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BUILDING HUMAN CAPITAL IN AN AGING MEXICO

A REPORT OF THE
U.S.-MEXICO BINATIONAL COUNCIL

Center for Strategic and International Studies (CSIS)
Instituto Tecnológico Autónomo de México (ITAM)
July 2005

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The U.S.-Mexico Binational Council is composed of distinguished citizens from both nations who share a commitment to fostering the U.S.-Mexico relationship and to developing a collaborative agenda that addresses the resulting challenges and opportunities. The council, which is cosponsored by the Center for Strategic and International Studies (CSIS) in Washington, D.C., and the Instituto Tecnológico Autónomo de México (ITAM) in Mexico City, convenes roundtables and other high-level meetings designed to generate new ideas and specific policy recommendations on the whole range of issues shaping the bilateral agenda. The cosponsoring institutions then oversee the research and writing of policy reports that further develop the ideas discussed at the meetings. After review by the council, the reports are presented to key officials in the administrations and congresses of both countries.

Few foreseeable developments over the next few decades are likely to have as large an impact on Mexico's economy and society as the dramatic aging of its population. The council believes that the issues discussed here are vitally important and deserve the serious attention of policy leaders in both Mexico and the United States. We are thus pleased to include *Building Human Capital in an Aging Mexico* among the reports of the U.S.-Mexico Binational Council. Council reports are not, however, consensus documents. They do not necessarily enjoy the support of all council members, and the views they express cannot be attributed to any individual member.

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Although the author gratefully acknowledges the assistance he received in researching *Building Human Capital in an Aging Mexico,* the responsibility for any shortcomings is his alone.

CHAPTER 1

Mexico at a Crossroads

Although Mexico is still a demographically young nation preoccupied with a young nation's challenges—from educating youth to building a modern economy—it is about to undergo a stunning demographic transformation. Today, there are nine Mexican children under age 20 for every elderly adult aged 65 and over. Forty-five years from now in 2050, according to United Nations' projections, there will be as many elderly as children. By then, one out of five Mexicans will be age 65 or over—the same share the UN projects for the United States.[1] (See figure 1.)

How Mexico navigates this demographic transformation will go a long way toward determining whether it achieves its aspiration of becoming a prosperous developed economy. Over the next 25 years, while its population is still young and growing, Mexico must boost the skills of its workforce, develop globally competitive industries, and raise productivity and living standards. At the same time, it must put in place a system of old-age support capable of caring for a larger number of elderly without overwhelming public budgets or family support networks. If Mexico fails, the demographic transformation could lead to widespread economic hardship later in the century.

While its population is still young and growing, Mexico must raise productivity and living standards.

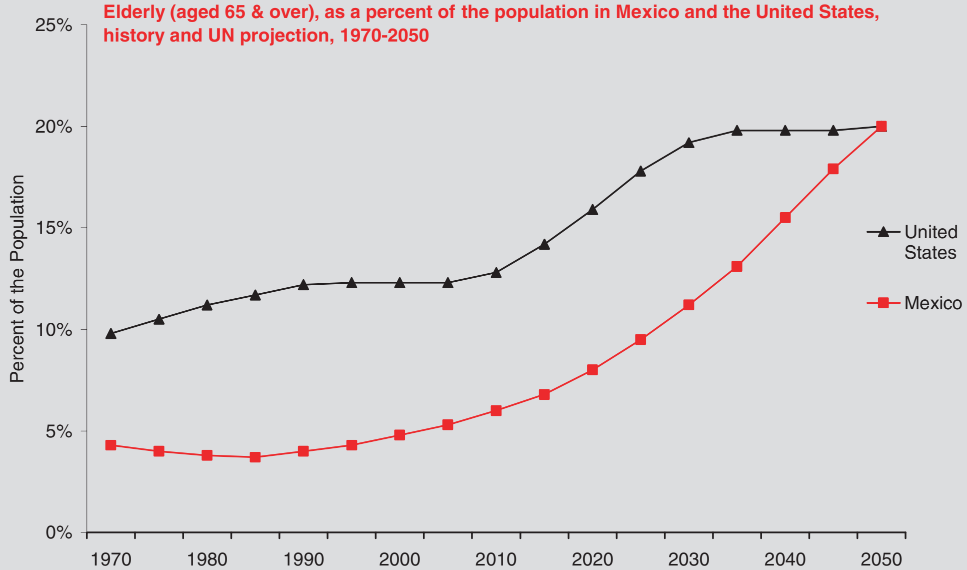
Mexico finds itself at a crossroads similar to the one faced by many other developing countries. Throughout Latin America and East Asia, falling fertility and rising longevity are ushering in the same demographic transformation. Although most nations still have relatively young populations, most are due to age dramatically. Although most remain relatively poor, most are striving to raise living standards and integrate themselves into the global economy.

Beginning in the late 1980s, Mexico embarked on an ambitious agenda of economic and political reform. In many respects, it has been an impressive success. The budget is close to being balanced and the currency is stable. Trade and foreign direct investment have grown rapidly since the North American Free Trade Agreement (NAFTA) took effect in 1994. Along the way, Mexico has strengthened its democratic institutions. It is also undertaking new strategic investments in education and in science and technology designed to foster what the administration of

1. All demographic projections cited in this report refer to the UN's 2002 "medium variant" scenario, the benchmark most often used by demographers. These projections, as well as all other major data sources, are discussed in appendix A, "Note on Data and Sources," at the end of the report.

When the age wave has run its course, Mexico will be as old as the United States.

Elderly (aged 65 & over), as a percent of the population in Mexico and the United States, history and UN projection, 1970-2050



Source: UN (2003).

Figure 1

Vicente Fox describes as "competitividad real."[2] These are beginning to yield results as Mexican businesses gradually move up "the global value chain." In its *Global Competitiveness Report 2004–2005*, the World Economic Forum ranked Mexico as the second most competitive economy in Latin America, behind only Chile.[3]

Yet despite the progress, Mexico is encountering difficulties on the road to modernization. From tax policy to labor-market policy, the reform process, after a promising start, has stalled. With the government divided and presidential elections fast approaching in 2006, the near-term prospects that the administration and Congress can build consensus and move forward with reform have dimmed. Meanwhile, the economy is failing to generate enough jobs—and most of the jobs it does generate are in the informal sector. Huge disparities in income persist between Mexico's rich and poor, urban and rural, majority and minority populations. Emigration to the United States is at record levels. Most fatefully, the gap between the skills of Mexico's workforce and the demands of tomorrow's global economy remains wide. By almost any measure, from educational attainment to worker productivity, Mexico

Despite recent progress, Mexico is encountering difficulties on the road to modernization.

2. Secretaría de Economía, Política Económica para la Competitividad, online at http://www.economia.gob.mx/?P=1363.

3. World Economic Forum, *Global Competitiveness Report 2004–2005* (Geneva: World Economic Forum, 2004).

lags behind the developed countries in human capital development. At the same time, it is rapidly losing its traditional low-wage advantage to China, India, and other fast-growing developing economies in East and South Asia.

As for old-age support, Mexico remains unprepared. To be sure, a major reform in the late 1990s created a funded system of personal retirement accounts that promises to make the burden of supporting a growing elderly population more manageable. Yet only a minority of the workforce actually participates in the pension system. Most Mexicans continue to rely on the traditional form of old-age insurance—children. But as birthrates decline, and as urbanization breaks up extended families, informal support networks are fraying even before the age wave rolls in.

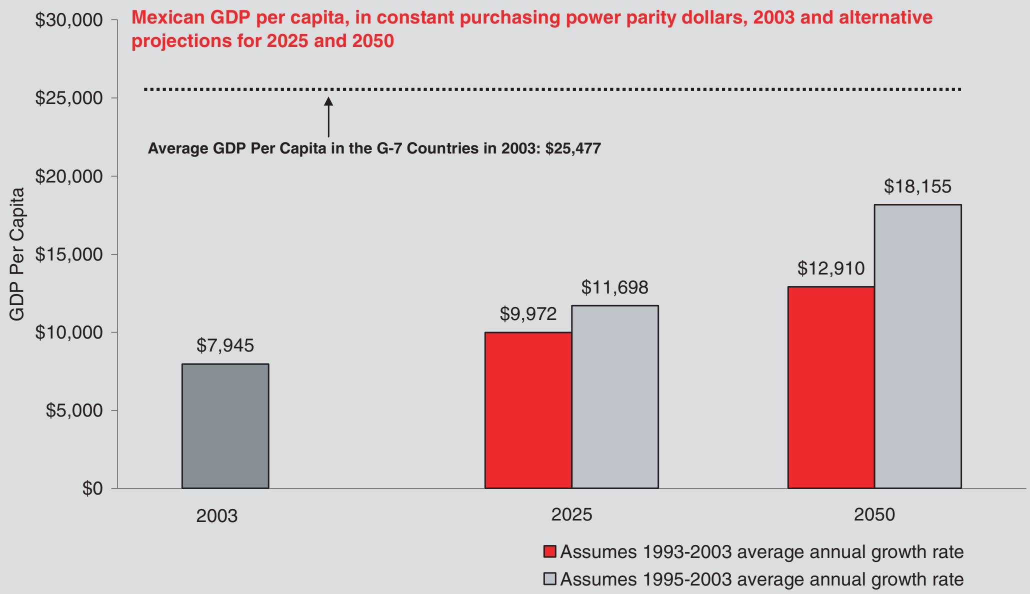
The aging of Mexico raises the stakes in its development drama. Today's developed countries became affluent societies before they became aging societies. At current rates of economic growth, it will take Mexico at least half a century for its living standard to approach the level in the developed countries *today*. Unless economic growth accelerates tremendously, Mexico will have to pay for an age wave of developed-country proportions with a fraction of the developed countries' income and wealth. (See figure 2.)

Mexico's age wave raises the stakes in its development drama.

Fortunately, Mexico has a wide window of opportunity to prepare for the challenge. The age wave, with its steep rise in dependency costs, will not arrive in full force until the 2030s. For the next 25 years, the demographic climate in Mexico will be relatively favorable. The number of children that must be supported by each working-age adult will fall much faster than the number of elderly will rise. Meanwhile, the share of Mexicans in the traditional working years will reach record highs. Throughout this period of "demographic dividend," the economic impacts of aging will tend to be positive. As the number of nonworking dependents declines relative to the number of working adults, per capita living standards may grow more rapidly. As Mexico's median age rises, so may rates of savings and investment. At the same time, slower growth in the workforce may encourage employers to substitute capital intensive (high-wage) jobs for labor-intensive (low-wage) jobs. In recent decades, Taiwan, South Korea, and the other East Asian Tigers have translated their demographic dividends into faster economic growth. So can Mexico—provided that the government makes the right policy and legislative choices today.

This report examines how demographic trends are likely to reshape Mexico's economy and society over the next half century. It focuses on the human capital implications of the aging of Mexico's population—how demography may help or hinder policies aimed at increasing human capital formation and how such policies can be retooled to be more effective. Along the way, it pays special attention to identifying demographic and economic synergies between Mexico and the United States and Canada that could be leveraged for the benefit of all three nations. The goal is to help Mexico capitalize on its demographic dividend—while also preparing for the age wave looming further over the horizon. The report draws on the rich literature in the fields of population aging, economic development, and human capital formation. It also distills the insights of a U.S.-Mexico Binational Council round-

At recent rates of income growth, Mexico will grow old before it grows rich.



Sources: World Bank (2004) and author's calculations.

Figure 2

table, "Building Human Capital in an Aging Mexico," attended by approximately two-dozen experts from Mexico and the United States.[4]

Chapter 2 of the report describes the coming demographic transformation and the challenges—and opportunities—it poses. Chapter 3 zeroes in on the obstacles that Mexico must overcome to capitalize on its demographic dividend and prepare for the age wave. It identifies five policy imperatives for an aging Mexico: educating the rising generation; improving the skills of the current workforce; investing in science and technology; completing the economic and political reform agenda; and creating a universal old-age safety net. For each imperative, it discusses what Mexico has already accomplished and what remains to be done. The concluding chapter 4 then briefly summarizes the report's major findings.

CSIS identifies five policy imperatives for an aging Mexico, from educating the rising generation to creating a universal old-age safety net.

The report finds reason to be hopeful that Mexico will successfully navigate its demographic transformation. Opinion leaders and policymakers in Mexico are increasingly aware of the challenge—and from education reform to pension reform, government has taken important steps to respond. Yet at the same time, the report also cautions that the aging challenge is greater than is commonly supposed and that the obstacles to a successful outcome remain numerous and daunting.

4. The roundtable was held at CSIS on October 29, 2004. A list of participants is included in appendix C of this report; a complete transcript is available online at http://www.csis.org/gai.

CHAPTER 2

The Dimensions of Mexico's Aging Challenge

Confronting the aging challenge will require a shift in attitudes and expectations as sweeping as the demographic transformation itself. Today's generation of Mexican leaders came of age in an era of abundant youth and worries about runaway population growth. Since World War II, Mexico's population has quadrupled from roughly 25 million to 106 million. From water shortages to housing shortages, the population explosion has helped define modern Mexican life. For decades, the problem was too many babies. It is hard to believe that in the future it will be too many old people.

Mexico is of course still a young society. Its median age is now 25, meaning that nearly half of Mexicans are children or teenagers. The elderly—here defined as adults aged 65 and over—make up just 5 percent of the population, not much more than they have since time immemorial. An epochal demographic transformation, however, is gathering momentum. By 2050, according to UN projections, Mexico's median age will climb to 42, and the elder share of its population will reach 20 percent. By then, there will be 28 million Mexican elders—more than the *total* population of Mexico as recently as 1950.

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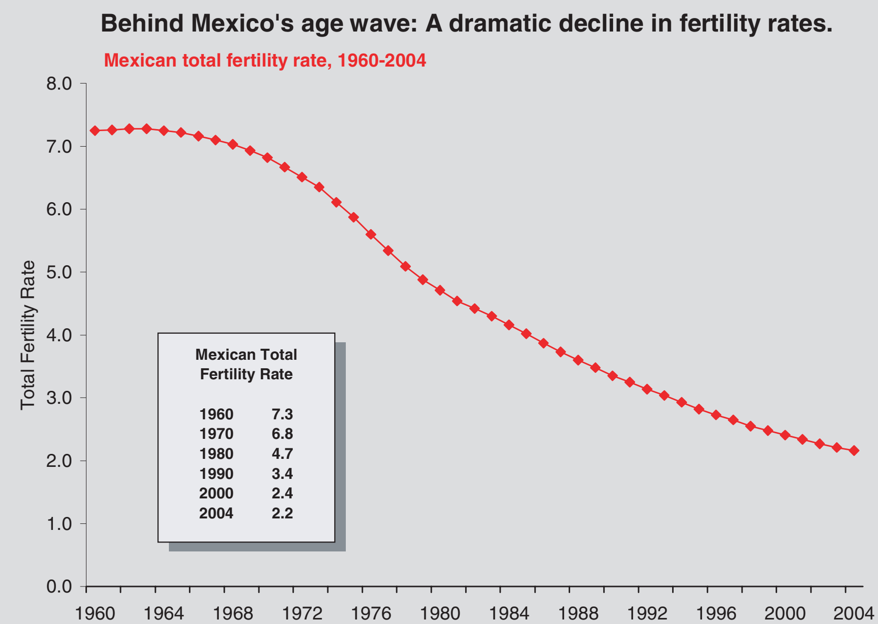
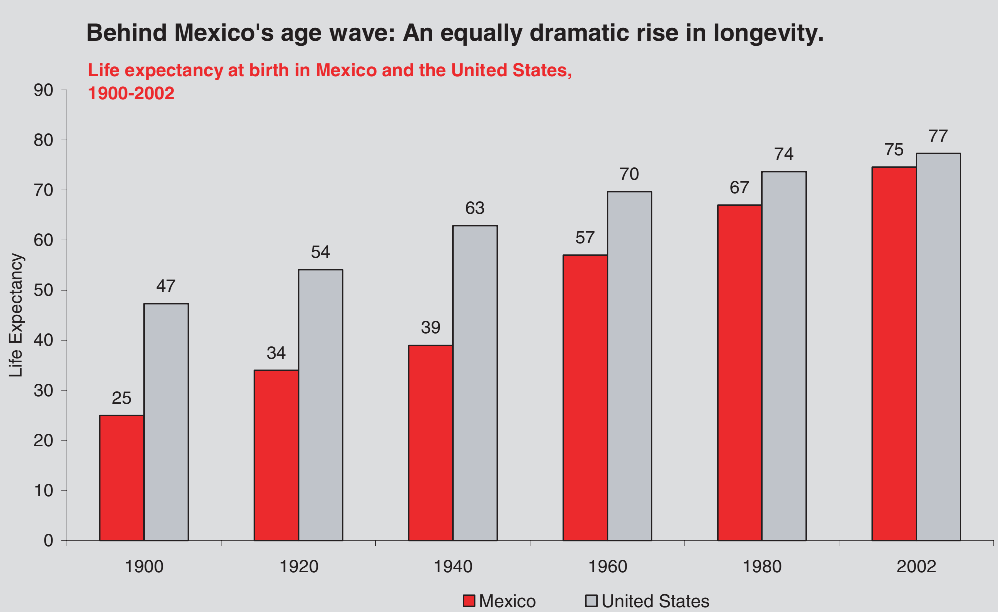
Mexico's demographic transformation results from two fundamental forces—falling fertility and rising longevity. The first force is decreasing the relative number of young in the population, while the second force is increasing the relative number of old. As recently as the mid-1960s, the Mexican fertility rate was 7.2—among the highest in the world. In the 1970s, however, the fertility rate began a precipitous decline, sinking to 4.7 in 1980 and to 3.4 in 1990. By 2004, it had dropped to 2.2, only slightly above the so-called 2.1 replacement rate needed to maintain a stable population over time. (See figure 3.) Even as birthrates have fallen, improved nutrition, sanitation, and health care have led to dramatic increases in life expectancy. In 1900, life expectancy in Mexico was a mere 25. Today, it has reached 75, on a par with some developed countries, including the United States. (See figure 4.)

Mexico's demographic transformation results from two fundamental forces—falling fertility and rising longevity.



Sources: CONAPO (2005a and 2005b).

Figure 3



Sources: CONAPO (2005b); Astorga, Bergés, and Fitzgerald (2004); and National Center for Health Statistics (2004).

Figure 4

Mexico is not the only fast-aging developing country. As living standards have increased in recent decades, fertility has fallen and life expectancy has risen throughout Latin America—and indeed, throughout most of the developing world. Both trends appear to be a universal consequence of economic development and so far show no signs of abating. Virtually all demographers agree that Mexican life expectancy will continue to rise. And although fertility is more difficult to forecast, few believe that the current downward trend is likely to be reversed. Fertility has already fallen beneath the replacement rate among more affluent and educated Mexican women. It is also significantly lower in highly urbanized states than it is in more rural ones.[5] As Mexico continues to urbanize and as incomes and educational attainment rise, the United Nations and the Mexican National Population Council (CONAPO) both project that Mexico's overall fertility rate will continue to decline.

Mexico's demographic transformation is being given an extra twist by the aging of its postwar "baby boom"—or rather, child boom. Many developed countries, most notably Canada and the United States, experienced a surge in fertility in the immediate postwar decades. Mexico had a baby boom too, but it was the result of a rapid decline in infant and child mortality rather than a rise in fertility. Although survival rates for Mexican children began to improve sharply in the 1940s, birthrates did not begin to decline until the 1970s. The result was a dramatic increase in completed family size. For the moment, Mexico's outsized boomer cohorts are swelling the ranks of its middle-aged population. Eventually, however, they will begin to cross the threshold of old age—and as they do, they will give an extra push to Mexico's age wave.

The aging of its population will challenge Mexico's ability to provide a decent standard of living for the old without imposing a crushing burden on the young. Already today, the government is worried about how to pay for the unfunded liabilities of its generous civil service pension system, which amount to a hefty 50 percent of GDP.[6] In 2004, it passed a controversial reform that begins to trim back benefits to one particularly privileged group of public-sector employees—those at the Mexican Social Security Institute (IMSS).

The age wave will challenge Mexico's ability to provide for the old without imposing a crushing burden on the young.

The bigger problem, however, is that most Mexican elders qualify for no pension benefit at all. Overall, just 20 percent of the elderly collected a public pension in 2001. Among poor elders, the share with a pension is vanishingly small—just 8 percent of poor elders living in urban areas and just 1 percent of those living in rural areas. The government is trying to extend coverage to the entire workforce, which means that rates of pension receipt may rise in the future. As yet, however, few workers in Mexico's large informal sector have signed up, and rates of evasion are high even among formal-sector workers. All told

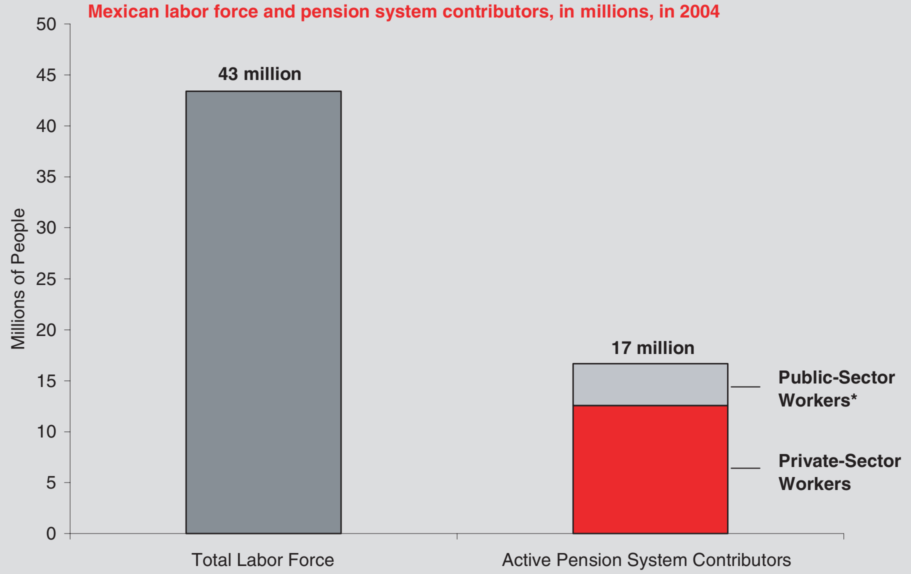
5. Rodolfo Tuirán, Virgilio Partida, Octavio Mojarro, and Elena Zúñiga, "Fertility in Mexico: Trends and Forecast," paper presented at the Expert Group Meeting on Completing the Fertility Transition, March 11–14, 2002 (New York: United Nations, 2002).

6. International Monetary Fund (IMF), *Mexico: Selected Issues,* IMF Country Report No. 02/238 (Washington, D.C.: IMF, October 2002).

in 2004, just 40 percent of Mexico's total workforce actually contributed to the public pension system. (See figure 5.) The situation is similar when it comes to health-care coverage. As of 2002, only 45 percent of Mexican households had any health insurance at all, public or private. The Popular Health Insurance program, a major new initiative of the Fox administration, is beginning to extend coverage to the uninsured, but so far both participation and benefits are limited.

Only a minority of Mexicans are contributing to the public pension system.

Mexican labor force and pension system contributors, in millions, in 2004



* Data for public-sector workers are for 2002.
Sources: Budebo (2003) and AIOS (2004).

Figure 5

For Mexicans without public retirement benefits, the alternative means of support are limited. Few elders can count on employer pensions to pick up where government provision leaves off. Although employer-sponsored plans exist, they are rare outside large multinational corporations. Nor can most elders rely on personal savings. Just 4 percent of elderly men and 2 percent of elderly women have any asset income at all. Staying on the job is an obvious alternative to collecting retirement benefits—and indeed, most Mexican men in their sixties and a large share in their seventies continue to work. Older workers, however, are finding it increasingly difficult to compete with younger, healthier, and better-educated cohorts. A recent study of the labor-market prospects of older workers concludes that their wages are declining relative to those of younger workers and warns that the trend may accelerate in the future.[7]

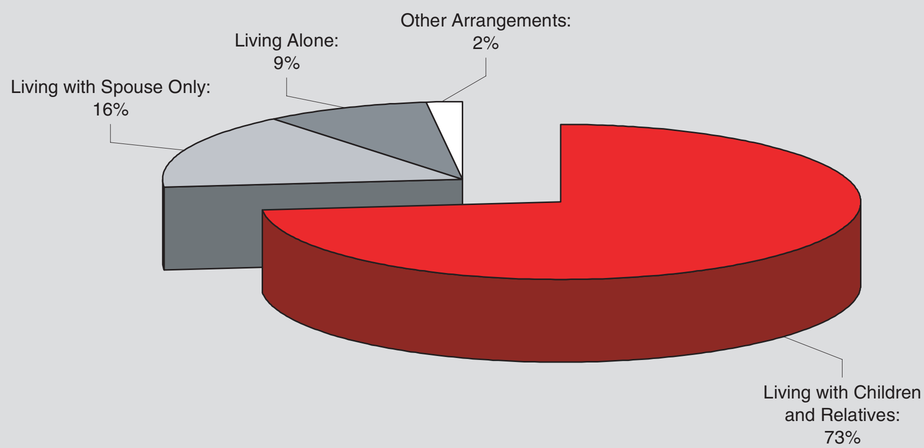
For most Mexican elders, the only real backstop against a destitute old age is the family.

7. Jorge Meléndez, "Population Aging and the Labor Market: Issues Relevant for Social Security in Mexico," paper presented at the 4th International Research Conference on Social Security, Antwerp, May 5–7, 2003.

The truth is that for many if not most Mexican elders, the only real backstop against a destitute old age is the family. According to Mexico's 2000 Census, 73 percent of elders aged 60 and over live with their children or other relatives. (See figure 6.) Even when elders live alone, moreover, they often depend on their children financially. According to one study, two-thirds of Mexican men aged 60 and over who live alone or with their spouse report receiving some form of assistance from the extended family.[8] The assistance may come from children who live next door or who live abroad. A significant share of remittances, which at $16.6 billion in 2004 constitute Mexico's second largest source of foreign exchange earnings after oil, go to aged parents.

Most Mexican elders still live in extended families.

Mexican elderly (aged 60 & over), by living arrangement, as a percent of total in 2000



Source: De Vos (2004).

Figure 6

The problem is that the family may no longer be up to fulfilling its traditional support role. Today's elders typically have four or five surviving children to share the responsibility of supporting them. Mexico's fertility bust, however, will soon change this equation. By the 2030s, elders will typically have just two or three children. Compounding the burden is a phenomenon demographers call the "aging of the aged." While the number of Mexicans aged 65 to 74 is due to grow fivefold between 2000 and 2050, the number aged 85 and over will grow more than ninefold. (See figure 7.) What makes this trend so ominous is that rates of disability rise steadily with age, even among the elderly themselves. In other words, not only will there be more elders for each child to support, but the elders will be older and frailer.

8. Susan De Vos, Patricio Solís, and Verónica Montes de Oca, "Receipt of Instrumental Assistance and Extended Family Residence among Elders in Mexico," CDE Working Paper No. 2001-18 (Madison, Wis.: Center for Demography and Ecology, University of Wisconsin-Madison, October 2001).

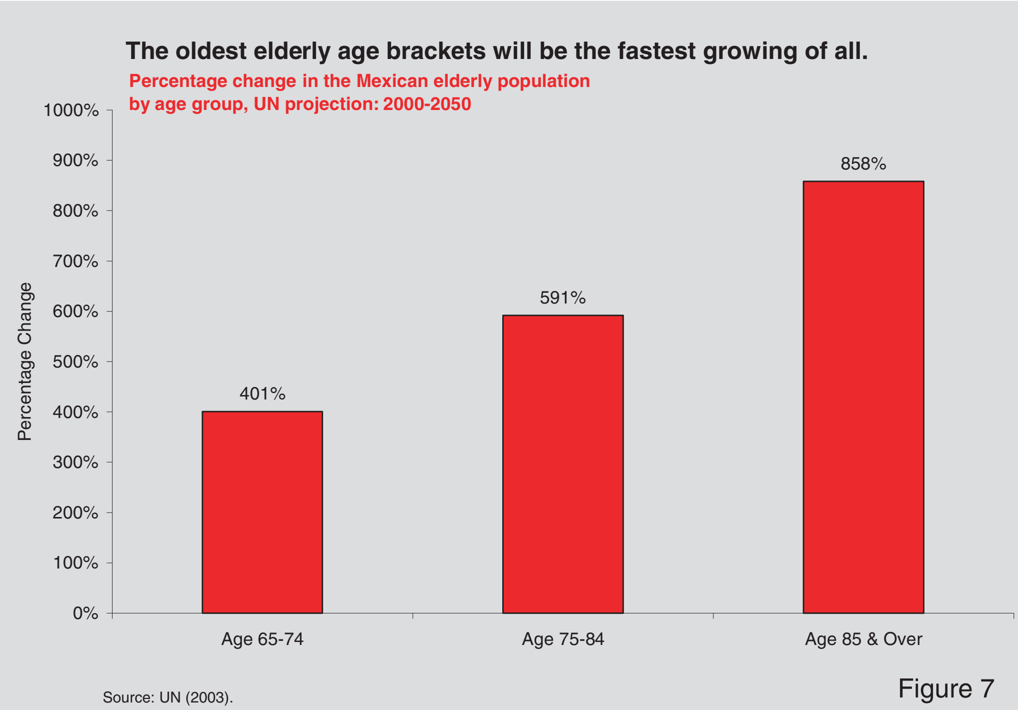


Figure 7

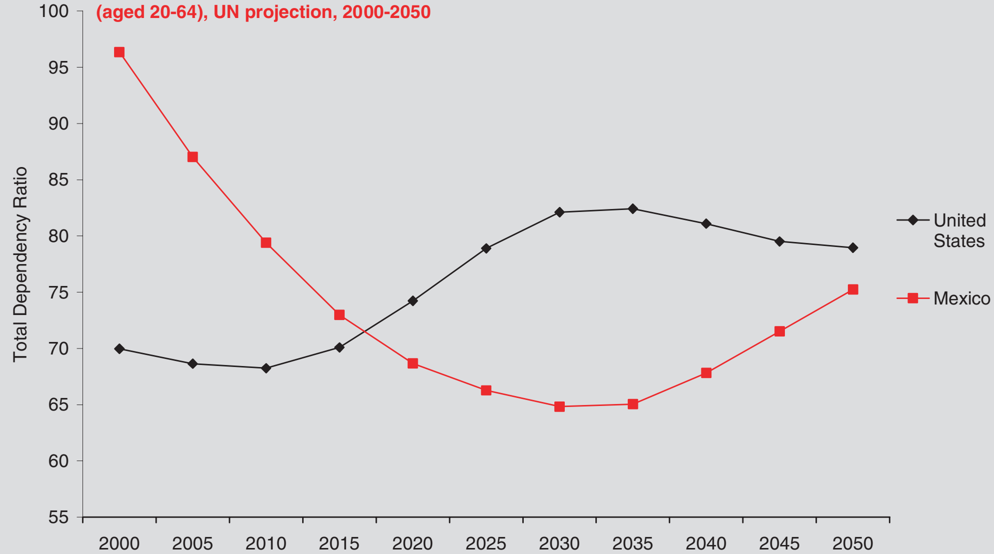
Fortunately, Mexico's age wave—and the old-age dependency challenge it will bring—still looms well over the horizon. For the next 25 years, demographic trends will on balance tend to help rather than hinder growth in Mexican living standards. When fertility rates first fall and life expectancy first rises, developing countries experience a period called the "demographic dividend." The dividend arises because initially the number of dependent young declines much faster than the number of dependent old increases. The demographic dividend may have played a role in boosting economic growth in the Asian Tigers over the past quarter century, and it could do the same for Mexico over the next quarter century.

Before the age wave comes the "demographic dividend."

Mexico's child dependency ratio—that is, the number of children per 100 working-age adults—has already dropped from 147 in 1975 to 77 today, and it is due to keep dropping, all the way to 46 in 2030. Because the number of children is declining faster than the number of elderly is increasing, Mexico's total dependency ratio of children plus elders to working-age adults is also declining. Now 87, it is due to sink to an all-time historical low of 65 in 2030, before reversing direction and rising rapidly as boomers begin retiring in large numbers. (See figure 8.) The flip side of the relative decline in the number of Mexico's dependents is the relative rise in the number of working-age adults. Throughout most of Mexican history until the 1990s, working-age adults composed roughly 40 percent of the population. That share passed 50 percent in 2000 and is due to peak at around 60 percent in 2030. (See figure 9.)

The demographic dividend: A declining number of dependents per working-age adult.

The number of elderly (aged 65 & over) plus children (aged 0-19) per 100 working-age adults (aged 20-64), UN projection, 2000-2050

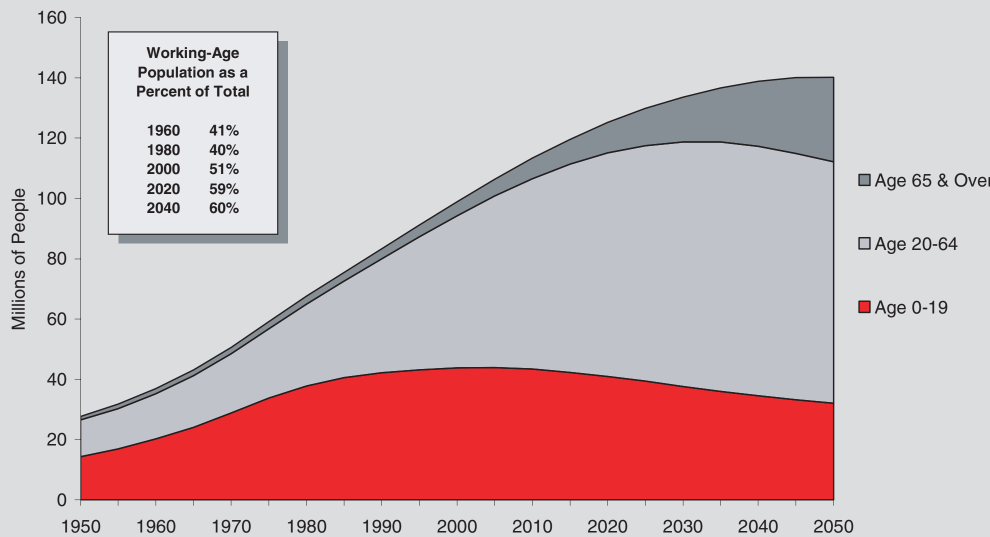


Source: UN (2003).

Figure 8

The demographic dividend: A record share of the population in the working years.

Mexican population by age group, in millions, history and UN projection, 1950-2050



Source: UN (2003).

Figure 9

This initial phase of Mexico's demographic transformation could bring important economic benefits. A falling child dependency ratio should, at least for a while, help ease pressures on government budgets and family support networks. To be sure, children and elders are not economic equivalents. The average cost of supporting an elder is greater than the cost of supporting a child. Spending on the elderly, moreover, is largely consumption, while spending on children represents an investment that can generate returns for society over time. Still, the steep decline in Mexico's child dependency ratio promises to offset some of the burden of rising old-age dependency costs. It could also accelerate the ongoing shift of women from the domestic to the market economy, giving a further boost to Mexico's economic growth.

> **The initial phase of Mexico's demographic transformation could bring large economic benefits.**

Rates of savings may also rise in Mexico as a larger share of the population enters its middle years. Households tend to borrow when young, become net savers in mid-life, then dissave in old age. This "life cycle" savings pattern could in turn translate into higher rates of investment, productivity, and wage growth. At the same time, smaller families may be inclined to invest more in the "quality" of their children—and thus of Mexico's future workforce. In most countries, the demographic transition from high fertility and high mortality, the norm in traditional societies, to low fertility and low mortality, the norm in modern societies, has been accompanied by the development and diffusion of a middle-class ethos that emphasizes investment in children.

The dramatic deceleration in the rate of growth of Mexico's working-age population also has potentially positive economic implications. Falling fertility not only translates into an older Mexico, but into a Mexico in which the workforce and the population will be growing much more slowly. The rate of growth in Mexico's working-age population is due to fall from 2.3 percent per year in the 2000s to 1.6 percent per year in the 2010s, 0.9 percent per year in the 2020s, and 0.2 percent per year in the 2030s. In cumulative numbers, Mexico's working-age population will grow by 25 percent during the current 2000s decade, but by just 2 percent during the 2030s. (See figure 10.) As growth in the workforce slows, the locus of economic activity in Mexico may shift from labor-intensive to capital intensive industries, which is another way of saying that it may shift from low-wage to high-wage jobs.

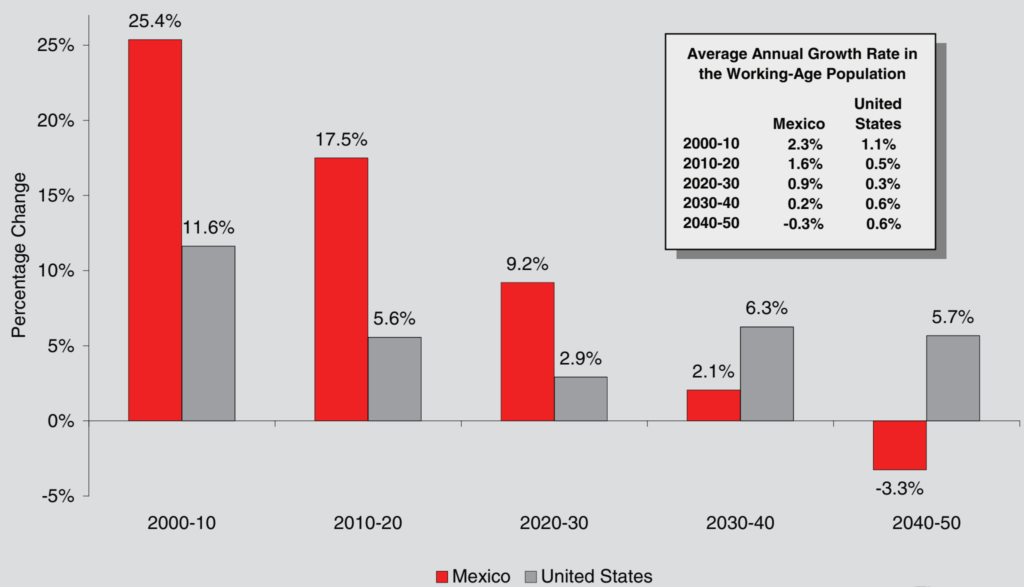
> **As workforce growth slows, the locus of economic activity may shift from low-wage to high-wage jobs.**

Demographic trends could also usher in a new era of closer economic integration and cooperation between Mexico and its neighbors to the north. The U.S. and Canadian age waves are approaching much faster than Mexico's, meaning that old-age dependency costs will ramp up sooner and workforce growth will slow more rapidly. Although Mexico's working-age population will still be growing by 1.6 percent per year in the 2010s, the rate of growth in the working-age population will have already slowed to 0.5 percent per year in the United States and to 0.3 percent per year in Canada. Unless productivity growth north of the border accelerates as much as employment growth slows, growth in the economy will slow as well. Meanwhile, workforces in Europe and Japan are due to enter a steep decline. By 2050, the UN projects that there will be 19 percent fewer working-age Germans than there are today and 36 percent fewer working-age Japanese. This differential aging has important implications for cross-border capital flows—both human and financial. In the decades to come, employers in the developed world will be looking to Mexico for skilled workers; investors will be looking there for higher returns.

The demographic synergies between Mexico and a faster-aging United States could usher in an era of closer economic integration and cooperation.

It is uncertain what the demographic trends mean for future immigration levels. On the one hand, the aging of Mexico will tend to reduce migration "push." As

The growth in Mexico's workforce will gradually but steadily decelerate.
Percentage change in the working-age population (aged 20-64) in Mexico and the United States by decade, UN projection, 2000-2050



Source: UN (2003).

Figure 10

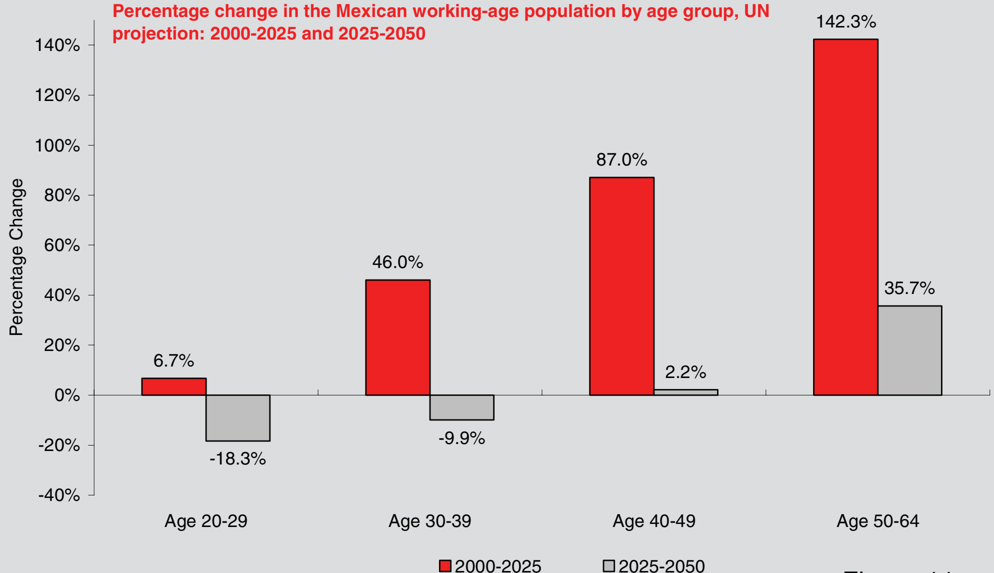
workforce growth slows and labor becomes relatively scarce, more Mexican workers should be able to fulfill their economic aspirations at home. On the other hand, the aging of the United States and Canada will tend to increase migration "pull," which is one reason why both the U.S. Census Bureau and CONAPO project that Mexico will remain a large "sending country" for the foreseeable future. Another reason is the existence of extensive family and community immigrant networks. Such networks tend to reduce the risks and increase the returns of migration. Relatives and friends help new immigrants find jobs. They also provide social and cultural support in the immigrant community with a familiar language, food, religion, and customs. Some demographers thus conclude that migration from Mexico to the

United States may continue at today's rate, even if the gap in wages and living standards now driving migration substantially narrows.[9]

What is clear is that the demand for skilled labor is sure to intensify in the United States, Canada, and other fast-aging developed countries facing large labor shortages. To the extent that Mexico does not export the workers to meet the demand, it may be able to import the jobs. Indeed, if Mexican workers master the outsourceable skills in demand by global corporations, they could become a driving force behind economic growth in North America, reaping the returns in higher wages and higher living standards. The prospects for younger workers in particular are bright. Not only do they tend to be better educated than older workers and more familiar with new technologies, they will also be relatively scarce. The overall slowdown in the growth of Mexico's workforce masks widely different trends for different age groups. Between 2000 and 2025, the number of older adults aged 50 to 64 will grow by 142 percent, while the number of young adults aged 20 to 29 will grow by just 7 percent. (See figure 11.)

The number of older workers will continue to grow rapidly, even as the number of younger workers begins to decline.

Percentage change in the Mexican working-age population by age group, UN projection: 2000-2025 and 2025-2050



Source: UN (2003).

Figure 11

Beyond the labor-market synergies, there may be capital-market synergies. Stagnant or declining workforces in the developed countries could translate into slower economic growth, falling investment demand, and lower returns to capital—all of which could make Mexico an increasingly attractive destination for global investment. Economic theory suggests that global capital flows naturally from older, slower-growing, developed economies to younger, faster-growing, developing economies. In Mexico, as elsewhere in the developing world, these capi-

9. See Neil Howe and Richard Jackson, *Projecting Immigration: A Survey of the Current State of Practice and Theory* (Washington, D.C.: Center for Strategic and International Studies, April 2005).

tal flows have historically taken the form of foreign direct investment. In the future, Mexico may also become the destination for large-scale portfolio investment as aging populations in North America and Europe look for more profitable places to invest their retirement savings. This development could acquire added momentum if the United States and other developed countries replace or supplement their pay-as-you-go pension systems with funded systems of personal retirement accounts. Ultimately, the retirement security of retirees in Memphis or Madrid could come to depend on investments in the productivity of workers in Mexico City.

Net capital imports from the developed world may eventually diminish—indeed, may vanish altogether—when the developed-country age waves arrive in full force in the 2020s. Although investment demand in the developed countries is sure to decline as they age, the steep rise in the share of all households that are retired may also erode the supply of private-sector savings. Meanwhile, public sectors throughout the developed world could be burdened by large and growing budget deficits. Nearly all of the developed countries have expensive pay-as-you-go retirement and health benefit programs whose costs will climb steeply in coming decades. According to CSIS projections, the average cost of public benefits to the elderly in the major (Group of Seven, or G-7) developed economies is on track to rise from an average of 13 percent of GDP in 2000 to 25 percent in 2040.[10] Even if the developed countries enact large benefit cuts, most, the United States included, will have trouble maintaining fiscal balance.

Mexico could become a supplier of skilled workers and scarce capital to the developed world.

The prospect of global capital shortages presents a major challenge for Mexico, which may have to rely on its own savings in order to ensure adequate levels of domestic investment. But at the same time, it also presents an important opportunity. With the right reforms in place, Mexico could eventually become a major exporter of capital to the developed world. In this new role, it would be the indispensable partner of the United States and Canada—no longer a source of cheap labor, but a supplier of skilled workers and scarce savings.

10. Neil Howe and Richard Jackson, *The 2003 Aging Vulnerability Index: An Assessment of the Capacity of Twelve Developed Countries to Meet the Aging Challenge* (Washington, D.C.: Center for Strategic and International Studies and Watson Wyatt Worldwide, March 2003).

Policy Imperatives for an Aging Mexico

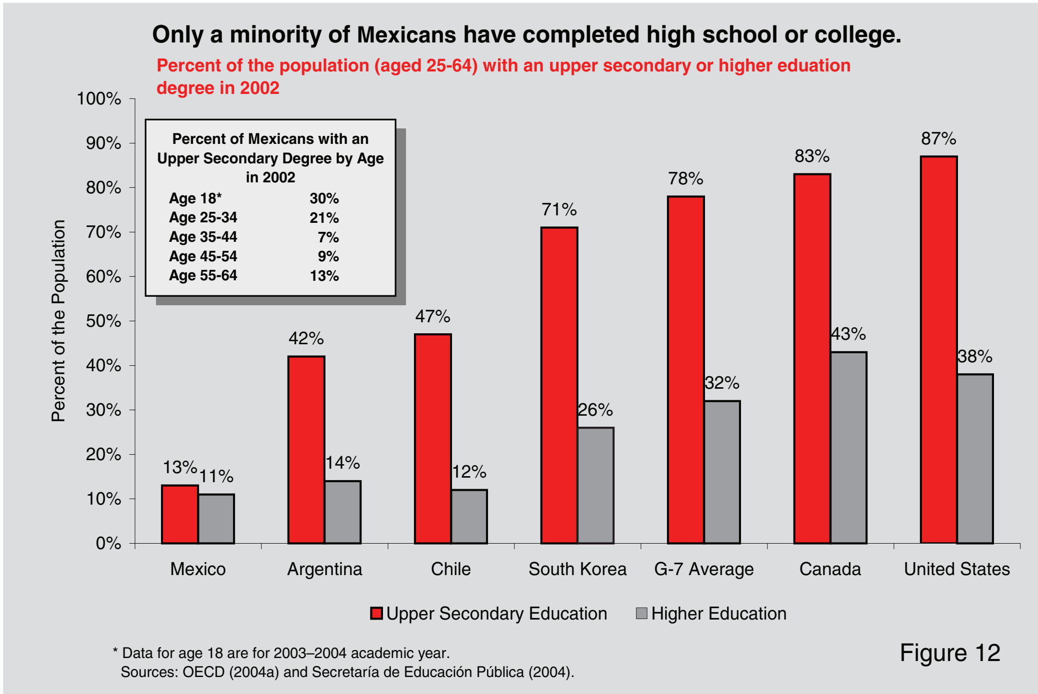
Mexico's demographic dividend presents a great opportunity. The economic benefits that it promises to bring, however, are far from guaranteed. Demography is not destiny. To capitalize on the favorable population trends of the next two decades, Mexico will have to endow its workforce with the skills needed to compete in the global economy. It will have to invest in developing the new technologies that will allow its businesses to move up the global value chain. And it will have to strengthen the foundations that ultimately underpin a successful market economy, from flexible labor markets and broad and deep capital markets to stable democratic institutions.

Although Mexico has made considerable progress on all of these fronts, far-reaching reforms are still required to ensure that an aging Mexico is a prosperous Mexico. The third chapter of the report identifies five key policy imperatives, from educating the rising generation to creating a universal old-age safety net. All represent crucial links in an overall strategy to confront the age wave—and all must be pursued simultaneously.

Far-reaching reforms are required to ensure that an aging Mexico is a prosperous Mexico.

1. Educate the Rising Generation

The educational level of Mexico's workforce lags far behind the level in the developed countries—and indeed, that in many developing countries as well. As of 2002, just 13 percent of Mexicans aged 25 to 64 had completed upper-secondary or high school, while only 11 percent had completed university. (See figure 12.) In education, as in so many dimensions of Mexican life, the averages conceal great differences among geographical regions and income and ethnic groups. The typical adult in the top 10 percent of the income distribution has 12 years of schooling, whereas the typical adult in the bottom 10 percent has 3 years. Among indigenous Mexicans at *all* income levels, the typical adult has just 2 years of schooling.



Improving educational attainment has been a top priority of the Mexican government since the administration of Carlos Salinas de Gortari in the late 1980s and early 1990s—and it remains a top priority for the Fox administration today. The number of children completing their "basic education"—that is, six years of primary school plus three years of lower-secondary or middle school—has risen dramatically. Primary-school attendance is now close to universal, while, according to the latest government numbers, lower-secondary attendance exceeds 80 percent. The improvement is due in part to the aptly named *Oportunidades* program. First established in the late 1990s by President Ernesto Zedillo as the *Progresa* program, then expanded and renamed by President Fox, *Oportunidades* pays cash benefits to lower-income families on the condition that their children continue to attend school. Roughly one in two poor rural households and one in twenty poor urban households now participate in the program.

Improving educational attainment is a top priority of the Mexican government.

The number of Mexicans completing upper-secondary school has also risen steadily. Among younger adults aged 25 to 35, 21 percent have an upper-secondary degree. Among 18 year olds, the share has reached 30 percent, more than twice the average for all older adults. Although *Oportunidades* was originally limited to primary and lower-secondary school students living in rural areas, the Fox administration extended the program to urban and high-school-age students as well. This may further raise levels of educational attainment in the years ahead.

As Mexico increases the number of children in school, it will also have to improve the quality of education they receive. In the recent 2003 Program for International Student Assessment (PISA) test, widely regarded as the gold standard in cross-country educational comparisons, Mexican 15 year olds ranked last among 15 year olds in OECD countries on mathematics, reading literacy, and science skills. The gap between Mexican students and students in the highest achieving countries is large. Fully 50 percent of South Korean students, for instance, performed at the highest level on the assessment of mathematical skills, compared with 3 percent of Mexican students.[11] Mexico's disappointing performance, according to the OECD, is due to a variety of factors, including inadequate school infrastructure, shortages of instructional supplies and equipment, outdated curricula, and lack of teacher accountability.[12]

The Mexican government is taking steps to address the problem. Beginning with the Salinas administration, it began to transfer some of the responsibility for educational decisionmaking from the federal to the state and local level in order to make the system more responsive to student needs. The Fox administration in particular has launched a promising initiative called Quality Schools (PEC) that provides funding for locally designed school projects. Meanwhile, its *Enciclomedia* and E-Learning programs are promoting the use of information technologies. There is also a new National Institute for Educational Evaluation (INEE) charged with assessing school performance. Effective reform, however, may require more radical measures. Faced with deteriorating student achievement in the 1980s and 1990s, some state and local governments in the United States responded by introducing merit pay scales that hold classroom teachers responsible for bottom line results. Mexico should consider similar measures—but to do so, it will have to overcome the resistance of its powerful teachers' union. The educational profession in Mexico enjoys many privileges, not the least of which is near-total job security.

The government is also broadening access to higher education. The Fox administration's National Scholarship Program for Higher Education Studies (PRONABES) provides stipends to university students in financial need. Since the program's inception, the number of participating students has grown rapidly, from 44,000 in 2000–2001 to an estimated 160,000 in 2004–2005. Beyond funding programs like PRONABES, it is crucial that the government help to develop a higher education loan market that allows students to borrow at low rates without collateral, which is routine in the United States and Canada but now almost impossible in Mexico. Although means-tested financial aid can help to open university doors to less privileged students, most economists agree that government-guaranteed student loans, such as those avail-

Mexico needs to develop a loan market in higher education.

11. Organization for Economic Cooperation and Development (OECD), *Learning for Tomorrow's World: First Results from PISA 2003* (Paris: OECD, 2004).

12. Organization for Economic Cooperation and Development (OECD), *Economic Surveys: 2002–2003—Mexico* (Paris: OECD, 2004).

able through the federal Stafford loan program in the United States, represent a more efficient form of assistance.[13]

At the same time, Mexico is seeking to expand cooperation in higher education with its North American neighbors. Although Mexico has several prestigious higher education institutions, including the Centro de Investigación y Docencia Económicas, the Instituto Tecnológico de Monterrey, the Instituto Tecnológico Autónomo de México, and the Universidad Nacional Autónoma de México, foreign universities are an essential resource for Mexican students and scholars and are likely to remain so for years to come. Mexico participates in a number of cooperative efforts, some bilateral and some trilateral, designed to encourage student exchange, develop common curricula, and facilitate joint research projects. These include the U.S.-Mexico Binational Commission, the Program for North American Mobility in Higher Education, and the Consortium for North American Higher Education Collaboration (CONAHEC). In part as a result of these programs, the number of Mexican students enrolled at U.S. higher education institutions has grown substantially—from 6,650 in 1991–1992 to 13,329 in 2003–2004.

Although Mexico has traveled far on the road to education reform, the journey that lies ahead may be the most difficult of all. The share of Mexicans with a high school education is still low by international standards, even among younger adults. Although 21 percent of Mexicans aged 25 to 34 have an upper-secondary degree, 95 percent of South Koreans do. The gulf in educational attainment between Mexico's rich and poor, moreover, remains wide. Although 59 percent of nonpoor children aged 14 to 17 were enrolled in school in 2002, only 24 percent of poor children were. There are also large differences by region, with Mexico's poorer and more rural southern states lagging its more prosperous northern states. The Fox administration's six-year educational plan calls for increasing educational spending from roughly 6 percent to 8 percent of GDP in order to address these unmet needs.[14] It is unclear, however, whether the administration can find sufficient budgetary resources—or support in Congress—to achieve this ambitious goal.

Just 21 percent of Mexicans aged 25 to 34 have completed high school, compared with 95 percent of South Koreans.

2. Improve the Skills of the Current Workforce

As it educates tomorrow's workforce, Mexico will have to reeducate today's as well. Roughly 35 million Mexicans now aged 25 to 64 never completed upper-secondary school. Roughly 11 million—or more than one-quarter of the total—have not even completed primary school. Although educational levels are rising rapidly among

13. Gladys López-Acevedo and Angel Salinas, "The Distribution of Mexico's Public Spending on Education," Policy Research Working Paper WPS2402 (Washington, D.C.: World Bank, July 2000).

14. Secretaría de Educación Pública, *Programa Nacional de Educación 2001–2006* (México D.F.: Secretaría de Educación Pública, September 2001).

Although educational levels are rising, it will take decades for Mexico to catch up with the developed countries.

Percent of Mexican working-age adults (aged 25-64) with an upper secondary education degree, alternative projections, 2000-2050

Year	Low Scenario	High Scenario
2002	13%	13%
2010	22%	22%
2020	27%	43%
2030	33%	59%
2040	36%	73%
2050	36%	84%

Low Scenario: Assumes current educational completion rates do not rise in the future
High Scenario: Assumes completion rates rise to the G-7 average by 2010

Sources: Secretaría de Educación Pública (2004), OECD (2004a), UN (2003), and author's calculations.

Figure 13

new cohorts of workforce entrants, Mexico's overall labor pool will remain dominated by relatively low-skilled cohorts of older workers for decades to come.

CSIS has projected the overall educational level of Mexico's future workforce under two scenarios—a "low scenario" that assumes the rates at which Mexican children now complete different levels of school will rise no further in the future and a "high scenario" in which Mexico's upper-secondary completion rate converges by 2010 with the average for the major (G-7) developed countries. (See figure 13.) Even in the second highly optimistic scenario, the share of working-age Mexicans with an upper-secondary education would still be less than one-quarter in 2010 and less than one-half in 2020. The overall educational level of Mexico's workforce would not reach the current developed-country level until the middle of the century.

The government has launched a number of initiatives to grapple with the worker training challenge.

The Mexican government has launched a number of initiatives that begin to grapple with the worker training challenge. The most important is the Program for the Modernization of Technical Education and Training (PMETyC). The program, which is the first of its kind in Latin America, provides workers with training and certification in one or more of over 600 technical skills or *competencias*. The skills, which are defined with private-sector input, are explicitly designed to reflect "industry standards" and thus to be portable from one job to the next. Workers can obtain certification at educational institutions and special training centers or through on-the-job training. Other training programs are specifically tailored for workers at small and medium enterprises. Under the Training Support Program (PAC), for instance, the federal government pays for up to 50 percent of the cost of worker training at small and medium enterprises, while further subsidies by state governments cover as much as 30 percent.

Although these initiatives move in precisely the right direction, their impact has so far been relatively modest. Since its establishment in 1995, the PMETyC program has enrolled 754,424 workers and conferred 231,662 certificates—an impressive accomplishment, but nonetheless just a small fraction of the total number of Mexican workers who must upgrade their skills. Despite its greater need, Mexico invests less publicly as a share of GDP in "active labor market policies" than any other OECD country. Overall, traditional educational spending dwarfs spending on worker training by roughly one hundred to one. In the future, the government will have to increase the scale of direct spending programs like PMETyC and PAC. It should also consider encouraging employers to invest in their employees' human capital by offering them tax credits.

Younger Mexican workers could be called on to support an increasingly unemployed and unemployable older generation.

Much depends on the outcome. If Mexico fails to provide its aging boomers with the skills to compete in tomorrow's workforce, they will become a growing drag on the economy. The potential shift from low-skilled to high-skilled employment during Mexico's demographic dividend period may not materialize. And even if it does, younger workers will be called on to support an older generation that is increasingly unemployed and unemployable.

3. Invest in Science and Technology

Human capital is an essential ingredient in rising living standards, but it is not the only ingredient. As Mexico improves the skills of its workforce, it will also have to shift its economy away from the production of low-value-added products like textiles and steel toward high-value-added products like consumer electronics, software, and pharmaceuticals. This in turn will require large new investments in science and technology. All successful emerging market economies make this shift during the course of their development—and most invest heavily in R&D along the way. Even China and India, today's great reservoirs of low-wage labor, are now making strategic investments that will allow them to compete in high-tech industries. Mexico must do the same or find itself left behind in the global development race.

An aging Mexico will have to make large new investments in science and technology.

As matters stand, Mexico devotes a comparatively small share of its national income to science and technology development. In 2001, total spending on public- and private-sector R&D came to 0.4 percent of GDP, compared with 1.1 percent of GDP in China, 2.6 percent in South Korea, and 2.7 percent in the United States.

(See figure 14.) Even including spending on science and technology education in the total, Mexico's annual investment in science and technology development still comes to well under 1 percent of GDP. The story is the same if we look at personnel rather than expenditures. Just one out of 1,000 Mexican workers is employed in R&D activities, one-tenth the ratio in South Korea, Canada, and the United States.

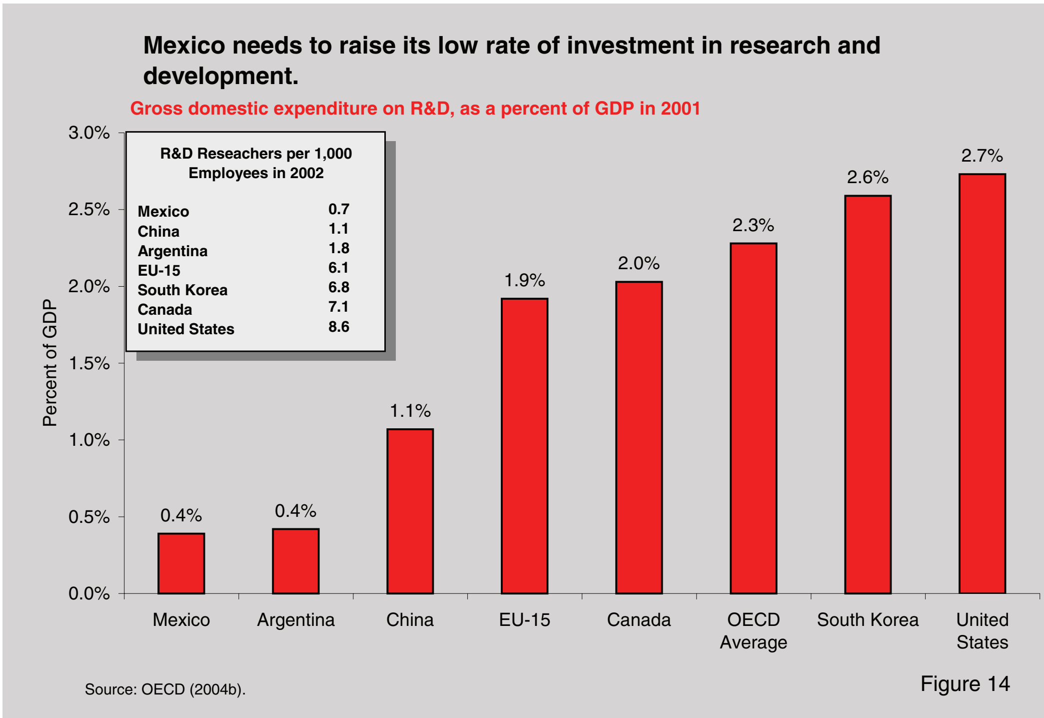


Figure 14

Mexico is taking the science and technology imperative seriously. In 2002, the Fox administration conferred independent budgetary status on the National Council for Science and Technology (CONACYT), an agency that combines the functions of the U.S. National Science Foundation and the White House Office of Science and Technology Policy. Among its many activities, CONACYT is responsible for certifying graduate programs, awarding graduate scholarships, and administering grants to public and private R&D centers. Over the past few years, the number of science and technology students receiving government scholarships and the number of R&D centers receiving government grants have both grown steadily.

The Fox administration's science and technology plan sets the long-term goal of increasing total R&D spending to 2 percent of GDP, or to roughly the developed-country average.[15] Achieving this goal will not only require substantial new government resources, but new business resources as well. Currently, the private sector accounts for less than one-third of total R&D spending in Mexico, a low share by international standards. In contrast, the private sector in the United States generates two out of every three R&D dollars. The Fox administration has expanded tax

15. CONACYT, *Programa Especial de Ciencia y Tecnología (Pecyt) 2001–2006* (México D.F.: CONACYT, 2001).

incentives in an effort to encourage more privately financed R&D. Since 2001, qualifying firms have been eligible for a tax credit equal to 30 percent of R&D expenditures.

Under the leadership of CONACYT, Mexico is also trying to increase the level of cooperation in science and technology development with countries around the world, from South Korea to Spain. Not surprisingly, the relationship with the United States is particularly close. CONACYT has recently reached cooperative agreements with a number of U.S. higher education institutions, including Harvard University, Georgetown University, and the University of Texas. It is also working to forge a trilateral science and technology agreement among the NAFTA countries that would create concrete mechanisms for promoting and financing joint projects.

4. Complete the Economic and Political Reform Agenda

Moving Mexico's economy up the global value chain will require a massive redeployment of capital and labor. How well Mexico handles the challenge will depend on a wide range of economic, institutional, and cultural factors, from the flexibility of its labor markets and the breadth and depth of its capital markets to the strength of its entrepreneurial culture and the resiliency of its democratic institutions. Mexico has made tremendous progress since the 1980s in modernizing its economy and reforming its political system. Yet the progress has been uneven and significant problem areas remain. In the end, Mexico's investments in human capital and science and technology development may not pay off unless it also completes the broad agenda of economic and political reform that it began in the 1980s.

Mexico's inflexible labor markets could prove a major obstacle to realizing the benefits of its demographic dividend. From job rules that make it difficult to fire unproductive workers to rigid seniority pay scales and limitations on short-term and part-time contracts, Mexico's excessive labor-market regulation increases the cost of doing business and discourages employers from starting new enterprises or expanding old ones. Although many developing (and some developed) countries have similar laws on the books, Mexico's are particularly onerous. In its report *Doing Business in 2004*, the World Bank scored 133 countries on the flexibility of their labor markets. Mexico ranked in 129th place, ahead only of Angola, Brazil, Panama, and Portugal.[16]

Mexico's inflexible labor markets are a major obstacle to growth in the economy and living standards.

Excessive labor-market regulation may be one reason why Mexican businesses invest so little in R&D. According to a recent OECD study, businesses in OECD countries with flexible labor markets invest almost 30 percent more in R&D than

16. World Bank, *Doing Business in 2004: Understanding Regulation* (Washington, D.C.: World Bank, 2003).

businesses in countries with strict employment laws.[17] Along with high non-wage labor costs—total social insurance contributions come to between 20 percent and 25 percent of payroll—excessive labor-market regulation is also responsible for driving workers and employers into Mexico's large and growing gray economy. By most estimates, Mexico's informal sector accounts for between one-third and one-half of total urban employment—and an even larger share of net new job growth.[18] Workers in the informal sector do not generally pay taxes, which means less revenue for government and higher tax rates for those who remain in the formal sector. They do not generally have access to government- or employer-sponsored training opportunities, which makes it more difficult to raise their skills level. And they do not accrue pension rights, which puts them at greater risk of poverty in old age.

Along with strict employment regulations, high compliance costs for start-up businesses also discourage enterprise creation and job creation. According to the World Bank's *Doing Business* report, it takes an average of fifty-one days to register a new business in Mexico, compared with four days in the United States. In Mexico, business registration fees average $1,110 (or 19 percent of per capita income), while in the United States they average just $210 (or less than 1 percent of per capita income). In addition, many Mexican entrepreneurs end up paying "extra official payments" to register businesses. According to a recent survey, 9 percent of all new Mexican businesses did so in 2002, a share that is as high as 30 percent in some states.[19] Beyond high compliance costs, businesses must also overcome the dearth of venture capital. Miguel de Icaza, a prominent Mexican businessman, sums up the situation: "Who is there in Mexico that would fund a high-tech start-up? Today the money has to come from your own pockets, or the wallet of a family friend . . . . [T]hat's not how you will grow away from simple assembly work."[20]

The difficulty in raising venture capital is a symptom of a broader problem: Mexico's underdeveloped capital markets. Unlike labor market reform, which is opposed by Mexico's trade unions and remains stalled in Congress, capital market reform has acquired real momentum. Over the past few years, there have been important improvements in Mexico's financial infrastructure, from stronger regulatory oversight to stronger minority shareholder protection. The bond market in particular is developing rapidly, allowing many large companies that until recently had to raise money in global financial markets to raise it more efficiently in Mexico. Yet despite the recent progress, Mexico's capital markets remain small and illiquid by developed world standards. At the end of 2004, total stock market capitalization came to just 26 percent of GDP, one-fifth the level in the United States. (See figure 15.) Mexico's stock market, moreover, is highly concentrated. In 2003, only 158 companies were listed on the Mexican stock exchange—and of these, the top five

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17. Giuseppe Nicoletti, Andrea Bassanini, Ekkehard Ernst, et al., "Product and Labor Market Interactions in OECD Countries," Economics Department Working Paper No. 312 (Paris: OECD, 2001).

18. International Labor Organization (ILO), *Panorama Laboral 2004: América Latina y el Caribe* (Lima: ILO, 2004).

19. Consejo Coordinador Empresarial, *México: Calidad del Marco Regulatorio en las Entidades Federativas. Estudio Comparativo 2002* (México D.F.: Consejo Coordinador Empresarial, July 2003).

20. Ricardo Sandoval, "Mexico Works to Attract Tech Jobs," *Washington Post*, January 2, 2004.

firms accounted for 41 percent of total market capitalization. Meanwhile, although growing, total bond market value amounts to just 15 percent of GDP, one-thirteenth the level in the United States.

Figure 15

Nearly all economists agree that sooner or later a developing economy needs to build broad and deep capital markets. Mexico is no different. Mexico needs broad and deep capital markets to raise business capital from the millions of households who now tie up their savings in unproductive bank deposits and real estate—or simply stash it under the mattress. It also needs them to allocate the capital efficiently to its most globally competitive industries and businesses. Without developed capital markets, higher rates of savings in the middle-aging Mexico of the next two decades may not flow into productivity-enhancing investment—or raise living standards. Without developed capital markets, Mexico will also remain overly dependent on foreign direct investment. The high rates of return on many of its most innovative and productive firms will continue to accrue to foreign rather than Mexican owners. The economy will also remain vulnerable to capital shortages when the developed countries' age waves begin to roll in.

Without developed capital markets, Mexico will remain overly dependent on foreign investment.

To translate its demographic dividend into faster economic growth, Mexico will need more than a competitive private sector. It will also need a public sector that is capable of financing ambitious collective agendas in human capital formation and science and technology development. Here, too, there is cause for concern. At 11 percent of GDP in 2003, tax collections as a share of Mexico's economy are low, even for an emerging market economy. In recent years, the government has depended on oil exports to generate about a third of its total revenues. But because the world price of oil is volatile, this makes planning and following through on long-term investment agendas difficult. Part of the answer lies in simplifying the tax code, closing tax loopholes, and broadening the tax base. A lasting solution, however, may not be possible unless the government can attract more economic activity into the taxable formal sector.

Low tax receipts could hamper Mexico's ability to finance investments in human capital and science and technology.

The place to start is with labor-market reform—but labor-market reform alone may not be sufficient. The willingness of citizens to shoulder their share of the tax burden depends crucially on the level of trust in public institutions and on the conviction that government is pursuing shared national goals. Rightly or wrongly, trust in public institutions in Mexico remains low, even by Latin American standards. According to the 2004 Latinobarómetro poll, more than half of Mexicans believe that it is easy to bribe a judge or ministry employee, while three-quarters think that the government benefits a few powerful interests.[21] In the end, changing public attitudes toward government may be as important as any economic reform.

5. Create a Universal Old-Age Safety Net

Roughly one in four Mexican elders now live in extreme poverty—a share that could rise in the future unless Mexico strengthens its old-age safety net. Imagine, in Mexico's cities, millions of today's midlife boomers aging by the 2030s into millions of indigent elders who lack pensions and lack access to health care. Or imagine, in Mexico's rural regions, millions of demographically stranded elders without nearby children to support them. Looking ahead, the late Delal Baer warned of a "social catastrophe" in Mexico's future if it fails to prepare for its age wave.[22]

Mexico in fact took a major step toward meeting the challenge with the Zedillo administration's 1997 pension reform. The reform replaced the old pay-as-you-go system for private-sector workers, which was plagued by widespread evasion and spiraling payroll tax rates, with a new system of funded personal retirement accounts modeled on Chile's system. The new system has the potential to increase the self-sufficiency of tomorrow's retirees while reducing the tax burden on tomorrow's workers. Funded pension systems have important long-term advantages over pay-as-you-go systems. At the macro level, they can relieve demographic pressure on government budgets while boosting rates of savings and investment. At the micro level, they introduce households to the habit of saving and encourage values

Funded pension systems have important long-term advantages over pay-as-you-go systems.

21. Corporación Latinobarómetro, *Informe—Resumen Latinobarómetro 2004: Una Década de Mediciones* (Santiago: Corporación Latinobarómetro, August 13, 2004).

22. M. Delal Baer, "Mexico at Impasse," *Foreign Affairs* 83, no. 1 (January/February 2004).

of thrift and stewardship. They can also offer workers greater benefits at any given contribution rate than pay-as-you-go systems can. In a pay-as-you-go system, the rate of return on workers' contributions is limited to the rate of growth of the economy, whereas in a funded system it is equal to the return to capital, which is typically much greater, especially when the population is aging rapidly.

Mexico's pension reform, however, is not living up to its full promise. Although the majority of private-sector workers are nominally "affiliated" with the system, only a minority actually contribute on a regular basis. One reason is the high cost of participation. At 11.5 percent of payroll, pension contributions alone may not constitute a prohibitive burden. But total social insurance contributions for workers in the formal sector—between 20 and 25 percent of payroll including workers' compensation, child care, and health care—are high enough that evasion continues to be widespread.

Although Mexico's 1997 pension reform moves in the right direction, it is failing to live up to its promise.

The system's benefit rules may also reinforce incentives to evade contributions—or to contribute only the minimum necessary to qualify for a pension. Anyone who was already contributing to the old system at the time that the new system was established is entitled upon retirement to collect the benefit that they would have received under the old system if it is larger than the benefit that they would receive under the new one. In effect, taxpayers are still on the hook for the old system's full unfunded liability—just as if reform had never been enacted. There is also a minimum benefit guarantee for all participants. The problem is that the guarantee is set so high that most low-wage workers can expect to qualify, thus further undercutting incentives to save.[23]

At the same time, the 1997 pension reform is failing to deliver its macro benefits. It is doubtful that the reform has done much if anything to raise Mexico's national savings rate. Mexico's *Afores*, or pension management funds, are subject to restrictive investment rules that ensure most worker contributions are channeled into government debt. As of June 2004, government securities accounted for an incredible 86 percent of total personal account assets in Mexico, compared with 21 percent in Chile. In effect, the government is paying for the transition cost to the personal accounts system by borrowing from personal account holders. The result is to neutralize the boost to private-sector savings.

Almost 90 percent of personal account assets are invested in government securities.

There is another potential benefit of funded pensions—namely, their role in speeding the development of capital markets. In a growing number of today's developing countries, from Chile to Poland, funded pensions are helping to broaden and deepen capital markets, foster an equity culture, and democratize the ownership of wealth. Mexico's pension reform is beginning to yield similar dividends. Surging demand by the

23. Olivia Azuara, "The Mexican Defined Contribution Pension System: Perspective for Low Income Workers," background paper for regional study on social security reform (Washington, D.C.: World Bank, June 2003).

Afores is largely responsible for the recent rapid development of Mexico's bond market. So far, however, investment restrictions have undermined similar positive synergies in the development of Mexico's equity markets.

There is no single solution to the challenge of supporting Mexico's future elderly. Perhaps the most important step will be to put in place a basic old-age safety net that protects all elders, whether or not they have participated in Mexico's formal social insurance systems. This floor of protection should include means-tested cash support financed with general revenues rather than worker contributions—an approach that the World Bank has recently recommended.[24] It should also include basic health-care coverage. The Fox administration's new Popular Health Insurance program, which now pays for the routine health costs of about 1.5 million poor Mexicans, represents an important step in this direction.

As for Mexico's personal accounts system, fundamental reforms may be required to ensure that it better meets its goals. The guarantee that pension benefits be at least equal to benefits under the pre-reform system will have to be scaled back. At the same time, investment restrictions should be eased and eventually replaced with "prudent man" guidelines. Beginning in 2005, Mexico's *Afores* are for the first time being allowed to invest a small 15 percent share of assets in equities, though the investments have to be made through ultra-safe "principal-protected equity linked notes." The *Afores* have also been authorized to invest up to 20 percent of assets in foreign securities. Pension regulators will need to build quickly on what Eric Anderson, general manager of ING Investment Management Mexico, calls their "dip-your-toe-in-the-water kind of approach."[25] Although it may ignite a political fire storm, the government should also revisit the issue of civil service participation in the personal accounts system. At the insistence of Mexico's public-sector unions, civil servants were exempted at the time the reform was passed. Bringing them into the personal accounts system could generate large fiscal savings. By giving one of the most affluent and powerful segments of Mexico's workforce a stake in the success of pension reform, moreover, it would also help ensure the reform's political durability.

Mexico must avoid the mistakes of the United States and other developed countries.

Mexico still has ample time to put in place the necessary reforms. The danger is that its wide demographic window of opportunity will make reform seem less urgent. The United States and the other developed countries have known for at least a quarter century that the aging of their populations would eventually render their old-age benefit systems unaffordable. Unfortunately, democracies have a hard time focusing on slow-motion crises whose consequences are not immediately apparent. In the end, the developed countries have allowed themselves to be overtaken by what was an entirely predictable "surprise." They now stand on the brink of their age waves with no time left to enact gradual reform. Mexico would

24. Robert Holzmann and Richard Hinz, *Old-Age Income Support in the Twenty-First Century: An International Perspective on Pension Systems and Reform* (Washington, D.C.: World Bank, 2005).

25. Jennifer Galloway, "Going Global, At Last," *LatinFinance*, no. 157 (June 2004).

do well to learn from the mistakes of its older but not necessarily wiser friends and neighbors.

CHAPTER 4

Conclusion

Mexico's hopes and aspirations for the future depend on its ability to improve its competitiveness and raise its living standard. Yet despite impressive progress since the "lost decade" of the 1980s, Mexico is lagging in the international development race. Although Mexico ranks second among Latin American countries in the World Economic Forum's latest *Global Competitiveness Report,* it ranks 48th out of the 104 countries surveyed worldwide. By the most basic development measure—growth in per capita income—Mexico is at a virtual standstill. From 1980 to 2000, per capita GDP in Mexico rose by just 15 percent, compared with 49 percent in the United States, 98 percent in Chile, 231 percent in South Korea, and 401 percent in China. (See figure 16.)

The demographic transformation on which Mexico is now embarking has the potential to both help and hinder its overall economic development agenda. In the near term, the transformation increases the odds that Mexico will succeed in accelerating growth in its living standard. Provided that the government makes the right policy and legislative choices, a rising median age, fewer dependents, and slower population growth should translate into a more productive workforce and economy in the middle-aging Mexico of the next 25 years. But in the long term, the demographic transformation also increases the economic and social costs of failure. With rising old-age dependency threatening to transfer an ever-larger share of workers' wages to their non-working parents, either within families or through public budgets, achieving rapid economic growth becomes even more essential.

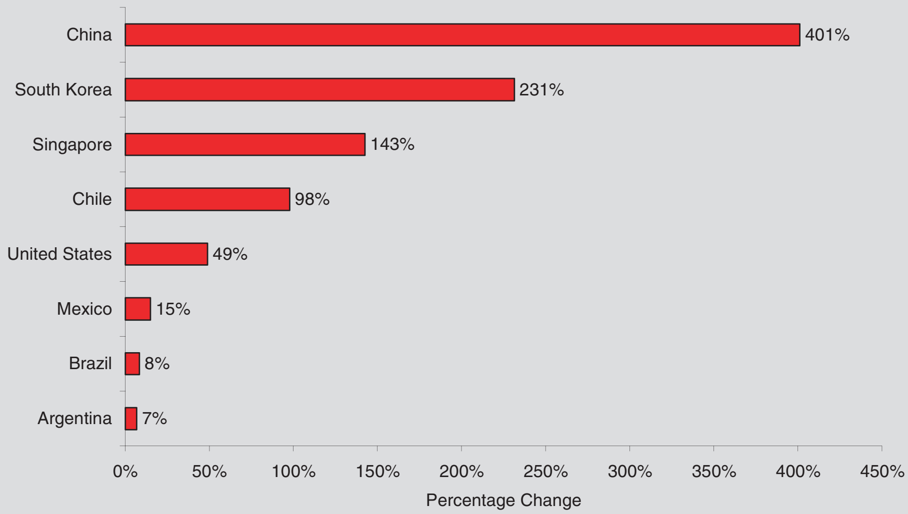
All of North America has a stake in Mexico's success.

Fortunately, Mexico is well positioned to confront the aging challenge. It has a large and industrious workforce. Its proximity to the U.S. market and its membership in NAFTA give it a potential advantage over emerging global rivals like China and India. Mexico's leaders, moreover, are increasingly aware of the challenge and are taking steps to respond. From its new investments in education and worker training to science and technology development, Mexico has begun to lay the foundations of its future economic success. To be sure, daunting obstacles must still be overcome—and for the moment, political gridlock has slowed the momentum of reform. Yet no one who really knows Mexico doubts that progress will resume.

All of North America has a stake in the outcome. If Mexico succeeds, it could become an engine of economic growth for North America—and a source of skilled labor and scarce capital, not just for the United States and Canada, but also for

In recent decades, the growth in Mexican living standards has stalled.

Percentage change in GDP per capita, in constant purchasing power parity dollars, 1980-2000



Source: World Bank (2004).

Figure 16

faster-aging developed countries around the world. If Mexico fails, the potential demographic and economic synergies between nations may not materialize. Instead of an engine of regional growth, Mexico could become a drag on the regional economy.

At the same time, the success or failure of the United States in confronting its own aging challenge may affect Mexico's future growth prospects. The United States stands on the brink of an upward spiral in retirement and health-care spending due to begin just three years from now in 2008 when the first boomers start qualifying for Social Security early retirement benefits. It should be running large budget surpluses to prepare for the fiscal gauntlet ahead. Instead it is running widening deficits that threaten to crowd out productive investments, both public and private.

The current direction of U.S. fiscal policy could ultimately harm not just its own competitiveness, but Mexico's as well. The rising cost of old age benefits may threaten joint programs in education and in science and technology that constitute cornerstones of U.S.-Mexican cooperation. At the same time, post-911 developments in a number of key policy areas have begun to place stress on other dimensions of the relationship. New restrictive rules for student visas are making it more difficult for Mexican students to study in the United States. The slow progress of bilateral talks on immigration reform also leaves a vital policy issue in limbo.

It is to be hoped that the new Security and Prosperity Partnership of North America (SPP) will provide a framework for renewed and expanded cooperation. The SPP, which was announced by Presidents George Bush and Vicente Fox and Prime Minister Paul Martin in March 2005, is designed to promote the broad goals of increased "security, prosperity, and quality of life" among the citizens of North America. The SPP stresses the crucial importance of human capital formation—

and a coordinated human capital policy—in achieving its vision. Along with closer cooperation in science and technological innovation, the kind of regional human capital development strategy that the SPP calls for could be a key factor in raising living standards in all three countries while enhancing the global competitiveness of the overall North American region.

The United States, Canada, and Mexico must move cooperative solutions to the aging challenge to the top of the trilateral agenda.

The dramatic aging of populations around the world will pose enormous challenges as the twenty-first century unfolds. Along with the challenges, however, there will also come new opportunities. Perhaps the greatest is the chance for developed and developing countries to forge closer and more equal bonds. Nowhere is the potential for such "win-win" solutions greater than in North America, where Mexico, the United States, and Canada are already close partners sharing common values and aspirations. It is time for leaders to seize the historic opportunity presented by emerging demographic trends—and to move finding cooperative solutions to the aging challenge to the top of the bilateral and trilateral agenda.

A P P E N D I X   A

Note on Data and Sources

In researching and writing *Building Human Capital in an Aging Mexico,* CSIS consulted dozens of specialized studies, ranging from scholarly articles on Mexico's demographics to official government reports on its education and pension systems. We also drew on the insights of the broader academic literature on population aging, economic development, and human capital formation. This note makes no attempt to review this rich secondary literature. Its purpose is more limited—to orient the reader to the basic data sources consulted in preparing the report.

Most demographic data, historical and projected, come from the UN Population Division and are published in *World Population Prospects.*[1] These data include total population, population by age, median age, and dependency ratios. For some specific types of data, however, we rely on Mexico's National Population Council (CONAPO) or other sources. This is the case with historical estimates of total fertility rates,[2] life expectancy at birth,[3] and living arrangements of the elderly.[4] Unless otherwise noted, all demographic projections cited in the report refer to the UN's (2002 Revision) "medium variant" scenario, the benchmark most often used by demographers. We decided to use UN projections rather than projections by CONAPO[5] in order to facilitate international comparisons. The choice of projection scenario, however, does not materially affect the report's conclusions.

Basic economic data come from standard sources. Data on Mexican general government outlays, revenue, and debt are from the Bank of Mexico.[6] Data on Mexican financial markets—bank deposits, stock market capitalization, and total bond

1. United Nations (UN), *World Population Prospects: The 2002 Revision*, 2 vols. (New York: UN Population Division, 2003).

2. CONAPO, Indicadores de Salud Reproductiva de la República Mexicana, online at http://www.conapo.gob.mx; CONAPO, Indicadores Demográficos Básicos, online at http://www.conapo.gob.mx; and Rudolfo Tuirán, Virgilio Partida, Octavio Mojarro, and Elena Zúñiga, "Fertility in Mexico: Trends and Forecast," paper presented at the Expert Group Meeting on Completing the Fertility Transition, March 11–14, 2002 (New York: United Nations, 2002).

3. Pablo Astorga, Ame R. Bergés, and Valpy Fitzgerald, "The Standard of Living in Latin America during the Twentieth Century," Discussion Papers in Economic and Social History No. 54 (Oxford: University of Oxford, March 2004).

4. Susan De Vos, "Research Note: Revisiting the Classification of Household Composition among Elderly People," *Journal of Cross-Cultural Gerontology* 19, no. 2 (June 2004).

5. CONAPO, *Proyecciones de la Población de México, 2000–2050* (México D.F.: CONAPO, December 2002).

6. Bank of Mexico, *Informe Anual 2003* (México D.F.: Bank of Mexico, April 2004).

market value—are from the Bank of Mexico,[7] Grupo BMV,[8] and the World Bank,[9] respectively. Figures for GDP and GDP per capita all come from the World Bank—once again, in order to facilitate international comparisons.[10] GDP per capita is always expressed in purchasing power parity (PPP) dollars to allow cross-country living standard comparisons. Labor-force participation rates by age are from the International Labor Organization's LABORSTA database, available online at http://www.laborsta.ilo.org. Data on international capital flows are from the International Monetary Fund.[11]

Data on household income, wealth, and poverty status are from specialized studies by the World Bank and others.[12] The poverty measure used in the report requires a word of explanation. In 2002, the Mexican Ministry of Social Development established three different official poverty measures: food poverty, capacities poverty, and patrimony poverty. The most extreme level of poverty, food poverty, indicates an income insufficient to meet minimum daily food requirements. This is the measure used throughout the report.

The Mexican government publishes a vast quantity of data on education, from school enrollment to program spending. Most data series are available online from the Department of Education (http://www.sep.gob.mx), the National Institute for the Evaluation of Education (http://www.inee.edu.mx), and the National Institute of Statistics, Geography, and Informatics (http://www.inegi.gob.mx). For international comparisons of educational attainment and student achievement, we rely on the OECD's *Education at a Glance*[13] and its Program for International Student Assessment,[14] respectively. For educational data by poverty status, we rely on a special World Bank report.[15]

Data on worker-training and adult education programs are from the Department of Education and the Department of Labor and Social Welfare and are available online at http://www.sep.gob.mx and http://www.stps.gob.mx, respec-

7. Bank of Mexico, Economic and Financial Indicators, online at http://www.banxico.org.mx.

8. Grupo BMV, *Completing the Markets: 2003 Annual Report* (México D.F.: Grupo BMV, 2004).

9. Augusto de la Torre and Sergio Schmukler, *Whither Latin American Capital Markets?* (Washington, D.C.: World Bank, October 2004).

10. World Bank, *World Development Indicators 2004* (Washington, D.C.: World Bank, 2004).

11. International Monetary Fund (IMF), *Global Financial Stability Report: Market Developments and Issues* (Washington, D.C.: IMF, September 2004).

12. Susan W. Parker and Rebeca Wong, "Welfare of Male and Female Elderly in Mexico: A Comparison" in *The Economics of Gender in Mexico: Work, Family, State, and Market* (Washington, D.C.: World Bank, 2001); Oliver Azuara, "The Mexican Defined Contribution Pension System: Perspective for Low Income Workers," background paper for regional study on social security reform (Washington, D.C.: World Bank, 2003); World Bank, *Poverty in Mexico: An Assessment of Conditions, Trends and Government Strategy* (Washington, D.C.: World Bank, 2004); and Rebeca Wong and Monica Espinoza, "Economic Status of Middle and Old Age Population in Mexico: Preliminary Results from the Mexican Health and Aging Study," paper presented at the Gerontological Society of America Meetings, Boston, November 2002.

13. Organization for Economic Development (OECD), *Education at a Glance* (Paris: OECD, 2004).

14. Organization for Economic Cooperation and Development (OECD), *Learning for Tomorrow's World: First Results from PISA 2003* (Paris: OECD, 2004).

15. World Bank, *Poverty in Mexico.*

tively. In some cases, updated figures were obtained by communication with Mexican government officials. Most data on science and technology are from National Council for Science and Technology (CONACYT) statistical reports and are available online at http://www.conacyt.mx. For international comparisons of R&D spending and personnel, we rely on OECD's *Main Science and Technology Indicators*.[16]

Most data on Mexico's pension systems come form standard government sources, and are available online from the Mexican Social Security Institute or IMSS (http://www.imss.gob.mx), the Public Worker's Social Security Institute or ISSSTE (http://www.issste.gob.mx), and the National Retirement Savings Commission or CONSAR (http://www.consar.gob.mx). Data on active pension system contributors and portfolio allocation, however, come from the International Network of Pensions Regulators and Supervisors in Latin America (AIOS).[17] For data on pension receipt by the Mexican elderly (overall and by poverty status), we rely on special World Bank studies.[18] For data on health-care coverage and expenditures, we rely on OECD and World Bank tabulations of IMSS, ISSSTE, and Department of Health (SSA) data.[19]

Beyond the basic data sources used in preparing the report, we sometimes refer to data on specific topics not covered in this note, from surveys of public opinion to surveys of international competitiveness. In such cases, we footnote our sources directly in the text.

16. Organization for Economic Cooperation and Development (OECD), *Main Science and Technology Indicators* (Paris: OECD, 2004).

17. *Boletín Estadístico AIOS* (various years).

18. Indermit S. Gill, Truman Packard, and Juan Yermo, *Keeping the Promise of Social Security in Latin America* (Washington, D.C.: World Bank, 2004); and World Bank, *Poverty in Mexico.*

19. Organization for Economic Cooperation and Development (OECD), *Health at a Glance* (Paris: OECD, 2003); and World Bank, *Poverty in Mexico.*

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APPENDIX C

Roundtable on Building Human Capital in an Aging Mexico

On October 29, 2004, the Center for Strategic and International Studies (CSIS) and the Instituto Tecnológico Autónomo de México (ITAM), the two cosponsors of the U.S.-Mexico Binational Council, convened a roundtable at CSIS's offices in Washington, D.C. The roundtable brought together a team of high-level experts, listed below, from both Mexico and the United States to explore how Mexico's coming demographic transformation will affect its economy and society—and in particular, the need to invest in human capital and in science and technology development. The discussion provided invaluable insights that helped inform the present report.

Roundtable Participants

Susan Brandon
Assistant Director, Social, Behavioral and Educational Sciences
Office of Science and Technology Policy
Executive Office of the President

Lizete De La Torre García
Director de Asuntos Gubernamentales para México y América Latina Cono Norte
Intel Corporation

Peter DeShazo
Director, Americas Program
Center for Strategic and International Studies

Joseph Duffey
Senior Vice President
Laureate International Universities

Jorge Gallardo Casas
CONACYT Representative to the United States
Embassy of Mexico

Luis Manuel Guaida Escontría
Director
Guaida y Asociados

Margot Gill
Administrative Dean
Graduate School of Arts and Sciences
Harvard University

Paul Hewitt
Deputy Commissioner for Policy
U.S. Social Security Administration

Francis Horvath
Supervisory Economist, Division of Labor Force Statistics
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Director of the Mexico Office
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James Lewis
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Watson Wyatt Worldwide

Scott Nystrom
Senior Policy Analyst
U.S. Senate Special Committee on Aging

Arnold Packer
Consultant

Jeffrey Passel
Principal Research Associate of the Population Studies Center
Urban Institute

Armand Peschard-Sverdrup
Director, Mexico Project
Center for Strategic and International Studies

Elizabeth Gewurz Ramírez
Mexico Desk
U.S. Agency for International Development

Kathy Rones
Economic Officer
Office of Mexican Affairs
U.S. State Department

Jaime Santibáñez Andonegui
Director General
Impulsa

Sylvester Schieber
Vice President and Director
Watson Wyatt Worldwide

Eduardo Solís Sánchez
Director, Promoción de Inversión
Secretaría de Economía

Miguel Angel Tamayo Taype
Coordinador General del Proyecto para la Modernización de la Educación Técnica
Secretaría de Educación Pública

Roberto Villarreal Gonda
Jefe de Unidad de Políticas Económicas y Sociales
Oficina de la Presidencia para las Políticas Publicas

Sidney Weintraub
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María Elena Zúñiga Herrera
Secretaria General
Consejo Nacional de Población

About the Mexico Project and the Global Aging Initiative

CSIS Mexico Project

For the past two decades, the CSIS Mexico Project has been a leader among Washington think tanks in its commitment to the full-time study of Mexico. The project's particular strengths are the substantive weight and dedication of its in-house analysts, its reputation for objectivity, and its extraordinary ability to reach out to the political community in both Mexico and the United States. Taking advantage of the new opportunities created by the importance that the Fox and Bush administrations have placed on the U.S.-Mexico relationship, as well as increasing ties between the U.S. and Mexican congresses, the Mexico Project analyzes the full range of domestic and bilateral policy issues. These include the increasing integration of the U.S. and Mexican economies, Mexico's progress toward democratic government, border security, immigration policy, and regional science and technology policy. Visit the Mexico Project's Web site at http://www.csis.org/americas/mexico/index.htm.

CSIS Global Aging Initiative

The CSIS Global Aging Initiative (GAI) explores the fiscal, economic, social, and geopolitical implications of population aging and population decline. CSIS established GAI in 1999 to raise awareness of the challenge and to encourage timely reform. Over the past six years, GAI has pursued an ambitious educational agenda—undertaking cutting-edge research projects, publishing high-profile reports, and organizing international conferences in Beijing, Berlin, Brussels, Paris, Tokyo, Washington, and Zurich that have brought together world leaders to discuss common problems and explore common solutions. Visit the Global Aging Initiative's Web site at http://www.csis.org/gai.