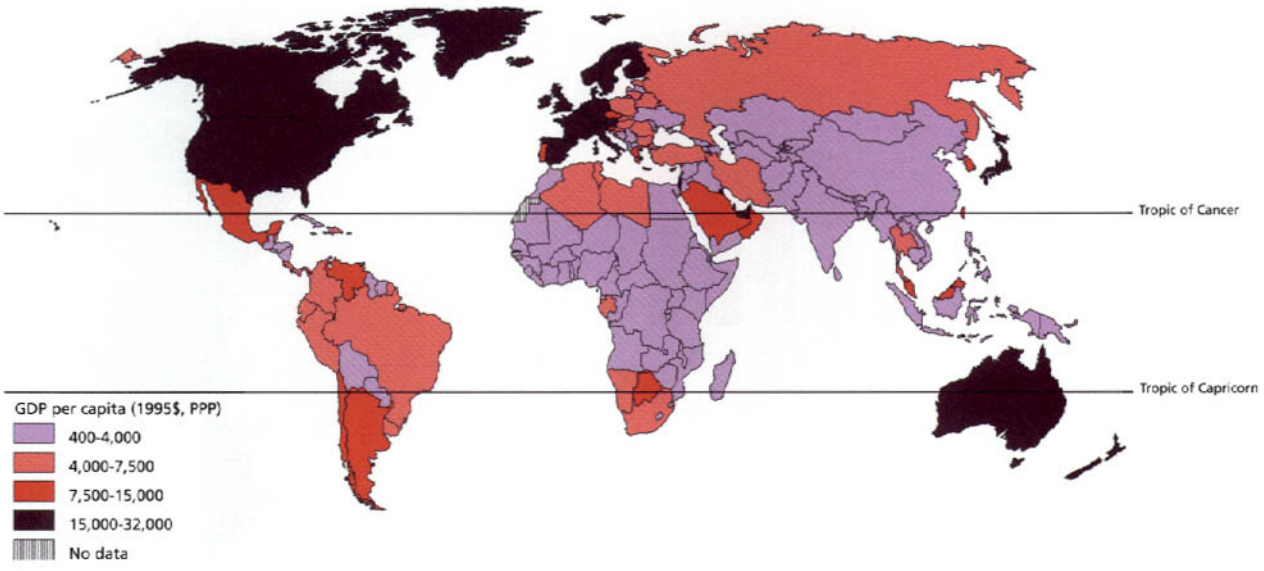
In any event, the ultimate explanation for the spatial concentration of black slavery is the scarcity of other types of manual labor in large-scale production units. Europeans engaged in or forced to work on plantations were allowed the opportunity to purchase lands and have the recourse to institutions whose protection did not extend to blacks. American Indian natives constituted a limited supply of manual labor that in many areas was decimated by diseases. A better resistance of blacks to certain tropical diseases possibly eased the process, although it neither explains nor justifies it.

In many regions of Latin America, present localization patterns of both black and indigenous populations still reflect elements from the past. Frequently, adverse climatic circumstances are reinforced by physical isolation and inadequate access to markets and infrastructure, as well as by various institutional and cultural mechanisms that make it difficult to obliterate the burden of history. Latin America still does not pay the attention to these problems that they deserve. Although this book does not address these issues in detail, it is motivated by the conviction that ignoring the impact of geography on development implies running the risk of ignoring ethnic minorities.

### Productivity of Land

Stark evidence of the strong and pervasive effects of geography on development is the fact that most of the world's poorer countries are located in the tropics, while the highest levels of development are found in nontropical areas (Figure 3.5). The economic disadvantage of the tropics can in turn be largely attributed to lower agricultural productivity. If geography were unimportant, one would expect to see similar economic conditions throughout the world, subject to some random variation. In fact, poor countries are rarely interspersed in the richer regions, although a few rich countries can be found in the tropical areas.

**Figure 3.5** **Distribution of Per Capita Income**




*Source: Gallup, Sachs and Mellinger (1999).*

Latin America has more middle-income countries in the tropics than do other regions with tropical areas, suggesting that it is less bound by the general rule that the tropics are poorer. The geographical gradients within Latin America are nevertheless clear and dramatic. Figure 3.6 shows that 1995 per capita GDP levels in the region follow roughly a U-shape in latitude, with much higher levels in the temperate south, and a minimum level just below the equator in the band from 20° south to 0° latitude. The geographical tropics is defined as the region from 23.45° south to 23.45° north, where the sun is directly overhead at some point during the year. Tropical Latin America has much lower income levels than temperate South America or temperate Mexico, although some spots of high development can be found in the Caribbean (Figure 3.7). The average per capita GDP of $4,580 found in the 20° south to 0° latitude band is just under half the level found at high points in temperate regions.

The problem of poverty in the tropics is nothing new. The U-shaped gradient shown in Figure 3.6 has persisted for as long as we have data. Figure 3.8 shows that per capita GDP in 1900 in the tropical countries of Brazil, Peru, Colombia and Venezuela was less than half that of temperate Chile and Argentina, and lower than Mexico and Cuba on the tropical fringe.[13] By a factor of three, the tropical Latin American countries had lower incomes than the United States or Canada, with their temperate climates.

Data for 1800 are more tenuous and sparse, but show the same pattern by latitude (Figure 3.9).[14] The tropics were poorer than the temperate countries, with the clear exception of Cuba and, apparently, Haiti,[15] whose richness was based on the brutally productive (but eventually unsustainable) slave economy.

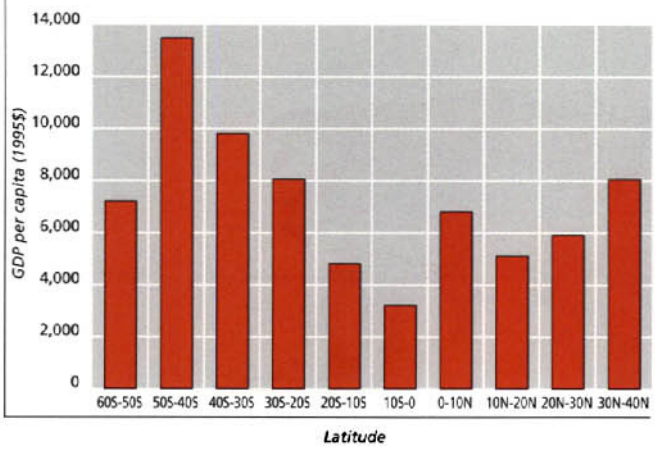
Since the Latin American countries share much of the same colonial and cultural history, current and past patterns of income by latitude within the region are striking. While differences in economic development across continents are more likely due to divergent historical experiences rather than geography, this position is less plausible within continents.

[13] GDP per capita data for 1900 are from Maddison (1995, Table C-16d), except for Cuba in 1913, which is from Coatsworth (1998, Table 1.1).

[14] GDP per capita data for 1800 are from Coatsworth (1998, Table 1.1, p. 26).

[15] Although not included in Figure 3.9, historical evidence shows that Haiti was France's richest colony and most likely had income levels similar to Cuba before the slave rebellion destroyed the plantations. See Heinl and Heinl (1978, p. 2).

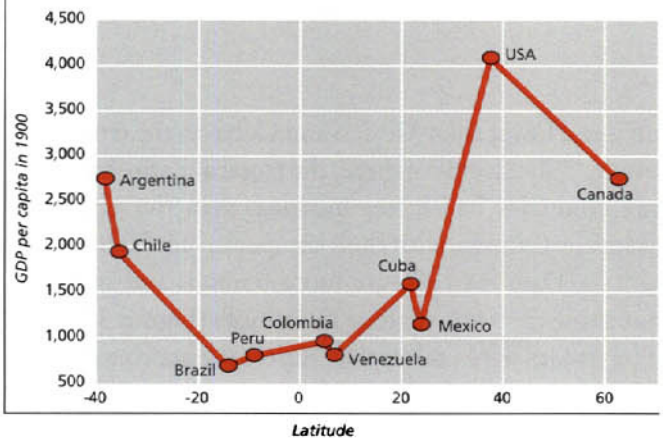
**Figure 3.6** Mean GDP Per Capita by Latitude Band in Latin America




Source: World Bank (1998) and ESRI (1992).

**Figure 3.8** Income by Latitude in 1900

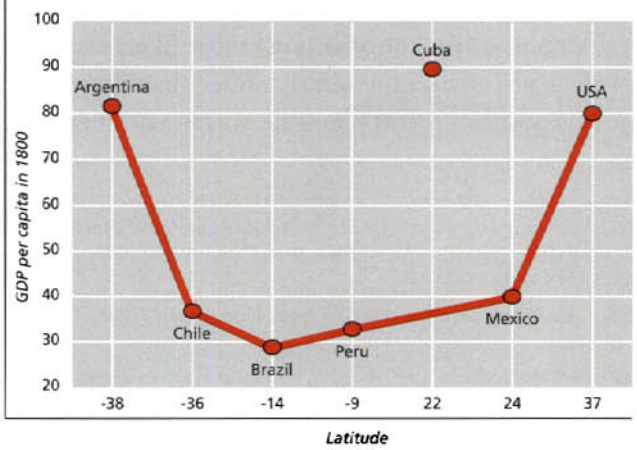
*(In current US$)*




Source: Madisson (1995) and Coatsworth (1998).

**Figure 3.9** Income by Latitude in 1800

*(In current US$)*




Source: Coatsworth (1998).

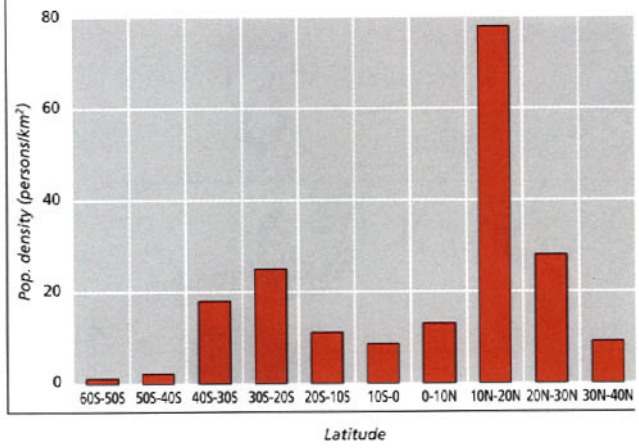
**Figure 3.7** Latin America by Latitude


The pattern of development within Latin America is consistent with the pattern within Africa and Eurasia. The nontropical northern and southern extremes of Africa are the wealthiest regions of the continent. In East Asia, the tropical and subtropical regions are poorer, in general, than the temperate north.

Population density is a rough indicator of how hospitable the land is to an agrarian society, but there is no evidence of overpopulation as an explanation for why the tropics are poorer. In fact, tropical areas have fewer people on the land as well as lower per capita income levels.

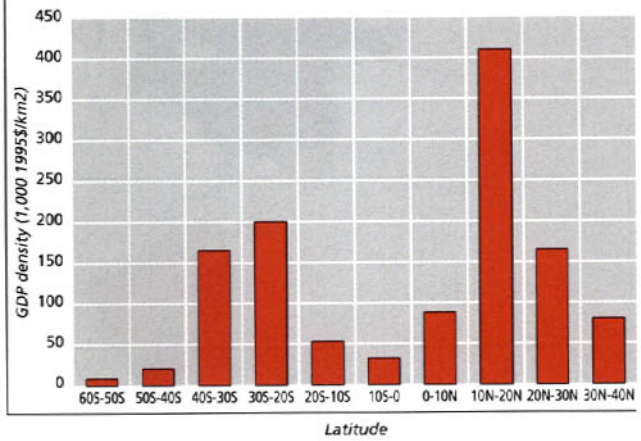
Current population distribution in Latin America largely conforms to the original European settlement patterns (including the slaves they brought), plus indigenous highland populations that survived the Columbian exchange. As with other regions of the world, population shows a bimodal pattern with respect to latitude (Figure 3.10), with peaks in the temperate middle latitudes, and lower densities in the far south and the tropics. The highest population densities in the tropical 10° to 20° north latitude band of central Mexico and Central America are something of an exception, but consistent with a relationship between climate and population, since most of this population lives in the highlands with a temperate climate.

**Figure 3.10** Population Density by Latitude Band




Source: World Bank (1997) and ESRI (1992).

**Figure 3.11** GDP Density by Latitude Band




Source: World Bank (1998) and ESRI (1992).

The low population density of the tropics in Latin America implies that the economic productivity of tropical land is even more unequally distributed than incomes in the region. Figure 3.11 shows that the economic output of land area in the tropical band of 10° south to 0° latitude is $39,000 per square kilometer, less than a quarter of output at 20° to 30° north and south.

### *Tropical Agriculture*

With factors such as history and population ruled out, the evidence of economic disadvantage of tropical areas points to problems with agricultural productivity. Agricultural yields are particularly sensitive to climate, soil resources and technology.

Climate and soil conditions are different in temperate and tropical ecological zones. Furthermore, the tremendous differences in the natural plant and animal communities of the tropics and the temperate zones suggest that the productivity of the narrow range of plants used for agricultural staples would also be systematically different between the two regions. Although it is possible theoretically for food staples to be adapted to be equally productive in temperate and tropical zones, in practice this has not happened. Even after accounting for differences in input use in agriculture, tropical yields of principal crops are starkly lower than temperate yields.

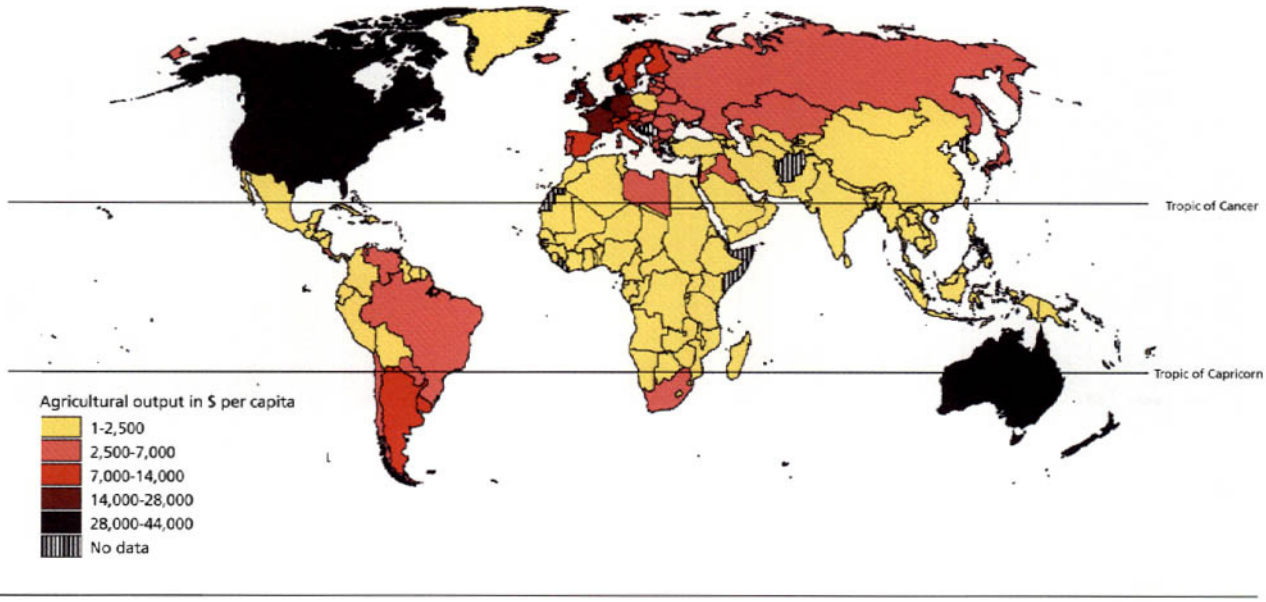
This is only partly a natural phenomenon. Its main cause may be found in the pattern of technological developments originally spurred by the distribution of agriculture and animal species and land conditions, and reinforced by centuries of technological changes biased toward the richer areas.

The disparity between tropical and nontropical agricultural output per farmworker (Figure 3.12) is even more pronounced than the disparity between tropical and nontropical income levels (Figure 3.5). Most individual crops tell the same story. Table 3.2 shows that nontropical yields are higher than tropical yields for 9 of 10 important crop categories. This is especially true for temperate crops like wheat, but also for some tropical crops like maize or sugar cane.

These differences could be due in whole or part to the inputs used. Fertilizers, tractors, improved seed and labor all affect yields, regardless of whether the climate is ideal for the crop. Farmers in wealthier countries use more nonlabor inputs per hectare, since these inputs are inexpensive compared to their own labor and land values. This suggests that low yields in the tropics are caused *by* poverty rather than being a cause *of* poverty. However, estimates in Gallup and Sachs (1999) show that tropical yields are much lower, even controlling for differences in input use.[16] Tropical and dry ecozones, which make up most of the geographical tropics, have yields 30 to 40 percent lower than temperate ecozones for the same input use.

[16] Pricing and other agricultural policy has a substantial effect on how much farmers produce and the amount of inputs they use, but to a first approximation, should not affect yields given inputs.

Figure 3.12 **Agricultural Output per Farmworker, 1994**




*Source: FAO (1999).*

Moreover, agricultural productivity grew about 2 percent per year more slowly in tropical and dry ecozones than temperate ones. Therefore, although the origin of the differences in productivity may be natural, there is no doubt that technological developments over time have widened the gap. Technological advances have been concentrated in the wealthier regions, whose more homogeneous ecology facilitates the diffusion of successful species and technologies.[17]

While some crops such as tree nuts or tropical fruits are clearly more productive in the tropics, few of them are major parts of the food system. Table 3.3 shows the contribution of different crop categories to the world food supply. Cereals provide almost half of all calories and almost as much of protein consumption. Oilcrops—the only crop category for which yields are higher in the tropical countries than in nontropical ones—contribute just 10 percent of food calories, and only 3 percent of protein.

The same pattern of differential agricultural productivity appears within Latin America, even though the region's countries are more similar to one another than the rest of the world. For most crops, yields in tropical Latin American countries are much lower. Sugar cane, oil crops and coffee are exceptions, but none of the yield differences between the tropics and nontropics for these crops are statistically significant (Table 3.4).

Technological developments have also favored nontropical agriculture in Latin America. While there has been rapid growth of crop yields in the region for most staple crops, the growth rates are quite different between tropical and nontropical regions (Table 3.5). Although the yields of a few crops (coffee, fruits, vegetables and oilcrops) grew slightly faster in the tropical countries, the largest improvements took place in the nontropical countries. Furthermore, the only statistically significant differences in productivity over the past 37 years favored the nontropical countries. It is no coincidence that the most successful exporters of agriculture-based goods in Latin America are nontropical countries. Chile has made great advances since the 1970s in the production of fruits for international markets because it has taken advantage of technological developments in California, a region with which it shares some important geographical and ecological similarities (in addition to the advantage of the opposite pattern of seasons).[18]

The diet in Latin America, especially in the tropical countries, is different from other parts of the

[17] For extensive analysis and documentation of this important point see Diamond (1997).

[18] This has been documented by Meller (1995 and 1996).

**Table 3.2** **Crop Yields in Tropical versus Nontropical Countries of the World, 1998**

| | Tropical yield (mt/ha)[1] | Nontropical yield (mt/ha) | Tropical/ Nontropical | Statistically significant difference[2] |
|---|---|---|---|---|
| Cereals (milled rice equivalent) | 16.5 | 26.9 | 0.61 | x |
| Maize | 20.1 | 45.1 | 0.45 | x |
| Root crops (potato, cassava, etc.) | 105.0 | 200.0 | 0.53 | x |
| Sugar cane[3] | 647.0 | 681.0 | 0.95 | |
| Pulses (beans and peas) | 7.9 | 13.3 | 0.59 | x |
| Oilcrops | 5.1 | 4.0 | 1.28 | x |
| Vegetables | 113.0 | 177.0 | 0.64 | x |
| Fruits | 96.0 | 97.9 | 0.98 | |
| Bananas | 155.0 | 201.0 | 0.77 | x |
| Coffee | 6.5 | 15.4 | 0.42 | x |
| Observations[4] | 108.0 | 95.0 | | |

[1] *Metric tons per hectare.*

[2] *x = p value less than 5 percent for t test that mean tropical yield is different from mean nontropical yield.*

[3] *Data are for 1996.*

[4] *This is the number of observations for cereals. Not all countries produce root crops.*

*Source: FAO (1999).*

world. If the crops eaten by people in tropical Latin American countries were relatively more productive in the tropics, the yield differences between the tropics and nontropics for other crops would be less of a problem. The last column of Table 3.3 shows that Central Americans eat much more maize, sugar and pulses, which make up 54 percent of their calorie consumption compared to only 16 percent for the rest of the world. However, maize and beans are among the least productive crops in the tropics compared to the nontropics, both in Latin America and worldwide.

**Table 3.3** **Per Capita Food Supply by Product**
*(In percent)*

| | World | | Central America |
|---|---|---|---|
| | Calories | Protein | Calories |
| Total | 100 | 100 | 100 |
| Vegetable products | 84 | 63 | 84 |
| Cereals (milled rice equivalent) | 50 | 45 | 47 |
| Wheat | 20 | 22 | 9 |
| Rice (milled equivalent) | 21 | 15 | 3 |
| Maize | 5 | 5 | 34 |
| Other | 3 | 4 | 1 |
| Root crops (potatoes, cassava, etc.) | 5 | 3 | 1 |
| Sugars | 9 | 0 | 16 |
| Pulses (beans and peas) | 2 | 5 | 4 |
| Oilcrops and oils | 10 | 3 | 10 |
| Vegetables | 2 | 4 | 1 |
| Fruits | 3 | 1 | 3 |
| Alcoholic beverages | 2 | 0 | 2 |
| Other | 1 | 1 | 0 |
| Animal products | 16 | 37 | 16 |
| Meat and animal fats | 9 | 18 | 9 |
| Milk, eggs, fish | 6 | 19 | 7 |

*Source: FAO (1999).*

*Note: Totals may not equal the sum of their components because of rounding.*

## Health Conditions

The relationship between physical geography and development extends beyond land productivity or the quality and availability of natural resources. Tropical regions are also poorer due to a heavier burden of disease. Geographical factors affect health conditions through many channels. The range and intensity of many diseases, particularly vector-borne ones, vary with climate. Malaria, hookworm and schistosomiasis, in particular, are great debilitators that

**Table 3.4** **Average Crop Yields in Tropical versus Nontropical Latin American Countries, 1998**

| | Tropical yield (mt/ha)[1] | Nontropical yield (mt/ha)[1] | Tropical/ Nontropical | Statistically significant difference[2] |
|---|---|---|---|---|
| Cereals (milled rice equivalent) | 22.9 | 33.8 | 0.68 | x |
| Maize | 24.6 | 51.4 | 0.48 | x |
| Root crops (potato, cassava, etc.) | 122.0 | 218.0 | 0.56 | x |
| Sugar cane[3] | 700.0 | 632.0 | 1.11 | |
| Pulses (beans and peas) | 7.5 | 10.4 | 0.72 | x |
| Oilcrops | 6.2 | 5.3 | 1.17 | |
| Vegetables | 143.0 | 161.0 | 0.89 | |
| Fruits | 135.0 | 142.0 | 0.95 | |
| Bananas | 166.0 | 214.0 | 0.78 | |
| Coffee | 7.1 | 6.1 | 1.16 | |
| No. of observations[4] | 33 | 7 | | |

[1] *Metric tons per hectare.*

[2] *x = p value less than 5 percent for t test that mean tropical yield is different from mean nontropical yield.*

[3] *Data are for 1996.*

[4] *This is the number of countries with data for cereals. Not all countries produce root crops.*

*Source: FAO (1999).*

**Table 3.5** **Growth in Average Crop Yields in Tropical versus Nontropical Latin American Countries, 1961-98**

| | Tropical yield growth (%) | Nontropical yield growth (%) | Tropical/ Nontropical | Statistically significant difference[1] |
|---|---|---|---|---|
| Cereals (milled rice equivalent) | 1.8 | 2.6 | -0.8 | x |
| Maize | 1.8 | 3.1 | -1.3 | x |
| Root crops (potato, cassava, etc.) | 0.6 | 2.1 | -1.5 | x |
| Sugar cane[2] | 0.8 | 1.0 | -0.2 | |
| Pulses (beans and peas) | 0.3 | 0.6 | -0.3 | x |
| Oilcrops | 2.0 | 1.8 | 0.2 | |
| Vegetables | 2.5 | 1.6 | 0.9 | |
| Fruits | 0.3 | 0.1 | 0.2 | |
| Bananas | -0.3 | 0.2 | -0.5 | |
| Coffee | 1.0 | 0.5 | 0.5 | |
| No. of observations[3] | 33 | 7 | | |

[1] *x = p value less than 5 percent for t test that mean tropical yield growth is different from mean nontropical yield growth.*

[2] *Data are for 1961-96.*

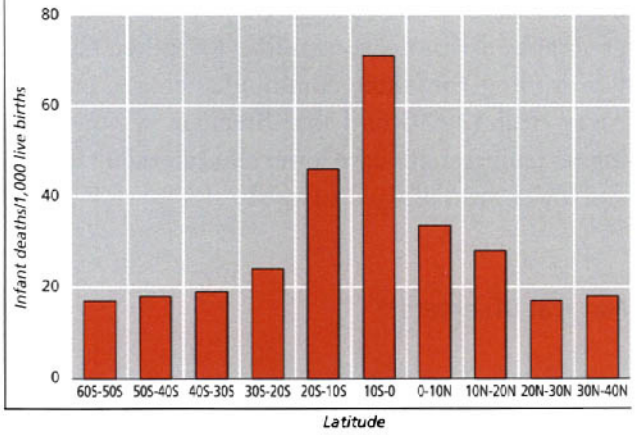
[3] *This is the number of observations for cereals. Not all countries produce root crops.*

*Source: FAO (1999).*

have been relatively easy to control in temperate zones but still defy major control efforts in the tropics. The lack of seasons makes control efforts more difficult because reproduction of the vectors of transmission takes place rather evenly throughout the year. And the allocation of technological investments has only reinforced the relative difficulty of controlling diseases typical of poorer areas, for the simple reason that those suffering from these diseases are too poor to pay for the vaccines or treatments, even if they have been developed or are available.

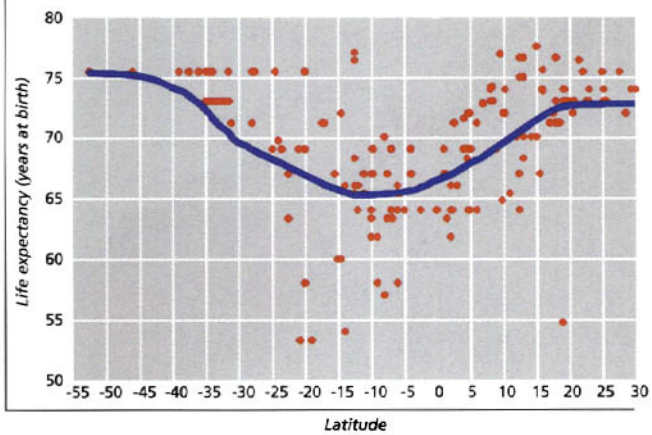
As a result, mortality is higher and life is shorter in the tropics. Latin American infant mortality rates peak in the tropics (Figure 3.13) and decline

**Figure 3.13** Infant Mortality by Latitude Band




Source: World Bank (1998) and ESRI (1992).

**Figure 3.14** Life Expectancy in Latin America by Latitude, 1995




Source: United Nations (1996) with subnational data from Alves et al. (1999); Bitrán and Má (1999); Escobal and Torero (1999), Esquivel et al. (1999), Sánchez and Núñez (1999); and Urquiola (1999).

more or less continually to either side of the peak. The highest rates in the 10° to 20° south are more than double the rate in the southern temperate zone, and 50 percent higher than that in the northern temperate zone. Life expectancy shows a similar pattern. Figure 3.14 shows that inhabitants of the temperate northern and southern ends of Latin America can expect to live about 75 years, but the trend line sags markedly in the tropical middle, dropping to 65 just south of the equator. The very low average lifespans of below 60 in provinces of Bolivia and Peru, and in Haiti, are all in the tropics. The two provinces close to the equator with life expectancies above 75 years are also in Peru: the capital Lima and its sister department of Callao, a clear sign of regional disparities within the country.

Since we have already seen that per capita income is lower in the tropics than in the temperate zones of Latin America, perhaps poor health in the tropics is simply due to poverty, not direct geographical influences. After all, Bolivia and Haiti have the lowest life expectancy and are also poor countries. However, life expectancy is also short in tropical countries that on average are less poor, like Peru. If we are concerned with life expectancy as a measure of human welfare, it doesn't matter much whether climate affects it directly or indirectly through economic development—the fact remains that welfare is lower in the tropics. If the goal is to improve health conditions, however, it matters a great deal whether the most effective approach is to curtail the transmission of disease directly, or to invest resources in economic growth that will solve the health problems indirectly.

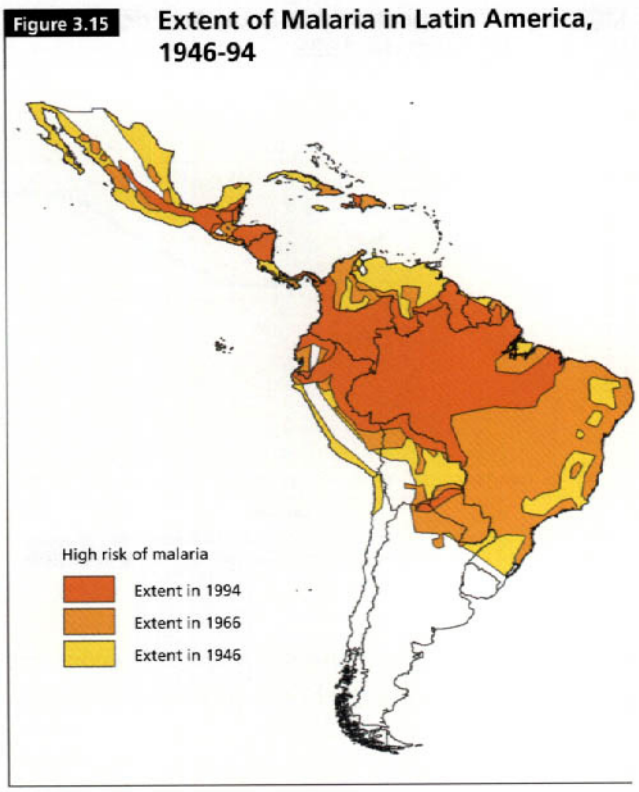
### *Climate and Health*

Even after controlling for the influence of income levels, provincial life expectancy in Latin America is still strongly correlated with climate. This suggests that, indeed, climate affects health not only through income. Further evidence reinforces this, as we will see in the following empirical experiment.

One of the most robust correlates of health status is the education of mothers. When the influence of female literacy on health is included along with income levels, it is large and significant, and income loses its independent association with life expectancy.[19] Climate, however, is still strongly correlated with health outcomes. Controlling for female literacy and GDP per capita, life expectancy is four years lower in the wet tropics than in the humid temperate zone. These regression results, which are sum-

[19] GDP per capita, as argued above, is influenced *by* health as well as being an influence *on* health. While this two-way causality will be addressed later by correlating only initial health conditions with subsequent economic growth, reverse causality is also a statistical issue for the regressions in Appendix Table 3.1. The impact of health on income can be addressed with an instrumental variables regression, using openness of the economy as an instrument for GDP levels, as in Pritchett and Summers (1996). Openness is strongly correlated with GDP levels, but is unlikely to affect health conditions. There are no important changes to the coefficients after instrumenting (results not shown).

Figure 3.15 **Extent of Malaria in Latin America, 1946-94**




*Source: Pampana and Russell (1955) and WHO (1967, 1997).*

marized in Appendix 3.1, predict that life expectancy is seven years lower in the wet tropics than in desert and dry regions with the same income and female literacy. Similar results pertain to infant mortality (which is a component of life expectancy). Infant mortality is four percent higher in the wet tropics than in humid temperate regions, and six percent higher than dry regions, other factors being equal.

One of the most conspicuous differences between the disease environment in tropical versus temperate areas is malaria. Only in tropical areas of the world does malaria remain a major and intractable health problem. Figure 3.15 shows the distribution of malaria in Latin America at three points in time: 1946, 1966, and 1994. Although malaria prevalence has been reduced, its core tropical zones resist control. Malaria is strongly related to climate, and there is no indication that it is affected by income levels or by female literacy.[20]

The role of geography in provincial health conditions across countries in Latin America is confirmed by within-country analyses of Brazil and Peru. The wide disparities in health status across communities within these two countries are largely tied to geographical differences. Table 3.6 shows that 62 to 76 percent of the variation in infant mortality and child malnutrition in the two countries is accounted for by geography (without controlling for other factors). Controlling for other community characteristics, Alves et al. (1999) find that Brazilian regions with higher temperatures have lower child and adult height, and lower rates of child survival.

## Natural Disasters[21]

Although agricultural productivity and health conditions are the two main channels through which geography affects economic development in Latin America and worldwide, many countries suffer continuous setbacks to their development efforts because of frequent and devastating natural disasters.

Latin America has suffered a disproportionate number of natural disasters during its recent history. Natural disasters are defined as natural events whose impact in terms of injuries, homelessness, fatalities and destruction of assets creates severe economic and social hardship. There were 638 natural disasters in Latin America and the Caribbean between 1900 and 1995, accounting for 23 percent of reported disasters worldwide, behind only Asia (41.8 percent).[22] Between 1970 and 1995, natural disasters in the region are estimated to have killed 160,000 people, left 10 million homeless, and otherwise affected almost 100 million people (Table 3.7).[23]

The acute vulnerability of the region to natural disasters is the result of a combination of geographical and socioeconomic factors. Risks associated with natural events are a function of the magnitude of the physical phenomenon, frequency of occurrence, and the extent to which populations are vulnerable. All three elements are crucial to explaining why Latin America has suffered and continues to suffer significantly from natural disasters.

[20] See Appendix 3.1.

[21] This section is based on IDB (2000).

[22] OFDA (1999). The database includes all natural hazards declared as disasters by the U.S. government as well as major undeclared disasters causing a substantial amount of deaths and injuries, and damage to infrastructure, agricultural production and housing.

[23] Ibid.

**Table 3.6 Geographical Variables Associated with Health Conditions within Countries**

| Country (source) | Dependent variable | Level of observation of dependent variable | Independent variable | Level of observation of independent variable | Effect on dependent variable | $R^2$ (%) |
|---|---|---|---|---|---|---|
| Brazil (Alves et al. 1999) | Infant mortality rate | Household | -altitude<br>-temperature<br>-rainfall<br>-region indicators | Municipal<br>Municipal<br>Municipal<br>Municipal | positive *<br>negative *<br>positive ** | 76 |
| Peru (Bitrán and Ma, 1999) | Infant mortality rate | Household | -latitude<br>-longitude<br>-altitude<br>-temperature<br>-rainfall | Provincial<br>Provincial<br>Provincial<br>Provincial<br>Provincial | negative **<br>negative **<br>positive *<br>negative<br>positive ** | 62 |
| Peru (Bitrán and Ma, 1999) | Child nutrition | Household | -latitude<br>-longitude<br>-altitude<br>-temperature<br>-rainfall | Provincial<br>Provincial<br>Provincial<br>Provincial<br>Provincial | negative *<br>negative<br>positive *<br>negative<br>positive * | 71 |

* *Significant at the 1 percent level.*

** *Significant at the 5 percent level.*

Location is the primary explanation for Latin America's vulnerability. The region is extremely prone both to earthquakes and volcanic eruptions because its territory sits atop four active tectonic plates (Cocos, Nazca, Caribbean and South American plates) along the Pacific ring of fire, where 80 percent of the earth's seismic and volcanic activity takes place. Countries with the highest seismological risk include Mexico, which experienced 84 earthquakes measuring more than 7 on the Richter scale during the 20th century,[24] as well as Colombia, Chile, Guatemala, Peru, Ecuador and Costa Rica.

There is also extreme climatic volatility in the form of severe droughts, floods and high winds in Latin America due to the recurrent El Niño,[25] the annual north-south displacement of the Inter-Tropic Convergence Zone, and the passage of tropical storms and hurricanes born in the Pacific and Atlantic Oceans. Traditional zones of high climatic volatility include Central America, the Caribbean, Northeast Brazil, Peru, Ecuador, Chile and Argentina. Recent climatic changes seem to have aggravated climate volatility in the region.[26]

The region's overall vulnerability to natural disasters is not only determined by location and climate but also by various socioeconomic factors that greatly magnify the lethal and destructive potential of these events. These include patterns of settlements (particularly in vulnerable areas), the poor quality of housing and infrastructure, environmental degradation, the lack of efficient risk mitigation strategies, and types of economic activities.

High population density in disaster-prone areas contributes significantly to Latin America's vul-

[24] World Bank (1999).

[25] Every three to 12 years, El Niño produces changes in the atmospheric circulation over the Pacific, thereby bringing about modified water temperatures off South America as well as floods and droughts on the Pacific slope of the continent. For an in-depth analysis of the phenomenon and its consequences throughout history, see Fagan (1999).

[26] According to Munich Reinsurance Group (1999), the number of major natural disasters between the 1960s and 1990s rose by a factor of three, with economic losses multiplied by nine. In 1998, more natural disasters occurred worldwide than in any other year on record. Note, however, that these comparisons may be affected to some degree by a more accurate and comprehensive report of natural disasters in recent years.

Table 3.7 **Major Natural Disasters in Latin America and the Caribbean, 1980-99**

| Year | Country | Location | Disaster | Killed | Affected | Homeless |
|---|---|---|---|---|---|---|
| 1979-83 | Brazil | Northeast, Sertão | Drought | 0 | 20,000,000 | na |
| 1980 | Haiti | Southwest, Port-au-Prince | Hurricane Allen | 300 | 330,000 | na |
| 1982 | Peru | Huallaga, Cuzco | Flood | 332 | 20,000 | na |
| 1982 | Peru | Cuzco | Flood | 200 | na | na |
| 1982 | Mexico | North Pacific Coast | Hurricane Paul | 225 | 50,000 | na |
| 1982 | El Salvador | Sonsonate, Huachapan | Flood | 500 | 50,000 | na |
| 1982 | Guatemala | Western Coast | Flood | 620 | 20,000 | 20,000 |
| 1983 | Ecuador | Entire Coast | Flood | 307 | 700,000 | na |
| 1983 | Peru | North Coast | Flood | 364 | 700,000 | na |
| 1983 | Argentina | Northeast | Flood | 0 | 5,580,000 | 250,000 |
| 1983 | Bolivia | Altiplano | Drought | 0 | 1,583,049 | na |
| 1983 | Bolivia | City of Santa Cruz | Flood | 250 | 50,000 | na |
| 1983 | Colombia | Popayan | Earthquake | 250 | 35,000 | 35,000 |
| 1983 | Brazil | Minas Gerais | Flood | 68 | 3,000,000 | 8,000 |
| 1984-85 | Brazil | Espirito Santo, Minas Gerais, Rio de Janeiro | Flood | 200 | 60,000 | 60,000 |
| 1985 | Mexico | Mexico City, Michioacan, Jalisco | Earthquake | 8,776 | 100,000 | 100,000 |
| 1986 | Colombia | Amero, Calda, Tolima | Volcano | 21,800 | 7,700 | 7,700 |
| 1987 | El Salvador | San Salvador | Earthquake | 1,100 | 500,000 | 250,000 |
| 1987 | Ecuador | Carchi, Imbabura, Pastaza, Napo | Earthquake | 300 | 150,000 | na |
| 1987 | Colombia | Medellin, Vila Tina Barrio | Landslide | 240 | na | 2500 |
| 1988 | Brazil | Petropolis, Rio de Janeiro | Flood | 289 | 58,560 | 58,560 |
| 1988 | Argentina | Buenos Aires Province | Flood | 25 | 4,600,000 | na |
| 1988 | Dominican Republic | North and Southeast | Flood | 0 | 1,191,150 | na |
| 1988 | Mexico | Yucatan and Gulf Coast | Hurricane Gilbert | 240 | 100,000 | 100,000 |
| 1990 | Peru | Highlands | Drought | 0 | 2,200,000 | na |
| 1992 | Peru | 16 Departments | El Niño Floods | 0 | 1,100,000 | na |
| 1993 | Ecuador | Nambija in Zamora-Chinchipe | Landslide | 300 | na | na |
| 1994 | Colombia | Cauca and Huila | Earthquake | 271 | 24,797 | na |
| 1994 | Haiti | Jacmel, Port-au-Prince | Tropical Storm Gordon | 1,122 | 1,500,000 | 87,000 |
| 1997-98 | Ecuador, Peru | na | El Niño floods | 550 | na | 400,000 |
| 1998 | Argentina | na | El Niño floods | na | na | 100,000 |
| 1998 | Dominican Rep. | Countrywide | Hurricane Georges | 208 | 400,000 | na |
| 1998 | Brazil | Northeast | El Niño drought | na | na | 4,800,000 |
| 1998 | Honduras | Countrywide | Hurricane Mitch | 6,600 | 2,100,000 | 1,400,000 |
| 1998 | Nicaragua | Countrywide | Hurricane Mitch | 2,055 | 868,000 | na |
| 1998 | Guatemala | Countrywide | Hurricane Mitch | 268 | na | 750,000 |
| 1999 | Colombia | Central-Quindio | Earthquake | 1,117 | 425,000 | 150,000 |
| 1999 | Venezuela[1] | Caracas + 8 states | Floods, landslides | 25,000-50,000 | 600,000 | 51,000 |

*Note: The table includes natural disasters starting or ongoing between 1980 and 1999 that either affected over 1 million people or resulted in at least 200 fatalities.*

[1] *Preliminary estimates.*

*Source: IDB (2000, Chapter 2).*

nerability to disasters. Overall population density has increased due to demographic growth, resulting in a de facto heightened vulnerability. Migration patterns have also exacerbated vulnerability in some countries. In Peru, the proportion of residents now living in coastal areas (within 80 kilometers of the sea) more susceptible to El Niño and other phenomena is 73 percent, compared to only 54 percent three decades ago.[27]

Rapid urbanization fueled by demographic pressure in rural areas has amplified the adverse consequences of natural disasters on economic activity and populations. At least two of the largest and fastest growing cities in Latin America—Mexico City and Lima—are located in zones with high seismic activity. The Mexico City earthquake in 1985 caused 8,700 fatalities and $4 billion of damages.[28] Lima has been badly damaged or destroyed by six earthquakes since 1856. Since 1940, the date of the last major earthquake, its population has increased sixfold, reaching 8.5 million. The risk of a major earthquake in Lima over the next 100 years has been estimated at 96 percent.[29]

Furthermore, due to rapid demographic growth and rural-urban migration, most cities have expanded without proper city planning, building codes or land use regulations adapted to their geographical environment. Given a rate of urbanization of above 76 percent, it is estimated that 90 million Latin Americans will live in urban areas by the year 2000.[30] Cities in the region are extremely vulnerable to earthquakes and floods because of high population density, narrow streets, adobe or dry stone construction, and a lack of paved roads and green spaces. Migration to cities has increased demand for urban space and resulted in the expansion of poor neighborhoods on low-value terrain in risk-prone areas. Examples include the favelas on the slopes overlooking Rio de Janeiro, the shantytowns of Guatemala City in ravines prone to landslides, and the slums of Tegucigalpa on flood plains and steep hillsides. Not surprisingly, city slums are usually the first neighborhoods—and sometimes the only ones—to be wiped out by natural disasters, as happened with the floods of 1999 in Caracas and 1988 in Rio, and the 1976 earthquake in Guatemala City.[31]

The poor quality of housing in the region, which also exacerbates the consequences of natural disasters, is primarily a result of rapid urbanization and widespread poverty. As of 1993, 37 percent of the total existing housing stock in Latin America provided inadequate protection against disaster and illness.[32] The OAS Caribbean Disaster Mitigation Project estimates that 60 percent of the total housing stock in the Caribbean is built without any technical input.[33] Obviously, the poor quality of housing is closed linked with widespread poverty. In general, poor households lack the knowledge, technical skills and income to deal with problems such as surface water drainage or the danger of collapse of dwellings built on the roofs of other dwellings. It has been reported that 40 percent of accidents in the favelas of Rio de Janeiro were caused by building collapses and another 30 percent by landslides.[34] Furthermore, the enforcement of building codes is weak in risk-prone areas, even in high-income neighborhoods, formal sector companies and public infrastructure. On the Caribbean island of Montserrat, 98 percent of the housing collapses from the 1989 hurricane was due to noncompliance with wind and hurricane-resistant building codes. Damage totaled some $240 million, equal to five years of GDP.[35]

Lagging investment in basic infrastructure also puts populations and assets at greater risk. As shown by the impact of Hurricane Mitch in Central America and El Niño in Peru and Ecuador, poor quality roads, bridges, airports, dams and dikes are often destroyed during hurricanes and floods. This damage to infrastructure leads to higher numbers of fatalities, as well as wider and longer disruption of food distribution and economic activity. In the case of Hurricane Pauline in Mexico in 1997, half of the 400 fatalities were due to the inability to reach populations in isolated areas.[36] In Peru, total damage to infrastructure during the 1997-98 El Niño reached 5

[27] IFRC (1999, p. 88).
[28] OFDA (1999).
[29] IFRC (1993, pp. 48-50).
[30] Ibid., p. 44.
[31] Albala-Bertrand (1993, p. 93).
[32] PAHO (1998).
[33] IFRC (1997, p. 80).
[34] Hardoy (1989).
[35] IFRC (1997, p. 80).
[36] PAHO (1998).

percent of the country's GDP, causing a serious and long-lasting decline in several key economic sectors, including mining, the most important industry in the country.[37] Similarly, the vulnerability of health infrastructure to disasters because of the use of nondisaster-resilient building techniques and lack of maintenance decreases access to and the quality of care in the post-disaster emergency and recovery phase. In Mexico City, the modern wing of Juárez Hospital collapsed during the 1985 earthquake, causing many fatalities and paralyzing critical social infrastructure in a time of crisis.[38] Poorly designed and maintained potable water and waste management systems are also frequently damaged by disasters, increasing health risks such as cholera and leptospirosis.

The degradation of the environment also plays a crucial role in transforming natural events into disasters. Throughout the region, risk of flooding and landslides is exacerbated by deforestation of watersheds, the absence of soil conservation programs, and inappropriate land use. Environmental degradation in the region is the result of higher population density in fragile ecosystems, as well as destructive agricultural activities. Instead of relying on more traditional and environment friendly cultivation techniques (such as terracing hillsides or planting crops in soil secured by roots of trees), the Latin American agricultural sector often uses methods that lead to widespread deforestation and erosion of soils, both of which increase vulnerability to floods, drought and landslides.

Most countries in the region still do not have efficient risk management policies in place, although considerable progress was achieved during the 1970s and 1980s. Agencies in charge of risk mitigation and preparedness are grossly underfunded relative to the costs of the risks from which they are supposed to protect the population. According to the Coordination Center for the Prevention of Natural Disasters (CEDEPRENAC), none of the governments of Central America allocates enough resources from their national budgets for natural hazard management.[39] Despite their proven efficiency, essential risk mitigation activities such as drainage, flood control and reforestation of watersheds are sparse in risk-prone areas. Though equally important for risk reduction, land use regulation and building codes are rarely enforced. Furthermore, most life-line infrastructure, such as hospitals, utilities and airports, lacks proper emergency contingency plans. Finally, early warning, evacuation and shelter systems do not cover all risk-prone areas and remain largely disorganized. Much of the mortality associated with Tropical Storm Gordon in Haiti in 1994 and Hurricane Cesar in 1996 in Costa Rica has been attributed to problems with local warning and evacuation systems.[40]

In addition to being physically vulnerable to natural disasters, Latin American countries are also economically vulnerable. The macroeconomic impact of natural disasters mainly depends on the degree of vulnerability, the importance of the economic activities affected, and their impact on other productive and public finances. The impact of natural disasters also depends on the overall resilience of the country's economy, which is a function of the macroeconomic conditions before the disaster, the degree of diversification of the economy, and the size of financial and insurance markets. The lack of sectoral diversification in the region helps to explain why natural disasters have a significant adverse impact on the aggregate level. Agriculture, which is directly linked with climatic conditions, is still a key sector in terms of its share of GDP and employment. The weight of the agricultural sector in rural areas, coupled with the absence of alternative occupational options, creates greater risks of massive unemployment, income loss and recession in areas with high climatic volatility. In Honduras, the country hardest hit by Hurricane Mitch, the agricultural sector represents 20 percent of GDP, 63 percent of exports, and 50 percent of total employment.

The limited capacity of insurance and reinsurance markets also makes the region more vulnerable to natural disasters by preventing risk pooling and burden sharing. It is left to the state, companies and individuals to absorb the brunt of the shock created by the destruction of physical capital and the decline in economic activity. El Niño caused $2.8 billion in damage to public infrastructure in Peru, of which only $150 million was insured.[41]

[37] IFRC (1999, p. 88).

[38] PAHO/WHO (1994, p. 72).

[39] CEDEPRENAC (1999, p. 13).

[40] PAHO (1998).

[41] IFRC (1999, p. 97).

## Access to Markets

So far, we have discussed the three main channels through which *physical geography* affects economic and social development: land productivity, disease and natural disasters. We now turn to the two main channels through which the settlement patterns of populations, or *human geography*, affect development: access to markets and urbanization.

For economic development, access to the main world markets is crucial. Only world markets provide the scale, degree of competition, and access to technological and organizational changes needed to efficiently produce most goods. Access to world markets depends on the factors that determine the cost of seaborne transport—the distance of the country from principal world markets, and whether the bulk of economic activity is located close to the coast or a large navigable river.

Why are these factors so important? For most goods, the world markets are dominated by a relatively small number of industrialized countries in Europe, North America and Japan. Proximity to these regions is a substantial economic advantage. For the few developing countries that have in fact enjoyed rapid economic growth over the past generation, the export of labor-intensive manufactures has played a prominent role. Trade in these goods depends largely on seaborne transport. But since the actual cost of transport is but a fraction of the value of the final goods, why do transport costs have such a significant economic impact? When investment goods are imported, as they almost always are outside of the most prosperous countries, transport costs serve as a tax on investment that varies depending on the country's accessibility. If the inputs to production are also imported, as they usually are in export manufactures, the impact of this tax is greatly magnified.[42] It is not unusual in offshore assembly manufacturing for the value of inputs to be 70 percent of the value of the finished export. If shipping costs are 10 percent of the value of the goods shipped, applied both to the imported inputs and the exported finished good, transport costs make up a remarkable 56 percent of the domestic value added.[43] If transport costs are half this rate, at 5 percent, then the ratio of shipping costs to value added falls to 25 percent. Such a difference in transport costs is often enough to render the higher shipping cost to a more distant location entirely unprofitable.

Access to the sea is as important for economic accessibility as is distance from international markets, if only because overland transport costs are much higher than sea shipping, especially in poor countries with limited infrastructure. The cost of shipping goods overland within a country can be as high as the cost of shipping them by sea to a far-flung foreign port.[44] As shown in Radelet and Sachs (1998), almost all countries with macroeconomic success in labor-intensive manufacturing exports have populations almost completely within 100 kilometers of the coast.

From the point of view of access to markets, the countries of the Caribbean basin are ideally situated. They are close to the large U.S. market, and most of their populations and economic activities take place near coastlines. With conducive trade policies and complementary infrastructure, Caribbean and Central American countries should have a competitive advantage over the more successful East Asian export manufacturers. Why would U.S. firms go all the way across the Pacific to take advantage of low wages for manufacturing assembly if educated, low-wage workers are only a couple of hundred miles away?

Trade policies in the Caribbean and the development of export processing zones (EPZs) have started to take advantage of this potential. The role of EPZs as a stepping stone to the development of an export manufacturing sector highlights the importance of coastal access. As shown in Figure 3.16 and Table 3.8, of the 210 export processing zones in Latin America in 1997, 152 (or 72 percent) were within 100 kilometers of the coast. Most of the inland EPZs are

[42] This is shown formally in Gallup, Sachs and Mellinger (1999).

[43] The ratio of transport costs to local value added is equal to the costs of shipping the input in and the export out, all divided by the value of the output less the value of the imported inputs. For an export with a value of one, the cost of shipping is the value of inputs (0.7) plus the value of the export (1) times the shipping cost (10 percent), all divided by value added (1-0.7 = 0.3), or 0.1(1.7)/0.3 = 56 percent. If shipping costs are only 5 percent, then the landed price of inputs is 5 percent less, or 0.7(1-0.05) = 0.665, and value added is 1-0.665 = 0.335. The ratio of shipping cost to value added is 0.05(1.665)/0.335 = 25 percent.

[44] Shipping cost data are hard to come by, but a recent UNCTAD study showed that for landlocked African countries, the cost of shipping a sea crate overland could be up to 228 percent of the cost of shipping the crate by sea from the nearest port to Europe. See Radelet and Sachs (1998).

Table 3.8 **Access to the Sea by Latin American Export Processing Zones**

| | Coastal | Noncoastal |
|---|---|---|
| Export processing zones | 152 | 58 |
| Percent of all EPZs | 72% | 28% |
| EPZs excluding Mexico and Bolivia | 112 | 7 |
| Percent of all EPZs | 94% | 6% |

*Notes: Includes free trade and maquiladora zones. Coastal sites are within 100 kilometers of the sea coast. Many EPZ locations in Figure 3.16 have more than one export processing zone.*

*Source: WEPZA (1997).*

Figure 3.16 **Export Processing Zones in Latin America, 1997**


*Source: WEPZA (1997).*

in northern and central Mexico, with good overland access to the U.S. market, and in Bolivia. Excluding Mexican and Bolivian EPZs, 112 of 119 EPZs, or 94 percent, are on the coast.

Caribbean and Central American economies are benefiting from deepening trade ties with the United States, while many South American countries are currently facing economic crises. Economic performance within Mexico shows this trend. Per capita GDP growth in the Mexican states that border the United States grew 0.3 percent slower than the other Mexican states from 1960-80, when the economy was largely closed to external trade (Figure 3.17). With trade liberalization in the 1980s opening the economy to the U.S. market, growth in the border states was 0.4 percent *faster* than the other states (though the country as a whole had declining GDP per capita). Over 1990-95, with the advent of NAFTA, the northern border states grew 0.8 percent faster than the rest of the states, despite the continuing decline in overall GDP per capita.

Other Latin American countries are less favored than Mexico or the Central American and Caribbean countries in terms of their access to markets. Bolivia and Paraguay are landlocked, which reduces their trade possibilities. Despite Colombia's access to the Atlantic and the Pacific, the bulk of the country's economic activities are far away from the coast. Until recently, the country even lacked good roads to connect its main regions. Roads in Colombia up until the 20th century only connected villages within each region, with no roads across regions. As late as 1930, the main link from the capital of Bogota to the outside world was a 12-day steamboat trip down the Magdalena River. Because of its geographical barriers, Colombia still has one of the lowest road densities in Latin America. And while in most countries there has been a strong tendency for income levels to converge across states or regions,[45] that does not appear to be the case in Colombia. Convergence rates have been more influenced by proximity to regional markets than by access to the coast, probably because of high transportation costs associated with geographical barriers and the location of the country's main urban centers.[46]

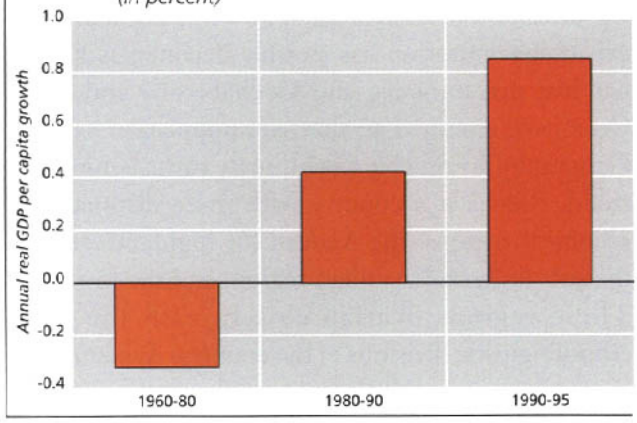
The importance of geographical barriers and problems of location can change over time. As we will see in the following section, the lowlands of Bolivia have experienced a major boom over the last two decades due to the combination of new road connections and expanded trade opportunities with neighboring countries. Of course, the location of cities can still be a major obstacle to exploiting these new op-

[45] Barro and Sala-i-Martin (1995).

[46] Sánchez and Núñez (1999).

**Figure 3.17** Difference in Growth between Mexican Border States and the Rest of Mexico

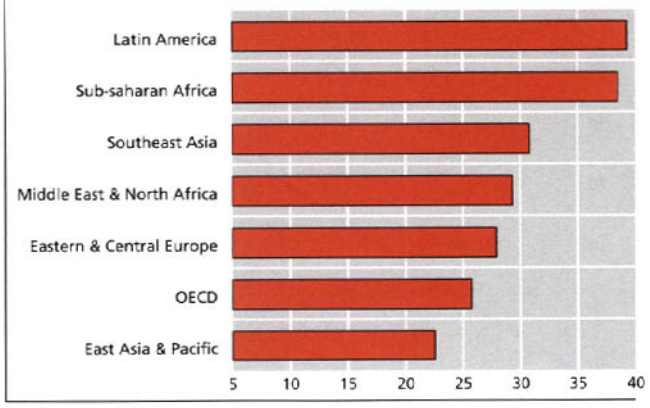
*(In percent)*




*Source: Esquivel et al (1999).*

**Figure 3.18** Urban Concentration around the World in the 1990s

*(In percent)*




*Source: UNDP (1996).*

portunities, especially when a country's largest city is home to a very large proportion of the population, as is usually the case in Latin America.

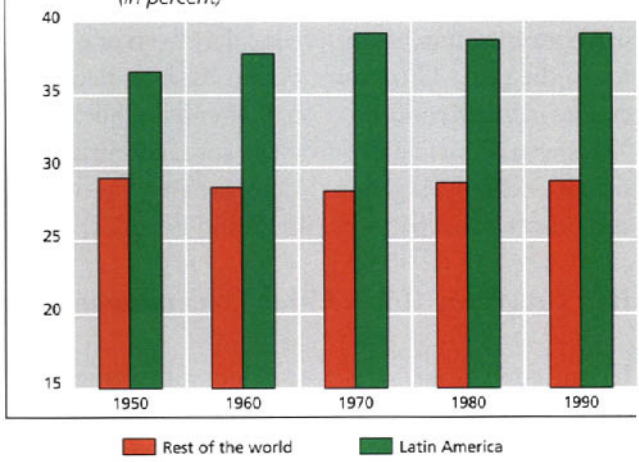
## Urban Primacy in Latin America

Development and urbanization have moved together at least since the dawn of the industrial revolution in the 19th century. Urbanization has brought advantages to many people, from better sanitary conditions to higher wages. Still, there is no singular urbanization process. The size and distribution of cities vary widely from one country to another. While in some countries urban residents tend to agglomerate around one large city, in others they may be spread over several cities, both large and small. These differences affect development outcomes in various and complex ways, as long recognized by urban economists and other social scientists.

Urbanization has most often been accompanied by the concentration of the population in one "primal" city. This urban concentration, once limited to developed countries, has recently become a staple feature of many developing countries, especially in Africa and Latin America. Figure 3.18 shows that urban concentration, or the percentage of the urban population living in a country's main city, is larger today in Latin America than in any region of the world. Only sub-Saharan Africa has levels that are even comparable. Figure 3.19 shows that Latin America's pre-

**Figure 3.19** Urban Concentration in Latin America and the Rest of the World

*(In percent)*

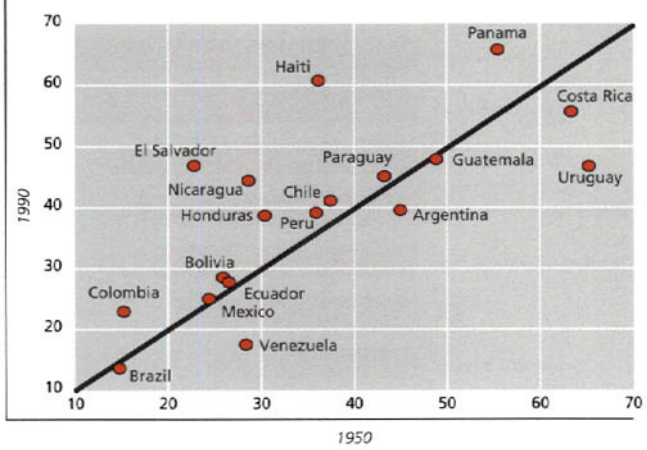



*Source: UNDP (1996).*

eminence in terms of urban concentration is no recent phenomenon. As far back as the 1950s, average urban concentration in Latin America was six percentage points larger than that of the rest of the world. This difference grew somewhat in the 1960s and 1970s and has since remained stable.

Within Latin America, the process of urban concentration has varied from country to country. Differences across countries are evident in Figure 3.20, not only in levels of urban concentration but also in how it has progressed over time. Current urban con-

**Figure 3.20 Urban Concentration in Latin America**
*(In percent)*




*Source: UNDP (1996).*

centration ranges from around 15 percent in Brazil to more than 65 percent in Panama. While the range of variation has remained stable, the evolution of urban concentration has differed widely from one country to the next. Thus, some countries show steady increases in urban concentration (Colombia, Chile, Haiti, Nicaragua, Peru and El Salvador), some countries persistent declines (Argentina, Uruguay and Venezuela), and others stable patterns (Brazil and Ecuador).

### *How Geography Drives Urban Concentration*

Urban concentration is associated with some basic country characteristics in predictable ways. Gaviria and Stein (1999) show that urban concentration is lower in smaller countries (it drops by one percentage point for every million square kilometers), and lower in richer countries (it drops by one percentage point for every $1,000 per capita). On average, urban concentration is 10 percentage points higher in countries where the primal city is also the capital and two percentage points higher in countries where the primal city is a port.

Natural geography also affects urban concentration, at least in terms of providing the backdrop against which urban concentration evolves. Of course, the pathways through which geography affects urban concentration are not always direct and are difficult to capture in the aggregate. Given this, case studies are the key to understanding the role of geography in the evolution of urban concentration.

Urquiola et al. (1999) have studied the interplay between geography and urbanization in Bolivia. Urbanization in Bolivia has followed a peculiar path: urban concentration has steadily declined as La Paz has lost preeminence and Cochabamba and Santa Cruz have emerged as alternate population centers. Geography is arguably the ultimate cause behind this trend. Bolivia is a country with three distinct geographical regions: the Andean (or highland) region, the sub-Andean (or valley) region, and the lowlands. These regions overlap closely with the main ethnolinguistic divisions of the country: Aymara is the more common native language in the Andean region, Quechua, the language of the Incas, is common in the sub-Andean region, and Guaraní is common in the lowlands. The crux of the argument is simple: geographic and ethnic divisions have raised the cost of migration between regions, and hence migration within regions has been much greater than it would have been were geography and population more homogenous. The larger flows of migration within regions have in turn given rise to three main population centers, one in each region. Urban concentration is low in the country as a whole, but very high within each region.

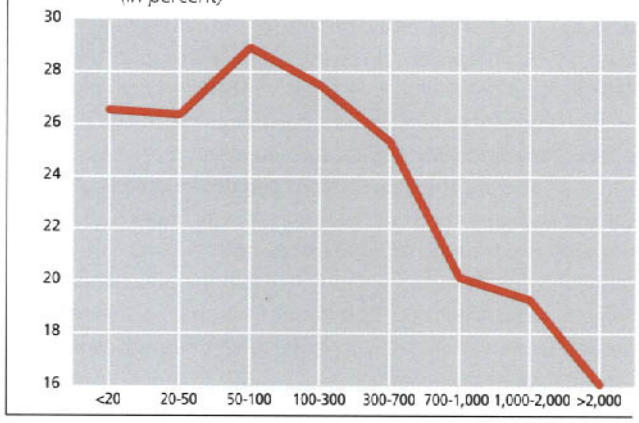
Needless to say, geography is only one force among many. Economic and political factors also affect urban concentration.[47] Although their effects are generally difficult to measure, some conclusions emerge from the few studies that have examined the most immediate determinants of urban concentration. First, urban concentration grows faster in politically unstable regimes and more volatile economies. And second, urban concentration grows faster in more open economies if and only if the primal city is a port.

The most conspicuous effect of urban concentration is the emergence of "urban giants." Giant cities have long terrorized urban planners who cannot understand why people insist, against their admonitions, to live there. By contrast, urban giants fascinate urban economists who have long suspected that people live there for a reason. Urban giants are riddled with problems and full of possibilities.

[47] Ades and Glaeser (1995) use a cross-section of 85 countries to study the effects of political and economic variables on levels of urban concentration. Gaviria and Stein (1999) use a panel of 105 countries and five decades to study the effects of a similar set of variables on changes of urban concentration.

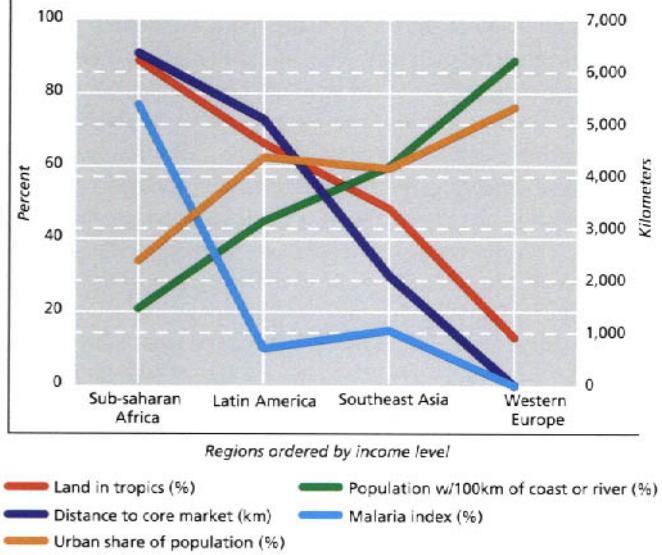
**Figure 3.21** Interpersonal Trust and City Size in Latin America

*(In percent)*




*Source: Latinobarómetro, various years.*

**Figure 3.22** Geography Matters: Regional Differences




*Sources: ESRI (1992), Tobler (1995), UNDP (1996), WHO (1997).*

Urban giants suffer from a long list of maladies, from pollution to traffic congestion and longer commuting times. In Los Angeles, for example, more than 2.3 million person-hours are lost to traffic delays in a typical year.[48] In all likelihood, these numbers are even higher in many cities in the developing world, from São Paulo to Bangkok. Urban giants (and large cities in general) also suffer from higher crime rates, although these appear to level off once cities reach population levels over one million (see Box 3.3). Moreover, larger cities have lower levels of social capital (from weaker community ties to lower interpersonal trust). Figure 3.21 shows, for example, that the proportion of people who report trusting others falls sharply with city size in Latin America.

Further, the concentration of a country's economic activity in a single city can have deleterious consequences. Dominant primal cities are often forced to subsidize stagnant regions, and subsidies can in turn cause all kinds of distortions. And overly dominant primal cities can create resentment and exacerbate ethnic and racial conflicts.

Having summarized the negatives, it must also be said that their large size can bring benefits to cities and their residents as well. Large cities enjoy significant economies of scale in providing basic public services, including education and health. They also enjoy significant agglomeration economies, stemming from both knowledge spillovers within industries and cross-fertilization between industries. And finally, large cities give rise to large markets, which in turn facilitate the division of labor and reduce transport costs. All these forces certainly should make primal cities more productive, and, therefore, the focal points of any strategy to spur economic growth.[49]

Economic development in Latin America, then, will hinge heavily on the fates of primal cities. If primal cities are unable to harness their many possibilities and cope with their mounting problems, economic development will be very difficult, to say the least. Herein lies one of the main challenges for the region in the years to come.

## Will Geography Matter in the Future?

The previous sections have examined how the five channels of physical and human geography—agricultural productivity, health conditions, natural disasters, access to markets and urbanization—can affect economic and social development. But these associations

[48] See Gleick (1999).

[49] See Glaeser (1998) for a complete analysis of the many agglomeration forces that affect productivity in cities.

Box 3.3

## Crime and Cities in Latin America

In Latin America and the world in general, crime is much worse in urban areas than rural ones, and within urban areas, much worse in large cities than small ones. Although this connection is rarely quantified, it is already part of the collective unconscious: our bands of criminals are no longer found in desolate landscapes in the countryside, but in the heart of large cities, among tall skyscrapers and impassive pedestrians. [1]

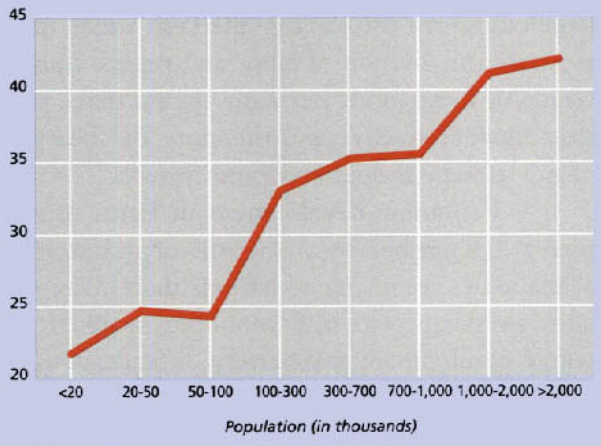
Several hypotheses have been suggested for explaining the positive association between crime and city size. One possibility is that large cities present better victims: their inhabitants are wealthier and generally have more goods that can be stolen and disposed of. Another possibility is that people with a greater propensity to become criminals are overly concentrated in large cities, whether because the urban environment favors criminal behavior or because young men or other high-risk groups are more disproportionately likely to migrate to cities. Yet another possibility is that those who violate the law are less likely to be arrested (and sentenced) in large cities, either because of the existence of "declining yields" in producing arrests, or because large cities—usually overwhelmed with all kinds of needs—do not invest enough in police and the justice system, or even because there is less cooperation with law enforcement in urban areas.

The purpose here is more descriptive than analytical: rather than sorting out the hypotheses mentioned above, the objective is simply to establish to what extent there is a positive connection between city size and the prevalence of crime in Latin America. This is not easy, since crime statistics are scarce, and when they do exist, they are rarely comparable between countries.

Fortunately, the Latinobarómetro survey system can be used to study the correlation between crime and city size. This system offers several advantages. In particular, it provides comparable information on crime rates (victimization in this instance) for 17 countries in the region and, even more importantly, for many cities in the interior of each country. Latinobarómetro pro-

**Figure 1. City Size and Victimization in Latin America**

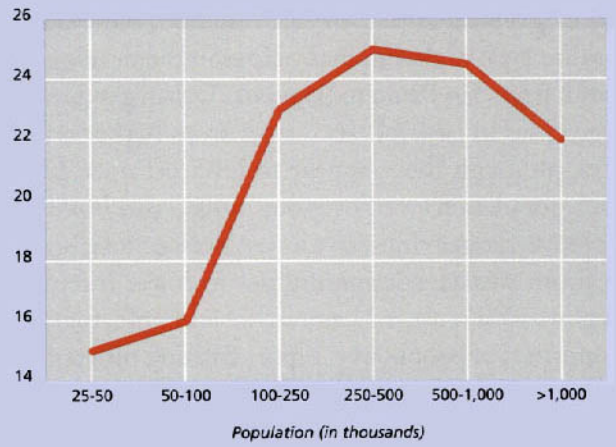
*(In percent)*




Source: Gaviria and Pagés (1999).

**Figure 2. City Size and Victimization in the United States**

*(In percent)*




Source: Glaeser and Sacerdote (1999).

between development outcomes and geographical features may be due to *past* influences that no longer affect the potential for future improvement. So this section puts these strands together in order to assess whether or to what extent geography can be expected to matter in the future.

The first step in answering this question is obviously to control for the past and to establish, on the basis of recent experience worldwide, whether geography is still important to prospects for development. This requires selecting a set of simple indicators that synthesize the main channels of influence of geography, as shown in Figure 3.22.

The first indicator is tropical location, a proxy for land productivity and agriculture technological disadvantages, which is measured by the percent of the country's land area within the geographical tropics. Malaria prevalence, the second indicator, is a prime

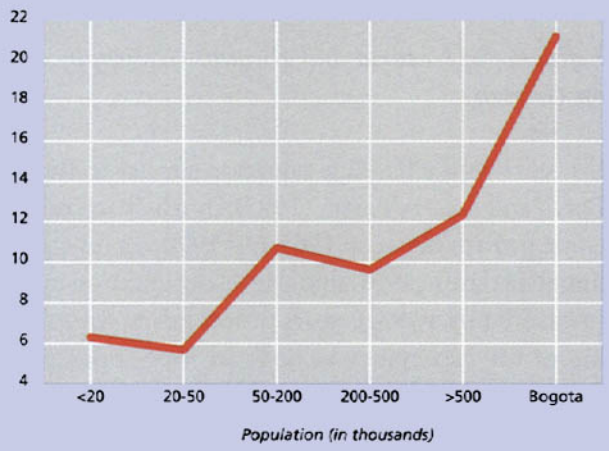
vides information on victimization rates for over 80 cities in Latin America, including all the region's large cities.

Figure 1 shows the pattern of change in victimization rates vis-à-vis city size. The relationship is clearly a rising one, although it is not exactly linear.[2] In general, three groups of cities can be distinguished: a first group made up of cities of under 100,000 inhabitants, which on average have low crime rates, a second group with between 100,000 and one million inhabitants, and a third group with populations of over a million inhabitants that have high crime rates.

Gaviria and Pagés (1999) show that the positive association between criminality and population occurs not only in the aggregate but also, and without exception, in each country in Latin America by itself. Something similar can be seen if one analyzes other sources of information and other regions of the world. Figures 2 and 3 show, for example, that the association between victimization and city size is quite strong in Colombia and is clearly apparent in the United States.[3]

**Figure 3. City Size and Victimization in Colombia**

*(In percent)*




*Source: Gaviria and Pagés (1999).*

Gaviria and Pagés also show that there is a positive correlation between criminality and population growth. Hence, not only do large cities have more crime, cities that have grown more rapidly suffer from the same affliction. Naturally, in many instances these two trends are one and the same: large cities keep adding new inhabitants while helplessly watching crime and violence increase.

It is quite difficult if not impossible for lack of information to directly examine the hypotheses mentioned above regarding the positive association between crime and city size. However, some evidence seems to run counter to the first two hypotheses (more victims in large cities or greater percentages of potential criminals). Gaviria and Pagés find that the positive association between crime and city size remains even after controlling for the wealth of inhabitants and the social and economic characteristics of cities. This would not be the case if large cities had more crime due to the presence of more and better victims or the presence of a greater proportion of individuals at a higher risk of committing crimes (young men, migrants, or youth who are not part of the education system).

Latin American cities today face many challenges: they must not only deal with growing demands for public services and infrastructure, but they must also assure citizen safety in an ever more complicated setting. There are no easy answers to the problem of urban violence. But it is clear that investment must be made in policing, and the most obvious risk factors (alcohol and weapons) must be controlled. And it must also be kept in mind that once the forces driving crime gather momentum, they are hard to stop.

[1] Based on Gaviria and Pagés (1999).

[2] Victimization rates measure the proportion of families who report that at least one of their members was the victim of some crime during the most recent 12 months.

[3] Figures on Colombia come from DANE (1997) and U.S. figures from Glaeser and Sacerdote (1999).

measure of the burden of disease caused by purely geographical factors. It is an index that weighs both the percent of the population at risk for malaria, and the percent of the infected population that suffers from the most severe kind of malaria.[50] The third indicator reflects the proximity of countries in each region to core world markets by measuring the distance of the capital city in kilometers from Tokyo, New York and Rotterdam. Fourth, within-country access to the sea is measured by the percentage of the population living within 100 kilometers of the coast or an ocean navigable river. Finally, urbanization is measured as the percentage of the population living in urban areas.[51]

[50] More detailed descriptions of these variables can be found in Gallup, Sachs and Mellinger (1999).

[51] As defined by each country. See UNDP (1996).

These five simple indicators provide a good summary of the geographical advantages or disadvantages of each of the major regions of the world.[52, 53] Latin America as a whole fares reasonably well when comparing its geographical endowments to the rest of the developing world. Most countries in Latin America have good access to the sea. The population is mostly concentrated on the coasts. The states bordering the Caribbean are all close to the large North American commercial market. Urbanization rates are high in most countries. Agriculture in the region benefits from large areas with temperate climate due to latitude or elevation. Most vector-borne diseases, including malaria, do not have the virulence found in Africa.

This favorable geography accounts for Latin America having many of the higher income countries in the tropics worldwide. However, although Latin America compares favorably in terms of geography and income levels with the rest of the developing world, it does not compare well on either count with highly industrialized countries in Europe and North America, nor with Japan or Australia. Further, the relationship of each of these geographical indicators with income levels does not make clear whether they will continue to be relevant to future economic development.

For example, income levels could well be affected by historical processes that depended on geography, while future economic growth would be largely independent of physical geography. The "new economic geography" espoused by Paul Krugman, Anthony Venables and others follows this line of reasoning. Locations with initial geographical advantages serve as catalysts for developing networks, but once the networks are established, physical geography ceases to have an impact on economic activity.[54] The forces of agglomeration can create a differentiated economic geography even if there was little geographical variation in the first place.

The endogenous processes described in economic geography models reinforce and magnify the direct impact of physical geography and help to explain the dynamics of the process. Natural ports, for example, become focal points for the development of cities, which can become more dominant over time if the economies of agglomeration outweigh the costs of congestion. If these processes dominate, though, we are unlikely to find a strong relationship between geography and economic growth, once we have controlled for the initial conditions. Is it true, for instance, that Hong Kong and Singapore still depend on their excellent access to major shipping lanes for their economic success? Or was that just important to get them started? Is the disease burden in Africa just a reflection of the continent's poverty, perhaps due to the accident of colonization, or will it be an independent drag on African development because it is tied to the tropical climate?

To address the continuing relevance of geography to economic development, the rest of this section examines cross-country relationships of geographical variables to economic growth, controlling for other important determinants of growth, including initial conditions. This allows for measuring the impact of geographical factors for current economic growth prospects. The presentation that follows is nontechnical, but the more inquisitive reader may want to scrutinize the details, which are contained in Appendix Table 3.2.

### *Influence of Natural and Human Geography on Growth*

We start with a baseline equation similar to those in Barro and Sala-i-Martin (1995), in which average income growth between 1965 and 1990 is a function of initial income in 1965, initial level of education in 1965 (measured by average years of secondary school), the log of life expectancy at birth in 1965, openness of the economy to international trade, and the quality of public institutions.[55] We find the standard results for these variables: conditional on other variables, poorer countries catch up by growing faster, and output is an increasing function of education, life expectancy, openness, and the quality of public institutions.

[52] See Table 2 in Gallup, Sachs and Mellinger (1999).

[53] Notice that we lack a synthetic indicator for one of our channels of influence of geography, namely propensity to natural disasters. However, in one of the regressions reported in Appendix Table 3.2, we use as a rough indicator the reported rates of mortality caused by earthquakes and volcano eruptions between 1902 and 1996, which is computed from data compiled by OFDA (1999).

[54] See Fujita, Krugman and Venables (1999).

[55] The dates are determined by data availability. The specifics of the variables used are found in Gallup, Sachs and Mellinger (1999).

We stress the fact that these results are conditional on other factors because, as we have seen, a large number of poorer countries do not grow faster than richer ones. As we will see below, this is due to a large extent to their unfavorable geographical conditions. To these variables we add different combinations of geographical variables, allowing us to test the consistency and robustness of the results. We find that the five basic indicators of physical and human geography described above consistently show the expected signs and are, in general, highly significant.

According to these results, countries fully located within the tropics grow around 0.3 percentage points less than nontropical countries. This is because the disadvantages imposed by natural geography are more difficult to overcome for poor countries than for rich countries. Although a single estimate for all types of countries is extremely imprecise and the significance of this variable is not high, when tropicality is interacted with *initial* income levels, the results become very significant. The estimated coefficients imply that a country fully located within the tropics that starts with a level of per capita income twice that of another tropical country will be able to grow around 0.7 percentage points faster. As intuition suggests, the limitations imposed by natural geography become less restrictive as countries become richer.[56] This is both good news and bad news, as it confirms that geography is not destiny—after all, there are also some rich countries in the tropics—but suggests that the initial effort required to break away from poverty is much harder for a tropical than for a nontropical country. A bigger push is required to take off in the tropics.

The results also give support to the hypothesis that health conditions related to geography may be a major obstacle to development. Thus, countries at high risk of malaria grow 0.6 percentage points slower than countries free from malaria. Such a large estimated impact of malaria on economic growth is striking, especially since the estimates control for general health conditions (life expectancy), and for a general tropical effect. The one country in the Americas with a malaria index of 1, Haiti, is also the poorest country in the hemisphere. A reduction in malaria could give Haiti and some other Latin American countries a big economic impulse. Yet, disappointingly, there has been little malaria reduction in most Latin America countries in recent decades. Although Latin America experienced the largest reduction of any region since the mid-1960, it totaled only 6 index points out of 100.

There is some evidence that natural disasters may also affect growth. Although we lack an appropriate indicator for this influence of geography, an indicator of the mortality caused by earthquakes and volcanic eruptions between 1902 and 1996 is inversely and significantly associated with growth (after controlling for other main determinants of growth, including physical geographic variables). The problem with this variable is that it captures only some types of disasters, and the mortality due to a given natural disaster depends on the country's poverty, so it is not an independent cause of development. Therefore, it is excluded from other regressions.

The econometric evidence suggests that population settlement patterns may have implications for growth. Areas with populations located away from the coast experience lower rates of growth. The estimates also support the notion that there are agglomeration effects from population concentrations on the coast, but diminishing returns to dense populations in the interior. Countries with high population density near the coast grow faster, and countries with high population density in the interior grow more slowly. The results also suggest that distance to principal international markets affects growth. In general, however, the precision of the estimates is rather low, and parameters vary significantly from one specification to another.

Finally, the estimates strongly support the hypothesis that the economic benefits of urbanization outweigh the costs, allowing more urbanized countries to grow faster. A country that starts with a rate of urbanization 50 percentage points higher than another can be expected to grow at a rate about 1 percentage point higher. This also offers support to the big push thesis, but applied to the process of urbanization.

[56] The results could suggest that, eventually, tropical countries with income levels beyond a certain threshold may even grow faster. However, the number of observations beyond that threshold is too small to warrant that conclusion.

**Table 3.9** **Decomposition of the Difference in GDP Per Capita Growth between Latin America and Other Regions of the World, 1965-90**

| | With respect to | |
|---|---|---|
| | Developed countries | East Asia |
| **Controls** | 0.564 | 3.293 |
| GDP per capita, 1965 (log) | -3.499 | 1.404 |
| Years of secondary schooling, 1965 (log) | 0.025 | 0.008 |
| Life expectancy, 1965 (log) | 0.755 | 0.017 |
| Trade openness, 1965-90 (0-1) | 1.487 | 1.227 |
| Institutional quality (0-10) | 1.796 | 0.637 |
| **Physical geography** | 0.682 | -0.519 |
| Share of land in tropics (and its interaction with income) | 0.594 | -0.392 |
| Falciparum malaria index, 1965 (0-1) | 0.088 | -0.127 |
| **Human geography** | 0.598 | 0.101 |
| % population urban, 1965 | 0.423 | -0.042 |
| Coastal population | -0.007 | 0.135 |
| Distance to main markets | 0.183 | 0.008 |
| **Total geography** | 1.280 | -0.418 |
| **Total explained** | 1.844 | 2.875 |
| **Total observed** | 1.697 | 3.771 |
| **Unexplained** | -0.147 | 0.895 |

*Source: IDB calculations based on regression (5) of Appendix Table 3.2.*

### *Geographical Influences on Differences in Growth between Regions*

Table 3.9 shows the estimated impact of specific variables on differences in growth between Latin America, the developed countries, and East Asia. Average growth of GDP per capita in Latin American countries over 1965-90 was 0.9 percent per year, less than half of the 2.7 percent growth rate of the OECD countries, and much lower than East and Southeast Asia's dramatic 4.5 percent growth per year. The "total explained" row in the table shows the sum of the predicted contribution of the explanatory variables, and is quite close to the actual differences in the regional growth rates.

The first block of explanatory variables comprises controls that capture initial conditions (other than geography), policy and institutional characteristics of the countries. These factors explain around a third of the growth gap of nearly 1.7 points between Latin America and the developed countries, and 3.3 of the 3.8 point difference between Latin America and the East Asian countries. Most of these differences come from the fact that policies and institutions have been less favorable to growth in Latin America than in these two groups of countries.

Geographical factors explain a large portion of the remaining growth gap between Latin America and the developed countries, but not between Latin America and East Asia. The developed countries enjoy more favorable physical and human geographical factors, each of which explains roughly a third of the growth gap. The main advantages of developed countries stem from their location in temperate zones and their higher urbanization rates. Latin America and East Asia have rather similar geographical characteristics, and only a small fraction of the growth gap between the two regions can be attributed to geography. Furthermore, geographical factors would tend to make East Asia grow slightly *less* than Latin America. This point is crucial, because it reinforces the argument that geography is not destiny, and that adequate policies and institutions can offset its adverse effects. This in turn points to the importance of

great strides made by Latin America since 1965 in pursuing policies conducive to international trade and making government institutions more efficient and responsive (see Chapter 4).

In principle, infrastructure can help overcome many of the obstacles imposed by geography, but often at costs beyond the reach of poor countries. In areas where geography poses particularly difficult problems—such as mountainous regions, humid tropical zones where soils and torrential rains make it difficult to build durable roads, and regions far from the sea or without good natural ports—building such infrastructure is much more expensive than in coastal, temperate states. Furthermore, those investments may be less productive than in better-endowed areas that support much more economic activity.

To see if infrastructure investment is less productive in geographically difficult environments, we examine whether infrastructure has a smaller impact on economic growth in countries with limited access to the coast. In landlocked countries, initial road stocks and electricity generation capacity are positively correlated with subsequent growth, but at low significance levels. In coastal countries, there is no significant effect of initial infrastructure on subsequent growth (after accounting for policies, institutions, etc.). The results suggest that there might be some room to achieve better rates of return from infrastructure in noncoastal areas, but the effect is far from warranted. These weak associations may reflect the fact that the quality of investments is less determined by geographical conditions than by the quality of institutions and the extent of corruption. As discussed in Chapter 4, the size, composition and effectiveness of public expenditure is affected by the quality of public institutions—many of which in Latin America leave much to be desired.[57]

### *Geographical Influences on Economic Differences between and within Latin American Countries*

To what extent is the strong correlation across the regions of the world between physical and human geography and income levels and economic growth relevant within Latin America itself? A cursory look suggests that differences in development within the region and even within countries are also affected by these geographical variables.

The geography of Latin America is in fact a good predictor of differences in economic development. The tropical Caribbean and the temperate Southern Cone differ greatly by almost any measure of development. Within Brazil, there is a gulf between the dry and poor Northeast, the rich and temperate Southeast, and the still sparsely populated and wet tropical Amazon region. In all of the neighboring countries with an Amazonian frontier, the jungle regions are a world apart. In Nicaragua, the malarial eastern coast is isolated from the more productive western coast. In Bolivia, the highlands, the valley region and the tropical lowlands have each developed separate urban centers with limited connections between them. Similar patterns hold for the distinct geographical zones of Colombia, Ecuador and Peru.

Using a more systematic approach, studies for Mexico, Colombia, Peru, Bolivia and Brazil have addressed the role of geography within countries through the use of rigorous econometric techniques. Table 3.10 shows the percentage of income level variation "explained" by geographical variables in these countries. Some of these studies analyze income levels at the regional level (departments, provinces or municipalities), while others use household level information. The geographical variables used also differ substantially across studies, ranging from measures of climate and soils to proximity measures. For countries with regional-level income measures, geography accounts for from 66 to 72 percent of income variation. The percentage of household income variance explained is less (from 7 to 47 percent), but given the many factors that affect household outcomes, these are still large numbers. The strength of the association between geography and regional income levels is impressive, since, due to migration and government transfers across regions, income varies less within countries than across countries.

Latin America is notorious for its unequal income distribution, and the estimates in Table 3.10 imply that a large portion of the regional disparities within these Latin American countries is tied to geographical factors. Even a substantial share of between-household inequality is correlated with geography.

[57] See Tanzi and Davoodi (1997) for an analysis of the deleterious effects of corruption on the quality of infrastructure investments.

**Table 3.10** **Geographical Variables Associated with Income Levels within Countries**

| Country (source) | Dependent variable | Level of observation of dependent variable | Dependent variables | Level of observation independent variable | Effect on the dependent variable | $R^2$ (%) |
|---|---|---|---|---|---|---|
| Bolivia (Urquiola et al., 1999) | Unsatisfied basic needs | Municipal | • altitude | Provincial | negative ** | 68 |
| | | | • border crossing | Provincial | negative ** | |
| | | | • regional center | Provincial | negative *** | |
| | | | • department capital | Provincial | negative ** | |
| Bolivia (Morales et al., 1999) | Unsatisfied basic needs | Municipal | • altitude | Provincial | negative * | 66 |
| | | | • urbanization | Provincial | negative ** | |
| Brazil (Azzoni et al., 1999) | Income per capita | Household | • latitude | State | positive *** | 47 |
| | | | • temperature | State | positive ** | |
| | | | • rainfall | State | positive *** | |
| Colombia (Sánchez and Núñez, 1999) | GDP per capita | Municipal | • altitude | Municipal | positive* | 36 |
| | | | • rainfall | Municipal | negative * | |
| | | | • type of soils | Municipal | positive* | |
| | | | • distance to seaports | Municipal | positive* | |
| | | | • distance to markets | Municipal | negative* | |
| | | | • distance to rivers | Municipal | negative** | |
| Mexico (Blum and Cayeros, 1999) | GDP per capita | State | • rainfall | State | negative * | 70 |
| | | | • temperature | State | negative | |
| | | | • coast | State | positive | |
| | | | • border crossing | State | positive ** | |
| | | | • population density | State | positive * | |
| Mexico (Esquivel et al., 1999) | GDP per capita | State | • humidity | State | negative * | 68 |
| | | | • cold | State | positive * | |
| | | | • forest | State | negative * | |
| | | | • agriculture | State | negative * | |
| Peru (Escobal and Torero, 1999) | Expenditure per capita | Household | • altitude | Provincial | negative** | 4 |
| | | | • rainfall | Provincial | negative ** | |
| | | | • temperature | Provincial | negative *** | |
| | | | • type of soils | Provincial | negative ** | |
| | | | • volcanic area | Provincial | negative ** | |

** Significant at 1 percent.*

*** Significant at 5 percent.*

**** Significant at 10 percent.*

In sum, the influence of geography is pervasive in Latin American economic development, explaining a substantial share of household, regional, cross-country and even economic growth differences for the whole region compared to the other regions of the world. All this suggests not only that geography has had a deep influence on the patterns of development of Latin American societies, but also that it will most likely continue to do so in the future. The question then arises: What are the most effective policies to ameliorate the negative influences of geography, and to best take advantage of positive possibilities that geography has to offer?

## Policies to Overcome the Limitations of Geography

Geography may be largely immutable, but its impact on the economy and society is not. The right policies or technological developments can overcome many geographical obstacles.

Tackling geographical problems has important "public good" aspects: investments in disease control, roads or disaster mitigation typically benefit whole regions rather than particular individuals. But making these investments at the level that is socially desirable requires coordination between the government and other institutions. On an individual level, a citizen who contributes to these investments will not necessarily capture the benefits that he or she is contributing to society as a whole, and thus is less likely to want to contribute what is needed. No individual would likely take upon himself the task of controlling a dispersed disease vector, for example, and yet everyone benefits when each person contributes a small amount to the eradication of the disease. The sharing of the burden requires coordination and the creation of market-based incentives.

Latin America has large population concentrations in geographically difficult environments such as the highlands of Central America and the Andean region, the Brazilian northwest, and Haiti. If nearby areas develop rapidly, some of the problems of these difficult environments may be spontaneously solved by migration to the dynamic neighboring regions. For many people, migration may be the only way to escape the constraints of geography, and therefore it should not be discouraged. However, the persistence of poverty in these population concentrations over the centuries indicates that migration is unlikely to be a lasting solution. Population growth is often higher in poor, geographically disadvantaged regions, offsetting the benefits of outmigration. In addition, massive migration to economic centers and to some coastal areas might cause additional problems, such as increased vulnerability to natural disasters. Avoiding such adverse effects of migration requires close monitoring of migration patterns, creation of incentives for settlements in safe areas, and adaptation of city and land use planning.

### *Infrastructure*

More active approaches to reducing geographical disparities through infrastructure investments face all the difficulties of regional development programs. The nature of isolated areas makes extension of infrastructure there more expensive, so the benefits to residents living in such areas must be large indeed to support these costs. If the goal is to bring industry and white-collar services to these areas, the problem becomes the strong synergies, or economies of agglomeration, attached to these activities. These synergies make returns to new infrastructure investments higher in the already well-connected, accessible cities. Bringing industrial and service activities to an isolated area is a chicken and egg problem—that is, firms do not want to set up there unless the infrastructure and services are already in place and other firms are also going to establish themselves there. Cost recovery for the infrastructure is not possible unless it attracts a good number of firms. To get this all moving simultaneously is expensive and risky, and governments that have attempted it have poor track records (Richardson and Townroe, 1986). In contrast to government-sponsored export processing zones, which are usually located in geographically favorable areas and have often been successful, industrial estates in lagging regions have often ended up empty. They were built, but nobody came.

Neither have more systemic approaches to disadvantaged regions in the form of regional development agencies been much more encouraging. These sizable regional development bureaucracies usually have trouble putting together the complex

coordination necessary to get economic networks established in places where this has not occurred spontaneously. There is a long history of such efforts in Brazil's poor northeast. Helped by decades of migration out of the region, the northeast has caught up only a little with the wealthier southeast. The poorest Brazilian state in 1960 was Piauí in the northeast, with per capita GDP totaling only 11 percent of that of the richest state of São Paulo in the southeast. In 1995, 35 years later, Piauí was still the poorest state in Brazil, and its per capita GDP had risen to only 16 percent of that of São Paulo (Azzoni et al., 1999). The strategy of opening up the Amazonian frontier for poor settlers from the northeast has caused major environmental damage, had limited economic success, and exacerbated problems of tropical disease.

Despite the limited success of grand regional infrastructure projects, it remains difficult to accept simply leaving isolated areas to their own devices. Lack of access to infrastructure is closely associated with poverty, since infrastructure provides the enabling environment for economic activity. Inadequate and poorly maintained infrastructure can also result in the isolation of entire regions in the event of a natural disaster. Therefore, a basic needs approach to infrastructure may be the most effective way to reduce poverty in geographically disadvantaged regions, and may also have a higher economic rate of return than large-scale infrastructure projects. Rudimentary feeder roads, electricity, and telecommunications are needed to integrate isolated regions into the rest of the economy. New technologies for micro electricity generation and stand-alone telecommunications links may also prove most cost-effective.

Providing cost-effective infrastructure in isolated regions is easier said than done, however. Centralized provisioning is not always the best method, since infrastructure investment projects and the services they provide are inherently located in and serve particular areas, customers and interests. Some form of decentralization is granted for most infrastructure investment and services, but the precise form it takes may depend on a number of factors, as will be discussed in a subsequent section.

While a basic needs approach should guide infrastructure investment decisions for geographically disadvantaged areas, the evidence presented in this chapter suggests that access to international markets should be the primary criterion for investments in roads, ports, railways and airports. Of course, the potential benefit of these investments depends on a number of variables, and overexpenditure is always a risk. Few of those investments can be profitable in the absence of adequate trade and macroeconomic policies, which encourage producers to seek international integration over the long term. But the potential benefit of a trade liberalization policy may in turn be severely limited by lack of infrastructure. Internal transportation bottlenecks can prevent the development of potentially successful exporting sectors, especially primary ones, while high value-added imports may soar. A basic needs approach should also bear in mind the risks associated with natural disasters, ensuring that destruction of private and public infrastructure be minimized and that sudden cutoffs from markets be avoided. Similarly, governments should focus efforts on reinstating access to markets in the aftermath of disasters by rebuilding critical infrastructure.

Finally, a basic needs approach to infrastructure should also be based on the principle that adequate maintenance of basic services is more important than new and big investments that are usually more expensive to run and keep up. The lack of adequate infrastructure in poor regions is more often due to poor maintenance policies than to insufficient expenditure. As has been analyzed and stressed by the World Bank,[58] new economic and political institutions and incentives, particularly if they are not decentralized in some fashion, usually lead to costly and inefficient new investments. A fraction of those same resources could often provide better services were they devoted to maintenance.

### *Technologies for Tropical Agriculture and Health*

Although geography is largely immutable, the prevalence of disease in particular climates need not be. Direct action is required because rising income levels per se will not take care of health in the tropics.

There are few affordable and effective treatment and control strategies for some diseases, while

[58] See World Bank (1994).

for others the means of conquering the disease are well known but require a major education and mobilization effort. A prime example of the former is malaria. Vector control in the worst areas is at best a holding action, and the medicines being used are rapidly losing their effectiveness due to drug resistance. Vaccines are still many years away because of shortages in funding and the extraordinary complexity of the pathogen and its life cycle. Tropical diseases do not get the benefits of spillovers from biomedical and pharmaceutical research in the developed countries because there are no significantly large tropical developed countries. The tropical countries are too poor to offer an attractive stand-alone market to induce pharmaceutical firms to invest in tropical disease research.

Similar problems are faced in developing agricultural technology for soils and products characteristic of the tropics. Almost all scientific research and development, and hence most technological advances, occur in the developed world. At least some of these advances have the potential to be adapted to poor tropical countries, but significant hurdles must be overcome because of the differences in the biological process in the tropics.

In the developed world, more and more cutting-edge scientific research in health and agriculture is being carried out by large private firms rather than in government and academic research institutes. These firms have no financial incentive to invest in similar research on tropical problems. Since developing country consumers cannot afford to pay premium prices for new drugs and vaccines, they are not a profitable market.

At the same time when the tropics are being left out of the revolution in corporate scientific research, public funding for research on tropical agriculture and disease has been declining. The research and development budget of the entire CGIAR system of institutes studying developing world agricultural problems is less than half of the research and development budget of one life-sciences multinational, Monsanto.[59]

Despite these limitations, a new era of rapid advances in biology has allowed for promising applied research on the obstacles to tropical agriculture. Tropical agricultural research, most of it public, has had high rates of return. Table 3.11 presents estimated rates of return on agricultural research in Latin America as compiled by Echeverría (1990). The study assessed research on different crops in different countries using different methodologies, yet the estimates are uniformly and strikingly high. Of the 58 rates of return, only four are below 15 percent per year, with an average of 57 percent and a median of 44 percent. These huge returns on what little research investment has been made suggest that not enough agricultural research has been undertaken. Even if agricultural research did not have such high economic returns, investing in agricultural improvements could still be justified in terms of its impact on the poor. The near-term welfare of more than half the households in low-income countries (69 percent of the labor force in 1990),[60] and an even higher proportion of the poorest households, still depends on agriculture.

The rate of return to investing in tropical medical research is difficult to calculate, and in any case is secondary to the principle benefit of such research, which is better human health and welfare. Not surprisingly, the level of funding for research on tropical health problems is pitifully low. The prime example is malaria, one of the most deadly tropical diseases in the world. An estimated 2.4 billion people are at risk worldwide, with 300 to 500 million clinical cases and 1.5 to 2.5 million deaths per year. Yet because of the lack of market incentives, there is essentially no malaria research by private pharmaceutical firms. Total worldwide research funding was only $84 million in 1993,[61] much of it by the military of wealthy countries concerned about the readiness of their soldiers overseas.

In spite of this limited funding and research, Latin America overall has better health than would be predicted by its income levels, especially for a region that is highly tropical.[62] A series of successful control programs and strong public health institutions such as the Pan American Health Organization—

[59] Sachs (1999, p. 19).

[60] World Bank (1997, p. 220).

[61] Welcome Trust (1999).

[62] Using a simple regression to predict average life expectancy in 1995 using the natural logarithm of GDP per capita, Latin American countries have an average life expectancy four years longer than would be predicted by GDP alone. If one also controls for tropical location, life expectancy in the region is eight years higher than expected.

**Table 3.11** Rates of Return to Agricultural Research and Extension in Latin America

| Author | Year | Country | Commodity | Period | Annual rate of return (%) |
|---|---|---|---|---|---|
| Ayer | 1970 | Brazil (São Paulo) | Cotton | 1924-67 | 77 |
| Barletta | 1970 | Mexico | Crops | 1943-63 | 45-93 |
| | | | Wheat | | 90 |
| Elias (revised by Cordomi) | 1971 | Argentina (EEAT-Tucuman) | Sugar cane | 1943-63 | 33-49 |
| Hines | 1972 | Peru | Maize | 1954-67 | 35-55 |
| Patrick and Kehrberg | 1973 | Brazil (Eastern) | Aggregate | 1968 | 0 |
| del Rey (revised by Cordomi) | 1975 | Argentina (EEAT-Tucuman) | Sugar cane | 1943-64 | 35-41 |
| Monteiro | 1975 | Brazil | Cocoa | 1923-85 | 19-20 |
| Fonseca | 1976 | Brazil | Coffee | 1933-95 | 17-27 |
| Hertford et al. | 1977 | Colombia | Rice | 1957-80 | 60-82 |
| | | | Soybeans | 1960-80 | 79-96 |
| | | | Wheat | 1927-76 | 11-12 |
| | | | Cotton | 1953-72 | 0 |
| Wennergren and Whittaker | 1977 | Bolivia | Sheep | 1966-75 | 44 |
| | | | Wheat | | -48 |
| Scobie and Posada | 1978 | Colombia | Rice | 1957-64 | 79-96 |
| Moricochi | 1980 | Brazil (São Paulo) | Citrus | 1933-85 | 18-28 |
| Avila | 1981 | Brazil (R.G. Sul) | Irrigated rice | 1959-78 | 83-119 |
| | | Brazil (Central) | | | 83-87 |
| | | Brazil (N. Coast) | | | 92-107 |
| | | Brazil (S. Coast) | | | 111-115 |
| | | Brazil (Frontier) | | | 114-119 |
| Cruz et al. | 1982 | Brazil | Physical capital | 1974-81 | 53 |
| | | | Total investment | 1974-92 | 22-43 |
| Evenson | 1982 | Brazil | Aggregate | 19??-74 | 69 |
| Ribiero | 1982 | Brazil (Minas Gerais) | Aggregate | 1974-94 | 69 |
| | | | Cotton | | 48 |
| | | | Soybeans | | 36 |
| Yrarrazaval et al. | 1982 | Chile | Wheat | 1949-77 | 21-28 |
| | | | Maize | 1940-77 | 32-34 |
| Avila et al. | 1983 | Brazil (EMBRAPA) | Human capital | 1974-96 | 22-30 |
| Cruz and Avila | 1983 | Brazil (EMBRAPA) | Aggregate | 1977-91 | 38 |
| Martinez and Sain | 1983 | Panama (IDIAP-Caisan) | Maize | 1979-82 | 188-332 |
| Ambrosi and Cruz | 1984 | Brazil (EMBRAPA-CNPT) | Wheat | 1974-90 | 59-74 |
| Avila et al. | 1984 | Brazil (South Central) | Aggregate | 1974-96 | 38 |
| Feijoo (revised by Cordomi) | 1984 | Argentina (INTA) | Aggregate | 1950-80 | 41 |
| Pinazza et al. | 1984 | Brazil (São Paulo) | Sugar cane | 1972-82 | 35 |
| Roessing | 1984 | Brazil (EMBRAPA-CNPS) | Soybeans | 1975-82 | 45-62 |
| Silva | 1984 | Brazil (São Paulo) | Aggregate | | 60-102 |
| Ayres | 1985 | Brazil | Soybeans | 1955-83 | 46-69 |
| | | Brazil (Parana) | | | 51 |
| | | Brazil (R.G. Sul) | | | 51-53 |
| | | Brazil (S. Catarina) | | | 29-31 |
| | | Brazil (São Paulo) | | | 23-24 |
| Muchnik | 1985 | Latin America | Rice | 1968-90 | 17-44 |
| Norton et al. | 1987 | Peru (INIPA) | Aggregate | 1981-2000 | 17-38 |
| | | | Rice | | 17-44 |
| | | | Maize | | 10-31 |
| | | | Wheat | | 18-36 |
| | | | Potatoes | | 22-42 |
| | | | Beans | | 14-24 |
| Echevarria et al. | 1988 | Uruguay | Rice | 1965-85 | 52 |
| Evenson | 1988 | Paraguay | Crops | 1988 | 75-90 |
| Luz Barbosa | 1988 | Brazil (EMBRAPA) | Aggregate | 1974-97 | 40 |
| Evenson and da Cruz | 1989 | South America (PROCISUR) | Wheat | 1979-88 | 110 |
| | | | Soybeans | | 179 |
| | | | Maize | | 191 |
| Average | | | | | 57 |
| Median | | | | | 44 |

*Source: Echeverría (1990, Table 1).*

many supported early on by the Rockefeller Foundation—have had a remarkable impact on the disease burden in the region. These programs have included control of yellow fever in the early 1940s, the elimination of the malaria-carrying *Anopheles gambiae* mosquito in Brazil in the 1930s, and hookworm control in the 1920s.

The Rockefeller Foundation also supported agricultural research in Mexico in the 1940s that eventually became CYMMIT, bringing elements of the Green Revolution to Latin America. The foundation funded the respected CIAT agricultural research institute in Colombia and others in the region.

Although many of these health and agricultural organizations and initiatives continue to contribute influential research, some of the technological challenges posed by geographical and ecological conditions in Latin America today require investments beyond their reach. Besides, they may lack the comparative advantage to develop certain products or technologies developed by private high-technology firms.

With regard to malaria, for example, Jeffrey Sachs has suggested a coordinated pledge by rich countries promising an attractive market to the firm that succeeds in developing the vaccine.[63] A guaranteed minimum purchase price or fixed amount per dose would be paid when the vaccine actually exists. Similar pledges could spur cures for other diseases such as tuberculosis, or for the development of crop varieties or agricultural technologies adequate to the geographical and climatic conditions of the poor countries.

Of course, there are other forms of international cooperation that could promote these advances. Depending on the scale, the type of externalities of the problem, and the likely costs of finding a solution, cooperation might be most effective at either the subregional, regional or global level. It may also require the involvement of international organizations, some of which could also play a role in identifying global and regional priorities in health and agriculture and in mobilizing private sector research and development.

New telecommunications technologies and the Internet may also play a future role in reducing the significance of geographical barriers. Although these advances could reduce isolation, however, they most likely will benefit already accessible locations at least as much. And despite the dramatically lower user cost of modern telecommunications, a large initial investment in infrastructure investment is required. One might have expected similar revolutionary change in access from the telephone, but it has not made geographical barriers obsolete. One key area where the use of new technologies could bring dramatic improvements is in development of emergency communications systems for disaster-prone areas. More effective emergency communications would lessen the human and economic costs associated with disasters by providing populations with early warnings and by facilitating communication with isolated areas in the aftermath of disasters.

### *Information and Market Signals*

Because many Latin American countries are so geographically diverse, different regions within a country may offer very marked comparative advantages or disadvantages for certain activities. The yield from investments in infrastructure or health care interventions, for example, may differ dramatically from one zone to another and between different-sized cities and towns because of population settlement patterns. Disaster prevention efforts may be best directed to certain locations because they are more prone to hurricanes, floods or earthquakes.

Keeping these geographical variables in mind when developing a range of economic and social policies requires good information, which is unlikely to be provided by the market of its own accord given the nature of information as a public good. Some of the larger Latin American countries have geographical and statistical institutes primarily devoted to gathering information on the human and geographical factors that affect development. The Instituto Brasileiro de Geografia (IBGE) and Mexico's Instituto Nacional de Estadística, Geografía e Informática (INEGI) enjoy international prestige for their technical and analytical ability. Nevertheless, such efforts are just beginning in many countries where the agencies responsible are not guided by clear economic and social policy objectives and do not provide significant support to policymakers. Hence, geographical considerations often are not factored into decisions on infra-

[63] Sachs (1999, pp. 17-20).

structure investment, allocation of health care expenditures, or plans for urban development, settlement or disaster prevention.

The gathering, processing and dissemination of geographical information must be the responsibility of central bodies. These are complex tasks that require considerable costs, offer major economies of scale, and give rise to significant externalities. There may even be a need for supranational agencies to deal with phenomena that transcend national borders, such as hurricanes or El Niño. Still, a great deal of information related to geography can be generated at the decentralized level. In Costa Rica, for example, the National Biodiversity Institute (INBio) is involving local communities in drawing up a biodiversity inventory. And in cases where data collection takes place at a decentralized level, policy decisions based on geographical information need not be centralized either. The level at which policy decisions must be made should respond essentially to the scope of the externalities generated by such decisions. Decisions having to do with providing urban infrastructure or regulations on land use may be better made at the local level, provided the information exists and is known by the relevant decisionmakers. On the other hand, decisions involving broad geographical externalities—such as controlling water or air pollution or infectious diseases—naturally are better made at the national, regional or even international levels.

Effective dissemination of information is essential not only for government policymakers, but also for those who may suffer the consequences of problems caused or influenced by geography, most of whom are poor. Urban zoning regulations are sometimes so vague and obscure that they can be used as a means to extort money from people after they have invested in houses or businesses on inadequate sites.

People often build homes in high-risk zones because there is no information available to them on the risks involved, or because that information has been manipulated or concealed. Huge losses suffered by agricultural producers could often be avoided if information on weather and other natural hazards were better disseminated. Although it is difficult to predict the occurrence of such phenomena, just having available information on the frequency and intensity of such risks could facilitate development of insurance markets, which are still at an incipient stage in Latin America. Countries where producers and investors are covered for hurricane risks by insurance do not suffer the recessionary effects following the disaster that countries without such coverage do. The Dominican Republic received compensation following Hurricane Georges in 1998 that amounted to around 2 percent of GDP, a powerful stimulus for the construction industry and a factor in sustaining a high economic growth rate even in the aftermath of a disaster. Access to insurance and other financial services is particularly crucial for low-income households, the informal sector and small businesses.

The problem of risk is obvious in the case of natural disasters, but there is also climatic risk associated with agriculture, the risk of disease, and the risk of isolated places being cut off. Again, making information available can help. National governments can help people overcome adverse effects of geography by disseminating information on production technologies for low-productivity or erosion-prone lands, methods of pest or disease control, and suitable techniques for building homes in geographically vulnerable areas.

Although it is essential that governments generate and disseminate such information, the marketplace nevertheless remains the more effective dissemination mechanism if it operates correctly. Low land prices in areas that are disaster-prone or outside the scope of urban public services often attract the poor, leading to construction of vulnerable settlements. The marketplace can be used to head off such developments. For example, a system of subsidies for those who build new houses may be more effective than an administrative or policing procedure in resettling the inhabitants of a high-risk area. The most effective way to contain erosion may be the use of a subsidy to encourage use of a new technology to displace inappropriate ones. To encourage a community to preserve a scarce resource (a nature reserve, for example), the best approach may be to promote a market for that resource (ecological tourism, for example) rather than preventing it from being used, which reduces its potential value.

To respond to market signals, people must have mobility. An area of low agricultural productivity with poor health conditions can become a poverty trap if policies discourage migration toward areas with better opportunities. Fear of migration from the coun-

tryside to the city, deeply rooted in the minds of Latin American leaders, has often translated into subsidies to unproductive farming sectors and rural areas. Further, according to surveys in the mid-1990s, nearly half of the small farmers in Honduras, Paraguay and Colombia do not have land titles.[64] This not only limits their mobility but limits access to credit and discourages investment.[65] In disaster-prone areas, lack of land titling discourages owners from making investments that could lower risks and hinders any resettlement policy. In short, problems that limit mobility reinforce rather than alleviate the adverse effects of geography.

### *Decentralization and Organization*

Decentralization is an important tool for taming and exploiting geography because of the wide variety of ways that human and physical geography can affect development, ranging from natural disasters to population trends. It is difficult to imagine a centralized decisionmaking system that could respond adequately to the variety of needs and restrictions imposed by geography on different locations, especially in countries as geographically heterogeneous as those in Latin America.

Nor can a single decentralization model be effective. In Latin America, local governments within each country—municipalities, provinces or districts, according to the term used in each country—are organized basically in the same manner, without taking into account differences in size, location or other basic geographical and socioeconomic conditions. The result in more prosperous locations is that potential for better organization and service delivery goes untapped, especially in countries with more centralized government structures. Meanwhile, less geographically and economically fortunate localities can be overwhelmed by administrative demands and responsibilities.

Some countries have begun to break this straitjacket by using more flexible and adaptable decentralization processes. In Colombia and Venezuela, some responsibilities for providing road infrastructure and other public services are assigned by contract to subnational governments according to their administrative and technical capability. In Colombia, the process has also involved nongovernmental bodies such as the coffee producers' association or oil companies, which have assumed some responsibilities for providing infrastructure.

A single decentralization structure is ineffective from a geographical standpoint as well, since some of the most important effects of geography are not clearly localized, or because they generate externalities that are significant for other localities or regions. For example, illnesses or plagues affecting several localities cannot be eradicated by any locality by itself. An appropriate technology for containing erosion in river basins and preventing risks of mudslides or floods is unlikely to be developed by the locality causing the problem, partly for cost reasons, but particularly because other localities may be more affected by the danger than is the locality where the problem originates. Hence, the locality where the problem lies will expect other affected localities to help solve it. A highway built to end the geographical isolation of one region will have to cross many other areas to be useful, and obviously will not be undertaken by any one locality by itself.

Each of these examples suggests the need for a different level of geographical organization. The problem of a pest that affects a specific crop may require only the organization of producers, while a tropical disease may demand national or even global intervention. Mitigating the risk of natural disasters demands central organization with acknowledged leadership capable of assigning specific responsibilities to other levels. Addressing a problem of erosion may involve a group effort by municipalities that share a river basin. Construction of a highway may require cooperation both by the isolated areas to where the road is being built as well as by others that may benefit in some other way from the new investment.

Hence, the form of decentralization suitable for solving some problems may be very different from that needed to solve others. It is not just a matter of different levels of aggregation (municipal, state, national), but also of different types of groupings (groups of municipalities or zones that may or may not correspond to existing territorial units, or combinations of different levels of government).

[64] See López and Valdés (1996) cited by López (1996).

[65] See López (1996) and Carter and Olinto (1996). Nevertheless, where efficient credit markets do not exist, a massive land titling policy can have adverse effects on distribution.

Although in principle it might be possible to define the level and type of grouping of localities sharing the same geographical problem or benefit, this does not mean that cooperation will be easy or even feasible. Problems of coordinating more than a few municipalities may prove intractable, and are not always necessarily solved by grouping the municipalities at an intermediate territorial level. In other words, geographical heterogeneity imposes demands for institutional development that may be difficult to meet, trapping the more geographically fragmented countries in situations of low economic and social development. Chapter 4 will examine this point more rigorously and discuss some of its implications for the organization of political systems and governability. At this point it is important to note only that the excessive number of political jurisdictions exacerbates these problems in many Latin American countries. That is, political fragmentation of territory hinders solving economic and social problems, particularly those that are geographical in origin. In Mexico, states with a greater density of municipalities (vis-à-vis population) have significantly lower levels of development. According to econometric estimates, per capita income will be from 10 to 20 percent lower in a state with double the municipal density of another, other determining conditions of development being similar.[66] Many Latin American countries have an excessive number of political jurisdictions, especially at the municipal level. Panama, with a population of 3 million, has 67 municipalities, while El Salvador, with a population only twice as large, has 262 of them. The number of municipalities in Venezuela rose from 200 in 1985 to 333 in 1998, and in Colombia there are now over 1,000 municipalities.

Although political fragmentation usually has deep historical roots, the trend has been reinforced by laws that encourage the creation of new municipalities. For example, the setting of a fixed component of fiscal transfers per municipality (in addition to the variable component by population or by other variables) leads to the creation of small municipalities. Electoral rules that assign to each territorial unit a basic number of seats in legislative bodies have the same consequence.

All of these complications point up the fact that while decentralization is an essential instrument for taming geography, it is not a simple instrument. In principle, three conditions are needed for successful decentralization.[67] First, the local decisionmaking process must be democratic, in the sense that the costs and benefits of decisions are transparent and all those affected have an equal opportunity to affect those decisions. Second, the costs of local decisions must be borne completely by those making them, and not transferred to other territorial units or to the central government. And third, the benefits must also be circumscribed to the participants. When these conditions are all met, the responsibilities and their financing can be totally transferred to subnational governments or organizations. Unfortunately, few if any of the problems posed by geography allow for these conditions to be fully met. This does not mean that decentralization must be rejected, but rather that it ought to be designed in each case in such a way that all participants have incentives similar to those that would exist if such conditions were indeed met.

Solving the problem of transparency requires systems of democratic participation in decisionmaking and public control of local government (as well as the generation and dissemination of information, as discussed in the previous section). Although municipal governments are now popularly elected in most Latin American countries, municipalities are not always the most suitable entity for decentralization. Decentralizing responsibilities to other units or organizations must be backed by similar democratic decisionmaking procedures. For example, in instances where coffee producer organizations have responded to a set of information externalities and problems that are largely of geographical origin, the most favorable results have occurred in countries where those organizations used democratic procedures.[68]

To prevent the costs of local decisions from being transferred to other entities or government levels, clear and credible budgetary restrictions must be imposed. That requires clearly defining the responsibilities to be assumed by the subnational government or the relevant decentralization entity. Similarly, if

[66] See Blum and Díaz Cayeros (1999).

[67] For a broader description of the benefits, risks and best practices associated with decentralization, see IDB (1997, Part Three, Chapter Three).

[68] Bates (1997).

transfers are received from the national government for fulfilling these functions, such transfers must be determined by the level and quality of the services provided, not by the costs incurred or by an acquired right, as happens when transfers are a percentage of central government revenues. Finally, the lower-level government must also have very strict debt limits in keeping with its own revenue generating ability.

Avoiding deficiencies or excesses in the provision of certain services that generate positive (or negative) externalities to other territorial units requires creation of a system for transfers (or taxes) from the central government to providers. Some countries have set up joint financing procedures for certain investments that generate significant geographical externalities, such as highway construction, wastewater treatment, or control of air pollution.

Latin American countries are abandoning the traditional centralism of their institutions and policies in favor of more decentralized and participatory systems. The success of that strategy will depend largely on its ability to incorporate new dimensions of human and physical geography into the design and implementation of new policies.

**Appendix Table 3.1** **Geography and Health, 1995**

| | (1) Life expectancy (years at birth) | (2) Infant mortality rate (infant deaths per 1,000 live births) | (3) Falciparum malaria index 1994 (0-1) |
|---|---|---|---|
| Log GDP per capita (PPP) | 0.416 | 0.024 | -0.014 |
| | (0.64) | (0.01) | (0.42) |
| Female literacy rate (%) | 0.286 | -1.452 | 0.000 |
| | (9.29)** | (7.66)** | (0.24) |
| Tropical, wet (%) | -4.332 | 40.722 | 0.275 |
| | (4.01)** | (4.88)** | (5.22)** |
| Tropical, monsoon (%) | 0.882 | 3.999 | -0.019 |
| | (1.45) | (0.61) | (0.09) |
| Tropical, some dry (%) | 0.850 | 5.354 | 0.083 |
| | (1.20) | (1.04) | (2.78)** |
| Dry steppe (%) | 3.210 | -18.505 | -0.011 |
| | (2.14)* | (2.27)* | (0.72) |
| Desert (%) | 2.481 | 3.724 | -0.012 |
| | (4.27)** | (1.14) | (0.81) |
| Temperate, dry summer (%) | 3.729 | -8.720 | 0.000 |
| | (3.69)** | (1.36) | (.) |
| Temperate, dry winter (%) | -3.557 | 26.959 | -0.049 |
| | (2.78)** | (1.59) | (1.34) |
| High elevation and polar (%) | -0.769 | 3.651 | 0.012 |
| | (0.89) | (0.77) | (0.26) |
| Constant | 41.716 | 156.385 | 0.165 |
| | (8.79)** | (4.68)** | (0.42) |
| No. of observations | 178 | 178 | 139 |
| $R^2$ | 0.64 | 0.49 | 0.26 |

*Notes: Robust t-statistics in parentheses.*

** Significant at the 5 percent level.*

*** Significant at the 1 percent level.*

**Appendix Table 3.2** **Determinants of GDP Per Capita Growth, 1965-90**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| **Control** | | | | | | | | |
| GDP per capita, 1965 (log) | -2.329* | -2.533* | -2.908* | -2.878* | -3.239* | -2.880* | -3.893* | -3.994* |
| | (-7.64) | (-7.28) | (-6.91) | (-7.02) | (-7.46) | (-5.65) | (-9.47) | (-10.20) |
| Years of secondary schooling, 1965 (log) | 0.265 | 0.177 | 0.057 | 0.108 | 0.029 | 0.015 | 0.038 | 0.074 |
| | (1.85) | (1.20) | (0.42) | (0.71) | (0.21) | (0.10) | (0.19) | (0.55) |
| Life expectancy, 1965 (log) | 6.506* | 4.731* | 4.608* | 4.702* | 3.839* | 3.953* | 5.351* | 4.059* |
| | (7.30) | (4.27) | (4.40) | (4.24) | (4.34) | (4.52) | (4.93) | (4.07) |
| Trade openness, 1965-90 (0-1) | 1.889* | 1.795* | 2.110* | 1.864* | 1.866* | 1.950* | 1.590* | 1.587* |
| | (5.47) | (4.58) | (5.15) | (5.02) | (3.97) | (4.03) | (3.01) | (3.58) |
| Institutional quality (0-10) | 0.282* | 0.357* | 0.390* | 0.431* | 0.382* | 0.345* | 0.484* | 0.468* |
| | (3.30) | (3.32) | (3.52) | (4.40) | (3.75) | (3.33) | (3.61) | (4.25) |
| **Physical geography** | | | | | | | | |
| Share of land in tropics (0-1) | | -0.333 | -8.915* | -8.311* | -8.180* | -5.842 | -9.504* | -10.681* |
| | | (-0.73) | (-2.86) | (-2.70) | (-2.86) | (-1.76) | (-3.41) | (-3.64) |
| Share of land in tropics times (log) GDP per capita, 1965 | | | 1.111* | 1.077* | 0.992* | 0.682 | 1.184* | 1.293* |
| | | | (2.82) | (2.77) | (2.74) | (1.62) | (3.37) | (3.54) |
| Falciparum malaria index, 1965 (0-1) | | -1.404* | -0.902 | -1.113* | -0.602 | -0.717 | -0.650 | -0.717 |
| | | (-2.39) | (-1.64) | (-2.05) | (-1.26) | (-1.43) | (-1.14) | (-1.19) |
| Earthquakes and volcanos index (0-1) | | | | -1.651* | | | | |
| | | | | (-3.06) | | | | |
| **Human geography** | | | | | | | | |
| % Urban population, 1965 | | | | | 2.249* | 1.457 | 2.290* | 2.471* |
| | | | | | (2.86) | (1.71) | (2.70) | (3.46) |
| Coastal population | | | | | 0.602 | | 2.710 | 1.977* |
| | | | | | (1.26) | | (1.73) | (2.13) |
| Distance to main markets (log) | | | | | -5.90 | -2.93 | -7.29 | -6.85 |
| | | | | | (-1.08) | (-0.48) | (-1.16) | (-1.17) |
| Coastal population density, 1994 (log) | | | | | | 0.170* | | |
| | | | | | | (2.25) | | |
| Inland population density, 1994 (log) | | | | | | -0.087 | | |
| | | | | | | (-1.19) | | |
| **Infrastructure** | | | | | | | | |
| Total road length, 1965 (log) | | | | | | | 0.196 | |
| | | | | | | | (1.22) | |
| Coastal population share times (log) road length | | | | | | | -0.244 | |
| | | | | | | | (-1.50) | |
| Electricity generating capacity, 1965 (log) | | | | | | | | 0.220 |
| | | | | | | | | (1.55) |
| Coastal population share times (log) electricity generating capacity | | | | | | | | -0.223 |
| | | | | | | | | (-1.93) |
| **Constant** | -8.792* | 0.014 | 3.143 | 2.329 | 7.811* | 4.878 | 4.580 | 11.175* |
| | (-2.92) | (0.003) | (0.75) | (0.53) | (2.11) | (1.11) | (0.96) | (2.43) |
| $R^2$ | 0.70 | 0.75 | 0.77 | 0.79 | 0.79 | 0.80 | 0.84 | 0.85 |
| Number of observations | 77 | 77 | 77 | 72 | 76 | 76 | 58 | 71 |

*Source: Authors' calculations.*

*Note: Robust t-statistics in parentheses.*

** Significant at 5 percent or more.*

## BIBLIOGRAPHY


Ades, Alberto and Edward L. Glaeser. 1995. Trade and Circuses: Explaining Urban Giants. *Quarterly Journal of Economics* 110(1): 195-228.

Albala-Bertrand, J.M. 1993. *The Political Economy of Large Natural Disasters*. Oxford: Clarendon Press.

Alesina, Alberto and Dani Rodrik. 1994. Distributive Politics and Economic Growth. *Quarterly Journal of Economics* 109: 465-90.

Alves, Denisard, et al. 1999. Health, Development and Policies in a Warning Environment: The Brazilian Case. Background paper, Latin American Research Network, Inter-American Development Bank.

Azzoni, Carlos, Naércio Menezes, Filho Tatiane, Menezes Raul, and Silveira Neto. 1999. Geography and Regional Income Convergence among Brazilian States. Background paper, Latin American Research Network, Inter-American Development Bank.

Barro, Robert J. and Xavier Sala-i-Martin. 1995. *Economic Growth*. New York: McGraw Hill.

Bates, Robert H. 1997. Institutions and Development. In Diego Pizano and José Chalarca, *Coffee, Institutions and Economic Development*. Bogota: National Federation of Coffee Growers.

Bitrán, Ricardo and Cecilia Má. 1999. Geography, Health Status, and Health Investments. An Analysis of Peru. Background paper, Latin American Research Network, Inter-American Development Bank.

Blum, Roberto and Alberto Díaz Cayeros. 1999. Rentier States and Geography in Mexico's Development. Background paper, Latin American Research Network, Inter-American Development Bank.

Canning, David. 1998. A Database of World Infrastructure Stocks 1950-1995. Harvard Institute for International Development. Available at http://www.cid.harvard.edu/Infra11.html. Mimeo.

Carter, Michael R. and Pedro Olinto. 1996. Getting Institutions Right for Whom? The Wealth Differentiated Impact of Property Rights Reform on Investment and Income in Rural Paraguay. University of Wisconsin Department of Agricultural Economics. Unpublished.

Coatsworth, John H. 1998. Economic and Institutional Trajectories in Nineteenth-Century Latin America. In John H. Coatsworth and Alan M. Taylor (eds.), *Latin America and the World Economy Since 1800*. Cambridge: Harvard University Press.

Coelho, Philip R. P. and Robert A. McGuire. 1997. African and European Bound Labor in the British New World: The Biological Consequences of Economic Choices. *Journal of Economic History* 57(1): 83-115.

Coordination Center for the Prevention of Natural Disasters (CEDEPRENAC). 1999. Social and Ecological Vulnerability. Paper presented at the Stockholm Consultative Group Meeting on Central America's Reconstruction and Transformation. April.

Crosby, Alfred W. 1986. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge: Cambridge University Press.

———. 1972. *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Westport, CT: Greenwood Press.

DANE (Departamento Administrativo Nacional de Estadística). 1997. Encuesta Nacional de Calidad de Vida, Colombia.

Deininger, Klaus and Lyn Squire. 1998. New Ways of Looking at Old Issues: Inequality and Growth. *Journal of Development Economics* 57(2): 259-87.

———. 1996. A New Data Set Measuring Income Inequality. *World Bank Economic Review* 10(3) September: 565-91.

Diamond, Jared. 1997. *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W. W. Norton.

Easterly, William and Ross Levine. 1997. Africa's Growth Tragedy: Policies and Ethnic Divisions. *Quarterly Journal of Economics* 112(4) November: 1203-50.

Echeverría, R. G. 1990. Assessing the Impact of Agricultural Research. In R. Echeverría (ed.), *Methods for Diagnosing Research System Constraints and Assessing the Impact of Agricultural Research - Volume II, Assessing the Impact of Agricultural Research*. The Hague: ISNAR.

Engerman, Stanley L. and Kenneth L. Sokoloff. 1997. Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States. In Steven Haber (ed.), *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford: Stanford University Press.

Escobal Javier and Máximo Torero. 1999. Does Geography Explain Differences in Economic Growth in Peru? Background paper, Latin American Research Network, Inter-American Development Bank.

Esquivel, Gerardo, et al. 1999. Geography and Economic Development in Mexico. Background paper, Latin American Research Network, Inter-American Development Bank.

ESRI (Environmental Systems Research Institute). 1992. *ArcWorld: User's Guide and Data Reference*. Redlands, CA: Environmental Systems Research Institute.

Evenson, Robert E., Carl E. Pray and Mark W. Rosegrant. 1999. *Agricultural Research and Productivity Growth in India*. IFPRI Research Report #109.

Fagan, Brian. 1999. *Floods, Famines, and Emperors: El Niño and the Fate of Civilizations*. New York: Basic Books.

FAO. 1999. The FAOSTAT Database. http://apps.fao.org/default.htm.

Fujita, Masahisa, Paul Krugman and Anthony J. Venables. 1999. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge: MIT Press.

Gallup, John Luke, and Jeffrey D. Sachs. 1999. Agricultural Productivity and the Tropics. Center for International Development. Mimeo.

———. 1998. The Economic Burden of Malaria. Harvard Institute for International Development. Available at http://www.hiid.harvard.edu/research/newnote.html#geogrowth. Mimeo.

Gallup, John Luke, Jeffrey D. Sachs and Andrew D. Mellinger. 1999. Geography and Economic Development. In Boris Pleskovic and Joseph E. Stiglitz (eds.), *World Bank Annual Conference on Development Economics 1998*. Washington, DC: World Bank.

Gallup, John Luke, Steven Radelet and Andrew Warner. 1998. Economic Growth and the Income of the Poor. Harvard Institute for International Development. Mimeo.

Gaviria, Alejandro and Carmen Pagés. 1999. Patterns of Crime Victimization in Latin America. Inter-American Development Bank. Mimeo.

Gaviria Alejandro and Ernesto Stein. 1999. Urban Concentration in Latin America and the World. Inter-American Development Bank. Unpublished.

Glaeser, Edward L. 1998. Are Cities Dying? *Journal of Economic Perspectives* 12 (Spring): 139-60.

Glaeser, Edward L. and Bruce Sacerdote. 1999. Why Is There More Crime in Cities? *Journal of Political Economy*, No. 6, Part 2, V. 107, 5225-59.

Gleick, James. 1999. *Faster: The Acceleration of Just about Everything*. New York: Pantheon Books.

Hardoy, Jorge E. 1989. *The Poor Die Young: Housing and Health in the Third World*. London: Earthscan.

Heinl, Robert Debs, Jr. and Nancy Gordon Heinl. 1978. *Written in Blood: The Story of the Haitian People 1492-1971*. Boston: Houghton Mifflin.

Inter-American Development Bank. 2000. *Social Protection for Equity and Growth*. Washington, DC: IDB.

————. 1997. *Latin America after a Decade of Reforms. Economic and Social Progress in Latin America, 1997 Report*. Washington, D.C.: IDB.

International Federation of Red Cross (IFRC). 1993, 1997, 1999. *World Disasters Report*. Dordrecht: Martinus Nijhoff.

Li, Hongyi, Lyn Squire and Heng-fu Zou. 1998. Explaining International and Intertemporal Variations in Income Inequality. *Economic Journal* 108(446): 26-43.

López, Ramón. 1996. Land Titles and Farm Productivity in Honduras. University of Maryland Department of Agriculture and Resource Economics. Unpublished.

López, Ramón and Alberto Valdés. 1996. *Rural Poverty in Latin America*. Washington, DC: World Bank.

Maddison, Angus. 1995. *Monitoring the World Economy: 1820-1992*. Paris: Organization of Economic Cooperation and Development.

McCullough, David. 1977. *The Path Between the Seas: The Creation of the Panama Canal, 1970-1914*. New York: Simon and Schuster.

McNeill, William H. 1976. *Plagues and Peoples*. Garden City: Anchor Press.

Meller, Patricio. 1995. Chilean Export Growth, 1970-1990: An Assessment. In G.K. Helleiner (ed.), *Manufacturing for Export in the Developing World*. London and New York: Routledge.

————. 1996. La maldición de los recursos naturales. *Archivos del Presente* 2(6) October. Buenos Aires.

Morales, Rolando, et al. 1999. Bolivia, Geography and Economic Development. Background paper, Latin American Research Network, Inter-American Development Bank.

Munich Reinsurance Group. 1999. Press Release, March 15, 1999.

Office of U.S. Foreign Disaster Assistance (OFDA). 1999. Significant Data on Major Disasters Worldwide, 1900-1995. U.S. Agency for International Development, Washington, DC.

Pampana, E.J. and P.F. Russel. 1955. *Malaria: A World Problem*. Geneva: WHO.

Pan American Health Organization (PAHO). 1998. *Health in the Americas, Volume I*. Washington, DC: PAHO.

Pan American Health Organization and the World Health Organization (PAHO/WHO). 1994. *A World Safe From Natural Disasters*. Washington, DC: PAHO/WHO.

Persson, Torsten and Guido Tabellini. 1994. Is Inequality Harmful for Growth? *American Economic Review* 84(3): 600-21.

Pritchett, Lant and Lawrence H. Summers. 1996. Wealthier Is Healthier. *Journal of Human Resources* 31(4): 841-68.

Radelet, Steven C. and Jeffrey D. Sachs. 1998. Shipping Costs, Manufactured Exports, and Economic Growth. HIID. Available at (http://www.hiid.harvard.edu/pub/other/geodev.html). Mimeo.

Richardson, Harry W., and Peter M. Townroe. 1986. Regional Policies in Developing Countries. In Peter Nijkamp (ed.), *Handbook of Regional and Urban Economics. Volume I*. Amsterdam: North Holland: 647-75.

Sachs, Jeffrey. 1999. Helping the World's Poorest. *The Economist* 352(8132). August 14.

Sánchez, Fabio and Jairo Núñez. 1999. Geography and Economic Development: A Municipal Approach for Colombia. Background paper, Latin American Research Network, Inter-American Development Bank.

Strahler, Alan H. and Arthur N. Strahler. 1992. *Modern Physical Geography*. Fourth Edition. New York: John Wiley and Sons.

Summers, Robert and Alan Heston. 1994. The Penn World Tables (Mark 5.6), http:www.nber.org/pwt56.html

Tanzi, Vito and Hamid Davoodi. 1997. *Corruption, Public Investment and Growth*. IMF Working Paper 97/139. October.

Thompson, E.T. 1941. The Climatic Theory of the Plantation. *Agricultural History* 60 (January).

Tobler, Waldo, Uwe Deichmann, Jon Gottsegen and Kelly Malloy. 1995. *The Global Demography Project*. Technical Report TR-95-6, National Center for Geographic Information and Analysis. April.

United Nations. 1996. World Population Prospects 1950-2050. New York: United Nations. Computer diskettes.

UNDP. 1996. Urban Agglomerations, 1950-2015. UNDP Population Division

Urquiola, Miguel, et al. 1999. Geography and Development in Bolivia: Migration, Urban and Industrial Concentration, Welfare and Convergence: 1950-1992. Background paper, Latin American Research Network, Inter-American Development Bank.

Welcome Trust. 1999. *An Audit of International Activity in Malaria Research*. London: The Welcome Trust.

WEPZA. 1997. WEPZA International Directory of Export Processing Zones and Free Trade Zones. Third Edition. Flagstaff, AZ: The Flagstaff Institute.

Williams, Eric. 1964. *Capitalism and Slavery*. London: Andre Deutch Limited.

World Bank. 1999. *Managing Disaster Risks in Mexico*. Washington, DC: World Bank.

————. 1998. World Development Indicators 1998. CD-ROM. World Bank, Washington, DC.

————. 1997. *World Development Report. The State in a Changing World*. Washington, DC: World Bank.

————. 1994. *World Development Report. Infrastructure*. Washington, DC: World Bank.

World Health Organization (WHO). 1997. World Malaria Situation in 1994. *WHO Weekly Epidemiological Record* 36: 269-74

————. 1967. Malaria Eradication in 1966. *WHO Chronicle* 21(9) September: 373-88

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# Chapter 4 Political Institutions, Accountability and Government Performance

Latin America's troubled history of economic development has often been blamed on its political leaders. Most accounts gravitate between two seemingly contradictory caricatures: elitism and populism. According to the first, Latin America has been ruled by a wealthy elite that has ruthlessly used the power of the state to enrich itself and maintain its privileges. According to the second, Latin America has been ruled by reckless populists who have sacrificed prosperity in pursuit of redistributive fantasies.

This chapter examines the connection between politics and development, but with an emphasis on the impact of political institutions instead of political personalities. In particular, it focuses on the inherent difficulties of the political process in democratic societies, and on how these difficulties often prevent democracies from increasing economic growth and advancing social justice.

This approach leaves out some key aspects of politics. It does not address the role of ideas, ideologies or political leaders, some of whom have the power to lead their countries toward prosperity or ruin. However, it does consider the role of culture and other exogenous factors, including political participation and ethnic and geographic divisions. In other words, the emphasis is not only on political institutions but also on political practices and behaviors, all in the context of democratic societies.

Most Latin American democracies find themselves today at a crucial crossroad. The initial enthusiasm that accompanied the wave of democratization that swept Latin America over a decade ago has begun to erode. It has been replaced in many cases by dissatisfaction and cynicism. Further, there is a growing consensus that far-reaching institutional reforms are needed to enhance economic efficiency and social equity. But unlike many of the previous reforms, which involved mostly technical matters, these reforms cannot be conceived in a political vacuum. Bluntly put, any attempt to advance what have been called "second-generation reforms" is doomed to fail if it does not take politics into account. Given that these reforms stand on the horizon, politics and political institutions are bound to take on preeminent importance in the years to come.

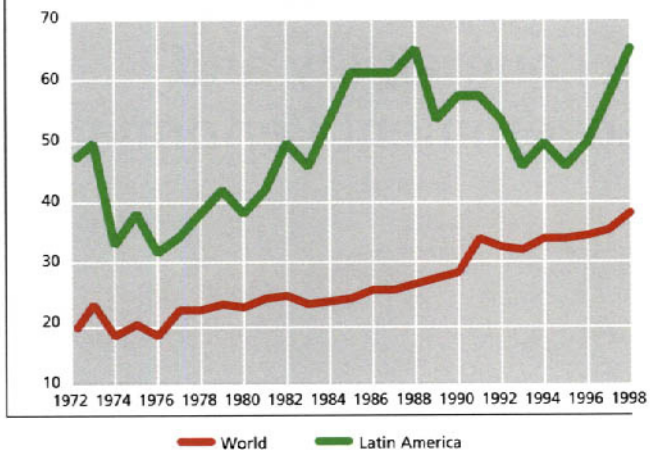
This chapter first describes the evolution of democracy in Latin America and presents some evidence on levels of satisfaction with democracy and democratic institutions in the region. A simple analytical framework is then put forth that seeks to understand why democracies do not always function properly. That framework is used to evaluate the status of political institutions in Latin America and to empirically explore a few connections between politics and development. Finally, the evidence from this analysis is used to explore some of the most pressing policy issues in the political realm.

## The Latin American Democratic Wave

The last quarter of the final century in the millennium brought a new wave of democratization across the world that was unprecedented in its magnitude, geographical breadth and durability.[1] Figure 4.1 shows that the percentage of countries classified as "free" according to Freedom House went from 20 in 1978

[1] Huntington (1991).

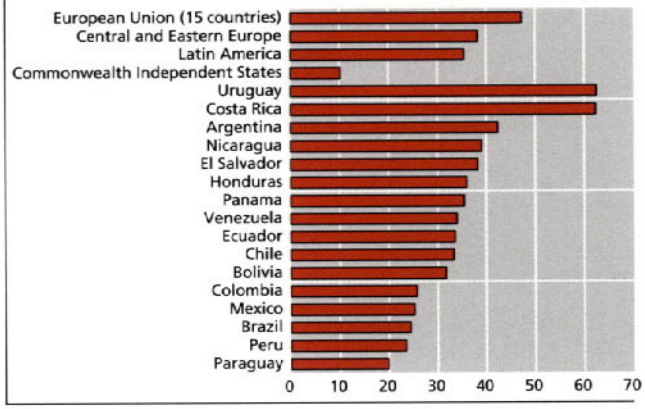
**Figure 4.1** Following the Democratic Wave: Percentages of "Free" Countries




*Source: Freedom House (1999).*

**Figure 4.2** Citizens Very or Partly Satisfied with Democracy

*(In percent)*




*Source: Latinobarómetro, various years, Eurobarometer (1999), Central and Eastern Eurobarometer (1998).*

to 38 percent in 1998.[2] Unlike the previous democratic wave brought about by the Allied occupation of the vanquished Axis powers after World War II, this latest surge of democracy has been widespread, citizen driven, and spontaneous.

Latin America has been on the crest of this wave of democracy. Governments led or supervised by the armed forces relinquished control throughout the late 1970s and 1980s to civilian rule, and today almost all countries in the region have elected and constitutionally-bound governments. There is better protection of civil liberties, and increased decentralization of governmental authority has enhanced the decisionmaking power of citizens regarding salient local issues. Finally, many of what were once only nominally democratic institutions have become more democratic in practice. Political parties in several countries, for example, have opened the process of selecting candidates for the presidency and other political offices.

Yet, democracy in the region is still in the process of being consolidated. It may have given people more freedom to criticize unresponsive politicians and bureaucracies, inefficient spending, and other political maladies. But it has not necessarily solved these problems. Opinion surveys consistently show that citizens are not entirely satisfied with the performance of their governments. Apathy toward politics and a seeming acceptance of political leaders who arbitrarily bend the rules has led some observers to fear that Latin America will move to a kind of "delegative democracy," where citizens elect leaders but then summarily relinquish all policy control to them.[3]

## Level of Satisfaction with Democracy in Latin America

The expansion of democratic freedoms and the routine use of free and competitive elections to choose political leaders have brought considerable advances in terms of protecting basic human rights and making governments more accountable to citizens. Still, the fluctuations in the Freedom House ratings for Latin America presented above show that establishing a stable and comprehensive democratic political system takes time, and is not an inevitable result of opening up public offices to electoral competition. Indeed, if democratic regimes do not maintain the broad support of citizens, they will eventually become vulnerable to individuals or groups that prefer to circumvent democratic procedures and limit citizen rights.

[2] The evolution of democracy around the world has been consistently monitored by Freedom House, a broad-based nonpartisan organization led by eminent politicians, business leaders and scholars (see Box 4.1).

[3] O'Donnell (1994).

Box 4.1

## Freedom House and Other Measures of Democracy

When is a country a democracy? If it has elected leaders? If it has a judicial system? If there are news media and active public discussion of policy? What if the elections are contests between the same small circle of people, or the judicial system is corrupt and biased toward elites, or the media is harassed for taking anti-government positions?

Dividing a large sample of countries into "democracies" and "non-democracies" inevitably involves arbitrary decisions. It is easy to observe the presence of the institutions associated with representative government, but difficult to determine whether these institutions actually facilitate rule by the people.

This box compares and contrasts the range of cross-country indices of democracy used in this chapter. Measures of democracy range from simple descriptions of *de jure* institutions to more subjective evaluations of the extent of democratic freedoms in peoples' everyday lives. At the most basic level, the presence of elections indicates at least nominal democracy. More accurate indicators of democracy, however, consider the competitiveness of these elections and the larger process of selection of leaders, as well as the degree of protection of civil rights.

Some sections of this chapter rely on the extensive Polity III database, which focuses on the characteristics of authority in different countries.[1] Although this database contains annually coded variables for various aspects of leadership selection, political participation, and allocation of power within the government, we usually use the summary indices of institutionalized autocracy and institutionalized democracy. Institutionalized autocracy is a measure of institutionalized exclusion. It is coded on a 10 point scale, with one indicating low autocracy and 10 high autocracy. This indicator measures the presence of restrictions on competitive participation, regular selection of leaders from among the political elite, and the absence of institutional constraints on these leaders when they are in office. Institutionalized democracy, on the other hand, is a measure of the presence of institutions that facilitate participation and inclusion. The 10 point scale considers the presence of institutions that allow citizens to express their preferences, constrain arbitrary use of power by elected leaders, and guarantee the right to participate in political processes.

The Freedom House indices (or Gastil's Index from 1972-89) are the most subjective, and also most inclusive, measures of democracy. Researchers associated with this organization use their knowledge and judgment to rate a country's degree of freedom along two broad dimensions: political rights and civil liberties. Each of these dimensions is measured on a seven point scale, with a score of one meaning the most free and seven meaning the least free. The political rights dimension measures, among other things, whether elections are free and fair; whether people are free to organize competing political parties; whether citizens are free from domination by the military, religious hierarchies, economic oligarchies and other powerful groups; and whether the rights of minorities are respected. The civil liberties dimension measures the extent to which there is freedom of assembly and freedom to organize, a free and independent media, freedom of religion, and equality under the law. One drawback, however, is that Freedom House aggregates different dimensions of civil liberties—ranging from property rights to the freedom of worker association—into a single score for each country. The individual facets have no defined weights in the final score, and implicit weights may vary from country to country.

The work in this chapter, which empirically links electoral systems, politicians' incentives, and political outcomes, uses the most basic definition of democracy: the presence of nominally representative institutions. We consider all countries that have at least a partially elected parliament and are members of the International Parliamentary Union to be representative governments where politicians respond to some group of citizens.[2]

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[1] Gurr (1996).

[2] Inter-Parliamentary Union (various years).

Levels of satisfaction with democracy indicate the underlying legitimacy of these new democratic institutions. We use survey data to try to get an idea of whether people perceive democratic institutions as capable of representing and reconciling diverse interests and implementing relevant policies. What we see, and what is affirmed by other studies, is general support for the concept of democracy, but markedly less support for democracy as it is currently practiced.

We use the Latinobarómetro survey of public opinions and attitudes in Latin America to gauge the extent of public satisfaction with the performance of democratic institutions and public support for

Box 4.2

## Which Citizens Are Dissatisfied with Democracy in Latin America?

As might be expected, a larger share of Latin American citizens are dissatisfied with democracy than one finds in the high-income democracies. A key to assessing the prospects for firmly establishing and deepening democracy in Latin America is to identify the types of people who are more likely to be dissatisfied with democracy.

As pointed out in the text, the survey question dealing with the level of satisfaction with democracy is somewhat vague. "Dissatisfaction with democracy" can indicate unhappiness with the particular government in power, with the state of the economy, with the degree of income inequality, with other aspects of democratic government performance (such as the ability to control crime or corruption), or with the quality of democratic institutions and procedures. Or it can indicate a more general dislike of democracy as a system of government. For any given person, a response of dissatisfaction could reflect a combination of any number of these sentiments.

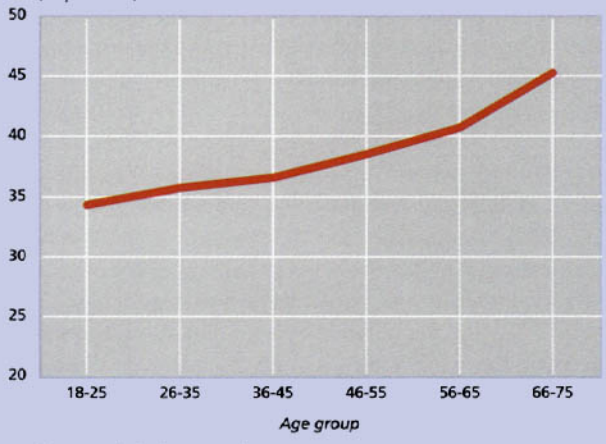
Consequently, identifying dissatisfied citizens must be approached from two different perspectives. First, taking the response to the question at face value, it is necessary to examine whether people's socioeconomic or demographic attributes are related to their likelihood of expressing dissatisfaction with democracy. Second, it must be determined which of the sentiments mentioned in the previous paragraph are more strongly associated with those feelings of dissatisfaction.

The level of dissatisfaction with democracy does not vary substantially according to the age, sex, wealth or educational attainment of the respondent. Women and men appear to have the same disposition toward the state of democracy. There is a tendency for older individuals to be more satisfied with democracy, but the effect is small: every 20 year interval increases the probability of an individual being satisfied by just 1 percent (Figure 1). And while the number of years of education appears to make no difference, higher economic status produces a slightly greater chance that an individual is content with democracy. On the whole, however, dissatisfaction with democracy would appear to be a product of social and political attitudes not closely connected with socioeconomic or demographic attributes.

With respect to the second perspective, it is clear that dissatisfaction with democracy can involve any one of the sentiments mentioned above. The data show that people who express confidence in democratic institutions and believe that electoral procedures are fair are considerably more likely to be satisfied with democracy. Positive perceptions of current government performance regarding socioeconomic problems are also associated with higher levels of satisfaction with democracy. Among all the attitudes considered, those regarding the degree of income inequality stand out for their association with a person being content with democracy. Those who perceive current income distribution as unjust are, overall, about 20 percent less likely to express satisfaction with democracy. And, as expected, people who express only lukewarm support for democracy as a system of government are less likely to be satisfied with the way democracy is working.

**Figure 1. Percent Satisfied With Democracy, by Age Group**

*(In percent)*



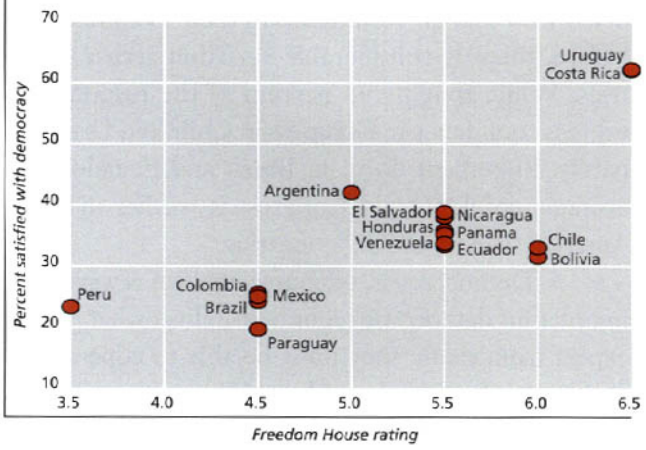

*Source: Latinobarómetro, various years.*

democratic principles.[4] To the extent that it is possible, we use other surveys to compare Latin America with other regions of the world.

Those surveyed by Latinobarómetro were regularly asked the following question: "On the whole, are you (1) very satisfied, (2) fairly satisfied, (3) not very satisfied, or (4) not at all satisfied with the way democracy works in your country?" Figure 4.2 shows the per-

[4] The main features of Latinobarómetro are described in the Technical Appendix. The survey includes 17 countries in South and Central America and has been conducted regularly since 1995. Throughout the chapter, we use the average of the three most recent rounds of the survey carried out in 1996, 1997 and 1998. Similar public opinion surveys are regularly administered in the European Community (Eurobarometer) and in Central and Eastern Europe (Central and Eastern Eurobarometer). Since the degree of overlap in the questionnaires corresponding to the different surveys is considerable, interregional comparisons are possible for several of the topics of interest in this chapter.

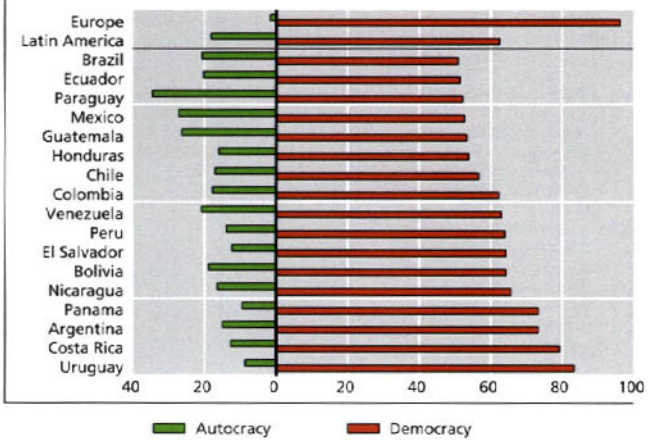
**Figure 4.3** Democratic Rating and Satisfaction with Democracy




Source: Latinobarómetro, various years, and Freedom House (1999).

**Figure 4.4** Support for Democracy as a System of Government

*(In percent)*




Source: Latinobarómetro, various years.

centage of respondents in Latin American countries and three European regions who report being either "very satisfied" or "fairly satisfied" with the way democracy works. Satisfaction with democracy varies widely across countries. While over 60 percent of the respondents in Uruguay and Costa Rica are satisfied with the way democracy is working, less than 20 percent of the respondents in Paraguay have a similar opinion. Large cross-country variation is also pervasive in other regions. In the European Community, for example, the range of variation is even broader, from 84 percent in Denmark to 28 percent in Italy.

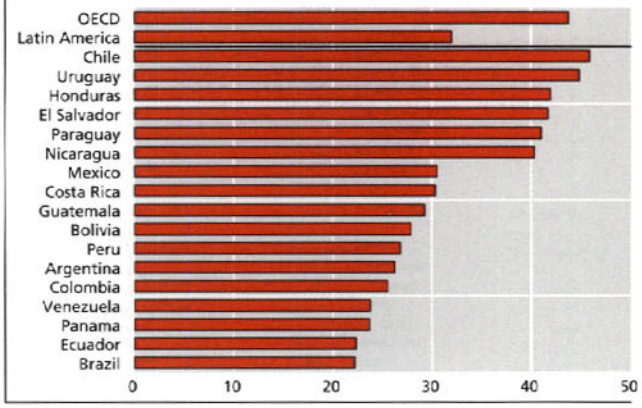
There are also differences between regions, but they are less pronounced. While 47 percent of the respondents reported being satisfied with democracy in the European Community, only 35 percent did so in Latin America. Further, only in Uruguay and Costa Rica is satisfaction with democracy above the average level in the European Community. Latin American citizens, however, are almost as satisfied with democracy as are citizens in Central and Eastern Europe, and much more satisfied than citizens in the former Soviet republics.

As a measure of broad support for democracy these figures must be viewed with caution. "Low satisfaction" with democracy does not necessarily imply weak support for democratic principles (see Box 4.2). Indeed, low satisfaction could mean that citizens believe that democratic rights are still substantially restricted or democratic institutions are underdeveloped, or it could mean that citizens are not happy with the performance of democratic government even though they support the regime itself. The evidence shown in Figure 4.3 is roughly consistent with the former interpretation. Latin American countries with the highest ratings of political rights and civil liberties also have the highest levels of public satisfaction with democracy, while countries with the lowest ratings have the lowest satisfaction levels.

Survey respondents were also directly queried about their support for democratic ideals. Specifically, they were asked the following question: "With which of the following statements do you agree the most: (1) democracy is preferable to whatever other form of government; (2) in some circumstances an authoritarian government can be preferable to a democratic government; (3) for someone like me, a democratic or a nondemocratic regime makes no difference." Figure 4.4 shows that, as before, there is considerable variation across countries. People are most supportive of democratic ideals in Uruguay, Costa Rica and Argentina and less supportive in Paraguay, Brazil and Mexico. The range in the proportion of respondents preferring democracy to any alternative is substantial—from a maximum of 83 percent in Uruguay to a minimum of about 51 percent in Brazil. On the other hand, the percentage of those who believe that authoritarianism is sometimes preferable does not vary much across countries, and in most cases is below 20 percent.

When compared with similar surveys taken in Europe, Figure 4.4 also shows that there is a large

**Figure 4.5** Confidence in the Congress
*(In percent)*




*Source: Latinobarómetro, various years, and World Values Survey (ICPSR, 1991).*

gap in the level of support for democracy between European and Latin American countries.[5] Despite these differences, there is a broad consensus in Latin America about the core democratic ideal—that to be legitimate, government authority must derive from regular, free, fair, broadly participatory and competitive elections. At the same time, in some countries the level of apathy toward democracy is worrisome and, if it persists, could erode democratic norms and provide an opening for anti-democratic forces.

Survey respondents also expressed growing dissatisfaction with the overall performance of their countries. On average, only 27 percent think that their country is progressing—a figure that drops to as little as 7 percent in some countries. Further, only 19 percent think that their economic situation has improved over the previous year and only 17 percent say that they live better than their parents did. Finally, between 85 and 93 percent believe that the problems of poverty, crime, corruption, drug addiction and drug trafficking are getting worse rather than staying the same or improving.

### *Confidence in Institutions*

The level of support for democracy can also be evaluated by examining the degree of public confidence in political institutions, which is another indicator of their legitimacy. Higher confidence in institutions implies that people think that they are effective problem-solvers; that is, that they can effectively aggregate different preferences and implement relevant policies.

Figure 4.5 shows the percentage of respondents who express confidence in their Congress.[6] As before, there is considerable variation across countries. While roughly 45 percent of the respondents express confidence in Congress in Chile and Uruguay, barely 20 percent do so in Brazil and Ecuador. On average, confidence in Congress is weaker in Latin America than in OECD countries.[7]

Democracy is, of course, its own reward. But in order for democratic regimes to deliver what people expect from them, they must be able to cope with a multitude of political problems. The mediocre levels of satisfaction with democracy and confidence in political institutions observed in many Latin American countries suggest that many of these problems remain unsolved. While people might like the idea—the potential—of democracy, they do no think that it is working so well in practice.

## Political Failures and Development Outcomes

What are the underlying factors behind people's dissatisfaction with democracy in Latin America? We examine this question first from an analytical perspective by looking at possible sources of democratic failure and how they affect socioeconomic development. Then we evaluate Latin American democracies along the different sources of failure previously identified.

Democracies, if they are to be successful, must perform adequately in several different respects. They have to represent everybody, guarantee that representatives put the people's interests ahead of their own, and ensure that consensus can be forged from the clash of many disparate interests. We distinguish three sources of political failure in democracies: bias in representation, agency and aggregation.

[5] The data for Europe are derived from the Eurobarometer survey of 1989. There is little reason to think, however, that the results would be substantially different today.

[6] The data for OECD is from the 1990-91 World Values Survey (ICPSR, 1991).

[7] For analyses of cross-national and longitudinal patterns of support for democracy across the world, see Klingemann and Fuchs (1995) and Norris (1999).

Problems of bias in representation occur if a political minority is regularly able to sway political outcomes in its favor. There are two main elements here. On the one hand, political minorities *demand* special prerogatives either by forming pressure groups or by utilizing their special command of resources (money, knowledge or status) on a more individualized basis. On the other, politicians *supply* special prerogatives in the form of targeted services and favorable bills. An important consideration is the extent to which electoral systems give politicians more or less incentives to respond to demands for special treatment. While some systems encourage politicians to be overly responsive to specific interests, others encourage them to heed broad national interests.

Problems of agency occur if politicians pursue their own goals instead of those delegated to them by their constituencies. Delegation is difficult because citizens have limited means to ensure that politicians abide by their promises. Enforceable agreements, for example, are impossible in the political realm, and elections, which can be used by citizens to oust those who have not fulfilled their promises, occur only every few years. Obviously, some institutional arrangements are better than others for coping with agency problems. An informed and involved electorate, developed political parties, and the presence of checks and balances will reduce the extent to which politicians can ignore their constituents.

Problems of aggregation occur if political representatives, once elected, are unable to reconcile the diverse interests they claim to represent. Here we emphasize the institutional elements that make some political systems particularly liable to gridlock. Some systems, for example, give voice to so many disparate interests that even policies that will benefit most people cannot rise above the ensuing cacophony. Other systems produce stalemate by empowering many actors with the ability to veto each other's initiatives.

Each of these potential sources of democratic failure can cause political outcomes to deviate from the preferences of the majority, and each may lead to poor development outcomes in the ways explained below.

The connections between politics and development are, of course, many and complex. Politics determines the level of government services and who benefits from them, which in turn may affect individual and regional inequalities. Politics also determines what types of formal institutions are adopted and how they perform, which in turn may affect the efficiency not only of government but of the private sector as well. Finally, politics determines the extent to which democracies succeed in translating citizen preferences into effective and fair policies.

The role of politics in the creation, maintenance and performance of formal institutions must be underscored. Politics has its greatest impact on development through its effect on institutions. The logic is clear: if politics matters for institutions, and institutions matters for development, politics must matter for development.

The following sections look more closely at the links between politics and development by focusing separately on each of the different problems identified above as potential sources of political failure.

### *Bias in Representation*

Democratic constitutions usually proclaim that all citizens are equal in political terms. In practice, however, some groups—either because they are better organized, more politically engaged, or more knowledgeable, wealthy or socially prominent—are able to gain greater attention from elected politicians than others. The extent of such bias in representation varies across democratic systems depending on such factors as the levels of political involvement by different groups of citizens, and the characteristics of electoral and other political institutions.

Bias in representation toward wealthier or better-educated citizens can clearly promote inequalities in the distribution of income and opportunities for social advancement. Thus, university education might be unduly subsidized at the expense of primary or secondary education; public works might be directed toward better-off regions or neighborhoods at the expense of disadvantaged ones; and taxes may be too low to pay for the social investments needed by the majority. Such policies will not only exacerbate inequalities, but can also produce economic inefficiencies, thus affecting economic growth and impeding social development.

Bias in representation toward narrow organized interests can lead to other sources of economic

inefficiencies. Organized interests are an important element of the political game in democracies. Some organizations represent a fairly broad cross-section of citizens, such as farmer associations, labor unions, industrial associations or consumer groups. Others represent narrower interests, such as coffee growers, textile laborers or government employees. If representation is heavily biased toward narrow interests, economic policies (including taxation, public investment, pricing, trade and exchange rate policies) will likely be inefficient, and overall economic growth will suffer as a result. Indeed, the disproportionate influence of relatively narrow interests on public policy has often been seen as a powerful element underlying the economic decline of once prosperous nations and the poor performance of developing countries, including those in Latin America.[8]

### *Agency Problems*

Political representation involves a complex transaction: people exchange votes for a catalogue of promises. The "contracts" that regulate this transaction have two types of problems. First, they are impossible to enforce if only because no courts have jurisdiction over them. Second, they are incomplete in the sense that they specify only general guidelines, leaving much open to interpretation and making it difficult to determine and verify when a breach of contract has occurred. Although political institutions can ameliorate these problems, they can never completely solve them, meaning that politicians will always enjoy some leeway to pursue their own agendas and to extract rents.

If the public lacks the means to punish unresponsive and corrupt politicians, as will happen when agency problems are pervasive, government performance will suffer. Corruption will flourish as politicians pilfer public funds and freely engage in the business of auctioning regulations and laws. This in turn will hamper the ability of the government to provide public services, and will increase the costs of doing business and the level of uncertainty for investors. Worse yet, corruption and government inefficiency may cause many disenchanted people to withdraw from politics, giving politicians more leeway, and thus compounding the original problems. In sum, a vicious circle of agency problems and government corruption is a distinct and disturbing possibility in democratic regimes.

Moreover, the existence of agency problems impedes one of the main channels through which democracy can spur development. One of the main advantages of democracies, at least from an efficiency point of view, is that they empower people to take part in formulating solutions to their own problems. One of the main difficulties of democracy, on the other hand, is that people do not participate directly in most public matters but through their elected representatives. So if the views of citizens are lost in that process—or, more precisely, if their views are replaced with the narrow views of their representatives—a wealth of valuable local knowledge will be lost and democracy will lose much of its appeal.

Agency problems can undermine the whole idea of democracy. Simply stated, if political delegation does not work, democracy does not work. Therefore, solving agency problems not only will diminish corruption, increase government efficiency and facilitate growth, but also will restore the democratic ideal of government of the people, by the people, and for the people.

### *Aggregation Problems*

Politics in democratic societies requires considerable give and take. There are often so many interests to reconcile and so many factions to please that the process is not always expeditious. Compromises are not always worked out, bargains not made, and conflicts not settled, which means that changing the status quo, even if favorable to the majority, can become an exercise in futility.

This difficult and laborious process of reconciling divergent interests and opinions frequently becomes a source of public disenchantment with politics. At the same time, the very essence of democracy is that the people, in all their diversity, be represented. Thus, for the democratic game of compromise to produce expeditious and fair responses to collective problems, a balance must be struck between the broad and

[8] See Olson (1982) and Bates (1981).

equitable representation of citizens and the efficiency through which the diverse opinions are aggregated into concrete policy decisions.

Oftentimes, the inability of politicians to reconcile their distinct interests renders the political process ineffective. The consequences can be deleterious. Responses to shocks lag, long-term economic reforms are infinitely postponed, and authoritarian attempts to bypass the Congress gain legitimacy.

This is not to say that the absence of political constraints on too-eager government officials and representatives is always desirable. There is a clear tradeoff here. On the one hand, political systems should allow for periodic overhaul of the status quo and should give public officials some discretion to respond to unexpected shocks. On the other, political systems should be immune to faddish and myopic attempts to change policy and should allow for the consideration a broad spectrum of societal perspectives. In short, flexibility is desirable, but not to the point that it compromises credibility, due reflection, and broad representation.

## Evaluating Political Failure in Latin America

While the previous section looked at broad types of political problems that to some degree affect all democratic regimes, this section evaluates the status of democracy in Latin America by using several indicators that measure each of the problems identified above. Because all the relevant aspects of each case cannot be measured, it is not possible to draw definitive conclusions about the magnitude of these problems. The analysis does, however, shed considerable light on what is right and wrong with Latin American democracies.

### *Bias in Representation*

Bias in representation is measured here in two different dimensions: first, in the various ways that citizens try to stand out in the political arena; and second, through the incentives that drive politicians to be more responsive toward more salient and organized groups of citizens. Stretching the often over-stretched market metaphor, we will call the first dimension the demand for special treatment, and the second dimension the supply of special treatment.

Representation requires participation. Obviously, the preferences of somebody who decides not to exercise the right to vote will find no direct representation in social decisions. But voting is only one of the many dimensions of participation. Intensity of participation is also important, because more informed and vocal citizens are more likely to have their preferences taken into consideration in social decisions.

If more educated people participate in politics more assiduously than others, social decisions will be biased toward them and away from the wishes of the majority. The reasons why participation may differ across different social actors are too numerous and complex to examine here. We should mention, however, the disturbing possibility that low political participation may be self-reinforcing—that is, some groups do not participate in politics because they have been regularly left out, and they have been left out because they do not participate. Needless to say, breaking these mutually reinforcing trends can prove extremely difficult.

In theory, the whole story about political outcomes in a democracy could be told in terms of who participates and how intensely. The transformation of citizen inputs to outputs would be obvious, and one could predict the outputs based on knowledge of the inputs. In reality, this is rarely the case because of the complex steps that stand between citizens expressing their interests and preferences and policy outputs.[9] We thus look at inputs as a possible source of policy distortions, but do not expect equitable inputs to be a sufficient condition for equitable policy outputs.

How does political participation differ across social groups in Latin America? The inequality of political participation can be examined in three distinct dimensions: education, wealth and age. Five forms of participation are considered: voting, paying attention to political news, talking about politics with

[9] The link between participation and policy is comparable to an input-output model in which citizens input preferences, politicians output policies, and there is a black box of institutions in the middle. Citizens express their preferences by voting, electoral institutions translate these votes into representation with varying degrees of accuracy, and the constitutional structure and divisions of powers determine how the range of represented preferences are aggregated to produce policy outcomes.

**Table 4.1** **Political Participation by Education**

| Political activity | Participation by years of schooling (%) | | | | | Ratio |
|---|---|---|---|---|---|---|
| | Primary or less | Some secondary | Secondary | Some college | College or more | Primary/ College |
| Vote | 66.1 | 68.6 | 68.0 | 67.4 | 70.0 | 1.060 |
| Pay attention to news | 43.4 | 47.4 | 52.1 | 59.6 | 69.6 | 1.605 |
| Talk about politics | 24.0 | 27.2 | 31.1 | 37.6 | 46.4 | 1.931 |
| Try to influence others | 14.2 | 14.3 | 16.4 | 18.1 | 20.8 | 1.463 |
| Work for a candidate | 9.7 | 9.0 | 10.7 | 13.6 | 15.1 | 1.546 |

*Source: Latinobarómetro, various years.*

**Table 4.2** **Political Participation by Income**

| Political activity | Participation by income quintile (%) | | | | | Ratio |
|---|---|---|---|---|---|---|
| | First | Second | Third | Fourth | Fifth | 5th/1st |
| Vote | 64.1 | 67.2 | 69.5 | 68.7 | 66.9 | 1.043 |
| Pay attention to news | 40.1 | 44.8 | 51.1 | 54.1 | 58.0 | 1.449 |
| Talk about politics | 21.6 | 25.5 | 29.3 | 32.2 | 36.8 | 1.703 |
| Try to influence others | 12.8 | 13.7 | 15.8 | 16.3 | 18.4 | 1.435 |
| Work for a candidate | 10.2 | 8.9 | 8.9 | 11.0 | 13.2 | 1.296 |

*Source: Latinobarómetro, various years.*

friends, trying to convince others in political matters, and working for a political candidate.[10]

Table 4.1 shows average patterns of political participation across five education groups: primary or less, some secondary, secondary, some college (including technical training), and college. Differences in participation are small for voting but large for the other forms of participation. College educated individuals are twice as likely as those with only primary education to talk about politics with friends, but only slightly more likely to vote. In sum, substantial inequality of political participation across education groups is only apparent as one moves from voting to more involved forms of political engagement.

The patterns of political participation by income quintile are shown in Table 4.2. As expected, the results closely mirror the previous table; there is no discernible trend for voting and there is a steady increase in participation across quintiles for the other types of political participation. The demographics of political participation are shown in Table 4.3. Surprisingly, participation changes very little across age cohorts, though it is slightly smaller for the youngest and oldest cohorts. This pattern is very similar for all the types of participation considered here, except that it holds less clearly in the case of paying attention to political news.

Are the patterns of political participation in Latin America any different from those of other regions of the world? A tentative answer to this question is no. The available evidence shows, for example, that the patterns of political participation across education and income categories are, if anything, flatter in Latin America than in the United States.[11] Similarly, political participation in the United States varies much more with age than it does in either Latin America as a whole or in any Latin American country individually.

[10] A detailed analysis of the patterns of political participation in Latin America is presented in Gaviria, Panizza and Seddon (1999).

[11] See Wolfinger and Rosenstone (1980) for a comprehensive analysis of patterns of political participation in the United States.

The World Values Survey also offers some evidence indicating that political participation in Latin America is not particularly unequal by international standards.[12] The data show that for the European countries as a whole, individuals in the top quintile of the income distribution are 1.87 times more likely to talk about politics with friends than those in the bottom quintile. The corresponding figure for Latin America is 1.88. Similar numbers are obtained for the category of working for a political candidate—2.24 for Europe and 2.18 for Latin America.

**Table 4.3** **Political Participation by Age**
*(In percent)*

| | Age | | | |
|---|---|---|---|---|
| **Political activity** | **18-29** | **30-44** | **44-60** | **>60** |
| Vote | 66.8 | 67.0 | 68.3 | 67.8 |
| Pay attention to news | 47.0 | 51.1 | 51.4 | 52.2 |
| Talk about politics | 27.5 | 31.2 | 31.2 | 27.1 |
| Try to influence others | 15.5 | 16.2 | 16.2 | 13.1 |
| Work for a candidate | 9.5 | 11.4 | 12.0 | 9.2 |

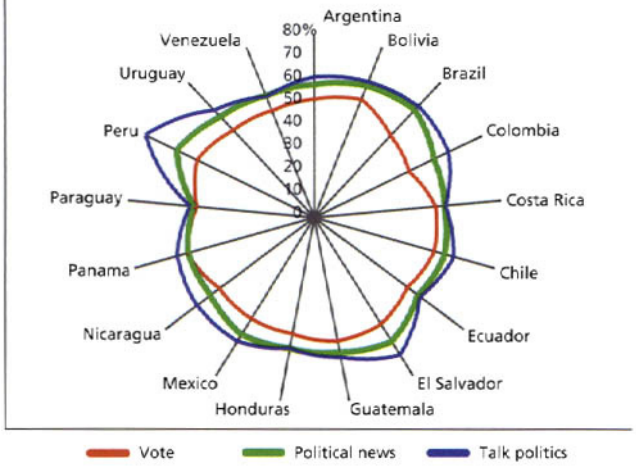
*Source: Latinobarómetro, various years.*

To what extent can policy outcomes in Latin America be explained by participation differentials? Although answering this question is difficult, we can establish the extent to which the observed higher rates of participation among more wealthy individuals can potentially bias social decisions in their favor. A natural way to address this question is by computing the location of the median participant in politics—that is, the percentile of the person with the median income among those who participate in the political activity under consideration. Obviously, if political participation is evenly distributed, the median participant will be located in the 50th percentile, meaning that the income of the median participant would match that of the median citizen. Higher values indicate that the median participant is richer than the median citizen and lower values the reverse.

The locations of the median participant for three distinct forms of participation and 17 countries are depicted in Figure 4.6. If voting is all that matters, the distortions caused by inequality of participation will be minimal. However, if other types of political engagement matter as well (as would be the case if better informed and more vocal individuals are more successful in attracting the attention of politicians), inequality of participation could introduce significant distortions in some countries (including, in particular, Peru, El Salvador and Panama). However, definitive conclusions are impossible without information about the relative efficacy of the different forms of political participation.

No discussion of political representation is complete without mention of its organizational aspects, since participation is often a collective endeavor. Individuals with common interests usually find it to their advantage to join forces in their quest for representation. Collective participation is difficult to sustain, however, because individuals have strong incentives to free ride on the effort of others. When and how political organizations can overcome these incentives is still an open question, but the microeconomics of group formation unambiguously indicate that small groups will, all things being equal, be more successful than large ones. This advantage

**Figure 4.6** **Location of the Median Participant in Political Activities**




*Source: Latinobarómetro, various years.*

[12] This survey includes 17 European countries and four Latin American countries (Argentina, Brazil, Chile and Mexico).

Box 4.3

## Index of Incentives to Cultivate Personal Relations with Voters

This index has three components: ballot, pool and vote. Each component measures a specific aspect shaping politicians' incentives to build personal reputations, and is measured on a scale from zero to two. Higher values indicate higher incentives to cultivate personal reputations, and lower values indicate higher incentives to stand by one's party.[1]

The ballot component measures the ease with which a candidate can get his or her name on the ballot in a position that makes winning a seat likely. Closed-list systems, where parties determine the candidates as well as their order in the ballot, are scored as zero. Systems where party nominations are required for a viable candidacy, but voters can determine the order of candidates on the party's list, are scored as one. Finally, systems where party nomination is not required for a successful campaign are scored as two.

The pool component measures the extent to which a candidate can benefit from the votes of other candidates from his or her own party. The assumption here is that candidates who do not expect to receive spillover votes from other candidates from the same party will try harder to build personal reputations. Proportional representation systems where votes are pooled across candidates are scored as a zero, systems where parties present multiple lists are scored as one, and systems where votes accrue only to individual candidates are scored as two.

The vote component measures whether voters cast votes primarily for candidates or parties. Systems where voters can only choose among parties are scored as zero. Systems where voters can express preferences for multiple candidates—either within party lists, across parties or through a two-stage election (i.e., primaries or runoffs)—are scored as one. Finally, systems where voters cast only one vote, either for a candidate or a party faction, are scored as two.

The scores of the three components are averaged to create a summary index of the various dimensions affecting politicians' incentives to build personal reputations. The index value for unicameral systems, where all legislators are elected by the same set of rules, is a simple average of the three components. In mixed systems, where different legislators are elected by different rules, the average indices for each subset are averaged to obtain the country index. The two houses in bicameral systems are each given a weight of .5.

[1] The intricacies of the computation of the index are presented in Gaviria et al. (1999). The main source of background data is the Parline online database maintained by the International Parliamentary Union. This database is updated regularly on the basis of official information provided by national parliaments. It covers 245 legislative chambers in 180 countries. The entry for each country includes a description of constituencies, voting procedures, candidacy requirements, and the legislature. We use the *Handbook of Electoral System Design* by the International Institute for Democracy and Electoral Assistance to fill in some cases in which the entries are incomplete or missing.

implies that policies for which the benefits are concentrated and the costs diffused will prevail.[13]

The logic of collective action is implacable: the interests of well-organized minorities will often be foisted on the majority because majorities literally cannot get their act together. This logic is inherent in the political process, however, and thus cannot be invoked to explain why political representation works well in some countries and poorly in others.

However, the incentives that politicians have to respond to narrow interests vary from one country to the next. Electoral and other political institutions can aggravate or mitigate problems of bias in representation by giving politicians more or less incentives to cater to narrow regional, sectoral or class interests. Lax campaign financing regulations, for example, may allow economically powerful interests to buy political influence. Electoral institutions that make politicians overly responsive to narrow geographical interests can also aggravate bias, especially when geographical interests overlap with economic and social ones (e.g., industrial sectors tend to cluster around narrow geographical areas).

The extent to which electoral institutions give politicians incentives to respond to narrow geographical interests may vary substantially from country to country. Many institutions encourage politicians to pay special attention to regionally specific interests at the expense of more national ones. Such is the case with federalist systems and, in general, with all systems where regional forces are prominent in national politics. Incentives to respond to geographical interests can also vary according to the degree to which electoral institutions encourage politicians to cultivate personal reputations.

[13] Olson (1965) is the seminal work on the "industrial organization" of political influence (i.e., what makes an organization successful in coping with problems of collective action).

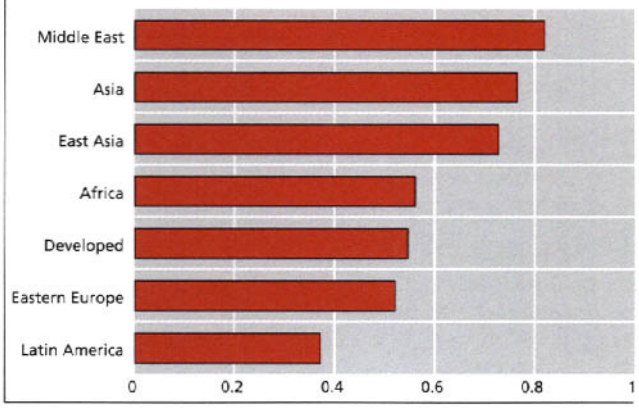
Some electoral systems give politicians incentives to cultivate personal followings, while others give strong incentives to adhere to their parties' directives. In the first case, the careers of politicians will hinge on whether they are able to establish strong links with their constituents. In the second, their careers will depend on whether they remain on good terms with the party leadership. In principle, politicians who concern themselves more with their personal relationship with voters will be more likely to fall prey to geographically concentrated interests. Conversely, politicians who care mostly about their parties will be more likely to respond to broader national interests, assuming that parties have a strong national following and party leadership is relatively centralized.

However, electoral systems that dispose politicians to care mostly about parties may also undermine effective representation. Politicians in these systems, worried about staying on good terms with the party bosses, will have weak incentives to find out what voters want. As a result, the ties between politicians and voters will loosen, which may in turn allow narrow class or sectoral (but not necessarily geographic) interests to gain undue representation. In sum, while heavily party-centered political systems can reduce biases of representation toward geographically concentrated interests, they can actually exacerbate biases in representation toward other narrow nongeographical interests.

Box 4.3 presents an index to measure the differences across countries in the extent to which electoral institutions give politicians more or less incentives to cultivate personal relationships with voters.[14] A high score in the index indicates a high proclivity among politicians to cultivate a personal following with voters, and, in our interpretation, a high proclivity to respond to narrow geographic interests. A low score indicates a high proclivity among politicians to follow the directives of their party leaders, and, in our interpretation, a higher proclivity to respond to national interests.

Figure 4.7 compares Latin America to other regions of the world in terms of the index. The evidence suggests that politicians in Latin America have more incentives to be on good terms with party leaders than do politicians anywhere else in the world. So Latin American parties are strong in this particular sense—they hold the keys to political power. In our interpretation, this implies that electoral systems in Latin America provide relatively weaker incentives to respond to geographically based demands for special treatment.

**Figure 4.7 Index of Incentives to Cultivate Personal Relations with Voters, by Region**




*Source: Parline Online and IDB calculations.*

There are substantial differences within the region regarding the extent to which electoral systems entice politicians to establish personal links with voters. Table 4.4 shows the scores of the index and its components for most countries in Latin America.[15] Closed lists are the most common ballot structure in the region, which explains why most countries have a ballot score of 0. Chile's open lists and Colombia's multiple party lists are the main exceptions. Most countries have proportional systems in which votes are pooled across the entire party. The main exception is Colombia, which has a peculiar system in that parties present multiple lists and votes are pooled only across candidates within a single party list. Similarly, most countries have systems in which citizens cast single votes for parties. The main exceptions are Mexico, where a large portion of the legislators are elected in single member districts, and Brazil, where voters can choose individual candidates within party lists.

Do Latin American democracies suffer from unusual problems of bias in representation? The evidence presented above is not conclusive. On the one

[14] The index is based on the theoretical work of Carey and Shugart (1995) and Shugart (1999).

[15] The English-speaking Caribbean countries were not included, as one house of the bicameral legislatures is usually appointed and the lines of accountability for these legislators are not clear.

Table 4.4 **Index of Incentives to Cultivate Personal Relations with Voters**

| Country | Components of the index: Pool | Ballot | Vote | Index |
|---|---|---|---|---|
| Argentina | 0 | 0 | 0 | 0.00 |
| Bolivia | 0 | 0.3 | 0.5 | 0.27 |
| Brazil | 1 | 2 | 1.5 | 1.50 |
| Chile | 0 | 1 | 0 | 0.33 |
| Colombia | 1 | 1 | 0 | 0.67 |
| Costa Rica | 0 | 0 | 0 | 0.00 |
| Dominican Republic | 1 | 0.5 | 0.5 | 0.67 |
| Ecuador | 0 | 0 | 0 | 0.00 |
| El Salvador | 0 | 0 | 0 | 0.00 |
| Guatemala | 1.6 | 0 | 1.6 | 1.07 |
| Haiti | 1 | 1 | 1 | 1.00 |
| Honduras | 0 | 0 | 0 | 0.00 |
| Mexico | 0 | 0 | 1.1 | 0.37 |
| Nicaragua | 0 | 0 | 0 | 0.00 |
| Panama | 0 | 0 | 0 | 0.00 |
| Paraguay | 0 | 0 | 0 | 0.00 |
| Peru | 0 | 0 | 0 | 0.00 |
| Uruguay | 0 | 1 | 0 | 0.33 |
| Venezuela[1] | 0 | 0 | 0 | 0.00 |

[1] *Venezuela has up to three (out of 57) senators elected at the national level to compensate for disproportional seat/vote shares. In the lower house, up to five house seats (out of 206) per party are distributed according to national vote totals and assigned to underrepresented constituencies.*
*Source: Parline Online.*

hand, inequality of political participation is, if anything, less serious a problem in Latin America than it is in advanced industrial democracies. Further, electoral systems in Latin America do not appear to provide large incentives for politicians to respond to geographically concentrated interests. On the other hand, political systems in some Latin American countries are heavily centered around parties, which may allow narrow interests (especially those that can successfully court party leaders) to gain undue representation. Further, campaign financial regulations (and electoral regulations in general) are not only lax in many Latin America countries, but are also rarely enforced, which may also allow organized interests to buy political influence.

### *Agency Problems*

The extent of agency problems depends on many factors. Four are considered here: levels of political participation, the freedom of the press, the strength of political parties, and the presence of institutional checks and balances.

Elections are the main mechanism through which citizens can enforce political contracts in democratic societies. It goes almost without saying that elections are more effective when people participate in politics and are better informed about all that politicians have said and done. In general, greater political participation means that politicians face more scrutiny and enjoy less leeway to pursue their own agendas.

#### *Political Participation*

How do the levels of political participation in Latin America compare with those in other regions of the world? While the previous section looked at *inequality* in participation—which can bias social choices toward the more politically active citizens—this section examines differences in *levels* of participation, which can influence the ability of citizens to monitor politicians.

Figure 4.8 shows that voter turnout in Latin America is midway between the high levels of European countries and the low voter turnouts of African countries. (Differences in voter turnout are discussed

Box 4.4

## Cross-country Differences in Voter Turnout[1]

Few would deny that higher levels of political participation should result in a better functioning democracy. Greater participation can ameliorate not only agency problems, but representation problems as well. Little is known, however, about how to turn apathy into passion in the political realm.

Cross-country comparisons can provide some clues as to which socioeconomic and political factors are associated with higher levels of political participation. Voter turnout, for example, is consistently related to per capita income. Turnout is, on average, lower in poor and rich countries, and higher in middle-income countries (Figure 1). Turnout is also higher in countries where voting is compulsory. In a sample of 73 democracies, compulsory voting laws appear to increase turnout by 10 percentage points over the average voter turnout. But compulsory voting laws are variably and incompletely enforced, and their effectiveness may depend on institutional details not observed here.

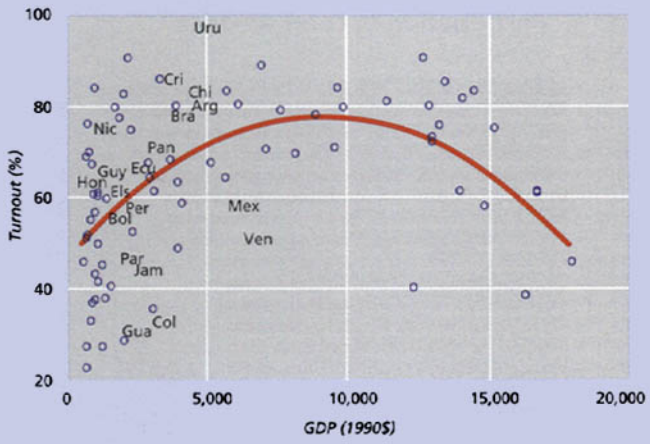
Political participation is also higher in new democracies, but eventually declines as the initial enthusiasm gives way to indifference or cynicism. Moreover, participation differs substantially from one election to the next. Presidential elections usually draw more voters than local elections. Closer electoral contests also draw more voters, as do elections that are dominated by a single issue.

Voter turnout at the country level is not noticeably connected with institutional factors (extensive civil rights, political stability, party development, political fractionalization, and presidentialism), demographic variables (age distribution of the population), or education levels (literacy rates and percentage of adults with high school diploma).

On the whole, differences in turnout between world regions and among countries within regions remain largely unexplained. Ultimately, turnout is likely to be related to cultural and historical factors, perhaps in complex ways. In this sense, turnout is not very different from interpersonal trust or any other form of social capital that a society may (or may not) inherently possess, and that is not easily amenable to political manipulation.

[1] Based on Gaviria, Panizza and Seddon (1999).

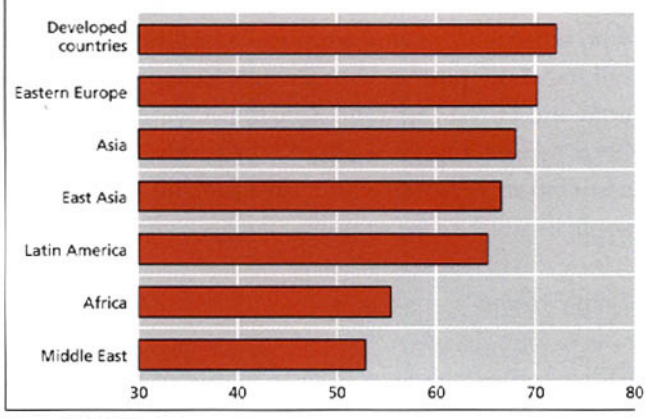
### Figure 1. Voter Turnout and GDP Per Capita




further in Box 4.4.) One could make the case, however, that turnout rates in Latin America are artificially inflated because of the prevalence of compulsory voting laws in the region.[16]

Figure 4.9 shows that among the Latin American countries, there is wide variation in levels of voter turnout—above 80 percent in Uruguay and Costa Rica and below 30 percent in Colombia and Guatemala.

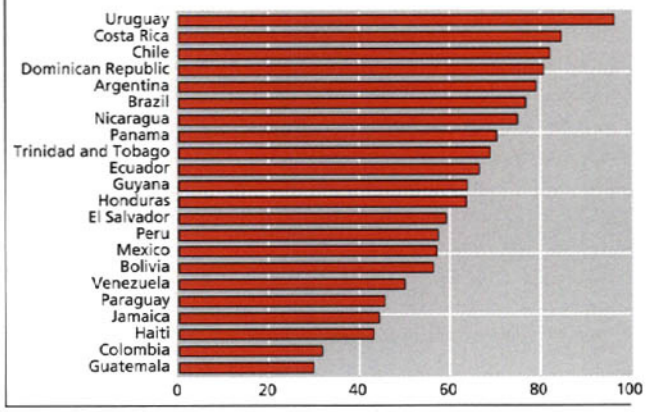
**Figure 4.8** Voter Turnout around the World, 1990-95
*(In percent)*




*Source: IDEA (1997).*

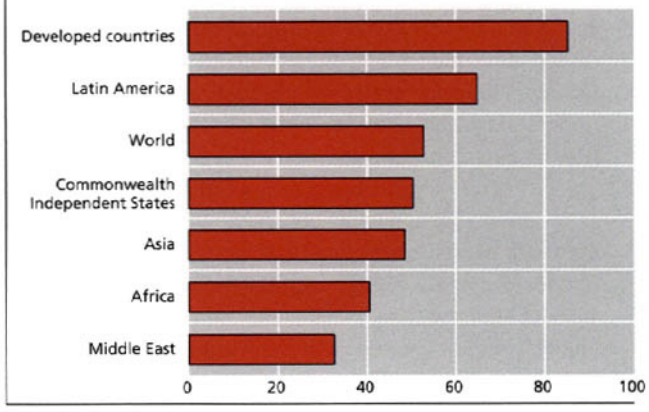
[16] Half of the Latin American countries in the sample have compulsory voting laws. For other regions, the proportion of countries with such laws are 33 percent for Central Europe, 33 percent for East Asia and the Pacific, 28 percent for the OECD countries, and none for the others. Of course, another relevant issue is how effectively such laws are enforced. Given the variation across regions in terms of the extent to which these laws are observed and enforced, compulsory voting laws may not bias the comparison as much as might otherwise be expected.

**Figure 4.9** Voter Turnout in Latin America, 1990-95
*(In percent)*



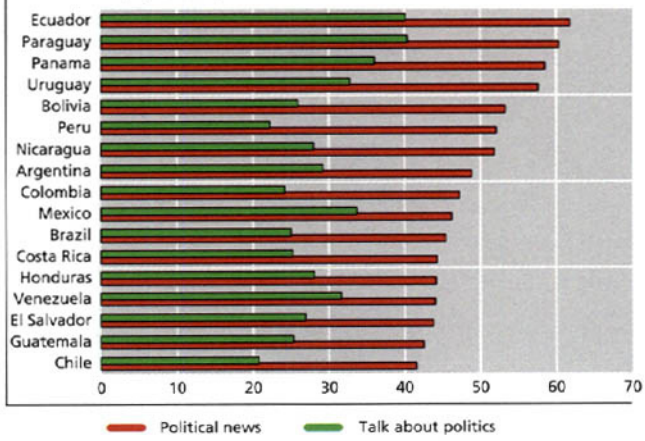

*Source: IDEA (1997).*

**Figure 4.11** Freedom House Rating of Press Freedom, by Region



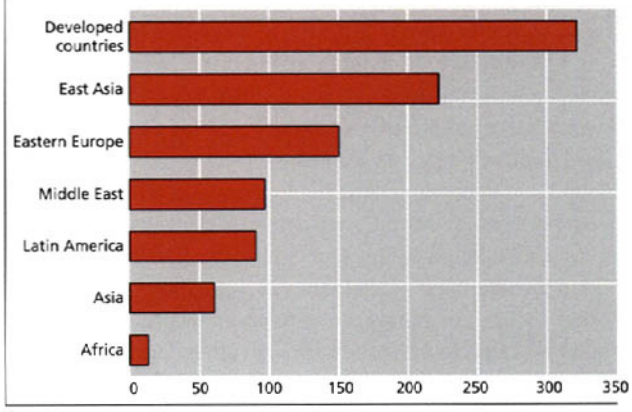

*Source: Freedom House (1999).*

**Figure 4.10** Alternative Forms of Political Participation in Latin America
*(In percent)*




*Source: Latinobarómetro, various years.*

**Figure 4.12** Circulation of Daily Newspapers per 1,000 Inhabitants




*Source: World Bank (1998).*

Other measures of political participation also show large differences within the region. In terms of people who self-report paying attention to political news and talking about politics with friends, Ecuador and Paraguay are at the top and Chile and Guatemala at the bottom (see Figure 4.10). Surprisingly, there is no association between voter turnout and these more sophisticated forms of political engagement.

### *Press Freedom*

When trying to use elections to punish or reward politicians, voters can face some serious information problems. Voters observe some general outcomes and have some vague ideas about policy. But they are usually very uncertain about how outcomes relate to policies, and they often have little information about the track record of politicians running for office.

The media has traditionally played an important role in providing information about political matters. An inquisitive media can provide vital information to help voters evaluate the extent to which the actions of politicians conform to their electoral promises. Similarly, the media can uncover and publicize corrupt practices by politicians and their associates. In sum, a free and independent media can diminish the ability of politicians to breach electoral contracts and to extract rents.

Freedom House has recently put together an index to measure the extent to which journalists are

free to follow their leads and report their findings without being harassed by the government or by other powerful elements of society.[17] Although one can quarrel endlessly about the ranking of this country or that, the index provides a useful comparison of press freedom around the world. As Figure 4.11 shows, Latin America as a whole has a relatively free press compared to other regions of the word—less free than more developed countries, but more so than other developing regions.

Press freedom is not the only important variable in terms of the availability of information for voters. Two societies can differ substantially in terms of the ability of the media to monitor politicians, even if they have similar constraints on press freedom. The key element in this respect is the degree of inquisitiveness of the society in question. More inquisitive societies can be expected to have more and better information outlets, and therefore will find it easier to monitor politicians. Figure 4.12 shows, for example, that circulation of daily newspapers in Latin America is well below the level one would expect given the region's level of development and its higher degree of press freedom.

*Political Parties*

Another factor that can affect the enforceability of political contracts is the strength of political parties.[18] If parties are reasonably cohesive and disciplined and have fairly deep roots in society, they can improve the effectiveness of democratic delegation by reducing the information costs of voting, making it easier for citizens with little time and political information to participate in politics. In contrast, if political parties are weakly organized and undisciplined, voters will not trust them as conveyors of reliable political information and hence will face the daunting task of becoming informed about the policy positions and records of each individual candidate.[19]

Political parties can also ameliorate agency problems by constraining the actions of elected politicians. The power of parties in this regard increases to the extent politicians have something to gain by not deviating from their parties' general directives. If parties lack continuity and cohesion, politicians will be more prone to deviate from party ideals in order to satisfy personal political ambitions. Thus, relatively institutionalized political parties can provide a check on excessive political entrepreneurialism.

There is a subtle but important distinction between the role of parties emphasized here and that which was underlined earlier. The previous section argued that political parties are important because they are more likely than individual candidates to articulate the wishes of the majority. This section argues that parties are important because they convey information about complex political issues and monitor elected politicians. The problem there was bias in representation; the problem here is agency. The emphasis there was on the electoral laws that give parties power over individual politicians; the emphasis here is on the extent to which parties are cohesive and rooted in society.

The attributes of political parties that contribute to effective democratic delegation are, for the most part, encapsulated by three conditions: (1) party support is relatively stable over time; (2) parties have relatively solid and stable roots in society; and (3) parties are perceived as central to determining who governs and as indispensable for the progress of the country.[20]

The first dimension of the strength of party systems can be measured by an index of volatility in electoral support for parties from one election to the next. This index is computed by adding the net change in the percentage of seats (or votes) gained or lost by each party from one election to the next, and then dividing by two.[21] Table 4.5 shows a wide variation in electoral volatility for congressional elections (lower

[17] In constructing this index, Freedom House considers not just the formal laws and the constitution but also current and practical constraints on the press. If journalistic freedom is impeded by threats from armed groups or criminals, or by illegal government-led acts of intimidation, then this counts against press freedom potentially as much as legal restrictions.

[18] Studies on political parties in Latin America include Mainwaring and Scully (1995) and Hagopian (1998).

[19] See Lupia and McCubbins (1998) for insightful information on the cognitive dimension of political participation.

[20] See Mainwaring and Scully (1995).

[21] Although large shifts in voter support for parties and changes in the identity of the major parties may complicate agency problems, they could be a positive sign. A relatively high degree of volatility could reflect an efficient response to the emergence of new critical issues dividing the electorate, an opening of the political system to greater competition through electoral reforms, or a broad rejection of traditional parties perceived as ineffective or corrupt.

**Table 4.5 Electoral Volatility in Latin America**

| Country | Lower chamber seats: Time span | Lower chamber seats: No. of electoral periods | Lower chamber seats: Mean volatility (%) (A) | Presidential vote: Time span | Presidential vote: No. of electoral periods | Presidential vote: Volatility (%) (B) |
|---|---|---|---|---|---|---|
| Uruguay | 1971-94 | 3 | 9.9 | 1971-94 | 3 | 9.9 |
| Colombia | 1970-98 | 8 | 10.6 | 1970-90 | 7 | 13.5 |
| Costa Rica | 1970-98 | 7 | 14.9 | 1970-98 | 7 | 11.8 |
| Chile | 1973-97 | 3 | 12.4 | 1970-93 | 2 | 15.4 |
| Argentina | 1983-97 | 7 | 13.3 | 1973-95 | 3 | 29.5 |
| Paraguay | 1983-98 | 3 | 16.7 | 1989-98 | 1 | 26.2 |
| Venezuela | 1973-98 | 5 | 22.9 | 1973-98 | 5 | 22.5 |
| Mexico | 1982-97 | 5 | 24.7 | 1982-94 | 2 | 24.2 |
| Bolivia | 1979-97 | 5 | 31.8 | 1979-97 | 5 | 35.7 |
| Ecuador | 1978-92 | 5 | 32.5 | 1979-92 | 3 | 43.2 |
| Brazil | 1982-98 | 4 | 28.9 | 1960-98 | 3 | 55.4 |
| Peru | 1978-95 | 3 | 52.7 | 1980-95 | 3 | 57.4 |

*Source: Data are from Mainwaring and Scully (1995, Table 1.1) and extended by the authors to include recent elections.*

chamber) and presidential elections for 12 Latin American countries. The greatest stability in the patterns of partisan support is found in Uruguay, Colombia, Costa Rica and Chile. By contrast, volatility is particularly high in Brazil, Peru, Ecuador and Bolivia. If one looks at individual electoral periods (not shown in the table) in volatility ranges from 3 percent in Colombia (1978-82) to 62.5 percent in Peru (1980-85).[22]

The levels of electoral volatility in five of the 12 Latin American cases are extremely high when compared with advanced industrial democracies. A recent study of 303 electoral periods in 13 western European countries from 1885 to 1985 found that the highest party volatility was 32.1 percent in Germany from 1919 to 1920, a figure that is still lower than the mean volatility for four Latin American countries.[23] Moreover, France's mean volatility of 15.2 percent, which was by far the highest in Europe, was less than that of eight of the 15 Latin American cases presented in Table 4.5.

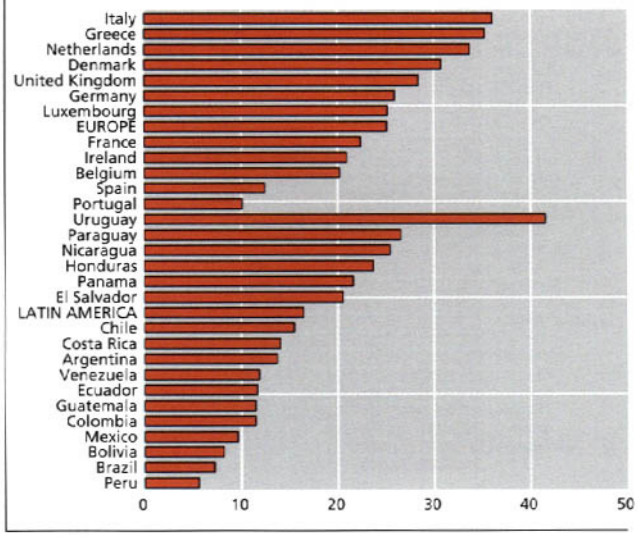
Electoral volatility could also be used as an indirect measure of the second dimension of party strength, which is whether parties have firm roots in society. If parties play an important role in orienting the political activity of citizens, one would expect that a significant proportion of electoral support for a given party would be fairly stable from one election to the next. However, electoral volatility has a retrospective character and may not be a good predictor of how parties are likely to evolve in the future. A more direct indicator of the depth of parties' roots in society, which may also more accurately forecast the future, is the share of citizens who identify with (or feel close to) a particular party. Figure 4.13 shows that while over 40 percent of respondents feel very close or fairly close to a political party in Uruguay, only some 5 percent do in Peru, Brazil and Bolivia. On the whole, there is a high association between party volatility and the proportion of citizens who self-report feeling close to political parties. However, there are some notable exceptions. Chile, Costa Rica and, in particular, Colombia, have lower levels of party identification today than might be expected given their (relatively low) past levels of electoral volatility. This suggests that in these countries there could be greater shifts in patterns of partisan support in the future.

What is also clear from Figure 4.13 is that despite an erosion of partisan voting in European and other advanced industrial democracies since the early

[22] Mainwaring and Scully (1995).

[23] See Bartolini and Mair (1990). These values are not completely comparable because in the European sample volatility is calculated on the basis of seat shares, whereas in the Latin American sample it is calculated on the basis of vote shares.

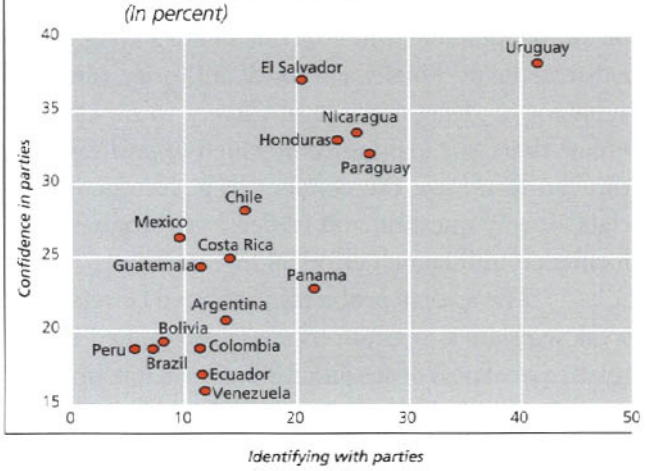
**Figure 4.13** Percentage of People Who Feel Very Close or Fairly Close to a Political Party




*Source: Latinobarómetro, various years, and Eurobarometer (1991).*

**Figure 4.14** Party Identification and Confidence in Parties in Latin America

*(In percent)*




*Source: Latinobarómetro, various years.*

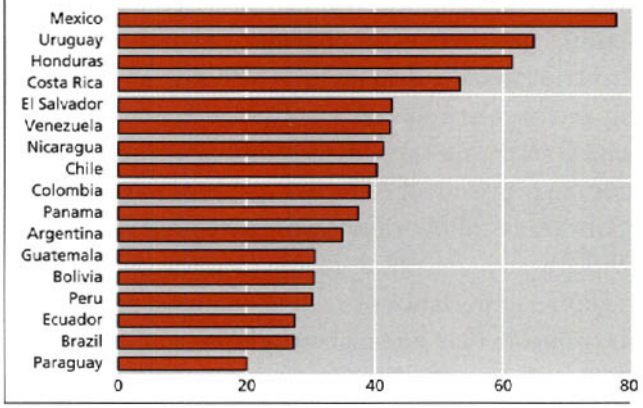
1970s, attachment to parties is still comparatively low in Latin America. With the sole exception of Uruguay, Latin American countries fall below the European average with respect to the percentage of citizens who identify with a political party.

The potentially positive benefits of parties with strong societal links must be tempered by considering the mechanisms by which such ties with citizens are established and maintained. As happened in many U.S. cities in the late 19th and early 20th centuries, many Latin American parties have established loyal followings by distributing state jobs, providing favors, and otherwise directly or indirectly buying votes. If the political contract between citizens and politicians becomes an exchange of votes for the delivery of an individual benefit (such as a job for a family member or a special benefit for a family business), elections do not serve to transmit voters' preferences for the provision of collective goods or to ensure that politicians follow these expressed preferences. Although data are not available to measure the comparative importance of such clientelistic practices, it is probable that free market reforms and the reduction in the scope of the state in most countries have reduced the amount of resources available for purchasing political support. Further, less clientelism could partially account for the apparent decline in party loyalty and the increase in electoral volatility experienced in some countries during the 1980s and 1990s.

The third dimension proposed to measure the strength of political parties is the degree to which citizens and societal groups perceive that parties are central actors in determining who governs and in shaping the country's policy direction and rate of progress. One obvious measure of the centrality of parties is the degree to which citizens place confidence in them. If parties are distrusted or viewed unfavorably, citizens, organized interests and politicians will tend to eschew them as intermediaries in the political process. Figure 4.14 shows that confidence in political parties is closely related to the degree to which citizens identify with them. According to both indicators, parties seem particularly relevant in Uruguay, Paraguay, Nicaragua and Honduras, and less important in Peru and Brazil.

Figure 4.15 shows the percentage of people in selected Latin American countries who consider parties as indispensable to the progress of the country. The results show a familiar pattern. While relatively few respondents mentioned parties as essential in Brazil, Ecuador, Peru and Bolivia, the opposite was true in Uruguay, Honduras, Costa Rica, and Chile. Mexico and Paraguay, however, deviate significantly from their previous positions. Even though Mexican citizens do not appear to identify closely with parties and have only moderate confidence in them, they do see parties as indispensable to the progress of the country. In Paraguay, the opposite pattern is observed.

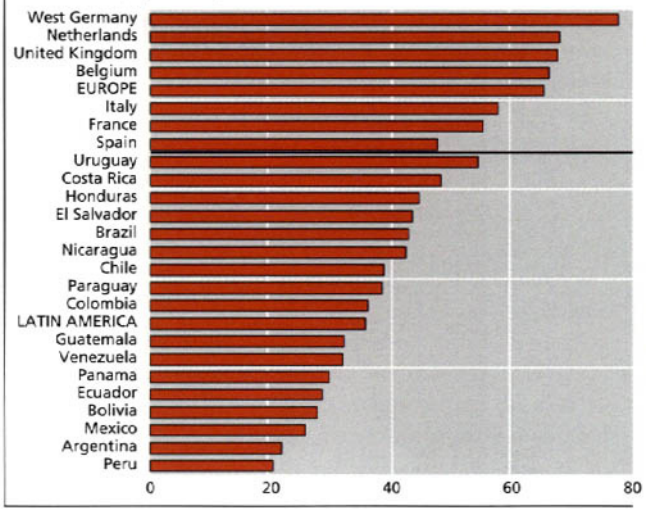
**Figure 4.15** Percentage of Respondents Who View Political Parties as Institutions Indispensable to National Progress




*Source: Latinobarómetro, various years.*

**Figure 4.16** Confidence in the Judiciary in Latin America vs. Western Europe, 1985

*(In percent)*




*Source: Latinobarómetro, various years, and Eurobarometer (1986).*

While citizens appear to trust and feel close to parties, they do not see them as indispensable to progress.

How strong, then, are political parties in Latin America? The overall picture that emerges from this analysis is that parties appear to be especially strong in Uruguay and still relatively strong, but perhaps weakening, in Chile, Costa Rica, Honduras, Mexico and Paraguay. Parties also seem to organize public opinion and be relatively well valued in El Salvador and Nicaragua. On the other end of the spectrum, parties are relatively weak and distrusted in Bolivia, Brazil, Ecuador and Peru.

### *Institutional Checks and Balances*

Political contracts involve a commitment by elected officials to fulfill electoral pledges, follow the law and respect the constitution. This is important because, once elected, politicians have an incentive to try to change the nature of the political game in order to augment their power or to increase their chance of retaining this power in the future. Politicians may also be tempted to use their positions of power for personal enrichment. Democracy thus requires institutions that protect the extant rules and safeguard public interests from unchecked politicians.

If politicians are to be prevented from ignoring or modifying the rules of the game in order to suit their needs, the constitution must define the division of responsibilities between the different branches of government and specify fairly stringent procedures through which the constitution can be changed. In addition, if the constitution and other laws of the land are to be more than just words, there must be an independent and effective judicial system that enforces them. Finally, abuses of authority, mismanagement or deception are not likely to be exposed unless there is a legislature in which opposition parties can scrutinize the conduct of government officials, openly question and criticize government performance, and launch criminal investigations.

The agency problems presented by relatively weak legislative institutions are compounded by the relative weakness of the judicial branch. Constitutions provide for the independence of the judiciary in all Latin American countries, yet the independence of the courts has not always been guaranteed. This is evidenced by the frequent abrogation of judicial independence, dismissal, transfer and reassignment of judges, and denial of enforcement of judicial decisions.

This traditional lack of judicial independence in Latin America, along with the perception of inefficiency, has contributed to the low level of trust in the judiciary. Figure 4.16 shows that trust in the judicial system in Latin America is below that of Europe.[24] Although levels of confidence in the judiciary do vary

[24] The information in Figure 4.16 dates to the mid-1980s because recent Eurobarometer surveys have not included the question on confidence in the judiciary.

Box 4.5

## Presidentialism

Presidential regimes have two defining characteristics: first, the government and the legislature are elected independently, and second, the terms of both the president and the legislators are fixed (that is, unless they commit serious crimes, presidents or cabinet members cannot be removed from office by the congress). By contrast, in parliamentary regimes voters elect legislators who are then responsible for forming a government. The government, headed by the prime minister, then depends on the ongoing support of a majority in the legislature to remain in office. If the government loses this support (or wants to solidify its backing), it can call new elections. As explained below, these characteristics entail advantages as well as disadvantages.[1]

Critics of presidentialism contend that separate elections for the president and the legislature often cause political stalemate, which in turn may hamper the ability of the government to advance socioeconomic reforms. Separate elections often bring to power opposing parties that may be reluctant to cooperate with one another for a variety of reasons. Opposition parties are not likely to receive credit if their cooperation results in policy accomplishments by the government. And opposition parties do not face the threat that a frustrated government will call new elections. These problems are less serious in parliamentary systems, where a coalition cabinet and backbenchers (legislators from the governing parties not serving in the cabinet) must cooperate in order to keep their positions of power.

Thus, even though the president is the only public official who can claim to represent the whole nation and is, in principle, endowed with great powers, he or she may quickly become a lame duck. Further, without the ability to force new elections to overcome political stalemate, the president may be tempted to resort to extra-constitutional measures, and even authoritarian aspirants to power may be able to justify their means.

Critics of presidentialism also contend that fixed terms of office, often compounded by restrictions on reelection, introduce a rigidity that can threaten democracy in times of crisis. Though decisive governmental action is demanded in such times, it is often impossible in presidential regimes to extend the term of a popular and successful president, to remove an incompetent or unpopular one, or, more commonly, to simply overcome stalemate on policy.

In addition, critics of presidential regimes often lambaste the winner-take-all nature of presidential elections. Victory in a direct popular election to the highest office of the land gives the president a sense that he or she does not need to make concessions to the opposition. As a result, "winners and losers are sharply defined for the entire period of the presidential mandate [and] the losers must wait at least four or five years without any access to executive power and patronage."[2]

Finally, critics of presidentialism contend that the direct popular election of presidents, especially in the age of television, allows political outsiders with little experience in party or congressional politics to capture the presidency. This discourages the institutionalization of political parties and allows for people to come to power with little party backing and with a greater incentive to govern through populist appeals.

There are, however, defenders of presidentialism. The first two advantages of the system are obvious. First, presidential regimes provide voters with more electoral choices, allowing them to choose governments and representatives that reflect their preferences more closely. And second, presidential regimes give voters a direct mechanism to punish or reward the government for its conduct in office.

The third advantage is subtler. Presidential regimes may give legislators more freedom to debate alternative policy options. Because governing party legislators in presidential systems do not have to worry about the consequences of their actions for the survival of the government, they are more free to consider issues openly and on their merits.

Finally, the greater rigidity of presidential regimes may prove advantageous. In parliamentary regimes, the ability to change leaders and governments can itself contribute to political crisis, especially in the presence of a fragmented and relatively polarized party system. The fixed terms of presidential regimes can provide greater predictability and continuity in policymaking than the flexible terms of parliamentary regimes.

In sum, it is difficult in the abstract to make a case that one regime is better than another. In practice, the performance of parliamentary and presidential regimes depends on broader institutional arrangements and societal characteristics. It may be that the best course for alleviating a perceived governance crisis in a presidential system is to reform other institutional features of the political regime—such as the constitutional powers of the president and the legislature, or the electoral system—rather than to shift to a parliamentary style of government.

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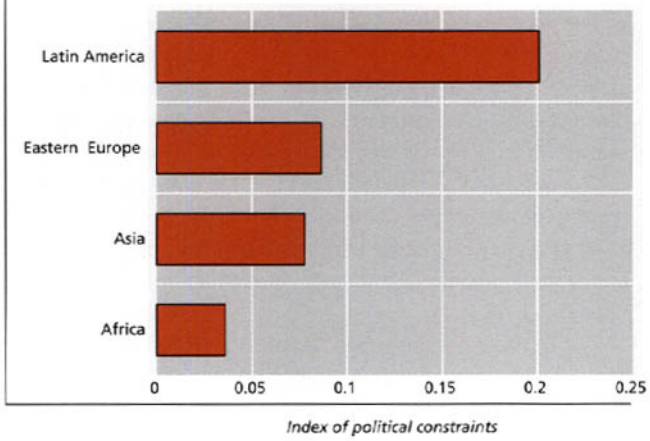
[1] A critical evaluation of the effect of presidentialism on Latin American politics can be found in Linz and Valenzuela (1994). The essays collected in Mainwaring and Shugart (1997) evaluate the effects of presidentialism in the context of other political institutions and emphasize the heterogeneity of presidential systems. Carey and Shugart (1992) analyze how additional characteristics of constitutional design can affect whether presidential systems will be stable and produce efficient governments.

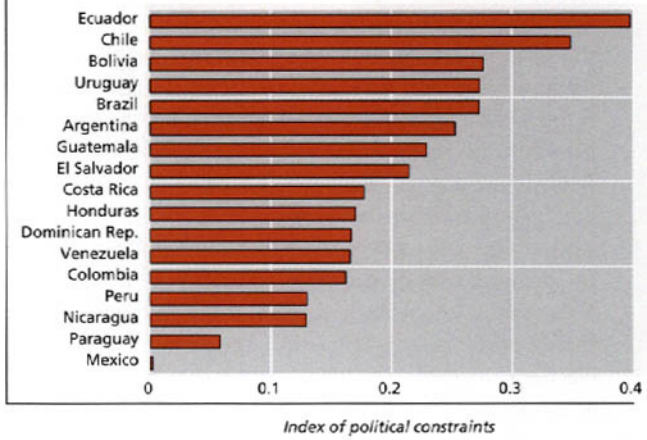
[2] Linz (1990).

**Figure 4.17** Political Gridlock in Developing Regions, 1985-94




Source: IDB calculations based on Henisz (1998).

**Figure 4.18** Political Gridlock in Latin America, 1985-94




Source: IDB calculations based on Henisz (1998).

within the region—ranging from a high of almost 55 percent in Uruguay to a low of about 20 percent in Peru—there appears to be widespread doubt in many Latin American countries about the capacity of the judicial system to make impartial decisions and to uphold the law and the constitution.

Several conclusions follow from this section. Participation in politics is low in many Latin American countries, political parties are weak (and becoming weaker), as are the judicial and legislative branches, and societal inquisitiveness (as measured by newspaper circulation) is relatively low. Along with the low levels of confidence in political institutions observed throughout the region, these findings clearly indicate that agency problems are ubiquitous in the Latin American political landscape.

### *Aggregation Problems*

Aggregation problems can arise when control of the executive and the legislature is divided between opposing political parties or when there are serious conflicts within the legislature.

Almost all Latin American countries have presidential systems. While the debate over the pro and cons of presidential regimes will likely remain unresolved (see Box 4.5), it is clear that such systems require cooperation between the executive and the legislature to advance policy initiatives. This is not always easy because the two branches often represent different interests, and hence may have different policy preferences.

An index can be constructed to measure the extent of the constraints on policymaking caused by the presence of two distinct political actors (the executive and legislative branches) that have the power to veto each other's initiatives. The index measures the probability that disagreements between the executive and the legislature will preclude changes in the status quo.[25] An index of 0.20 will mean that, on average, 20 percent of all policies are off limits because of conflicts between the executive and the legislature. The index thus measures the ability of either branch to move at will through the policy space. No constraints mean that every point is reachable. Full constraints mean that the status quo is very much a forgone conclusion.

The degree of political gridlock is closely related to the degree of association between the preferences of the executive and legislature. If both actors have the same preferences, there will in effect be only one actor, and hence no political constraints. If both actors have independent preferences, the political constraints will be substantial, spanning over 40 percent of the policy space. And if both actors have opposing preferences, the political constraints can span the whole policy space and gridlock will be inevitable.

In constructing the index we use the composition of the legislature to approximate the degree of association between the preferences of the executive

[25] The index of political gridlock is explained in Gaviria et al. (1999).

and the legislature. We assume that the party of the president controls over two-thirds of the legislature, the preferences of both branches will be completely aligned. Similarly, we assume that if the main opposition party controls over two-thirds of the legislature, the preferences of both branches will be independent. For the points in between, the degree of association between the preferences of both branches of government depends on the number of seats controlled by the party of the president.

Figure 4.17 compares Latin America to other developing regions in terms of the gridlock index. It includes only countries with presidential regimes, since only in these cases can the executive and the legislature be considered independent political actors.[26] The figure shows that there is more political gridlock in Latin America than in any other developing region. Some caution is needed in the interpretation of this result, however, since it could partly reflect greater inter-party competition rather than a particular propensity to gridlock.[27]

Figure 4.18 shows that the degree of gridlock varies widely among the Latin American countries. Ecuador, Chile and Bolivia have the worst tendency for gridlock, while Mexico, Costa Rica and Paraguay have the least, with the remaining countries tightly packed in the center.

Table 4.6 shows the mean share of seats controlled by the governing party for 16 Latin America countries. This table complements the previous information because it includes more recent elections as well as previous democratic episodes. It shows that in several countries, the president's party typically controls well below half the seats in the congress. Moreover, if the results of individual elections were considered instead of averages over fairly long periods, an even larger share of the countries would show instances in which presidents lacked significant partisan support in the legislature. In sum, divided governments are certainly common in Latin America.

**Table 4.6** **Average Share of Congressional Seats of the Party of the President**
*(In percent)*

| Country | Period | Number of elections | President's Party | |
|---|---|---|---|---|
| | | | Lower chamber | Upper chamber |
| Argentina | 1983-97 | 8 | 48.5 | 52.9 |
| Bolivia | 1980-97 | 5 | 31.6 | 47.4 |
| Brazil | 1985-98 | 6[a] | 23.2 | 23.2 |
| Chile | 1989-97 | 3 | 28.8 | 28.6 |
| Colombia | 1945-49, 1974-98 | 12 | 53.5 | 54.5 |
| Costa Rica | 1953-98 | 12 | 48.9 | |
| Dominican Republic | 1962, 1966-98 | 9 | 48.3 | 56.3 |
| Ecuador | 1978-98 | 8 | 22.9 | |
| El Salvador | 1985-97 | 6 | 48.3 | |
| Honduras | 1981-98 | 5 | 53.3 | |
| Mexico | 1982-97 | 6 | 60.3 | 86.3 |
| Nicaragua | 1984-96 | 3 | 58.7 | |
| Paraguay | 1993-98 | 2 | 50.7 | 48.1 |
| Peru | 1980-95 | 4 | 48.9 | 41.1[b] |
| Uruguay | 1984-94 | 3 | 37.7 | |
| Venezuela | 1958-98 | 8 | 39.2 | 44.5 |

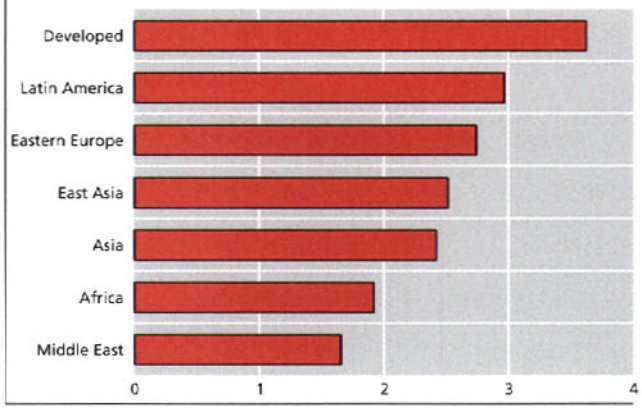
[a] *Includes the indirect election of 1985.*
[b] *Does not apply to 1995; Peru moved to a unicameral legislature with the constitution of 1993.*
*Source: Based on data in Mainwaring and Shugart (1997, Table 11.1) and updated by the authors to include recent elections.*

The index of gridlock does not consider the judiciary, which could further restrain policy change. There is, however, an important distinction to be drawn here. While the executive and the legislature are proactive institutions (their intent is often to change extant policies), the judiciary is usually a commitment institution (its intent is often to safeguard the extant order against arbitrary moves). This distinction is important because it allows an unambiguous interpretation of the index of political constraints. Indeed, had the judiciary been included as an extra

[26] There are 65 countries with presidential systems in our sample: 20 from Africa, 17 from Latin America, 16 from Eastern Europe, and 12 from Asia and the Middle East.

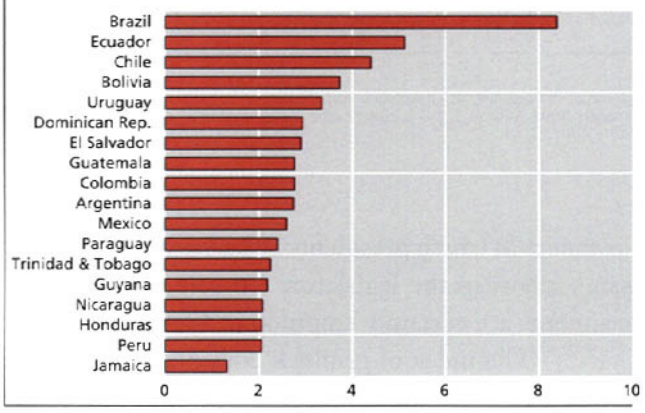
[27] Cross-country comparisons of the propensity to political gridlock should also take into account the extent of political rights. Nevertheless, the results of Figure 4.17 hold up even after we control for political rights, whether measured by Polity III or Freedom House.

**Figure 4.19** Effective Number of Political Parties around the World




Source: Henisz (1998).

**Figure 4.20** Effective Number of Political Parties in Latin America




Source: Henisz (1998).

actor, the index would have become less an indicator of political constraints and more an indicator of the ability of a government to make credible promises not to arbitrarily change policy.[28]

Conflict between the executive and the legislature is not the only source of gridlock in the political realm. To be sure, conflict *within* the legislative branch can produce similar if not more serious consequences. As argued earlier, the presence of many parties and factions in the legislature can impede change, even if the majority favors it.

Figure 4.19 shows that Latin American legislatures have more party fragmentation than do similar bodies in other regions of the world.[29] Of course, a large number of parties will point to a large diversity of interests within the legislature. The aggregated results shown in Figure 4.20 mirror closely the corresponding results for political constraints. Inside the region, party fragmentation is particularly accentuated in Brazil, Ecuador and Chile.

To sum up, political gridlock caused by divided governments and excessive party factions is a serious problem in Latin America that can be partially traced to the highly proportional electoral systems and the high levels of geographical fractionalization that are ubiquitous throughout the region (Boxes 4.6 and 4.7).

## Empirical Illustrations of Politics and Development Outcomes

This section will examine selected cases that clearly illustrate the role of politics in relation to key development outcomes, with an emphasis on the extent to which differences in political institutions and behaviors can account for differences in the quality of government. The importance of this goes back to Chapter 1, which showed that the quality of government plays a pivotal role in explaining differences in human development across nations. The section also examines the effects of political participation on the size of government, and the effects of political constraints on the speed of economic reform.

### *Politics and the Quality of Government*

How can it be determined that one government is better than another? Answering this question requires identifying the constituent dimensions of the quality of government, determining the relative importance of each one and developing comparable measures of these dimensions.

We consider four different dimensions of government quality: the ability of government to enforce contracts and protect the lives and property of its citi-

[28] See Gaviria et al. (1999) and Henisz (1998) for a thorough discussion of the different ways to interpret an index of political constraints that incorporates the judiciary branch.

[29] Party fragmentation is defined as $Ns=1/\Sigma s_i^2$, where $s_i$ is the proportion of seats that party i has in the lower house.

Box 4.6

## Proportional versus Majoritarian Electoral Systems

The structure of competition between political parties differs greatly from one electoral system to another. While in majoritarian systems legislators compete in small districts for a few seats (usually only one), in proportional systems legislators compete in large districts for a large number of seats. Thus, while in majoritarian systems winning a seat requires large support in at least one electoral district, in proportional systems winning a seat requires some national visibility but no regional prominence.

The basic tradeoff in this respect is well known: proportional systems achieve broader and more nuanced representation at the cost of greater fractionalization. A very fragmented legislature, especially in the context of a presidential regime, exacerbates coordination problems between the executive and the congress, as well as within the congress, and blurs the lines of responsibility for policy (thus complicating agency problems). In sum, proportional systems ameliorate representation problems, but exacerbate agency and aggregation problems.

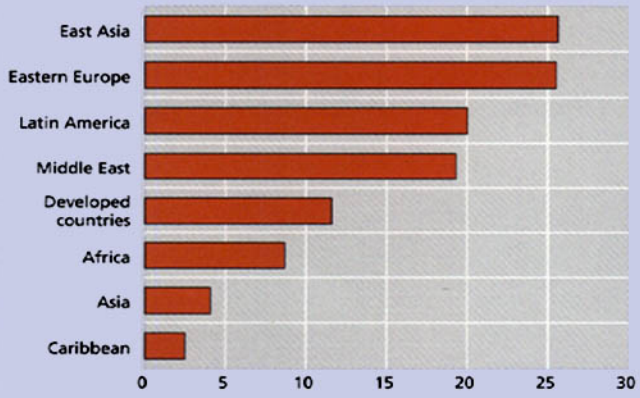
Electoral systems can be classified as majoritarian or proportional according to the average number of representatives elected per district (i.e., district magnitude).[1] Of course, the degree of proportionality of an electoral system increases with district magnitude. The options here run the gamut from systems where all legislators are elected by a plurality vote in single member districts, to systems where all legislators are elected in a unique nationwide district and seats are allocated strictly in accordance with the percentage of the vote they receive.

Figure 1 compares the average district magnitude for various regions of the world. On average, district magnitude is relatively high in Latin America and very small in the Caribbean. Figure 2 compares district magnitude within Latin America. District magnitude is very high in Peru and Colombia and very low in Panama, Chile and Haiti.

In sum, while proportional systems have been adopted by most countries in Latin America (nationwide districts are particularly common), majoritarian systems dominate the political landscape in the Caribbean.

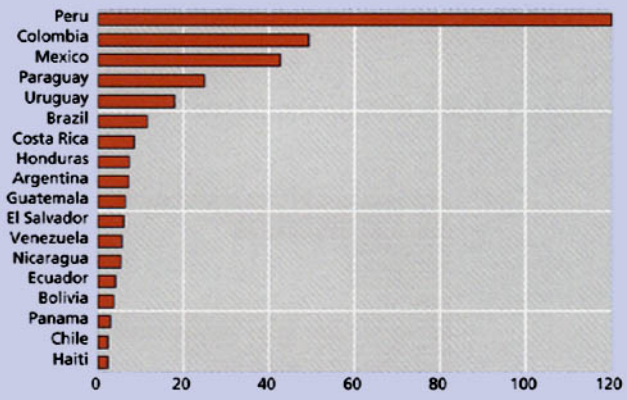
[1] Average district magnitude is the weighted average (weighted by the number of seats in each house) of the district magnitude of the upper and lower house.

**Figure 1. Average District Magnitude around the World**




Source: IDB calculations based on Parline Online.

**Figure 2. Average District Magnitude in Latin America**




Source: IDB calculations based on Parline Online.

zens; the absence of corruption; the efficiency of government in delivering public services; and the absence of burdensome and distortionary government regulations.[30] We measure each dimension on the basis of indices computed by the World Bank.[31] Then we construct an index of government quality as a weighted average of the four indices, where the weights are determined so as to maximize the amount of information contained in the index.[32]

[30] Figures 1.46 and 1.47 compare Latin America with other regions of the world along these four dimensions.

[31] See Kaufmann, Kraay and Zoido-Lobatón (1999).

[32] We use the statistical technique of principal components to compute the weights.

Box 4.7

## Indices of Ethnic and Geographic Fragmentation

Ethnic and geographic fragmentation can greatly reduce the governability of a society, whether democratic or otherwise. The explanations are all variations on the same theme: fragmented societies face the daunting task of reconciling too many diverse and often opposing interests in order to obtain an elusive common good.

Fragmentation can be measured as the probability that two individuals taken at random from the population do not belong to the same group. This measure goes from zero (which corresponds to a completely homogenous society) to one (which corresponds to a completely fragmented society in which each individual belongs to a different group). In general, fragmentation will increase as the number of groups grows and the weight of the different groups equalizes.

The two different forms of fragmentation studied here are ethnolinguistic fragmentation, which measures the probability that two individuals taken at random do not belong to the same ethnic group, and geographical fragmentation, which measures the probability that two individuals taken at random do not live in the same ecozone (see Chapter 3 for a definition).

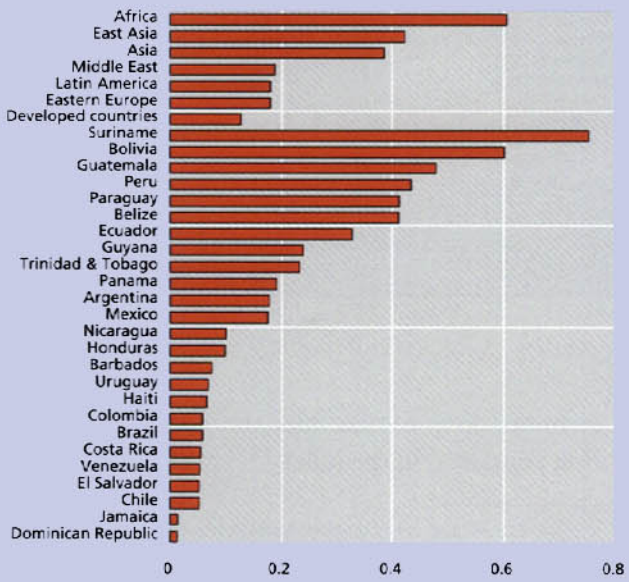
While ethnolinguistic fragmentation has received a great deal of attention from economists and other social scientists, geographical fragmentation has usually been neglected. This is surprising because many social and economic cleavages have geographical underpinnings. Culture may vary between peoples of different ecozones. Similarly, the composition of the economy may vary between ecozones (e.g., crops, minerals, and proximity to the sea are in general very different from one zone to another). Thus, geographic fragmentation is a significant dimension of social conflict and as such can play a pivotal role both in politics and policymaking.

Figure 1 shows that Latin America's level of ethnolinguistic fragmentation is relatively low compared to other developing regions. In many countries there is a predominant language (Spanish or English) spoken by all but a fraction of the population. In others, however, ethnolinguistic fragmentation is substantial. Suriname is at the top of the list, followed by Bolivia, Guatemala and Peru.

Figure 2 shows that from a geographical standpoint, Latin America is more fragmented than any other region of the world. The differences within the regions are substantial, however. The most geographically fragmented countries are Ecuador, Colombia and Peru, and the least are Uruguay, El Salvador and Trinidad and Tobago.

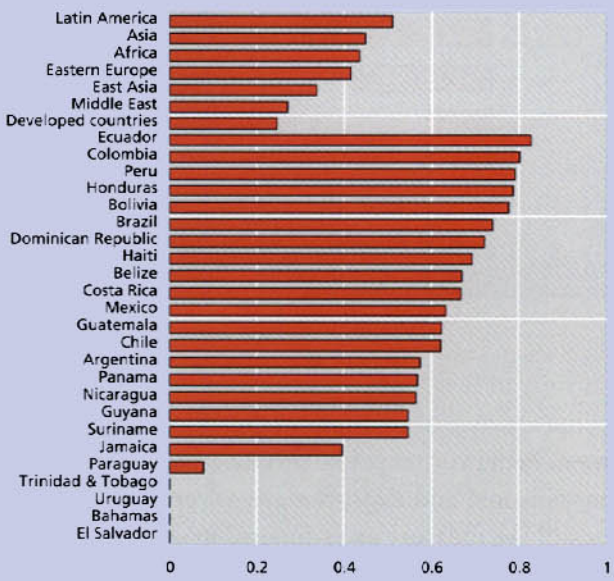
The conclusion that emerges is that the main lines of social fracture in Latin America are less ethnic than geographical. Although geographical divisions are not as enduring as ethnic divisions, they may introduce an element of conflict into the political game that is hard to dismiss. In this light, it is not at all surprising that politics in some Latin American countries often boils down to a tug of war between the inhabitants of two different ecozones.

### Figure 1. Index of Ethnolinguistic Fragmentation




Source: La Porta et al. (1998).

### Figure 2. Index of Geographic Fragmentation




Source: IDB calculations based on HIID data.

Figure 4.21 shows the distribution of countries according to the index of government quality. The distribution is bimodal, with a large concentration of countries at mediocre levels of government quality and a smaller concentration at good levels. Most Latin American countries are located between the two peaks—that is, they have better governments than the typical bad countries, but worse governments than the typical good ones.

A caveat is in order. Exploring the extent to which political variables account for the quality of government requires establishing causal links—no simple feat in statistical analysis. Since it will not always be possible to establish such causal connections, the goal here will be more modest; namely, to describe the political features of those countries that enjoy good governments or suffer bad ones.

As mentioned earlier, political systems where politicians are relatively unconstrained by the public at large (e.g., participation is low) or by other branches of the government (e.g., the judiciary is not independent) are more likely to have corruption, poor government services and burdensome regulations.

Political problems will be more serious in fragmented societies for three reasons. First, ethnic and geographical cleavages usually give rise to many political parties and factions within parties which complicate the aggregation of preferences. Second, participation is lower, which gives politicians more leeway to extract rents and cater to vested interests.[33] Third, the demand for government services tends to be smaller because citizens are often reluctant to pay for something that will accrue to people of different ethnic groups or regions. As argued in previous sections, these political problems will likely result in inferior government quality. [34]

The available empirical evidence lends considerable support to the connection between political participation and societal fragmentation, on the one hand, and quality of government, on the other. Figure 4.22 shows a strong association between voter turnout and the index of government quality. This association is not only noticeable but qualitatively important: a rise in turnout of 20 percentage points would lead the typical Latin American country to gain more than eight positions in a ranking of countries based on the government quality index (see Technical Appendix).[35]

**Figure 4.21** Cross-Country Histogram of Government Quality

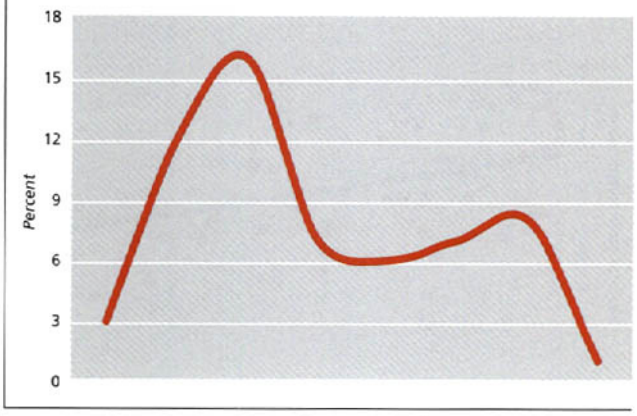
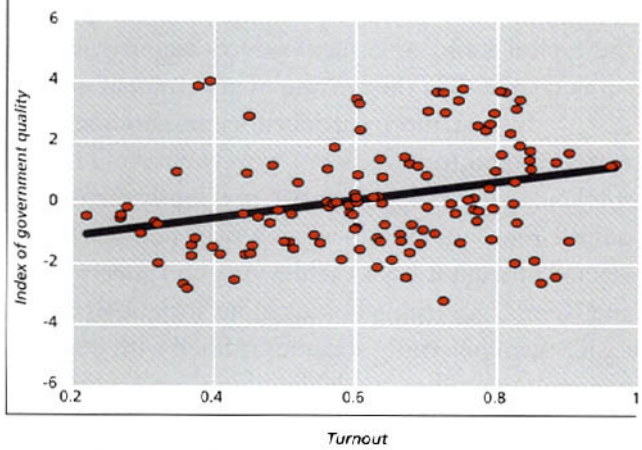



**Figure 4.22** Quality of Government and Voter Turnout




Source: IDEA (1997) and Kaufmann, Kraay and Zoido-Lobatón (1999).

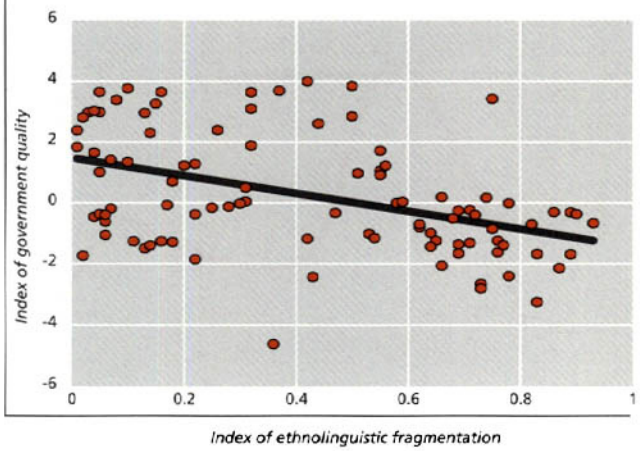
Figures 4.23 and 4.24 show that government quality steadily decreases as societal fragmentation increases, be it ethnolinguistic or geographical. Fragmentation is measured as the probability that two random individuals either do not speak the same language or do not live in the same ecozone (the indices used to measure this effect are described in Box 4.7). The effects here are also qualitatively important: a reduction

[33] Alesina and La Ferrara (1999) report a strong connection between ethnic diversity and participation in the United States.

[34] The connection between ethnic fragmentation and development outcomes has been explored by Mauro (1995), Easterly and Levine (1997), and La Porta et al. (1998).

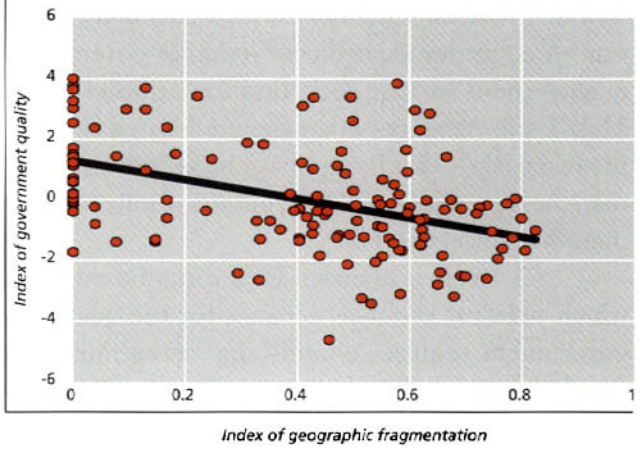
[35] Almost identical results are obtained if we focus exclusively on corruption (a particular dimension of our definition of government quality).

**Figure 4.23** Quality of Government and Ethnolinguistic Fragmentation




Source: La Porta et al. (1998) and Kaufmann, Kraay and Zoido-Lobatón (1999).

**Figure 4.24** Quality of Government and Geographic Fragmentation




Source: IDB calculations based on Harvard HIID data and Kaufmann, Kraay and Zoido-Lobatón (1999).

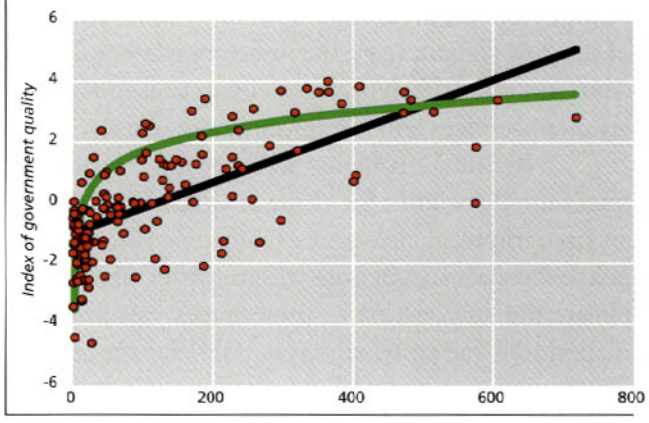
of one standard deviation in either index would make the typical Latin American country leapfrog at least seven countries in the ranking of government quality.

In sum, more participatory and homogenous societies tend to have better governments. This result lends partial support to two previously mentioned points. First, public supervision over politicians and elected officials is key to achieving good government; and second, governing homogenous societies is always easier than governing societies riddled with conflicting interests. These variables alone can account for as much as 35 percent of the cross-country variation in the quality of government.

Finally, are governments better in more inquisitive societies? At least two arguments support an affirmative answer. First, because inquisitive societies exert greater control over what politicians do with public funds, corruption and government waste are curbed. And second, inquisitive societies are more likely to foresee which policies will lead to good government and are more determined to press for their implementation.

Figure 4.25 shows the association between newspaper circulation (a proxy for people's inquisitiveness) and government quality.[36] There is a strong quadratic association between these two magnitudes: government quality rapidly increases as one moves from countries without newspapers to countries with very low circulation, and then continues increasing, although less swiftly, as one moves toward countries with newspaper circulation of several hundred per 1,000 inhabitants.

**Figure 4.25** Quality of Government and Newspaper Circulation




Source: World Bank (1998).

There are several reasons to believe that this association is more than a statistical curiosity. First, the association survives even after controlling for income per capita, and even after restricting the sample to include only developing countries or, alternatively, only developed ones. Second, no other variable (and we have tried hundreds of them) seems to exhibit such a strong degree of association with government quality.

[36] In the long run, it seems likely that greater demand for information will result in greater newspaper circulation. It is this demand-creates-its-own-supply rationale that justifies the use of newspapers to proxy for the inquisitiveness of the inhabitants of a country.

Of course, this does not mean that the best way to improve government quality is to subsidize the purchase of newspapers. Rather, it means that there is something about inquisitive societies—and newspapers flourish in them—that promotes better governments.

In summary, good governments are more common in more homogenous, politically engaged and inquisitive societies. In one way or another, these societies are better able to cope with bias of representation, agency and aggregation problems.

What, then, explains the relatively poor performance of governments in Latin America? Although there is no smoking gun, at least two elements stand out as being at least partially responsible. First, many Latin American countries exhibit meager levels of political engagement and have few means to convey political and civic information. Second, most countries in Latin America are geographically heterogeneous; that is, their populations are spread over more diverse geographical zones than are those of any other region of the world. Arguably, these elements contribute to the poor government performance of the presidential democracies that today dominate the Latin American political landscape.

Through several channels, good or poor government performance reinforces itself in ways that either promote or hinder social and economic development. And although governability is not immutable, there is no simple formula to improve performance (see Box 4.8).

### *Political Gridlock and the Speed of Reform*

Most Latin American countries embarked on an ambitious program of economic reform beginning around the mid-1980s. The reforms were wide in scope and deep in scale: trade barriers were reduced and simplified, tax codes streamlined, labor market regulations partially dismantled, and state-owned companies privatized.[37] Although definitive conclusions are still elusive, most studies have found that the structural reforms had a positive, albeit moderate, effect on economic growth. The question here is whether structural reform proceeded more slowly in those countries with higher levels of political gridlock.

Determining whether political divisions slow down economic reforms requires sorting out the multitude of factors that may push a country toward the path of reform (or away from it, for that matter). Do successful reforms require brash political leaders? Economic crises? Foreign aid? All or none of the above? These questions are difficult to answer not only because it is hard to measure the degree of economic reform and its potential determinants, but also because information is limited since so little time has elapsed since the inception of the reforms.

In order to gauge the speed of reform, we use an index developed by researchers at the IDB, which measures the extent of market freedom allowed by economic reform policies in five different areas: international trade, labor markets, financial markets, privatization, and tax regulations. [38] The index covers 17 countries in Latin America and the Caribbean and covers the period from 1984 to 1995. We focus here on the general index (computed as a simple average of the five specific indices) and, particularly, on the index of tax policy (arguably the most divisive dimension of the five, and thus the more likely to be affected by political gridlock).

In order to gauge the effects of political gridlock on the speed of economic reform, we first compute the change in the index of economic reform every three years, from 1984 to 1987, from 1987 to 1990, from 1990 to 1993 and from 1993 to 1995. We then examine the degree of association of these changes with the index of political gridlock at the beginning of the period.[39] The presumption is that the greater the range of policies over which the executive and the legislative branches can agree—that is, the lower the initial index of political gridlock—the quicker will be the advancement of economic reform.

The effects of political gridlock on the speed of reform are noticeable but not overwhelming. Thus, if gridlock is reduced by 20 percent, tax reform will proceed at a speed 6 percentage points faster than before (an increase of approximately 100 percent over the average speed in the sample). The magnitude of the effect does not depend on whether we account for the effect of macroeconomic crises, defined as either periods of hyperinflation or prolonged stagnation. As shown in the Technical Appendix, weaker ef-

[37] For a comprehensive description of the region's structural reforms, see IDB (1997, Part 2).

[38] See Lora and Barrera (1997).

[39] The main results of this exercise are presented in the Technical Appendix.

Box 4.8

## Political Participation, Government Spending and the Precariousness of the Welfare State

One can hardly write about economic development without any mention of vicious or virtuous circles. Figure 1 summarizes the pillars of the successful welfare state: social control over public delegates, voluntary compliance with formal rules, and strong ability of the central government to raise revenue. We can start discussion of this figure at the top left corner with the red arrow going from greater political participation to less corrupt governments. This connection should be familiar by now: lower participation entails less public supervision, more leeway for politicians and their associates, and hence more opportunities for the extraction of rents. The second connection is also simple: more corruption will usually result in lower confidence in public institutions (and the government in general), if only because more corruption will make institutions more inefficient. The third connection has two elements. If people do not trust their government, raising taxes to pay for federal programs will be more difficult, and collecting taxes will be more costly because lack of confidence in the government will reduce voluntary compliance. The last two connections are also simple. Diminished government revenues will translate into fewer government programs (including basic social security and health programs), which in turn will lower participation as people realize that their fates depend less and less on what the central government does for them.

The blue lines represent other possible connections: more confidence in the government will surely increase political participation; less corruption means more spending given the same level of revenues; and more social spending, to the extent that it is allocated without much waste, will increase confidence in the government.

The evidence presented in Figure 2 is broadly consistent with this idea. This figure shows the surprisingly strong association between voter turnout and central government spending in Latin America. As shown, Costa Rica and Uruguay, the epitomes of the successful welfare state in Latin America, have both high turnouts and big governments.

Unfortunately, these findings do not provide any prescription of how to create a successful welfare state from scratch. On the contrary, the point is that much can go wrong, and policymakers have limited control. The few countries that have achieved success have done it though a complex process that no social planner, no matter how well intentioned, could replicate. The moral is clear: it is easier to describe successful systems than to replicate or even safeguard them.

**Figure 1. Political Participation, Corruption and the Size of Government**

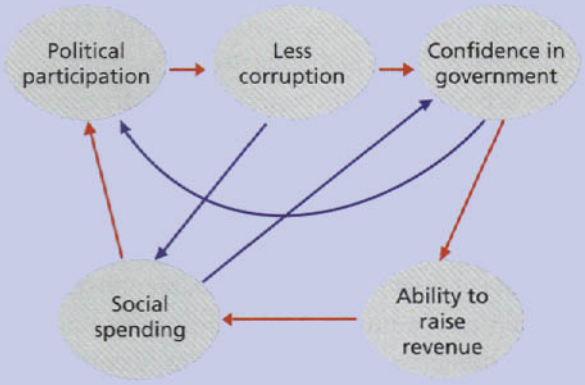



**Figure 2. Electoral Participation and the Size of Government**

*(In percent)*


Sources: IMF (1995) and IDEA (1997).

fects are obtained for the index of general reform, indicating that the effects of political gridlock are mainly circumscribed to tax reform.

These results lend some credence to the idea that political gridlock stemming from divided governments can slow down the pace of economic reform. The results suggest, on the other hand, that the effects are modest. That is, political constraints are speed bumps and not roadblocks along the avenue of economic reform. What still remains unresolved is the exact nature of the connection between the speed of reform and political gridlock. At first glance, a non-

linear association seems more likely: constraints matter if above a certain limit and do not matter if below it. The evidence, however, does not allow a clear-cut test of this hypothesis.

## Policy Issues

There is growing sentiment among citizens and political and business leaders in many Latin American countries that political reform is necessary. Disenchantment with the functioning of democracy and the conduct of politicians has fueled this call for reform. Thankfully for the future of many of Latin America's young democracies, those calling for reform have mostly been defenders rather than detractors of democracy.

This section looks at some of the most contentious political reforms being discussed in the region. While specific recommendations would have to take into account the particularities of each country and each moment, an objective analysis of the tradeoffs involved provides a starting point for analysis of the potential reforms.

Areas where political reformers might focus their attention include electoral systems, the division of authority between central and subnational governments, the internal structure of political parties, the judiciary and the legislature, and political participation.[40]

In terms of electoral systems, the options range from highly majoritarian systems, where legislators are elected one by one in single member districts, to highly proportional systems, where legislators are elected all at once in a single nationwide district. In the majoritarian system, only the candidate with the largest amount of votes is elected. In the proportional system, each party receives a share of seats roughly equivalent to its share of the total vote. Proportional systems achieve broader and more precise representation at the cost of a more divisive legislature and a greater likelihood that the executive will lack legislative support (Box 4.6). Majoritarian systems, for their part, may prevent minority groups or interests from receiving adequate representation, which is especially problematic in societies that are sharply divided along ethnic, regional or religious lines.[41]

Most Latin American countries have opted for proportional systems, resulting in some cases in fractionalized legislatures. In addition, because in many of these highly proportional systems the parties do not represent distinct sets of socioeconomic, ethnic or other social cleavages, no great gains in terms of representation have been realized.

Excessive legislative fractionalization could be lessened by reducing the size of electoral districts, changing the formula for translating votes into seats, or establishing a minimum electoral threshold that parties must obtain in order to gain representation. Making presidential and legislative elections concurrent would also discourage party splitting and increase the likelihood that the president's party would control a relatively large share of congressional seats. At the same time, these reforms would tend to concentrate political power in fewer hands, thus perhaps increasing the probability of bias in representation.

Political decentralization is another reform that has been pursued by numerous countries in the region. It entails both the decentralization of governmental responsibilities to subnational levels as well as the institutionalization of direct popular elections of mayors, governors and municipal and regional representatives. Decentralization holds the potential to increase the responsiveness of elected officials to the preferences of the majority of the electorate. Political decentralization allows voters and candidates to focus on policy issues relevant to the offices at the particular governmental level, thus permitting closer citizen evaluation of governmental performance and even enhancing the ability of citizens to express specific preferences. Decentralization also gives local officials greater freedom to provide the mixture and level of public goods desired by their constituents.

But decentralization will only result in the outcomes desired by the majority of citizens if two conditions are met. First, the rules governing the division of spending and taxation must specify clear lines of responsibility and force subnational governments to bear the costs of their spending decisions. And second, the structure of the electoral system must en-

[40] The larger issue of presidential versus parliamentary regimes is discussed at length in Box 4.5.

[41] See Shugart (1999) for an insightful defense of mixed member systems—where legislative seats are elected from a mixture of single-seat and nationwide districts—as one possible solution to the competing tradeoffs between majority and proportional systems.

Box 4.9

## Cultural Change and Policy Interventions

Values, attitudes and codes of conduct often override self-interest in human behavior. Thus, most people obey the law even when punishment is virtually impossible. Most borrowers pay their dues even when mere rational considerations call for less virtuous actions. And many citizens participate in politics even though it does not make sense from the standpoint of simple cost-benefit calculations. In short, self-interest and opportunism alone cannot account for the behavior of people in markets and other social environments.

Moving from the individual to the community or even national level, however, one often finds large differences in values and codes of conduct (such as the prevalence of individuals who never free ride or who obey the law as a matter of principle). These differences are often deemed as key to understanding differences in economic performance between nations (North, 1990; Putnam, 1993; Landes, 1998).

Thus, values and codes of conduct seem to matter a great deal. They cannot be changed at will, however, a point often forgotten by some historians and many would-be reformers who view culture as a choice amenable to normative considerations.[1] This view misses a fundamental point: a society does not choose its beliefs, let alone its values.

This begs a difficult question: where does culture come from? There is no shortage of hypotheses about the origin and evolution of values, norms and beliefs. Sociologists often claim that values and beliefs will ultimately reflect the main precepts that govern social interactions. Putnam (1993) argues that trust and civic participation are habits formed during a long history of "horizontal associations," and that trust can be nurtured, by repeated participation in formal and informal groups (church groups, trade unions, political parties). Putnam also argues that both hierarchical religions and authoritarian governments discourage the formation of trust by imposing and fostering a vertical structure on society. The empirical evidence here is mixed: Knack and Keefer (1997) find no relationship between group membership and trust in a cross-section of countries, but La Porta et al. (1997) find a negative relationship between trust and hierarchical religions and authoritarian governments.

In a related point, the importance of "habituation" in forming values and attitudes has often been emphasized by sociologists studying the so-called "erosion of morals" in many U.S. urban areas. Wilson (1996) has argued that "the more often certain behavior such as the pursuit of illegal income is manifested in a community, the greater will be the readiness of the community to find that behavior not only convenient but also morally appropriate." Although the empirical evidence in this respect is still unimpressive, some studies lend credence to the idea that values and norms are ultimately shaped by social interactions at the community level (Case and Katz, 1991).

All this suggests that values are unintended by-products of community interactions, when in fact values can also be deliberately shaped. This seems to be the goal of many social organizations that devote considerable time and effort to the inculcation of good values. The point is that differences in culture among regions may be partially accounted for by differences in the efficacy and prevalence of their institutions that mold those values. Although the evidence remains scant, the large investments (and long speeches) devoted to the inculcation of good values suggest, at the very least, a belief in the possible efficacy of such efforts.

In clear contrast to the social emphasis of the previous hypotheses, there have been some attempts to explain cultural differences on the basis of differences in natural environments. Kaplan (1998) argues that collectivist societies are more common in arid regions where there is a more urgent need for water-sharing arrangements (and, more recently, for public goods to store and distribute water). Similarly, coffee growing communities in Latin America have long been regarded as important reservoirs of social capital, which perhaps reflects both the social organization of coffee production (there are no large-scale economies, so small holdings are common) and the importance of public goods in the production and marketing of green coffee (water, again, is essential here). To sum up, cultural differences among regions may in part reflect social responses to differences in geography, weather and other exogenous factors.

External environments affect values in even subtler ways. There is some evidence showing a positive connection between home ownership and civic behavior (DiPasquale and Glaeser, 1998). There is also evidence of a negative connection between ethnic dispersion and income inequality, on the one hand, and social trust and civic participation, on the other (Knack and Keefer, 1997). And there is evidence of a positive connection between city size and social trust (see Figure 3.21). Thus, differences in ethnic composition, urbanization and even home ownership may explain some of the observed differences in social capital across regions and even countries.

Despite this evidence, many social scientists remain skeptical about attempts to change people's morals, values or beliefs. Should public policy move beyond simply trying to get the incentives right into the murkier waters of cultural change and molding values? One can argue either that theories of cultural change are still too fuzzy for political activism, or that the potential payoffs of such involvement could be huge. Cohen (1995) estimates that the value to society of saving a high-risk youth may be as high as $2 million.

---

[1] Landes (1998) approaches cultural change from a normative perspective, arguing that "if we learn anything from the history of economic development, it is that culture makes all the difference." But he offers few clues as to what determines culture. His advice to backward countries seems simple enough: adopt the values of successful countries. A similar approach is used by Apuleyo, Montaner and Vargas Llosa (1994).

sure that local citizens can both hold local politicians accountable and use elections to express their preferences about local issues. Local elections will be less likely to enhance accountability if they are held at the same time as national elections, when voters are forced to choose between competing closed party lists and cannot vote separately for different local and state offices, and when reelection of subnational officials is barred.

Another important element of political reform has to do with the structure of political parties. Although they control the ballots in many countries of Latin America, political parties have often squandered this power, since they do not appear to have firm roots in society and have failed to build consistent followings. Not surprisingly, traditional parties in some Latin American countries have run the course of many inefficient monopolists—that is, they have simply fallen apart when faced with unexpected competitors. In principle, greater political competition forces parties to be more responsive to the needs and preferences of their constituencies. Many parties may crumble, but at the end of day those that survive will be invigorated and more capable of playing their role of aggregating and articulating citizen preferences. Campaign finance laws, the sequencing of elections, and the existence of restrictions on both independent candidacies and the formation of coalitions are some of the key elements that influence the degree of competition among parties and factions within parties.

The reform of judicial systems and legislatures is also important to political reform because it serves the dual purpose of enhancing accountability and improving the fairness of representation. Only if the appointment, promotion and tenure of judges is free from undue political influence will the judiciary be able to independently interpret and enforce laws and check abuses of power. And only if legislatures have sufficient constitutional authority and professional, financial and organizational resources will they be able to effectively monitor representatives and government officials and play an active role in policymaking.

Finally, political reforms should not be conceived in a vacuum, which is to say that ethnic and geographic divisions as well as historical conditions must be considered in any attempt to change political institutions. A change in the electoral rules in a geographically fragmented country must ensure that all regions are represented and that the balance of power allows diverse regional interests to forge compromises. The greater the regional divisions, the greater the difficulty of reconciling the competing goals of representation and efficiency.

One last point should be made. The importance of various civic and cultural factors in understanding why some democracies thrive while others do not has been a recurrent theme in this chapter. These factors include the levels of spontaneous political participation and societal inquisitiveness. While the role of public policy in this realm is limited (Box 4.9), the role of nongovernmental organizations is fundamental, at least with respect to the supervision of elected officials and the generation and dissemination of political information. Direct public involvement in public matters is paramount to solve the inherent difficulties of democratic government.

## TECHNICAL APPENDIX

### Data Sources

#### *Latinobarómetro*

Latinobarómetro is a public opinion survey that has been regularly conducted in 17 Latin America countries since 1995. Approximately 1,500 individuals have been interviewed in each country each year. Although there have been some adjustments to the survey's question and answer formats, many questions have remained the same and are comparable over time. The sampling method varies slightly from country to country because implementation is contracted out to national polling firms, but in most cases the selection includes some quotas to ensure representation across gender, socioeconomic status and age. Throughout the chapter, we combine the three available annual data sets (1996, 1997 and 1998) to create a larger sample size and to reduce the degree to which the country means are influenced by contextual factors, such as elections.

The survey is restricted to urban populations. Individuals from richer households were over-sampled in all countries and all years. We use weights throughout to alleviate this problem.[1] The weights are designed in such a way that, for each country, the distribution of individuals across education groups in the sample matches the actual distribution of the urban population in the country under scrutiny.

Latinobarómetro contains detailed information about the demographic characteristics of both the respondent and the head of the household. While the survey does not contain information on household income or wealth, it does include two sets of questions related to the socioeconomic status of households. The first set includes questions about household ownership of appliances and durable goods (respondents are asked if any member of the household owns a car, computer, television or washing machine), and the second set includes questions about housing (respondents are asked if their place of residence has access to electricity, water, telephone and sewerage).

In principle, one can use a weighted average of these variables to construct an index of long-term socioeconomic status. The problem is how to weight the different attributes. We use the statistical technique of principal components to compute the relative weight of the different household attributes. This technique is often used to summarize the information contained in a large set of variables into a smaller set of mutually orthogonal components (each component corresponds to a different linear combination of the underlying variables). The first principal component is, by construction, the combination that captures the most common variation of the underlying data.

We first use principal components to construct an index of long-term economic status, and then use the index to define wealth quintiles. We do this separately for each country, so the quintiles measure relative positions with respect to other households in the same country.

Overall, Latinobarómetro allows comparisons of political attitudes and opinions not only across countries, but also across social categories within countries. Although some doubts remain about the quality and coverage of the samples, the surveys offer a unique glimpse of the changing realm of Latin American politics.

#### *Other Data Sources*

The main democracy indicators used in the chapter come from Freedom House and Polity III and are discussed at length in Box 4.1. All the raw data used to compute the index of political particularism comes from the Parline Online Database (http://www.ipu.org/parline-e/parlinesearch.asp). The voter turnout data comes from the Institute for Democracy and Electoral Assistance (1997). The indices of political gridlock and the number of effective parties were computed on the basis of a cross-country data set put together by Henisz (1998). The data on government quality was taken from Kaufmann, Kraay and Zoido-Lobatón (1999) at the World Bank. This data set incorporates almost all previously available information on government quality.

[1] This is a common problem in large opinion surveys. The World Values Survey and Eurobarometer also over-sample higher socioeconomic groups. Similar weighting methods are used with them to correct the sample.

## Regression Results

### *Economic Estimations of Government Quality*

**Appendix Table 4.1** **Political Determinants of the Quality of Government**

| Dependent variable: Quality of institutions index | | | | | | |
|---|---|---|---|---|---|---|
| **Independent variables** | **1** | **2** | **3** | **4** | **5** | **6** |
| Turnout | 3.15* (3.30) | | | 2.00* (2.34) | | 0.264 (0.41) |
| Ethnolinguistic frag. index | | -2.45* (-4.48) | | -1.76* (-3.43) | | -0.08 (0.20) |
| Geographic frag. index | | | -2.98* (-4.95) | -2.63* (-4.78) | | -1.050* (2.46) |
| No. of newspapers | | | | | 0.0175* (8.13) | 0.0153* (6.01) |
| No. of newspapers squared | | | | | -0.0000172* (-4.06) | -0.000014* (-3.13) |
| Constant | -1.61* (-2.62) | 1.16* (4.76) | -1.43* (-3.65) | -1.76* (-3.42) | | |
| $R^2$ adjusted | 0.10 | 1.17 | 0.18 | 0.35 | 0.66 | 0.68 |
| No. of observations | 103 | 103 | 103 | 103 | 101 | 101 |

*Note: t-statistics in parentheses.*

** Significant at 5 percent or more.*

**Appendix Table 4.2** **Speed of Tax Reform**

| | | |
|---|---|---|
| Political constraints index | -0.242* (-2.276) | -0.252* (-2.325) |
| Dummy for recession | | -0.003 (0.111) |
| Dummy for hyperinflation | | 0.023 (0.876) |
| $R^2$ | 0.078 | 0.084 |
| N | 53 | 53 |

*Notes: t-statistics in parentheses. Dummy for hyperinflation=1 if inflation greater than 1,000 percent a year at least once in the period. Dummy for recession=1 if GDP growth was negative at least once in the period. Constant not included.*

** Significant at 5 percent or more.*

**Appendix Table 4.3** **Speed of All Reforms**

| | | |
|---|---|---|
| Political constraints index | -0.087 (-1.15) | -0.111 (-1.303) |
| Dummy for recession | | 0.027 (1.203) |
| Dummy for hyperinflation | | 0.071 (1.891) |
| $R^2$ | 0.020 | 0.193 |
| N | 53 | 53 |

*Note: t-statistics in parentheses. Constant not included.*

## BIBLIOGRAPHY


Alesina, B. and W. Easterly. 1997. *Public Goods and Ethnic Divisions.* NBER Working Paper No. 6009.

Alesina, A. and E. La Ferrara. 1999. *Participation in Heterogeneous Communities.* NBER Working Paper No. 7155.

Ames, B. 1995. Electoral Rules, Constituency Pressures, and Pork Barrel: Bases of Voting in the Brazilian Congress. *The Journal of Politics* 57(2): 324-43.

Apuleyo, P., C. Montaner, and A. Vargas Llosa. 1994. *Manual del Perfecto Idiota Latinoamericano.* Bogota: Planeta Editores.

Bartolini, S. and Peter Mair. 1990. *Competition and Electoral Availability: The Stabilization of European Electorates, 1885-1985.* Cambridge: Cambridge University Press.

Bates, Robert H. 1981. *Markets and States in Tropical Africa: The Political Basis of Agricultural Policies.* Berkeley: University of California Press.

Case, A. and L. Katz. 1991. *The Company You Keep: The Effects of Family and Neighborhood on Disadvantaged Youth.* NBER Working Paper No. 3705.

Carey, J. and M. Shugart. 1995. Incentives to Cultivate Personal Vote: A Rank Ordering of Electoral Formulas. *Electoral Studies* 14: 417-39.

———. 1992. *Presidents and Assemblies: Constitutional Design and Electoral Dynamics.* New York: Cambridge University Press.

Central and Eastern Eurobarometer. 1998. Status of the European Union, October-November, 1996. Inter-University Consortium for Political and Social Research, Ann Arbor, MI.

Cohen, M. 1995. The Monetary Value of Saving a High Risk Youth. Vanderbilt University. Mimeo.

DiPasquale, D. and E. L. Glaeser. 1998. *Incentives and Social Capital: Are Homeowners Better Citizens?* NBER Working Paper No. 6363.

Easterly, W. and R. Levine. 1997. Africa's Growth Tragedy: Policies and Ethnic Divisions. *Quarterly Journal of Economics* 112: 1203-50.

Eurobarometer. 1999. Holiday Travel, October-November, 1998. Inter-University Consortium for Political and Social Research, Ann Arbor, MI.

———. 1991. European Elections, 1989. Pre-Election Survey, March-April, 1989. Inter-University Consortium for Political and Social Research, Ann Arbor, MI.

———. 1986. Political Cleavages in the European Community, April, 1984. Inter-University Consortium for Political and Social Research, Ann Arbor, MI.

Freedom House. 1999. *Freedom in the World: The Annual Survey of Political Rights and Civil Liberties 1998-1999.* New York: Freedom House.

Gaviria A., U. Panizza, and J. Seddon. 1999. Patterns and Determinants of Political Participation in Latin America. IPES Background Paper, Inter-American Development Bank.

Gaviria A., U. Panizza, J. Seddon and E. Stein. 1999. Political Institutions and Economic Outcomes. IPES Background Paper, Inter-American Development Bank, Washington, D.C.

Gastil, R. 1987. *Freedom in the World: Political Rights and Civil Liberties 1986/87.* New York: Freedom House.

Gurr, T. R. 1996. *Polity III: Political Structures and Regime Change, 1800-1994.* Boulder, CO: Center for Comparative Politics.

Hagopian, F. 1998. Democracy and Political Representation in Latin America in the 1990s: Pause, Reorganization, or Decline? In F. Agüero and J. Stark (eds.), *Fault Lines of Democracy in Post-Transition Latin America.* Miami: North-South Center at the University of Miami.

Henisz, W. 1998. The Institutional Environment for Economic Growth. Business and Public Policy Group, Haas School of Business, UC Berkeley. Mimeo.

Huntington, S. P. 1991. *The Third Wave: Democratization in the Late Twentieth Century.* Norman: University of Oklahoma Press.

ICPSR. 1994. *World Values Surveys.* ICPSR Study No. 6160, Inter-University Consortium for Political and Social Research, Institute for Social Research.

Institute for Democracy and Electoral Assistance (IDEA). 1997. *Voter Turnout from 1945 to 1997: A Global Report on Political Participation.* Stockholm: International Institute for Democracy and Electoral Assistance.

Inter-American Development Bank (IDB). 1997. *Economic and Social Progress in Latin America. 1997 Report.* Washington, D.C.: Inter-American Development Bank.

International Monetary Fund. 1995. *Government Finance Statistics.* Washington, DC: IMF.

Inter-Parliamentary Union. Various years. *Chronicle of Parliamentary Elections and Developments.* Annual report published by the International Center for Parliamentary Documentation, Geneva.

Kaplan, R. D. 1998. Travels into America's Future. *Atlantic Monthly* (July).

Kaufmann, D., A. Kraay and P. Zoido-Lobatón. 1999. Aggregating Governance Indicators. World Bank. Unpublished.

Knack, S. and P. Keefer. 1997. Does Social Capital Have an Economic Payoff? A Cross-Country Investigation. *Quarterly Journal of Economics* 62: 1251-88.

Klingemann, H. D. and D. Fuchs (eds). 1995. *Citizens and the State.* Oxford: Oxford University Press.

Landes, D. 1998. *The Wealth and Poverty of Nations.* New York: W.W. Norton & Company.

La Porta, R., F. Lopez de Silanes, A. Sheifer, and R. Vishny. 1998. *The Quality of Government.* NBER Working Paper No. 6727.

Latinobarómetro. 1996, 1997, 1998. *Informes Metodológicas.*

Linz, J. 1990. The Perils of Presidentialism. *Journal of Democracy* 1(1): 51-69.

Linz, J. and A. Valenzuela. 1994. *The Failure of Presidential Democracies: The Case of Latin America.* Baltimore: John Hopkins University Press.

Lora, E. and F. Barrera. 1997. *A Decade of Structural Reforms in Latin America: Measurement and Growth Effects.* Office of the Chief Economist Working Paper 350, Inter-American Development Bank, Washington, D.C.

Lupia, A. and M. D. McCubbins. 1998. *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* Cambridge: Cambridge University Press.

Mainwaring, S., and T. Scully. 1995. *Building Democratic Institutions: Party Systems in Latin America.* Stanford: Stanford University Press.

Mainwaring, S., and M. Shugart. 1997. *Presidentialism and Democracy in Latin America*. New York: Cambridge University Press.

Mauro, P. 1995. Corruption and Growth. *Quarterly Journal of Economics* 110(3): 681-712.

Norris, P. (ed.). 1999. *Critical Citizens: Global Support for Democratic Governance*. Oxford: Oxford University Press.

North, D.C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

O'Donnell. G. 1994. Delegative Democracy. *Journal of Democracy* 5(1): 55-69.

Olson, M. 1982. *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities*. New Haven: Yale University Press.

———. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.

Putnam, R. 1993. *Making Democracy Work: Civil Traditions in Modern Italy*. Princeton: Princeton University Press.

Shugart, M. S. 1999. Efficiency and Reform: A New Index of Government Responsiveness and the Conjunction of Electoral and Economic Reforms. Graduate School of International Relations and Pacific Studies, University of California, San Diego. Mimeo.

Wilson, W. J. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Knopf.

Wolfinger, R. and S. Rosenstone. 1980. *Who Votes?* New Haven: Yale University Press.

World Bank. World Development Indicators. World Bank, Washington, D.C. CD-ROM.

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