PREFACE

This invited presentation was originally given to the National Science Board (NSB) on February 17, 1999, in Los Angeles, California. Some of the data have been updated since the presentation. The NSB is composed of 24 part-time members, appointed by the president and confirmed by the Senate. The NSB has dual responsibilities as national science policy advisor to the president and the Congress, and as governing body for the National Science Foundation.

Peter A. Morrison is a resident consultant with RAND and the founding director of its Population Research Center. His principal interests are applications of demographic analysis in tracking socioeconomic trends and envisioning their consequences for public policy and business.

This documented briefing was sponsored by *Population Matters*, a RAND program to synthesize and communicate the policy-relevant results of demographic research. Through publications and outreach activities, the program aims to raise awareness and highlight the importance of population policy issues and to provide a scientific basis for public debate over population policy questions. For further information and to access other *Population Matters* publications, visit www.rand.org/popmatters.

The author thanks Julie DaVanzo and Michael S. Teitelbaum for comments and suggestions on this briefing.

SUMMARY

This documented briefing describes demographic trends in the United States, considers their social and economic implications, and reflects on the challenges they pose for public policy. It begins by placing these trends in global perspective, articulating how demographic trends are exerting common influences worldwide. An important consequence of demographic change, in concert with economic development, is the transformation of *populations* around the world into *adult consumers*, facilitated by smaller families and rising per capita incomes.

The U.S. Demographic Context

Demographic trends in the United States foreshadow major economic and social changes. Four major implications emerge:

1. Like the rest of the industrialized world, the United States has experienced declining birth rates and a maturing age distribution (meaning that the average age of the population is gradually increasing). As the number of older adults increases and the needs of those adults find political expression, national budgetary priorities are likely to focus increasingly on such needs. This development in turn could strain education budgets as college enrollments swell. Furthermore, the number of workers in the prime working years (25–44) will begin to diminish. From one vantage point, employers will benefit from increasing numbers of mature, seasoned workers—a bonus for industries seeking experienced employees, some of whom may well prefer part-time work. From another perspective, however, shrinking numbers of prime-age workers mean an overall shortage during times of economic expansion, adding to inflationary pressures.

2. Evolving generation gaps could alter future adult lives and careers. One obvious gap has emerged as access to computers has made computer literacy during childhood increasingly prevalent among people born, for instance, since the mid-1980s. Among earlier cohorts, computer literacy remains less prevalent. What this "digital divide" portends over the long term is uncertain. There is cause for concern that disparities in Internet access could create a society of information "haves" and "have-nots" (although the increasing access among have-nots as costs of Internet access continue to fall somewhat tempers this concern).

3. Economic disparities tied to education levels, which already exist, could widen dramatically. Specifically, the economic prospects for those finishing high school and obtaining a bachelor's degree may begin to diverge sharply from those who do not earn a degree. Like the digital divide, these disparities may reduce individual opportunity and also shortchange the nation's scientific enterprise.

4. Another trend reshaping the U.S. demographic picture is the complex ethnic mosaic materializing across the country and the competing interests it fosters. Recent Census Bureau projections show a population in which persons of Hispanic origin will soon outnumber African Americans (by 2005); and non-Hispanic white (Anglo) persons will themselves eventually become a "minority," comprising less than half of all Americans (by 2060).[1]

The deeper story is the social change accompanying the demographic transformation. Intermarriage is rising, and more Americans can identify themselves as multiracial. Many facets of this trend have already become apparent in California, where the term "minority" is nearly outmoded.

The U.S. system has tended to give political voice to minority groups by creating ethnically based electoral districts, on the premise that common interests are linked exclusively to ethnic identity. Such reinforcement of ethnic separatism is controversial. In recent decisions, the Supreme Court has yet to resolve this fundamental issue of public policy.

The quandary here is to balance the interests that unify a local community with those that distinguish or divide its members. The issue will arise with increasing frequency as the ethnic makeup of communities shifts.

Policy Challenges Ahead

The challenges to the Social Security and health care systems posed by fluctuations in age cohorts are fairly well-known. But there are three other long-term challenges that U.S. demographic trends pose for public policy, and these are worthy areas of further inquiry.

The first challenge: Temper the competing interests within ethnically diverse areas. Computer literacy, access to the Internet, and educational opportunity will be central concerns among groups who perceive their children to be at a disadvantage.

The second challenge: Nurture adequate human capital for the nation's scientific enterprise. That challenge calls for policies to strengthen the education infrastructure, which produces the scientific skills the nation's economy will demand.

The third challenge: Address impediments to individual opportunity, including educational disparities and the remnants of a "digital divide."

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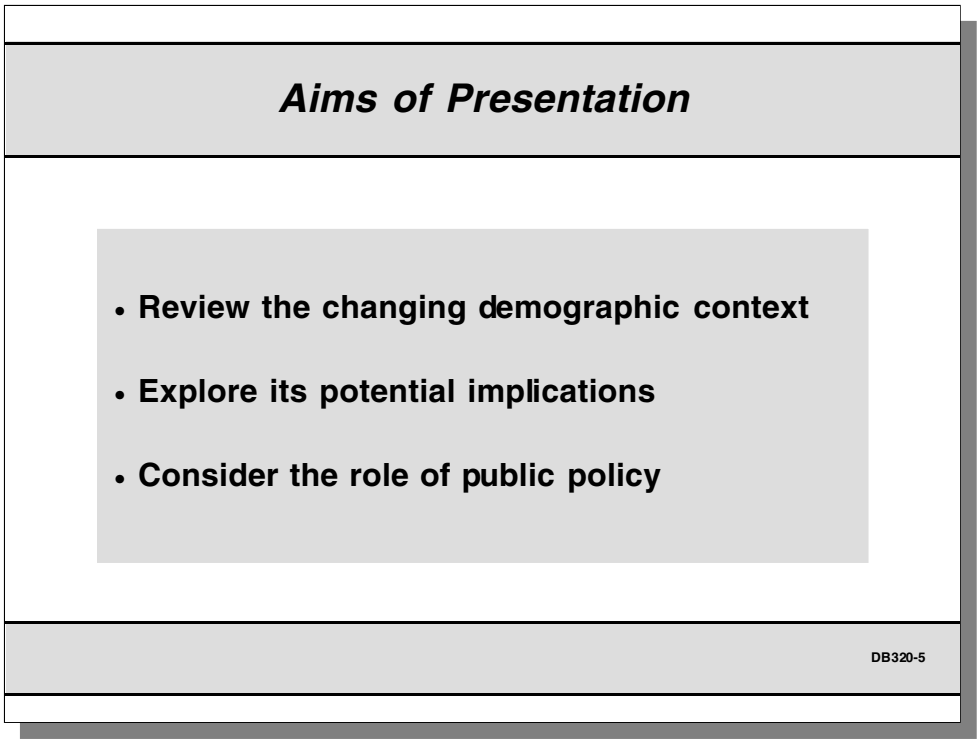
[1] Some sources refer to whites, blacks, and Hispanics, while other sources refer to their corresponding populations as Anglo, African American, and Latino. Therefore, I use such corresponding terms interchangeably throughout the document.



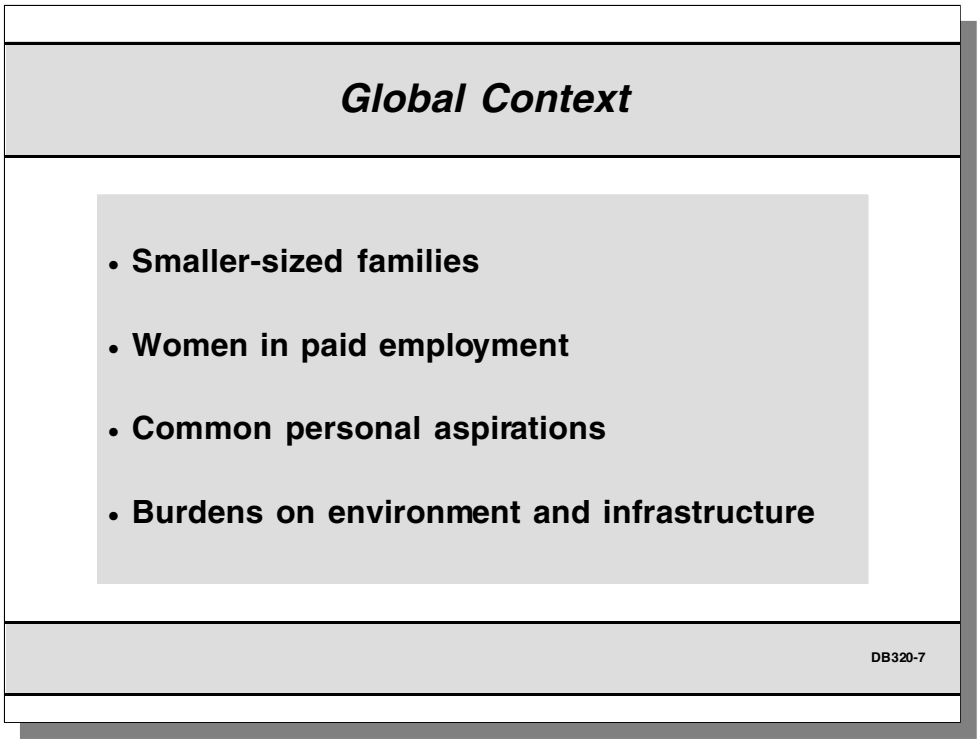
My aim today is to broaden your insight, as members of the National Science Board, into the future from the perspective of my own scientific field, demography. This broad, interdisciplinary field encompasses research on all aspects of populations: their structure, how and why they change, and what implications changes have for public policy and business.

The population sciences do not form a single coherent body of knowledge; instead, they span several academic disciplines, including sociology, economics, geography, biostatistics, and others.[2] Social demographers, economic demographers, and geographers all draw on their own distinctive bodies of theory regarding human behavior, and especially the choices people make. Population structures and processes—the baby boom and its maturation over time, for example—are the collective outcomes of those choices. The consequences of such choices, of course, may extend far into the future, shaping everything from numbers enrolling in college or retiring from work to redefinitions of racial and ethnic identities within the population.

[2] These points are elaborated in P. A. Morrison, *Continuity and Change Across the Population Sciences* (RAND P-7281, 1986). Four features unify the population sciences: (1) a common set of research designs (almost invariably nonexperimental); (2) reliance on large datasets, each furnishing a haystack of ordinary events occurring in people's lives, within which certain highly informative combinations of events can be detected statistically; (3) several powerful concepts—e.g., population, cohort, life course—that apply to a wide range of population sciences concerns; and (4) certain distinctive models and methodologies, such as the life table and the synthetic cohort.

There is much discussion on demographic topics and awareness of broad trends. Sharpening our understanding of those trends helps put them in strategic perspective to clarify their implications for public policy and business.

Because of the NSB's public responsibilities, I will focus on the policy challenges that these demographic issues pose. But, as I will show, the policy and business implications are often intertwined.



This presentation precedes a major symposium on global environmental issues. Accordingly, I shall briefly outline worldwide demographic trends before addressing domestic trends.

From a global perspective, the challenges we face are to discern and respond effectively to common demographic changes that transcend national borders. These changes include trends in population size, population composition, and consumerism around the world. That consumerism (and the rising incomes that drive it) is reshaping the way much of the world lives, and it carries broad implications for private and public sectors alike.

The demographic trends that are exerting common influence worldwide are listed here. The short version of the story is this: Declining fertility reduces family size and enables women to engage in paid employment. Demographic change (in concert with economic development) encourages common aspirations, generating millions of adult consumers.

Simple though it is, this story has profound effects. This new, very large wave of Western-style consumers creates, of course, enormous opportunities for businesses that cater to their needs. Each year, millions of additional consumers around the world embrace air conditioning and become car owners, to give two examples. This transformation of *populations* around the world into *consumers*, facilitated by smaller families and other common

demographic changes, further burdens the environment and existing infrastructure.[3]

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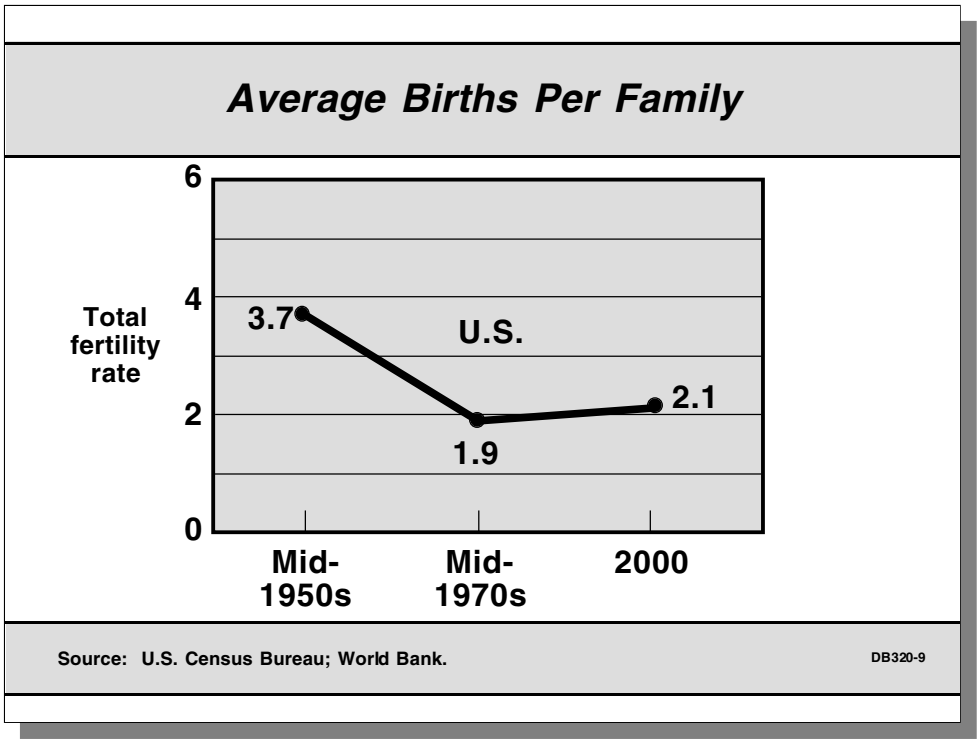
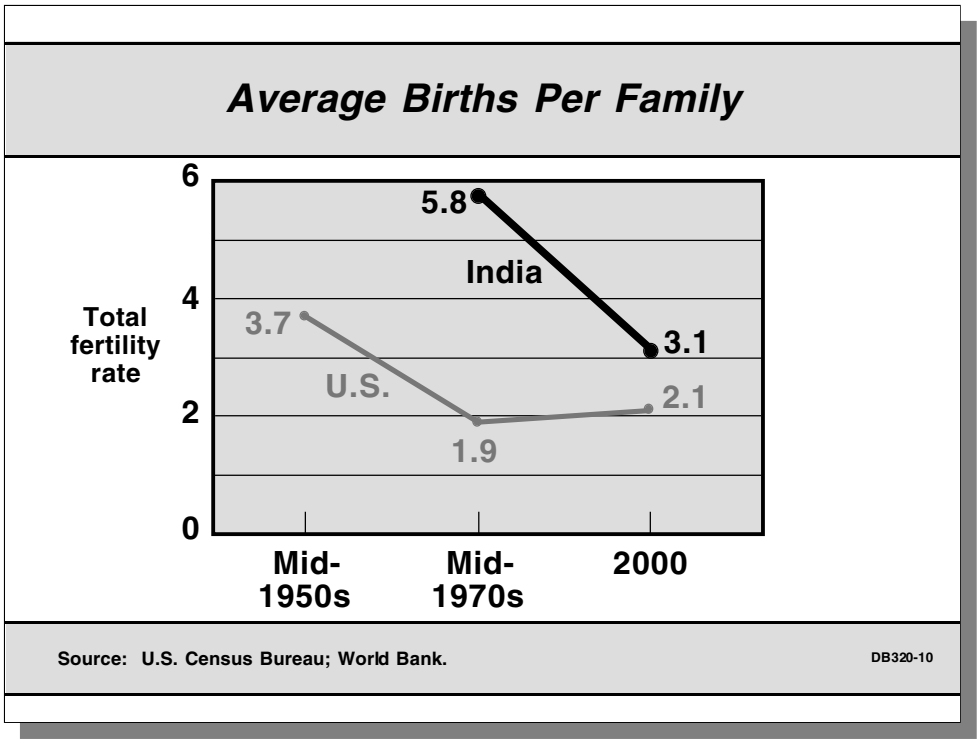
[3] See Lori M. Hunter, *The Environmental Implications of Demographic Dynamics* (RAND MR-1191-WFHF/DLPF/RF, 2000).



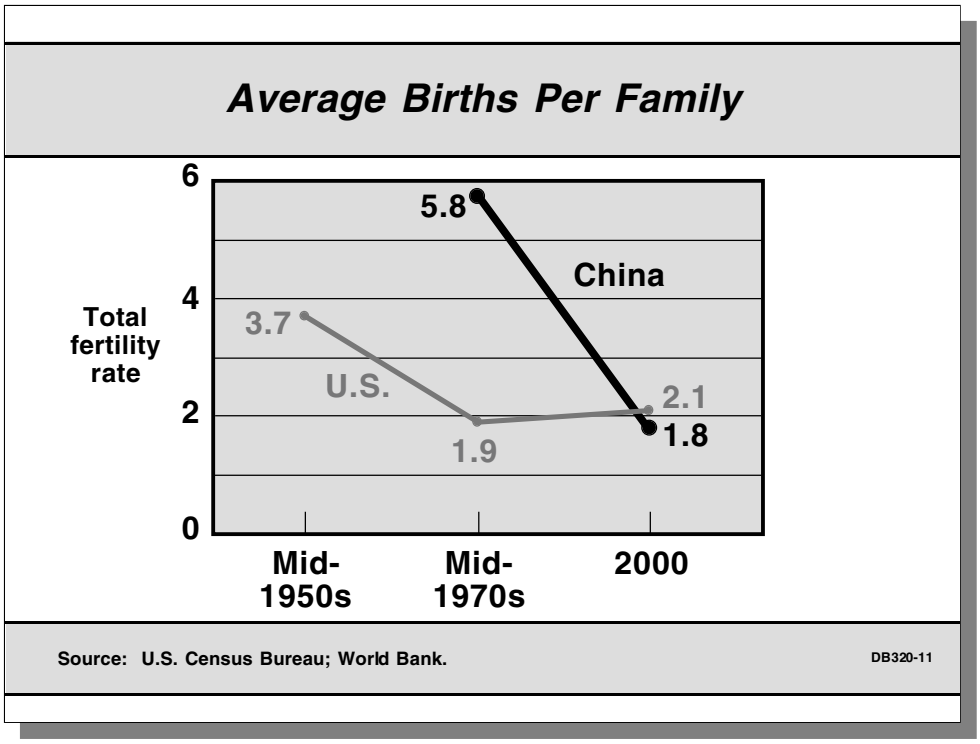
The demographic trend that drives this story is one that the United States has been experiencing for the past three decades; i.e., the substantial decline in the national fertility rate since about 1970. The total fertility rate (TFR) shown above measures the average number of children a hypothetical couple would bear over their lifetime based on the age-specific fertility rates measured in a given year.

The trend in the TFR from the mid-1950s to the mid-1970s resulted in one of the most significant social and economic transitions of the 20th century. The transition was from a society in which families typically bore three or four children to one in which the two-child family predominates. The post-1970 baby bust meant that American couples were averaging only about 1.9 to 2.1 births per family (rather than up to 3.7 births, as was the case in the 1950s).

Since the 1950s, most advanced industrialized nations have undergone this same demographic transformation (with TFR levels falling to as low as 1.1). More recently, developing nations have embarked on a similar downward course.



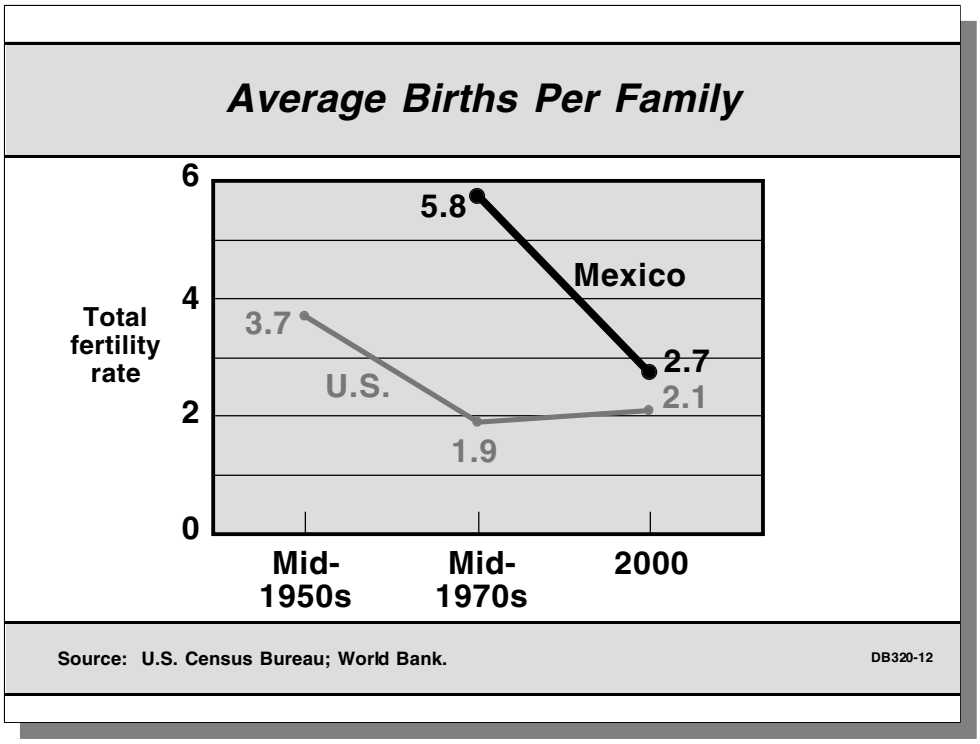
Typically, as in India, the decline started later than it did in the United States. But the drop has been steeper. Over a 25-year period, India transformed from a society in which couples averaged 5.8 births to one in which they average only 3.1.



Likewise, in China the TFR has fallen to the point where couples now average fewer than two children. This sharp decline reflects the impact of China's One-Child Campaign, which was launched in 1979. The campaign's goal was to eliminate all births exceeding two per family and to encourage most families (especially those in urban areas) to have no more than one child.

One might question how long fertility rates will stay at their current levels. Yes, U.S. fertility dropped and remained low across subsequent generations, but will other countries—with different economies and cultures—follow that same pattern?

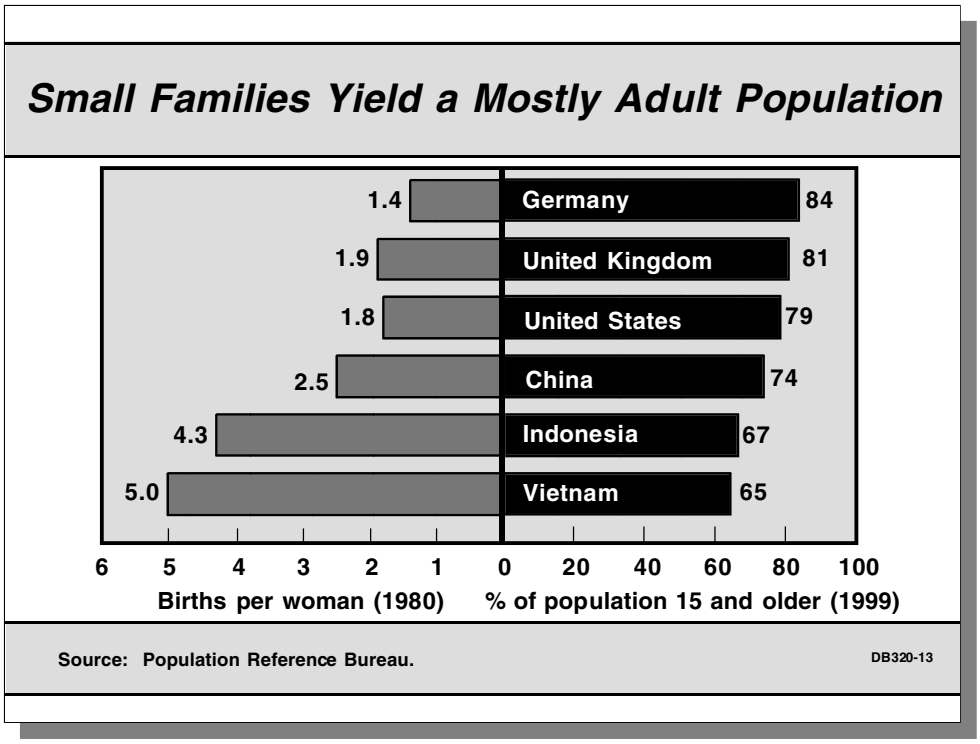
A strong argument can be made that, as consumerism spreads across the developing world, fertility rates are likely to remain low and, in certain countries, decline further. People experience—or aspire to—lifestyles that become possible with fewer children and both parents available to earn income. In short, the current generation of young adults has focused on consumption *as well as* reproduction.



Mexico—far removed geographically, culturally, and politically from earlier cases—has demonstrated the same trend.

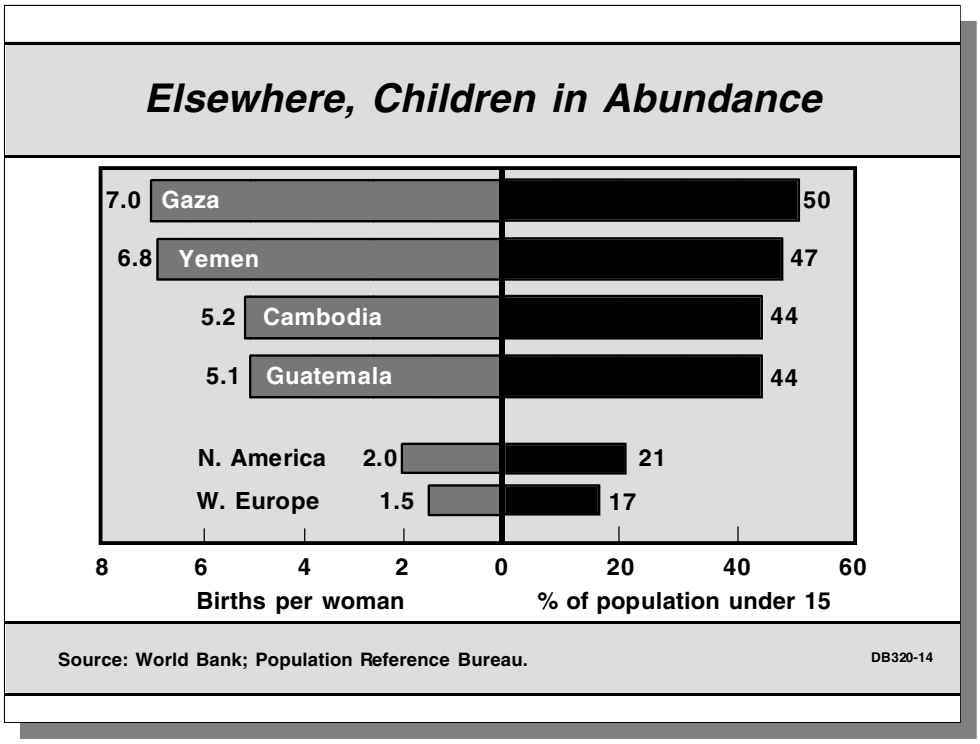
In country after country, we observe the same general pattern: a noticeable, often sharp, decline in fertility among those of childbearing age. Noteworthy exceptions do exist. For example, high fertility persists in a number of countries in the Middle East and Sub-Saharan Africa. Nevertheless, the worldwide pattern of fertility decline strongly implies a common underlying set of determinants operating on couples' aspirations about their own future.

Of more direct concern to demographers and policymakers are the consequences and implications of worldwide fertility decline.



One consequence of declining fertility is the change in the age structure of the population. The lower fertility falls, the smaller the percentage of children in the population and the larger the eventual percentage of adults. This change materializes gradually, but with effects that are substantial and long lasting.

Twenty years ago, for example, Germany had the lowest fertility rate of the countries noted on this chart, at 1.4 births per woman. Today, we can see the effects of that: 84 percent of the German population is adult. That is a very large proportion, as well as a contrast to the 65 percent or 67 percent adult share in Vietnam and Indonesia, where higher fertility has prevailed.

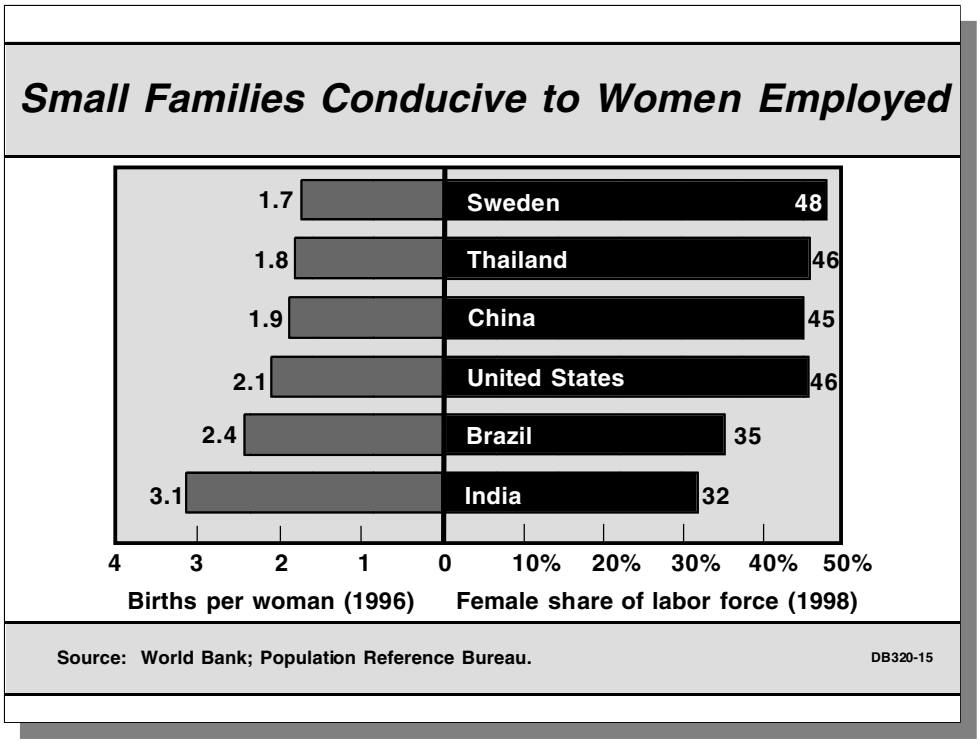


This variable in population structure—the percentage of a population under age 15—has major implications for national economies, policies, and futures. In Gaza, for example, the average of 7 births per woman yields a population half of whom are children—mouths the other half must feed. In Western Europe, by contrast, the small average family size yields a region populated mostly by adults; only 17 percent of Western Europeans are under age 15.

Many years pass before low fertility translates into a mostly adult population with aspirations focused on consumption as well as reproduction. But the changes follow a predictable and apparently inexorable course. At present, certain countries—China, for example—are on the demographic threshold of consumerism. They have a more consumption-oriented demographic future than others—Guatemala or Cambodia, for example—where the sheer number of children hinders consumerist aspirations in adults. Such countries are less likely to emerge soon as societies of consumers, given the current makeup of their populations.

Equally important, a population endowed with proportionally more workers and fewer mouths to feed can be more responsive to policies aimed at spurring economic development—for example, policies conducive to saving and promoting investment. Indeed, the expanding share of working-age adults can deliver a demographic "bonus" or "dividend"—if those adults are well-educated and jobs are available. The "economic miracle" across much of Asia illustrates these possibilities.[4]

[4] David Bloom, David Canning, and Jaypee Sevilla, *Population Change and Economic Growth*, forthcoming.



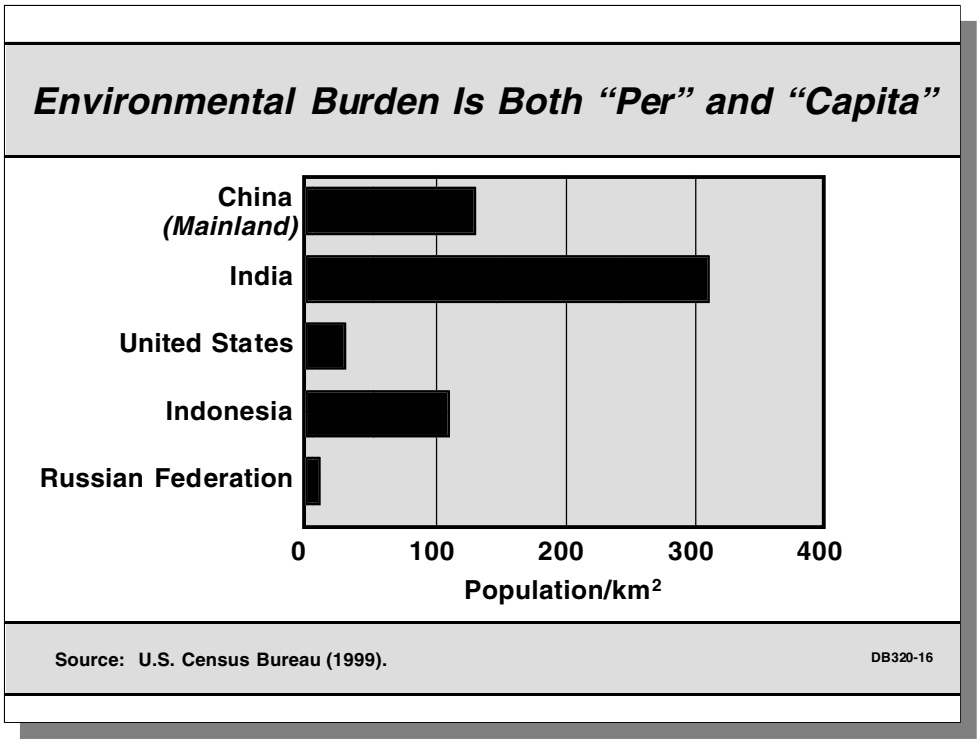
The drop in fertility and family size diversifies the types of work women are likely to perform and increases their financial remuneration. Here, too, declining fertility suggests a more consumer-oriented future. There are fewer mouths to feed and more adults able to generate income. Opportunities for women to earn income, in turn, further the decline in fertility.

In India, where women still comprise only one-third of the workforce, families have averaged 3.1 children in recent years—comparable to U.S. fertility levels during much of the post-1947 baby boom. Then, American mothers typically worked as homemakers, not wage earners.

In Sweden, Thailand, China, and the United States, by contrast, low fertility has translated into a larger female share of the workforce.

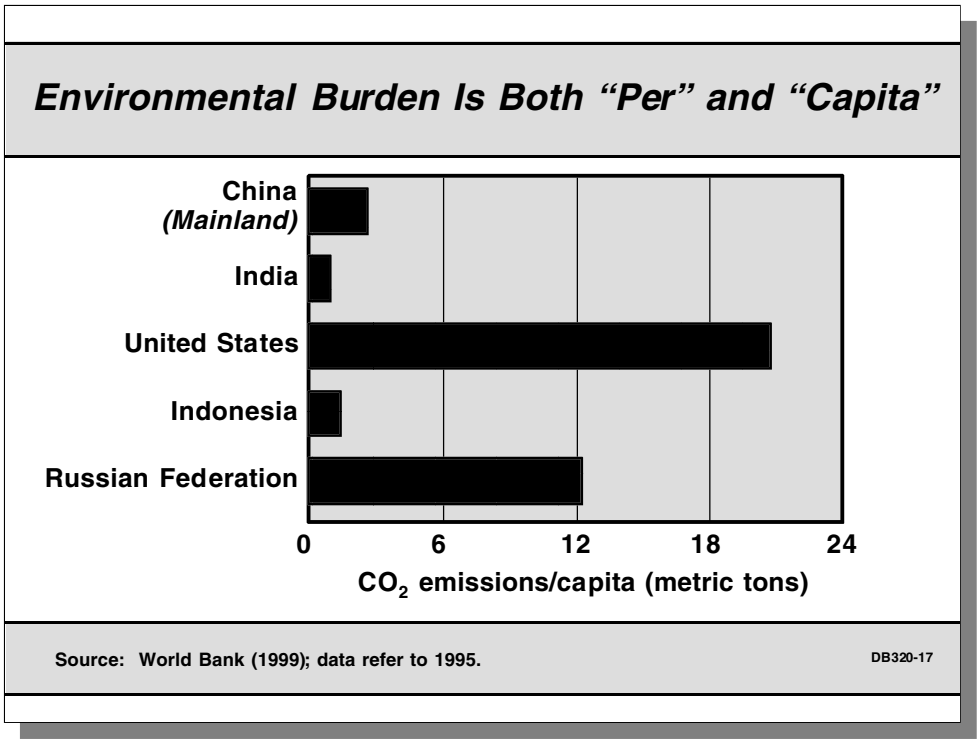
Certain countries are notable exceptions to the general pattern here. In Russia, for example, low fertility has been no guarantee of economic prosperity.[5] For most countries with declining fertility rates, though, this demographic transformation has common effects on human prosperity; and that prosperity, in turn, has environmental consequences.

[5] See Julie DaVanzo and David Adamson, "Russia's Demographic 'Crisis': How Real Is It?" (RAND IP-162, 1998), and Julie DaVanzo and Clifford Grammich, *Dire Demographics: Population Trends in Russia* (RAND MR-1273-WFHF/DLPF/RF, 2001).



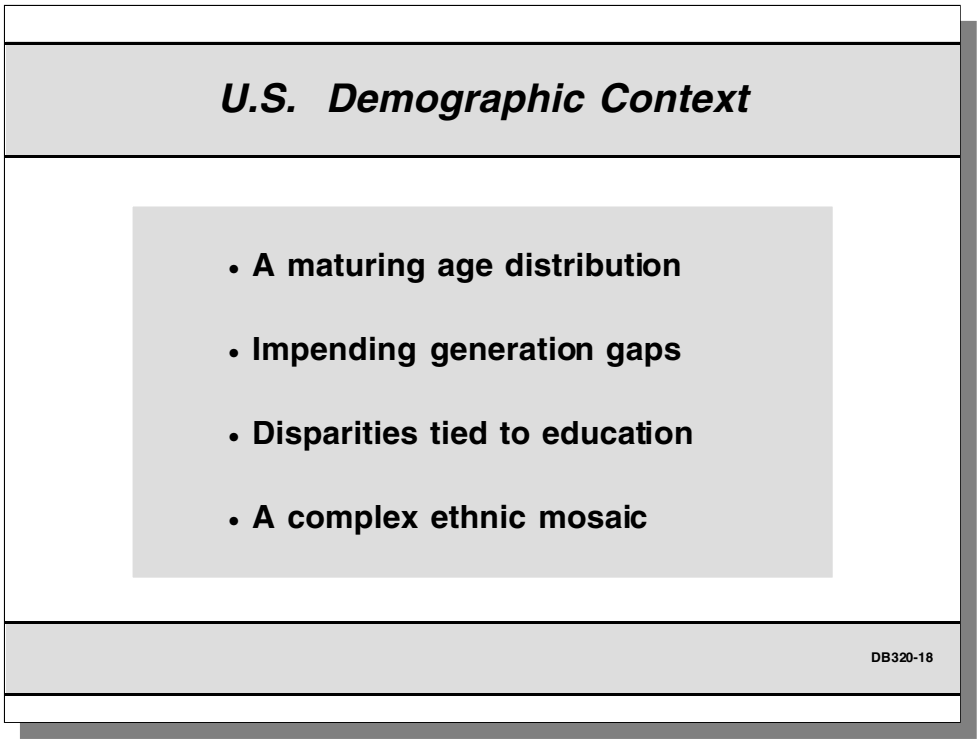
One key effect of increasing consumption is a parallel increase in environmental burden. It is important to note that certain nations most likely to transform into consumer societies are not only heavily populated but densely populated as well. That is, the sheer number of people per unit of land area is extraordinarily high. India, as seen here, has 10 times the population density as that of the United States. Together, the size and density of population pose environmental challenges.[6]

[6] For a discussion of these issues, see Lori M. Hunter's *The Environmental Implications of Demographic Dynamics* (RAND MR-1191-WFHF/DLPF/RF, 2000).



The cumulative impact of population size, population density, and environmental burden depends as much on the "per" factor as the "capita" one. For example, the United States registers per capita emissions of carbon dioxide many times higher than those of China and India. As consumerism ripens in these far more populous countries, will their resource usage follow suit? Multiplying these emission rates by the population densities cited above suggests a massive impact on the environment that is worthy of our attention.

Hopefully, this brief overview of the global demographic context will help inform your thinking on these complex environmental issues, to be addressed in the symposium that follows my presentation. Let me now turn to the national demographic context, where the issues are quite different.



In the United States, demographic trends likewise foreshadow some major transformations. Here, though, the story pertains more directly to the broad social and economic concerns that drive budgetary priorities. Among those concerns are, for example, poverty among children, educational opportunity, and labor market inefficiencies.

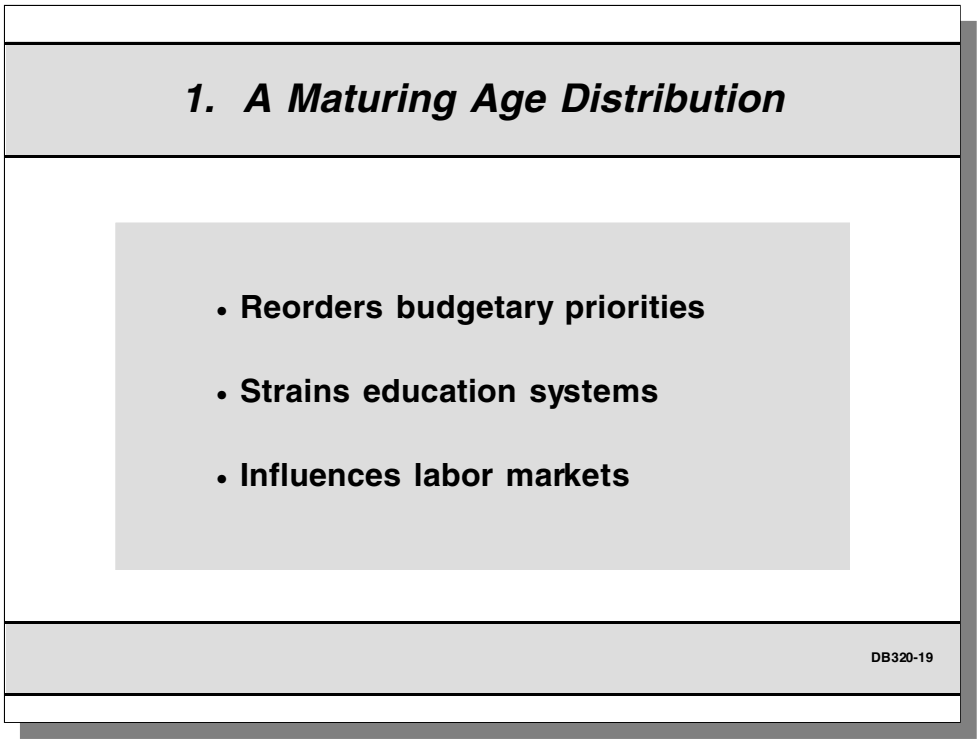
These demographic trends have at least four long-term ramifications:

1. A maturing age distribution is destined to reorder budgetary priorities and strain education systems.

2. Evolving generation gaps could alter future adult lives and careers.

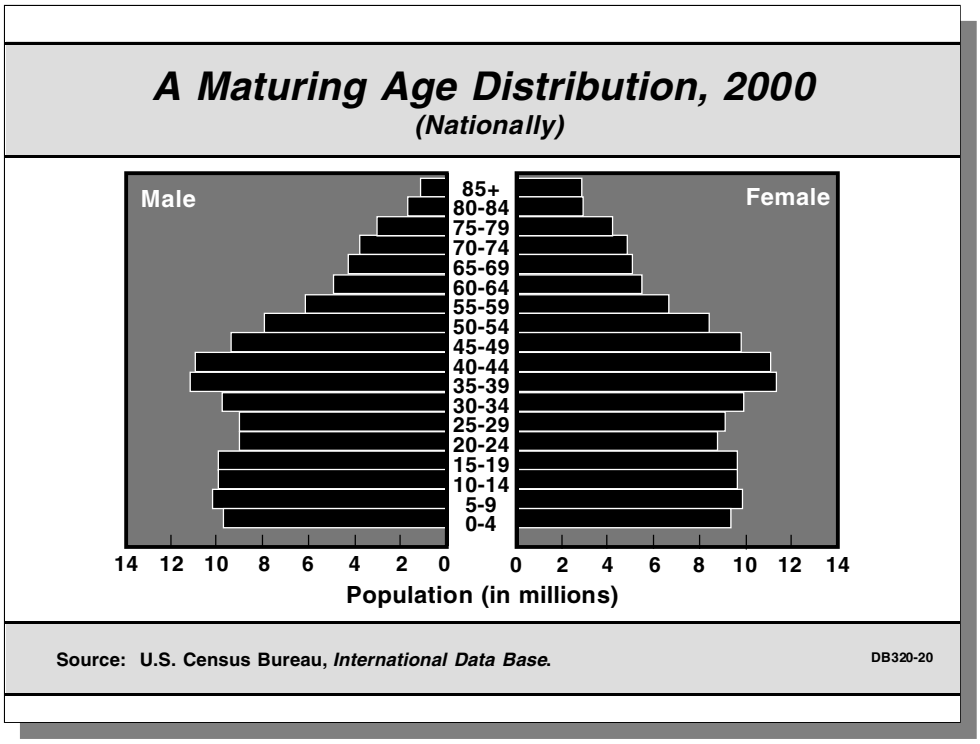
3. Widening economic disparities attributable to education levels may breed a two-tiered society.

4. A complex mosaic and the competing interests of ethnic and racial minorities are materializing across the nation.



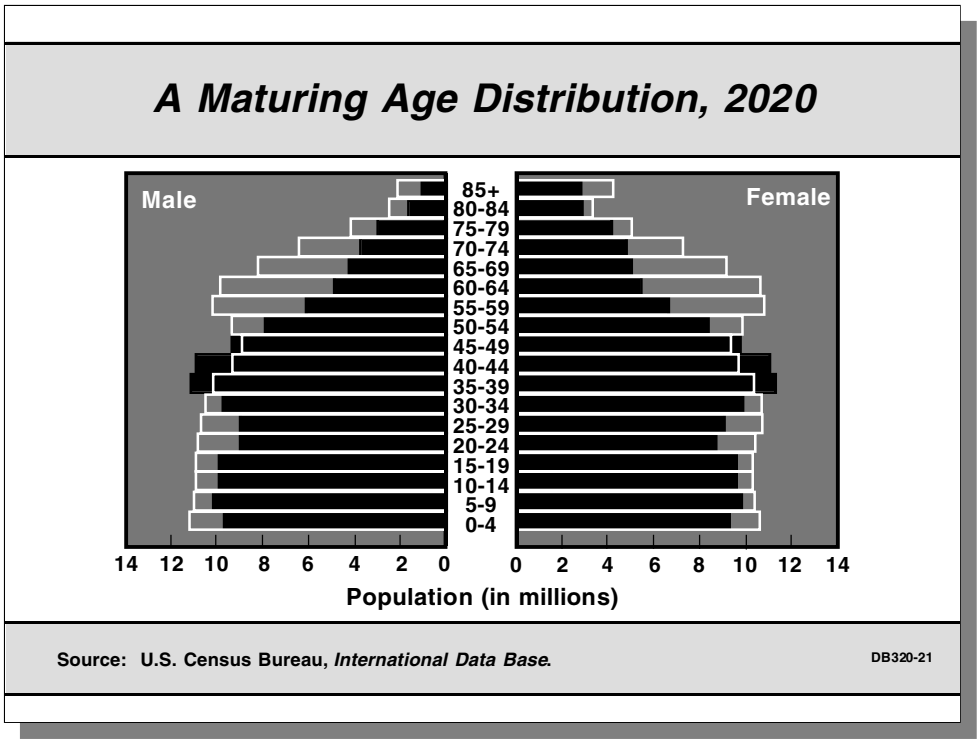
First, let's consider the maturing age distribution, which continues to alter the economic and social landscape as indicated here.

- Budgetary priorities change, as the number of older adults increases and the needs of those adults find political expression.
- Enrollment pressures build—especially in rapidly growing areas—straining the nation's educational infrastructure. In California, for example, higher education planners are now contending with what they call "Tidal Wave II"—the 15-year period of mushrooming enrollment growth as children of the original baby boomers reach college age.
- The maturing age distribution transforms labor markets, as the number of workers at particular ages contracts or expands over time.

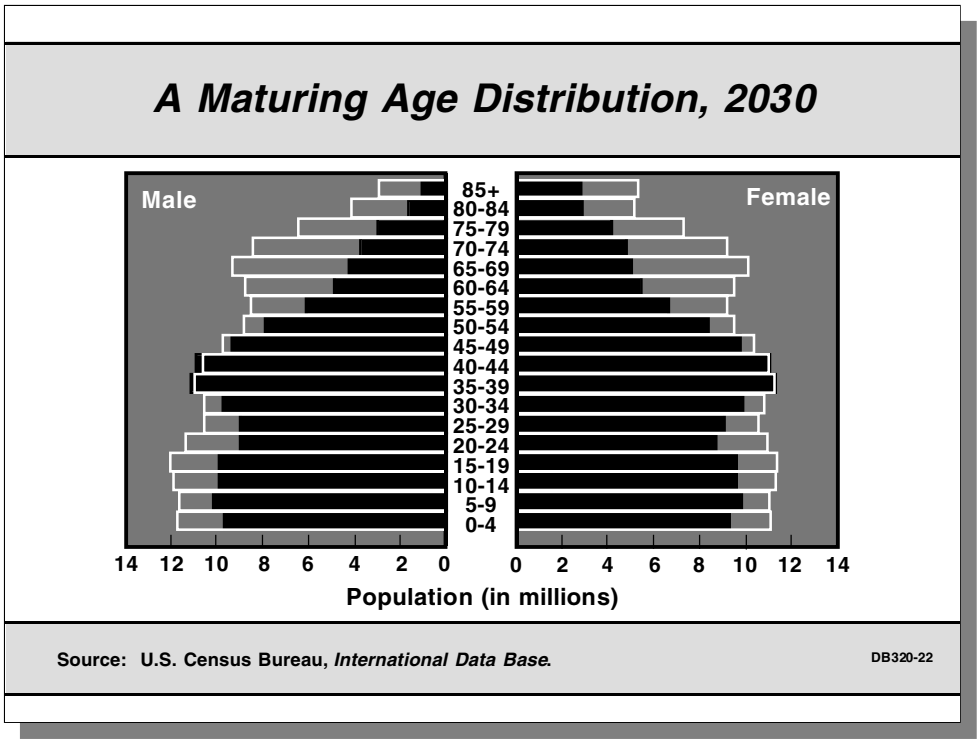


What do we mean by a maturing population—and how do these consequences arise? The age distribution shown here simply layers the population by age, with children at the base and the elderly on top.

In terms of age distribution, today's population is characterized by a striking unevenness that is attributable to the 1950s baby boom being followed by the 1970s baby bust—the familiar "pig passing through the python."



Viewed over time, that legacy of unevenness translates into a dynamic process of expanding or contracting numbers within different age ranges. If we fast-forward 20 years, as shown here, the process will have reached the stage shown in white outline. Notice the increases under age 35, the absolute declines in the 35–49 age range, and the massive increase above age 50.



If we fast-forward an additional ten years, to 2030, differences are even more pronounced. Notice especially the additional millions of Americans at the upper tiers of the age distribution.

Inevitably, this portends a simultaneous shift in budgetary priorities. The changes in raw numbers depicted here are but one of the factors precipitating political debate over Social Security, Medicare, and other entitlement programs. Those changes, however, are a virtual certainty—more certain, for example, than other powerfully influential factors such as growth in the nation's economy or spending on health care.

My colleagues at RAND documented a similar story for California's spending on higher education. Despite California's recent economic rebound, the total share of the state budget available to support colleges and universities will decline because of predictable and inevitable demographic changes.[7]

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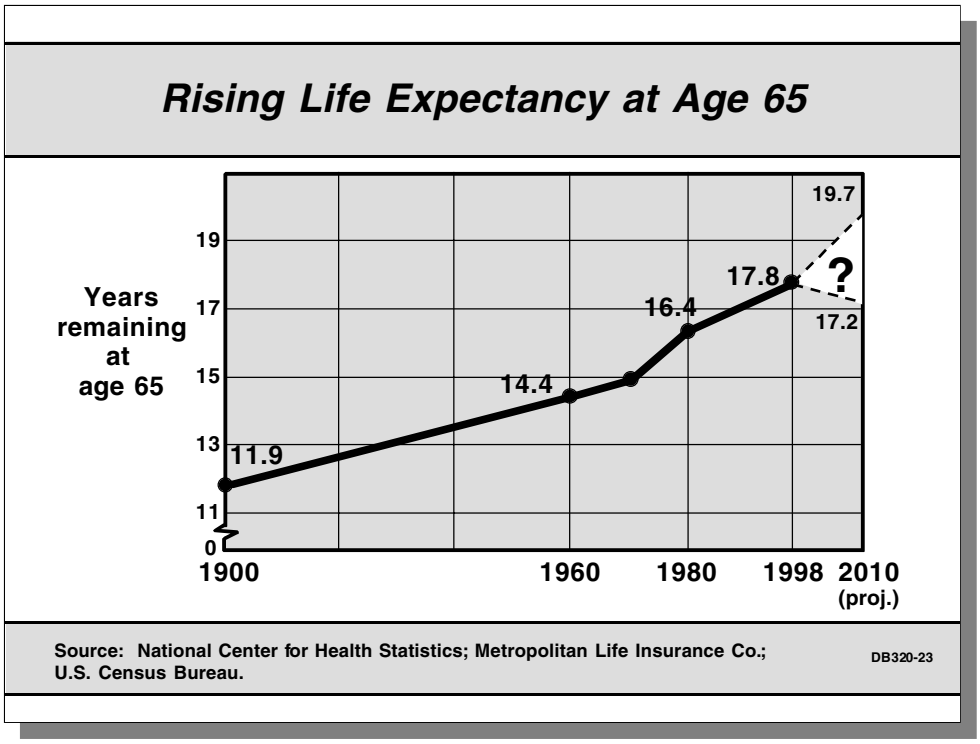
[7] See Stephen J. Carroll, Eugene Bryton, C. Peter Rydell, and Michael Shires's *Projecting California's Fiscal Future* (RAND MR-570-LE, 1996).



The upper tiers of the age distribution, which are so important in driving public spending, are expanding even now, well before the large baby-boom cohorts reach old age. That is because older Americans are living longer and living better than ever before. A key measure of what has changed is shown here: an impressive increase in life expectancy at age 65.[8]

Simply put, life beyond age 65 has become much more survivable than in the past, which lengthens the prospective life span of older Americans.[9] Today's 65-year-olds have a better chance of reaching and surpassing 85 than did their counterparts in earlier decades.[10]

A combination of factors—among them healthier lifestyles and medical advances—has effected these gains in life expectancy. For instance, recent generations have cut down on smoking and started exercising. And medical advances have enabled these generations to survive heart disease.

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[8] See Shiro Horiuchi, "Greater Lifetime Expectations," *Nature* 405:15 (June 2000), pp. 744–745; Shripad Tuljapurkar et al., "A Universal Pattern of Mortality Decline in the G7 Countries," *Nature* 405:15 (June 2000), pp. 789–792.

[9] Most readers will be familiar with the concept of life expectancy (typically referring to expectancy at birth). Actuarially, one can define and compute life expectancy at any age (e.g., age 65) on the basis of all persons who have reached that age.

[10] See Federal Interagency Forum on Age-Related Statistics, *Older Americans 2000: Key Indicators of Well-Being*, August 2000, available through the National Center for Health Statistics.

In 1900, the life expectancy of an average 65-year-old was 11.9 more years, or survival to age 76.9, under the mortality conditions prevailing at the turn of the century. Over the following six decades, that life expectancy crept up 2.5 additional years, to 14.4 in 1960. Thereafter, though, the rise accelerated. Today's average 65-year-old can anticipate living another 17.8 more years, to nearly 83 years of age (longer, of course, for women and shorter for men).

The future poses a big question mark. Demographers who study the dynamics behind this rise have cautioned that the Social Security Administration underestimates the potential degree of future gains in life expectancy.[11] That prospect (unacknowledged by the Social Security Trustees until quite recently) carries profound budgetary implications. Underestimating the life expectancy of future Social Security recipients by even a few months would translate into a massive unforeseen expenditure.

The trend to date, though, carries a clear message: The large cohorts of future elderly, living longer, necessarily will absorb an increasing share of the nation's budget, leaving a smaller share for other competing demands.

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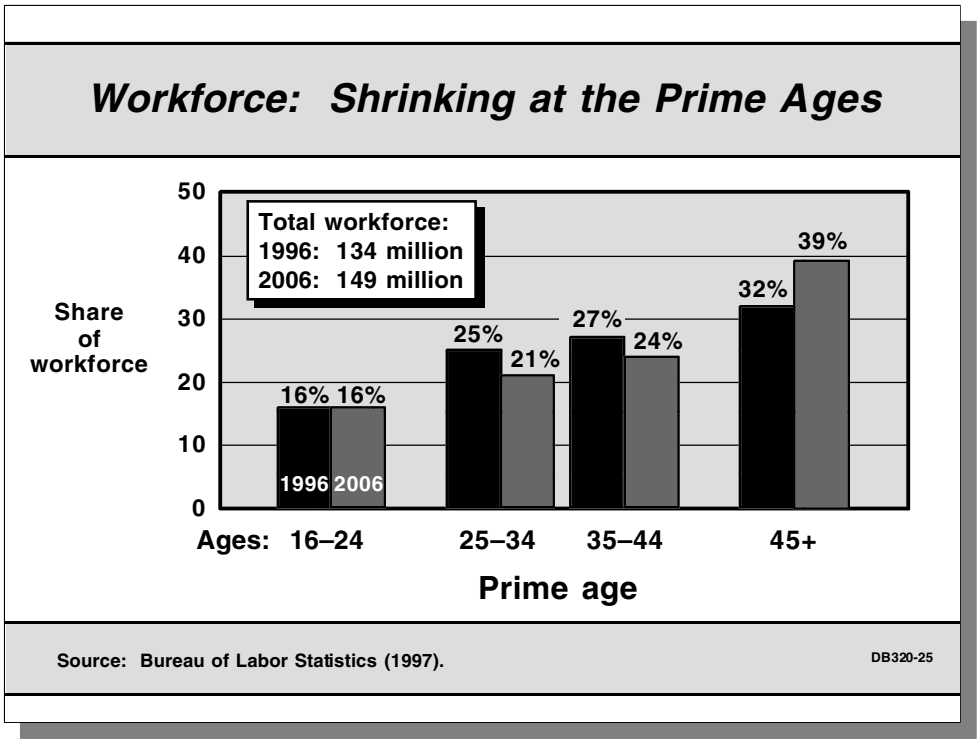
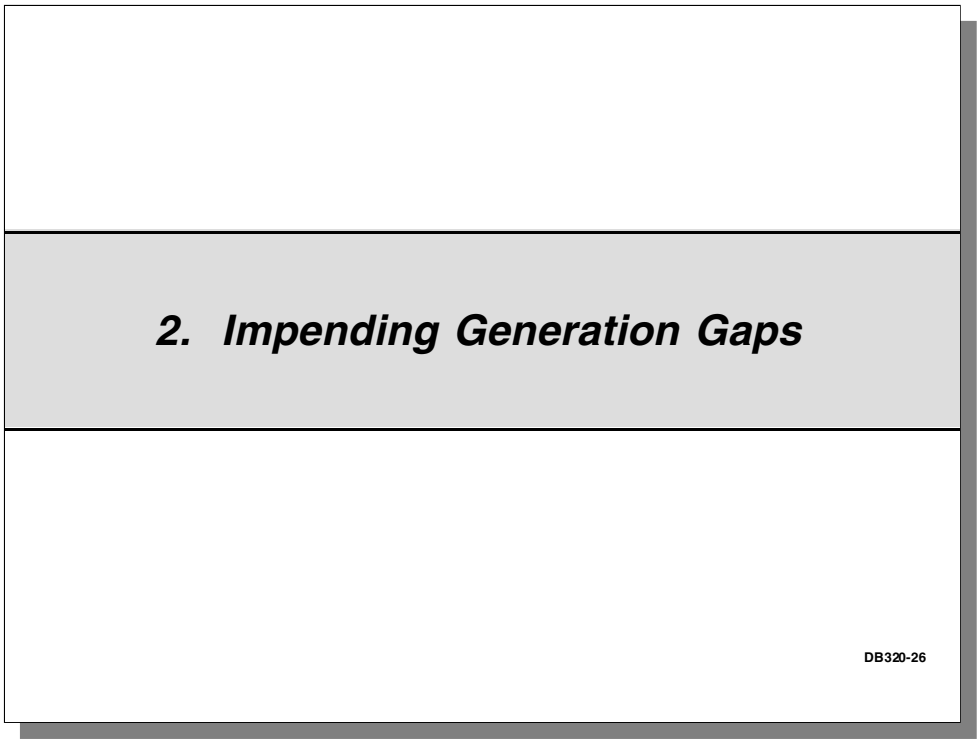
[11] Ronald Lee and Shripad Tuljapurkar, "Death and Taxes: Longer Life, Consumption, and Social Security," *Demography* 34 (1), February 1997, pp. 67–81; Ronald Lee and Jonathan Skinner, "Will Aging Baby Boomers Bust the Federal Budget?" *Journal of Economic Perspectives* 13 (1), Winter 1999, pp. 117–140.

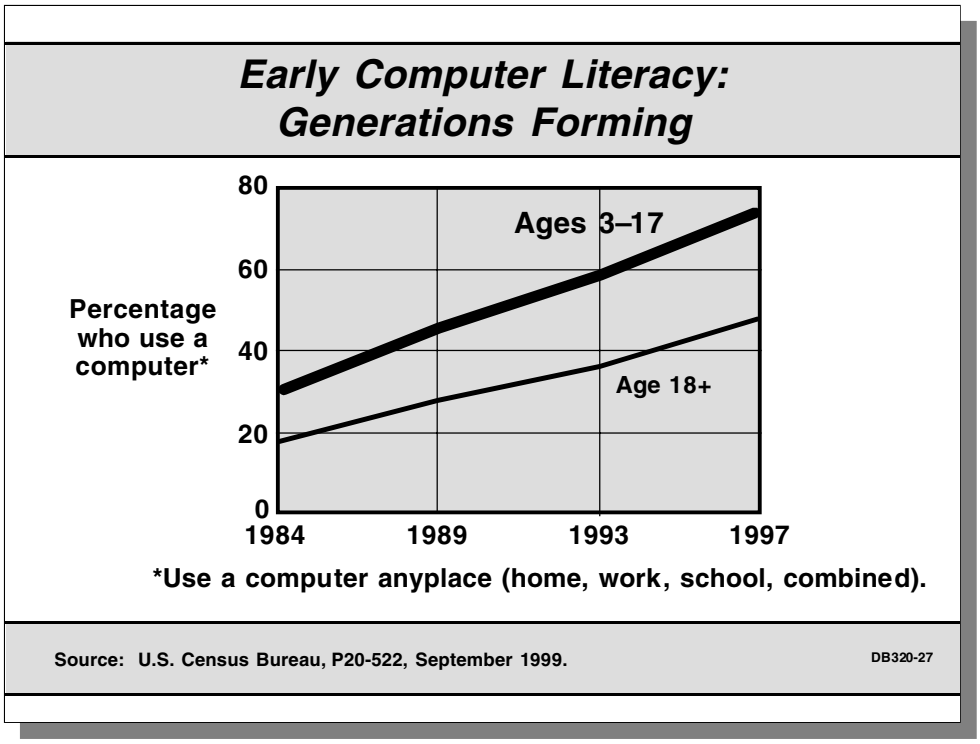


In addition to consumption, production is affected by demographic change. The labor force will change in response to our maturing age distribution.

Available projections extend only to the year 2006. They indicate declining proportions of prime-age workers (those between 25 and 44 years of age) and an expanding proportion of mature workers (age 45 and older). Labor markets will adjust to such changes, as they have before. From one vantage point, employers will have access to increasing numbers of mature, seasoned workers—a bonus for industries seeking experienced employees, some of whom may well prefer part-time work. From another perspective, shrinking numbers of prime-age workers mean an overall shortage during times of economic expansion, adding to inflationary pressures.



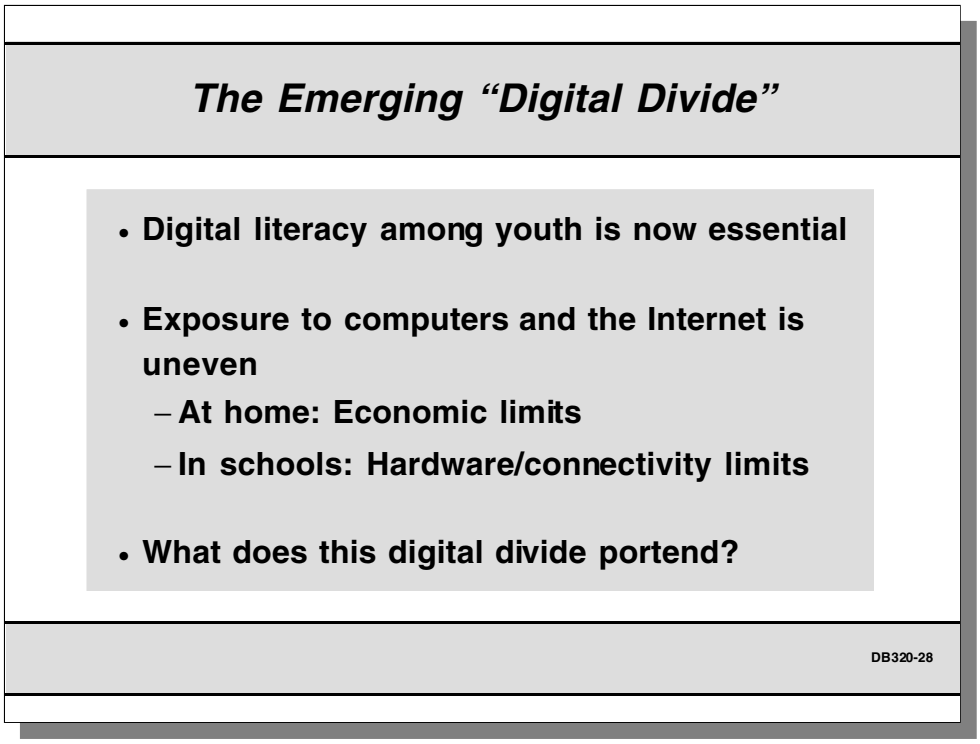
The second major implication of domestic demographic change is the prospect of new generation gaps that arise through what demographers term "cohort succession."



One obvious gap has emerged as children's access to computers has fostered computer literacy among those between 3 and 17 years of age. This chart traces the sharply rising percentage of children who use a computer at home or at school. By 1997, 75 percent of today's children were (by this measure) computer literate compared with roughly 33 percent in 1984.[12] That is reflected in the slope of the upper line in this chart.

Clearly, persons born since the mid-1980s are members of a generation distinguished by their acquisition of computer literacy during childhood. Among earlier cohorts, computer literacy remains less prevalent.

[12] U.S. Census Bureau, *Computer Use in the United States: October 1997*, P20-522, September 1999, Tables B and C. Periodic updates issued at www.census.gov/population/www/socdemo/computer.html.



Because computer literacy will be essential for future members of the workforce, there is growing concern about disparities in the acquisition of such literacy. Children's exposure to computers and the Internet may be limited, by economic factors on the home front, shortages of hardware or connectivity limits in the classroom, or both.

What this "digital divide" portends over the long term is uncertain. On one hand, there is cause for concern that unequal Internet access could create a society of information "haves" and "have-nots."[13] Tempering this concern is the increasing availability among have-nots as costs of accessing the Internet continue to fall.

Being "connected" to the Internet does not render all users equal: Some individuals enjoy ultrahigh-speed connections; others must dial in through antiquated phone lines. Some can access the Internet from home and work; others can connect only through a public library, a classroom, or a community center. Clearly, the barrier of concern here is best characterized as several digital divides, rather than a single one to be bridged once and for all.

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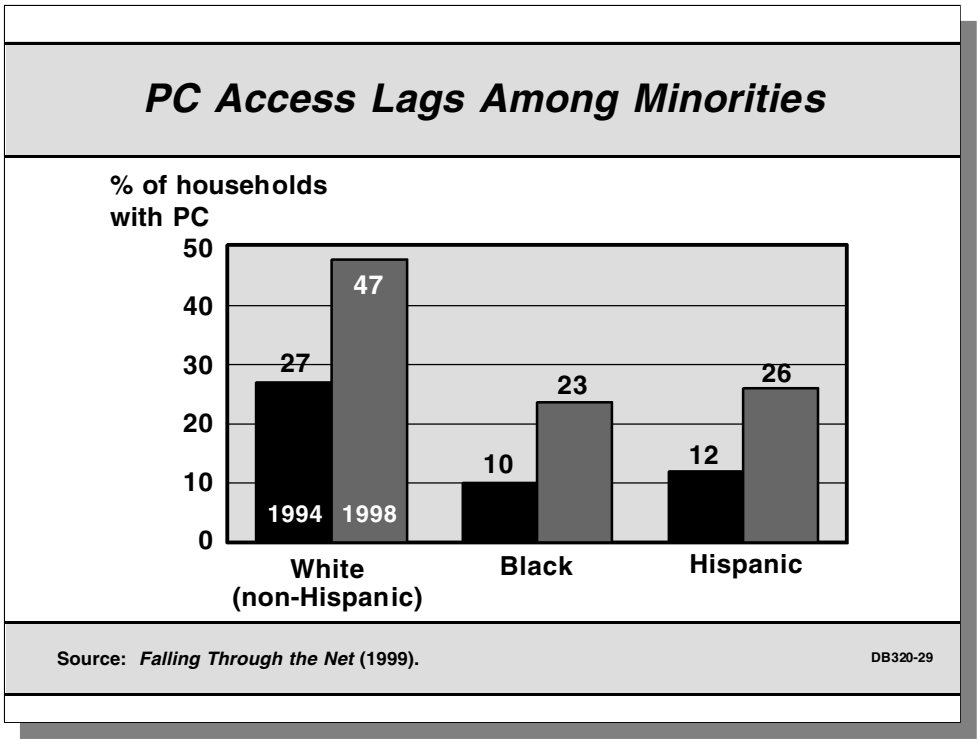
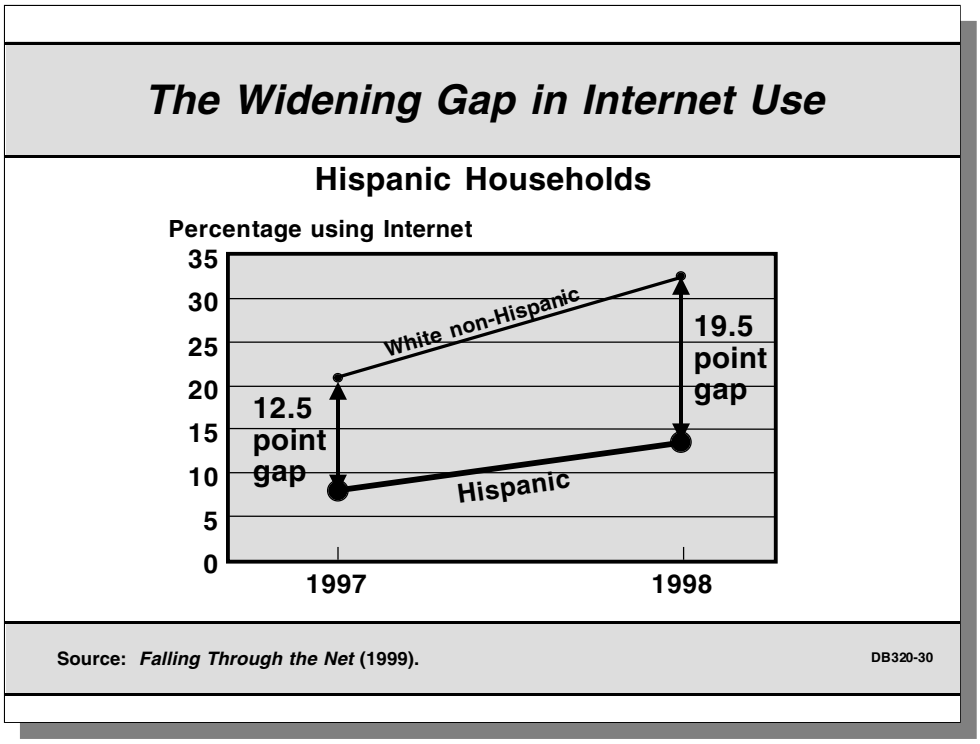
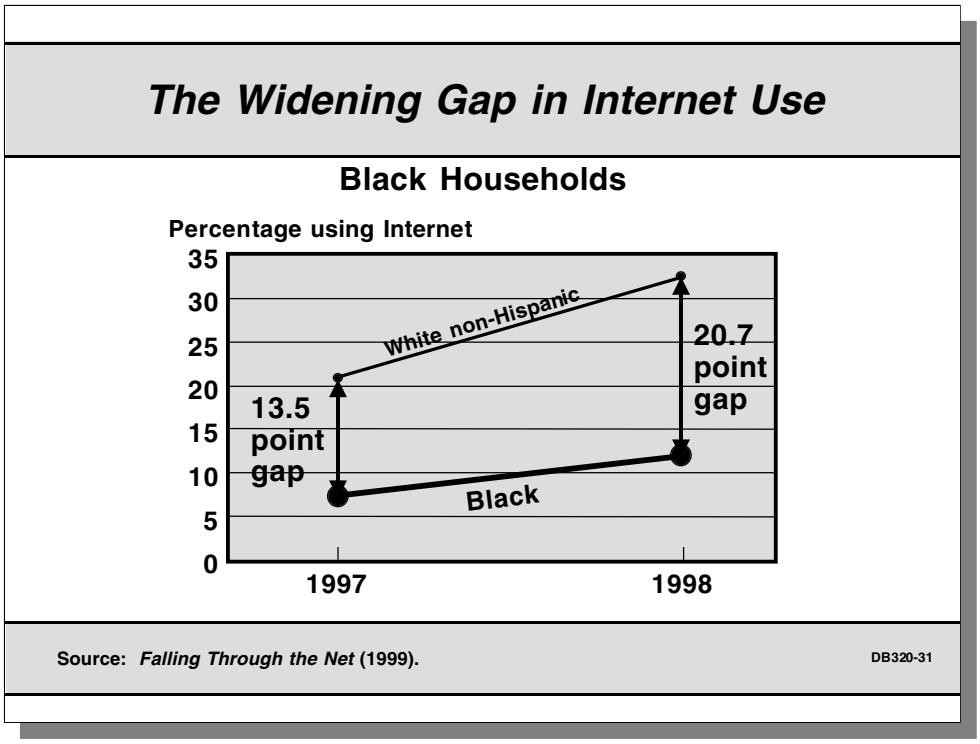
[13] U.S. Department of Commerce, National Telecommunications and Information Administration, *Falling Through the Net*, July 1999; Donna L. Hoffman and Thomas P. Novak, "Bridging the Racial Divide on the Internet," *Science* 280 (April 17, 1998), pp. 390–391.



The broad makings of this widely discussed "digital divide" are shown here—and the divide is aligned with race and ethnicity. Among whites, 47 percent of all households had a personal computer as of 1998, compared with only 23 percent to 26 percent among blacks or Hispanics. Viewed another way, the data show that three in four minority household environments lack an essential ingredient for equipping tomorrow's young adults.



Disparities in access to the Internet exist and appear to have widened, as shown above. In 1998, Hispanic households lagged non-Hispanic white households by almost 20 percentage points; the year before, that gap was less than 13 points.



Among black households, the corresponding gap is nearly 21 percentage points as of 1998; the year before, that gap was less than 14 points.

My RAND colleagues have explored certain policy implications of these developments.[14] One set of questions focuses on whether and how the government can take advantage of information technology, as of course the private sector has done, to cut costs and increase the service it delivers. A major risk here would be inadvertently offering one class of government service to those who can afford a computer, with lower-quality service to those who cannot. (The same RAND research team is exploring that line of inquiry.)

Then there's the question of how to make access to information technology more equitable. As an example, the computer use that may not happen in the home could happen in school. A "digital divide" among tomorrow's young adults is not inevitable. It is a gap that public policy could reduce or eliminate.

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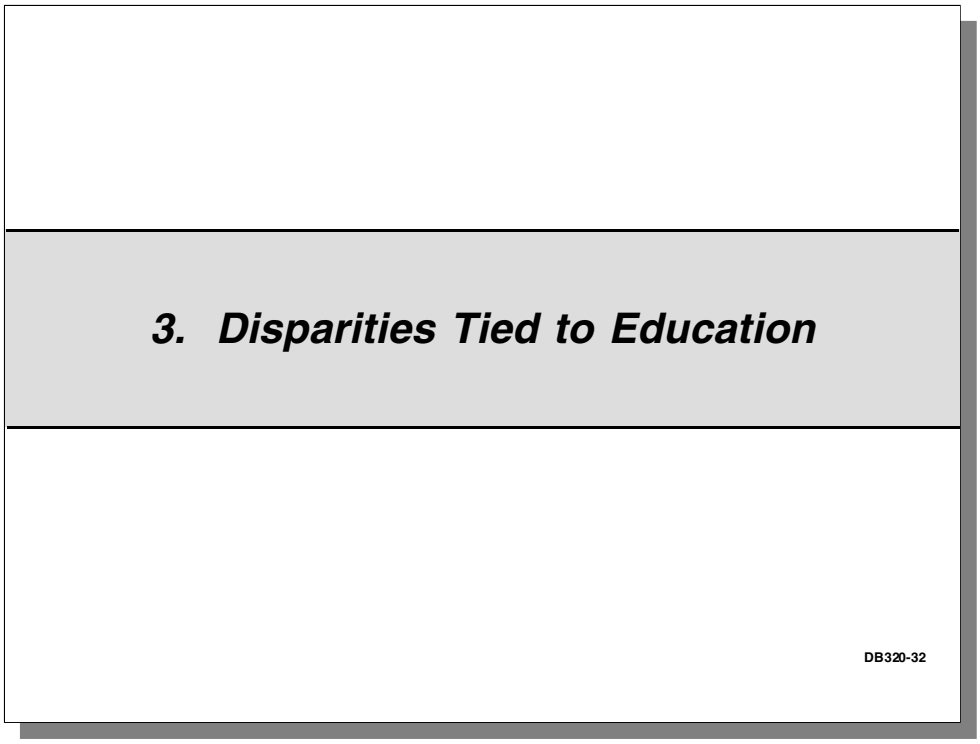
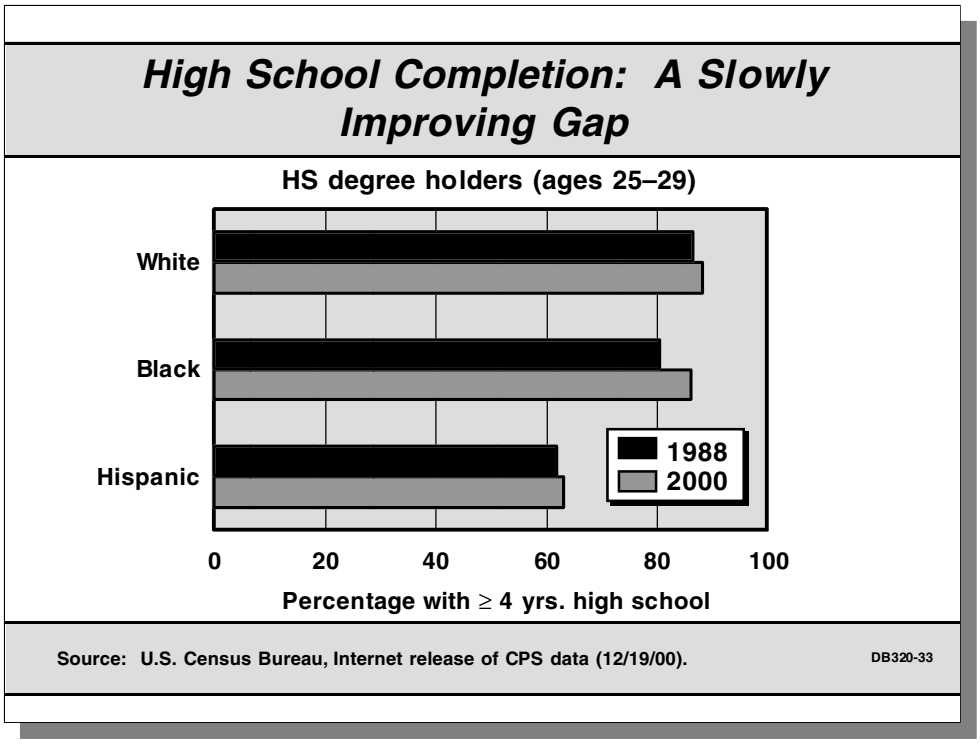
[14] See C. Richard Neu, Robert H. Anderson, and Tora Kay Bikson's *Sending Your Government a Message: E-Mail Communication Between Citizens and Government* (RAND MR-1095-MF, 1999).



The third major implication of domestic demographic change involves another set of disparities. These gaps center on education—specifically finishing high school and obtaining a bachelor's degree. Like the digital divide, these educational disparities may reduce individual opportunity and also shortchange the nation's scientific enterprise.



Education is, of course, critical to economic achievement and social opportunity. Historically, the nation has faced significant gaps between the average education attained by whites and that attained by blacks and Hispanics. Having at least a high school degree is now a prerequisite for a job with a future. An earlier racial gap between young blacks and whites has been closed. By 2000, the percentage of 25–29-year-olds with at least a high school degree was nearly as high among blacks (86 percent) as among whites (88 percent).[15]

Only 63 percent of today's young Hispanics, though, are high school graduates—virtually unchanged from 12 years before. The Hispanic/non-Hispanic gap is only partly attributable to an influx of young adult immigrants without much education. This gap exists even among native-born persons.

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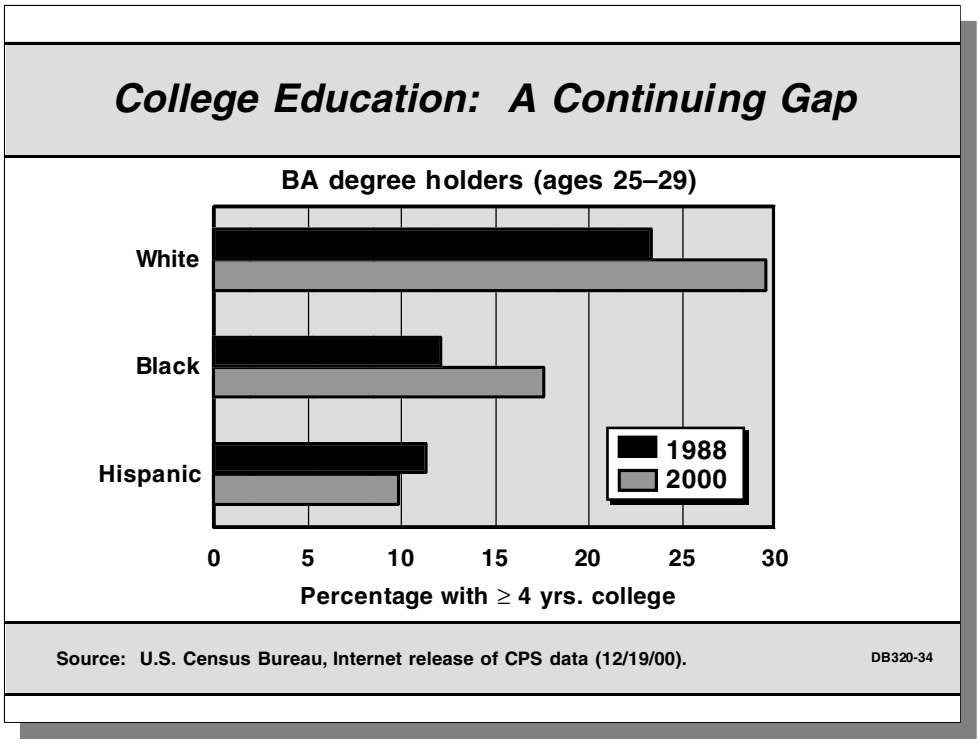
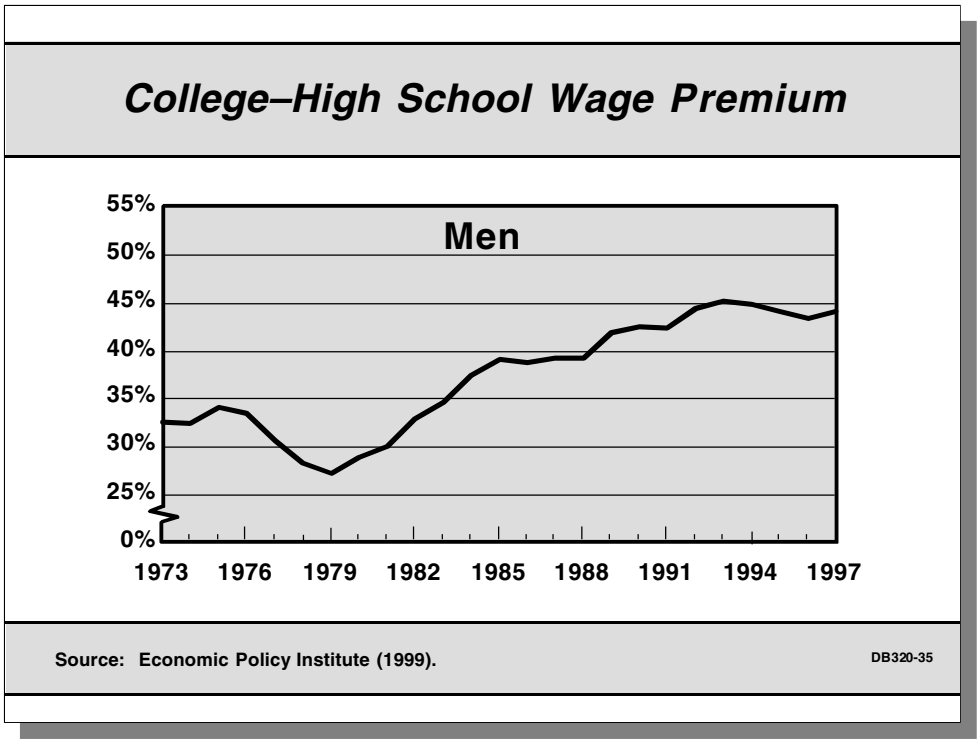
[15] U.S. Census Bureau, *Educational Attainment in the United States: March 2000 (Update)*, P20-536, Table 1. Updated annually at www.census.gov/ftp/pub/population/www/socdemo/educ-attn.html.



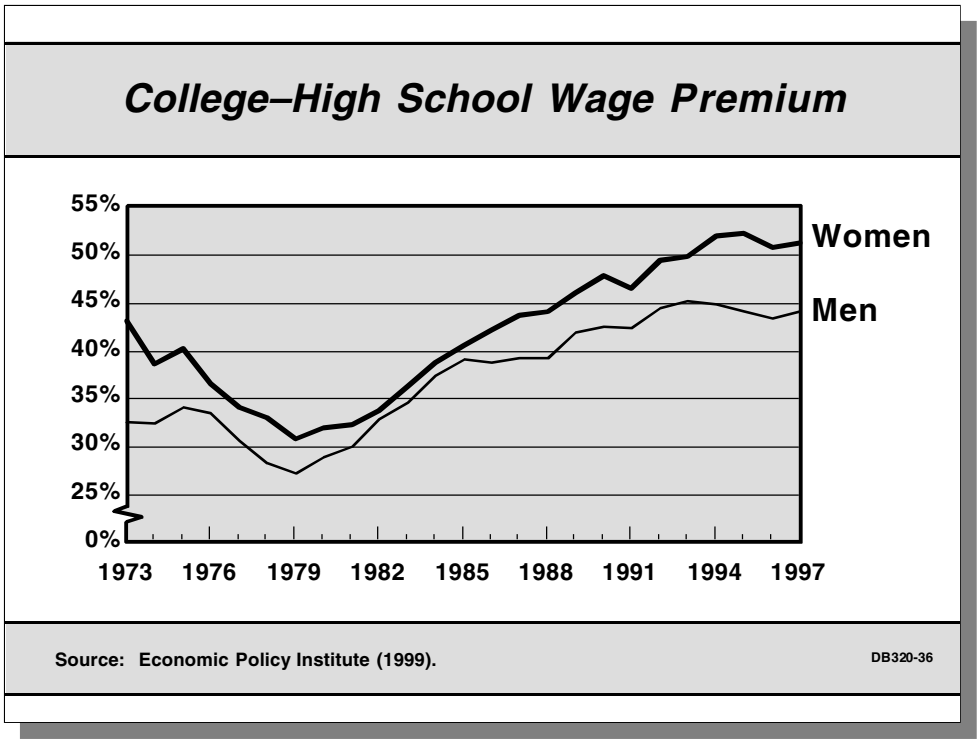
College completion, however, is a different story. Here, an education gap persists for both blacks and Hispanics. And the gap has actually worsened for Hispanics.

As seen here, college completion has risen for both white and black young adults, but the difference between those groups remains roughly the same. The college completion rate for Hispanics, however, has actually declined slightly. So in relative terms, young Hispanics are falling further behind in education attainment. In 2000, only 10 percent of Hispanics ages 25–29 held a bachelor's degree, compared with 18 percent of blacks and 30 percent of whites.

These educational attainment gaps matter for the nation's stock of human capital. They also matter for the affected individuals. And they matter for social stability. The existing disparities result in an "underclass" status for many U.S. blacks and Hispanics that will only worsen if remedial measures are not taken.



The risk of dramatic class stratification driven by education is very real, because the economic value of higher education has grown dramatically. This chart displays the increase in the wage premium attached to a college education relative to a high school diploma. In the 1970s, college-educated men enjoyed wages averaging about 30 percent higher than those of their high school–educated counterparts. Since then, however, the premium has risen steadily. It now hovers around 45 percent.



For women, the college–high school wage premium now hovers above 50 percent—and has consistently exceeded the corresponding premium for men. In short, a four-year college education (relative to a high school education) pays off in higher earnings—more than ever, and more for women than for men, even though women still earn relatively less than men do.

Labor markets are giving two clear signals. (1) There are opportunities for those with advanced and often technical education. This underscores access to education as an issue for national science policy. (2) More than ever, emphasis is placed on skills and skill acquisition.

Increasingly, potential consumers of higher education are responding to those signals. One RAND study found that the military services are beginning to miss their recruiting targets—which has not happened for many years—largely because more and more high school graduates plan to begin college immediately.[16] Another RAND study revealed that the demand for college seats is growing faster than the supply, both in California and nationwide.[17]

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[16] Unpublished RAND research by Beth Asch and M. Rebecca Kilburn.

[17] See Roger Benjamin and Stephen J. Carroll's *Breaking the Social Contract: The Fiscal Crisis in California Higher Education* (RAND CAE-1-IP, 1998).

The point here is not that everyone must have a four-year college degree.[18] It is that barriers may impede some who *should* finish college from doing so. From a public policy perspective, nothing should prevent individuals with the ambition and requisite ability from pursuing opportunities the market offers. These trends are a powerful reminder of the importance of education as an investment in the nation's future.

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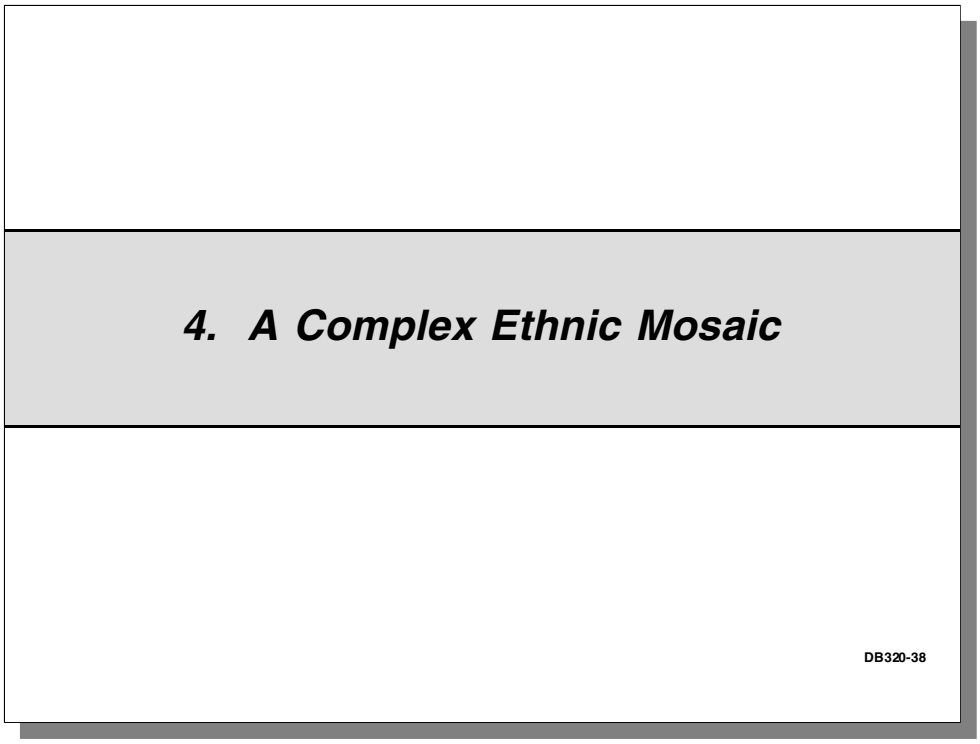
[18] See David Boesel and Eric Fredland's *College for All?* U.S. Department of Education, National Library of Education, January 1999.



Last but not least, a complex ethnic mosaic materializing across the country and the competing interests it fosters are reshaping the U.S. demographic picture. Recent U.S. Census Bureau projections[19] show the specifics at the national scale: a population in which persons of Hispanic origin will soon outnumber African Americans (by 2005); and non-Hispanic white (Anglo) persons will themselves eventually become a "minority," comprising less than half of all Americans (by 2060).

Counting by category, however, obscures the deeper story: the social change accompanying this demographic transformation. Intermarriage is rising, and more Americans can identify themselves as multiracial. (Indeed, the 2000 Census for the first time enabled anyone to do so through a newly inaugurated "check-all-that-apply" response to identify one's self racially.) Even in the mid-1990s, an estimated 20 percent of Americans counted someone of a different racial group among their kin.[20]

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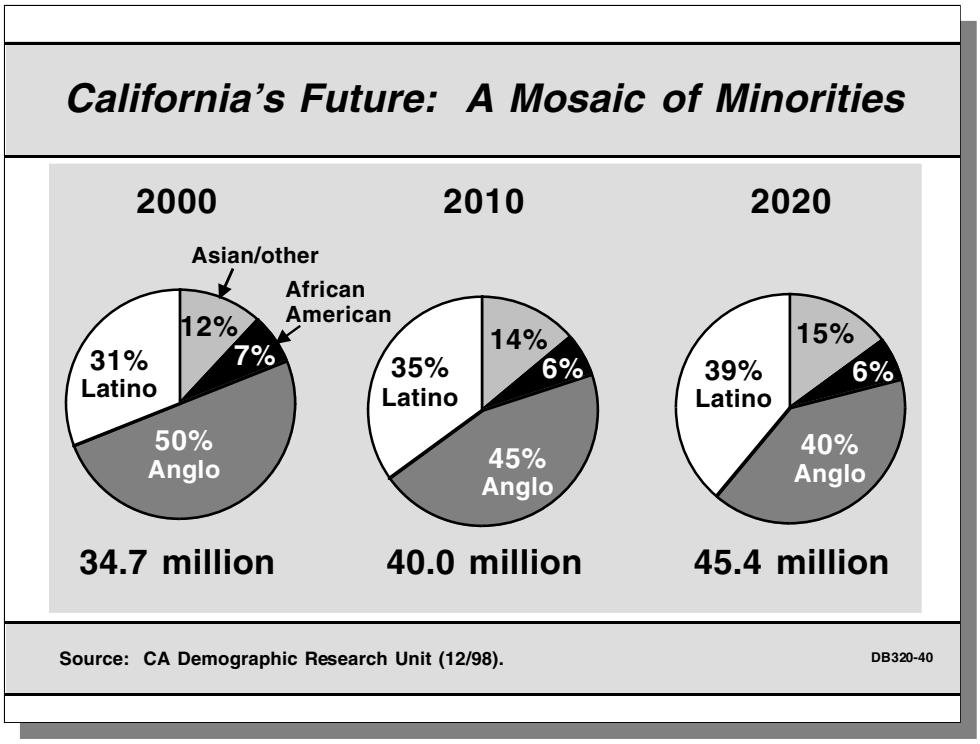
[19] U.S. Census Bureau, "Projections of the Resident Population by Race, Hispanic Origin, and Nativity: Middle Series, 1999–2070," Table NP-T5, Internet release date January 13, 2000.

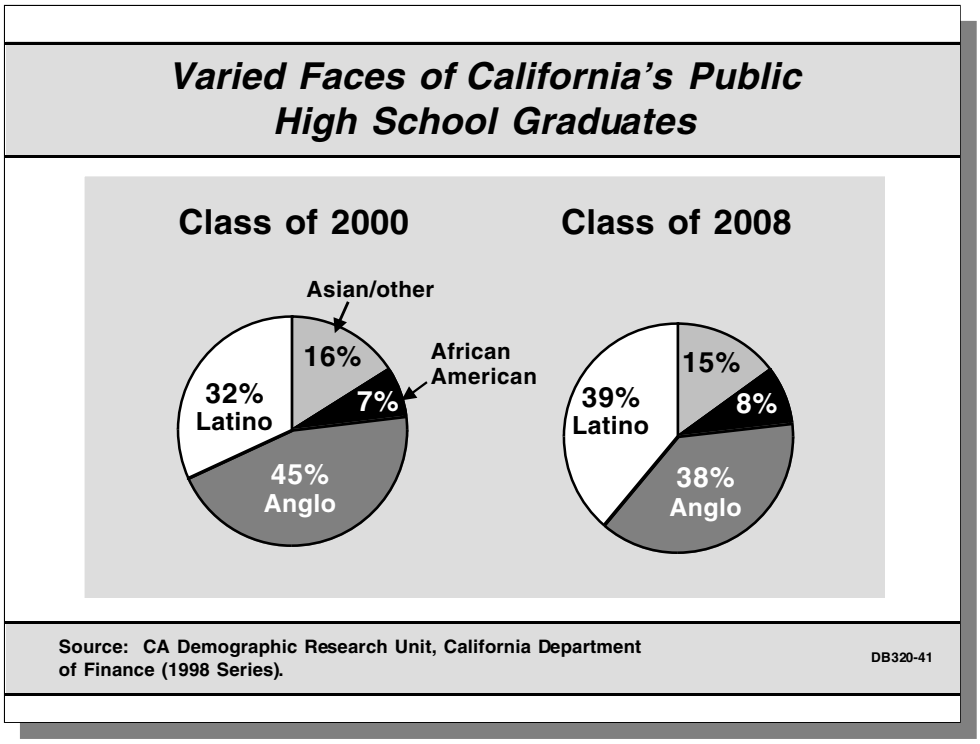
[20] Joshua R. Goldstein, "Kinship Networks That Cross Racial Lines: The Exception or the Rule?" *Demography* 36 (3), August 1999, pp. 399–407.

Many facets of the nation's future have already become apparent in California. For many years, California has served as a national entry port for a complex mix of newcomers unified by the singular strength of personal motive. As this slide shows, those streaming into California from around the world include immigrants seeking their fortunes beyond their regions of birth as well as refugees and those seeking asylum.

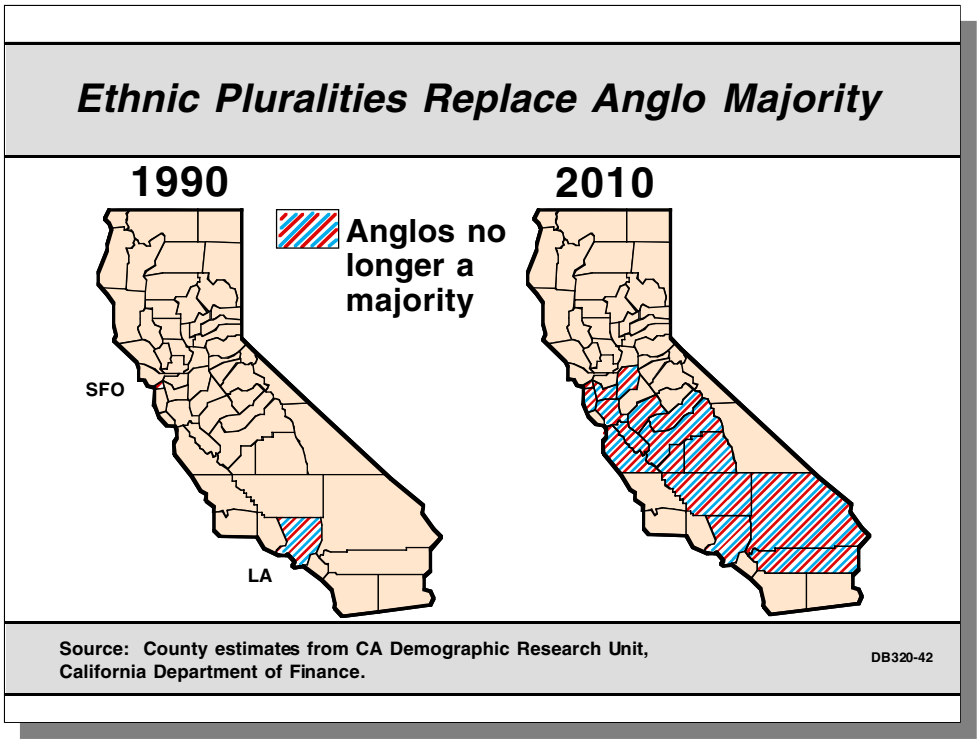


Largely as a result of this "entry port" status, California is on the verge of becoming the first state in which everyone is a minority (mathematically speaking). The United States as a whole is gradually advancing toward that future, unsure what it will be like to live in a nation in which no single racial or ethnic group predominates.

California, however, has become the proving ground. In California, the very term "minority" is nearly outmoded. As the above chart shows, the non-Hispanic white majority is about to disappear, as Anglos shrink to fewer than 50 percent of the state's population. Such statistical abstractions become more palpable when their effects are more immediate in people's lives, e.g., in schools or within one's local community.



At the school ages, that future has already arrived, as seen in this chart, which summarizes California's official projections of public school enrollments. On a statewide basis, the first public high school graduating class of the millennium is 45 percent Anglo, 32 percent Latino, 16 percent Asian and others, and 7 percent African American. Eight years later (in 2008), Latinos will outnumber Anglos.



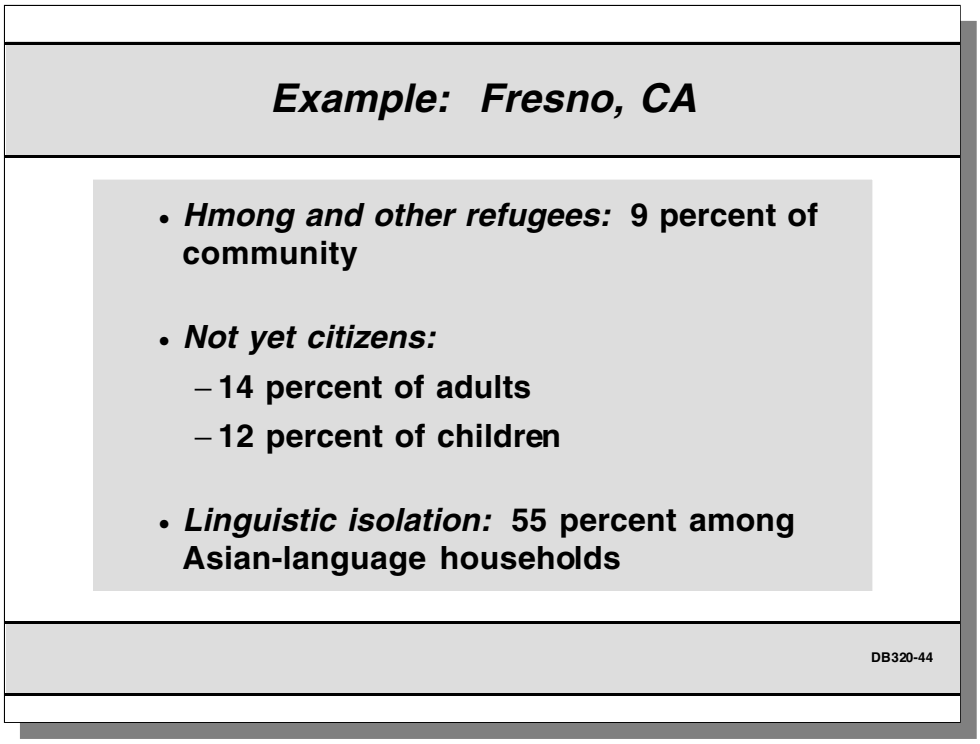
Projections at the state level tell one part of the story. How these overall developments manifest themselves in local communities will have more immediate significance, since all politics really *are* local. At the county level, for example, these ethnic changes are projected to materialize according to a distinct regional pattern, shown here. In 1990, the populations of only two California counties—Los Angeles and San Francisco counties—were less than 50 percent Anglo. By 2010, a mosaic of minorities will populate most of central and southern California. In coming decades, other states and sections of the nation will accommodate comparable versions of this demographic transformation.

The local political situations that result will have a strong bearing on public policy. The fundamental issue is maintaining local cohesiveness when commonality of interest derives solely from ethnicity or race. One way that our political system has given voice to minority groups has been the ethnic partitioning of space by single-member electoral districts. At the local municipal scale, such districts can confer on one or another group (e.g., Hispanic or black) the ability to elect candidates of their choice from a district where that one group predominates among voters. A potential pitfall of such solutions, however, is the perpetuation of separatism within a community.[21]

[21] See Peter A. Morrison's "Demographic Influences on Latinos' Political Empowerment: Comparative Local Illustrations," *Population Research and Policy Review* 17 (1998), pp. 223–246.

Under ethnically based districting, each district is premised on the notion that common interests are linked exclusively to ethnic identity. Such reinforcement of ethnic separatism is controversial. In recent decisions, the Supreme Court has yet to resolve this fundamental issue of public policy.

The quandary here is to balance the interests that unify a local community with those that distinguish or divide its members. The issue will arise with increasing frequency as the numeric balance among groups quite visibly shifts toward the dramatic local concentrations shown on the map.

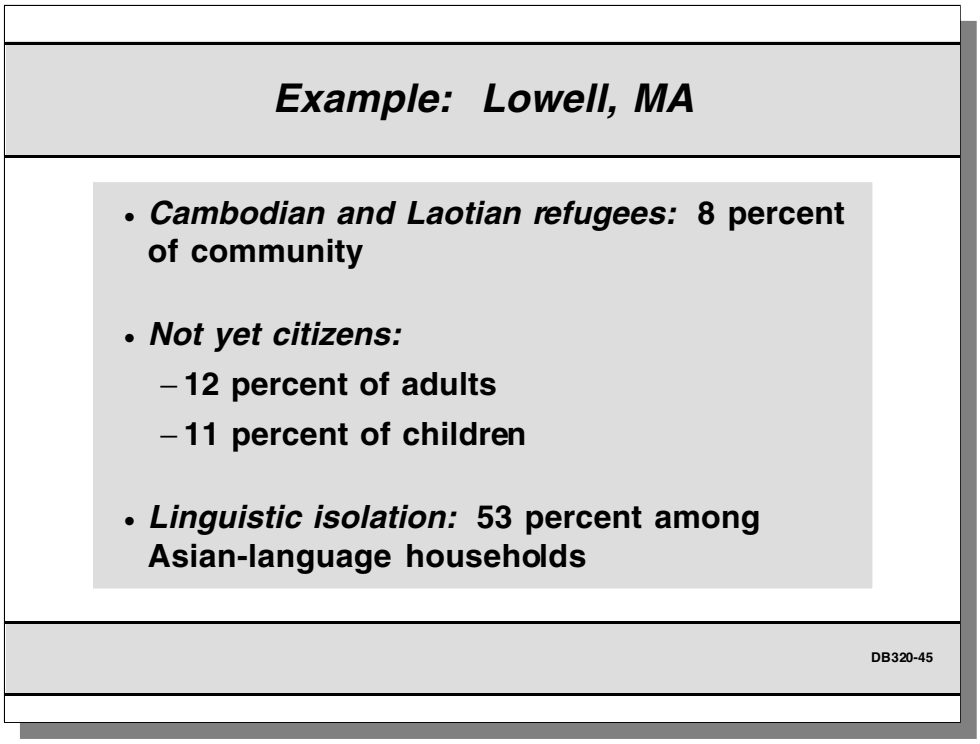


Individual communities will display local variations of these themes.

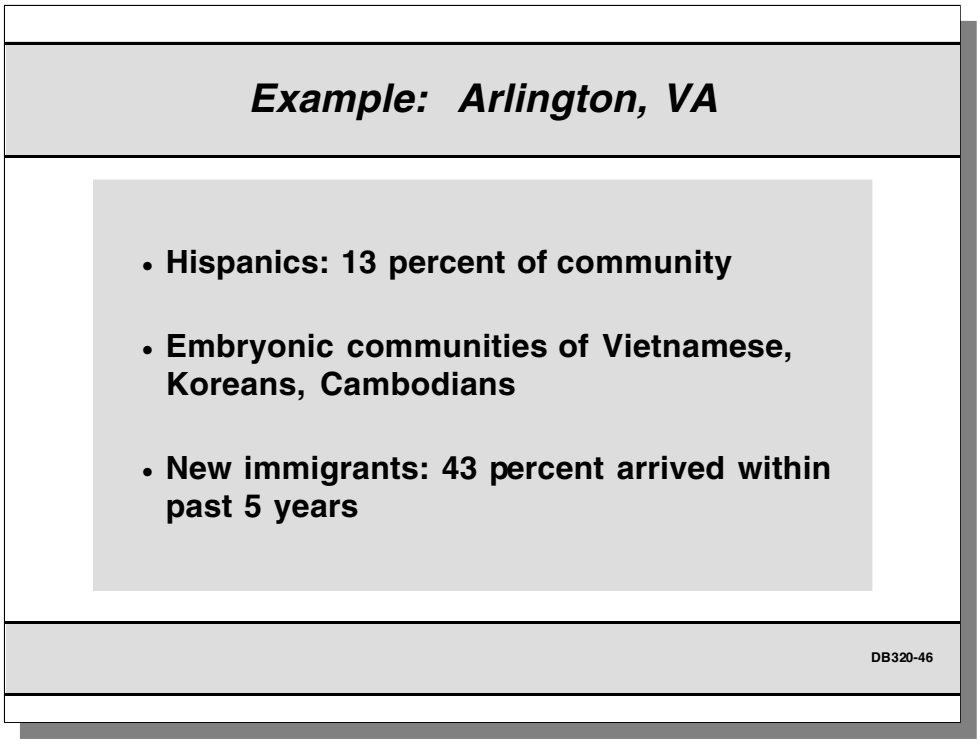
In California, the city of Fresno affords one illustration (using data from the 1990 census). Fresno may possess few of the standard prerequisites of urban greatness, but this city is home to many of the nation's Hmong (native to Laos) and other refugees who collectively constitute 9 percent of Fresno's population. Moreover, 14 percent of Fresno's adults were not yet citizens in 1990, and 12 percent of its children were noncitizens. Over half of Fresno's Asian-language households were linguistically isolated.[22]

Fresno is not just some demographic anomaly peculiar to California. The numbers from this slide (9, 14, 12, and 55) have their counterparts elsewhere in the nation.

[22] A household is "linguistically isolated," according to census definition, when no household member 14 or older speaks only English and no member 14 or older who speaks a language other than English also speaks English "very well." Under this definition, "isolation" derives from the absence of anyone in the household who is fluent in both English and the non-English language(s) other household members speak.

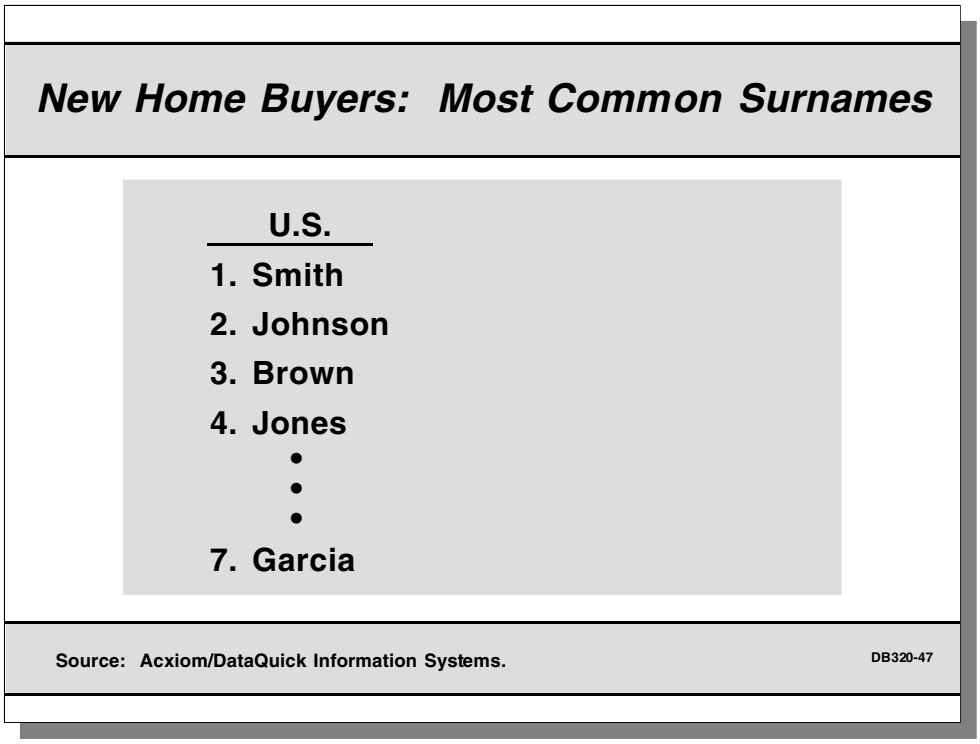


Lowell, Massachusetts, a suburb of Boston, is one such community. The corresponding percentages here are nearly the same as in Fresno—8, 12, 11, and 53. The only difference is the refugee groups involved: Whereas Fresno is a magnet for Hmong persons, Lowell has attracted Cambodians and Laotians.

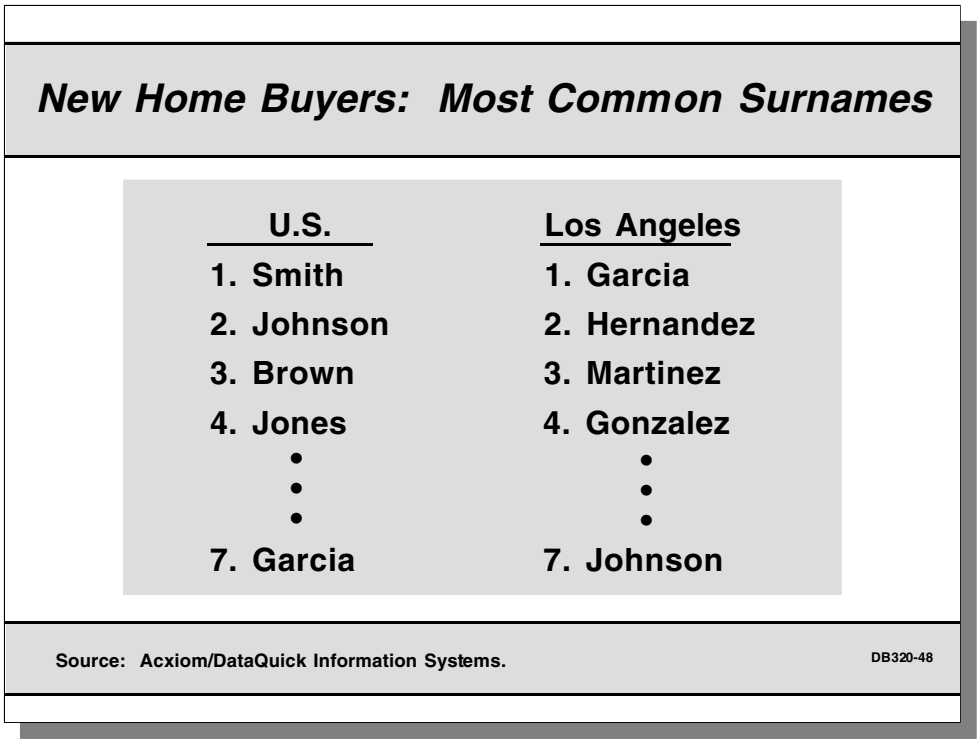


Arlington, Virginia (near Washington, D.C.), further illustrates the advance of ethnic pluralism around the nation. (Note that these data are from 1990.)

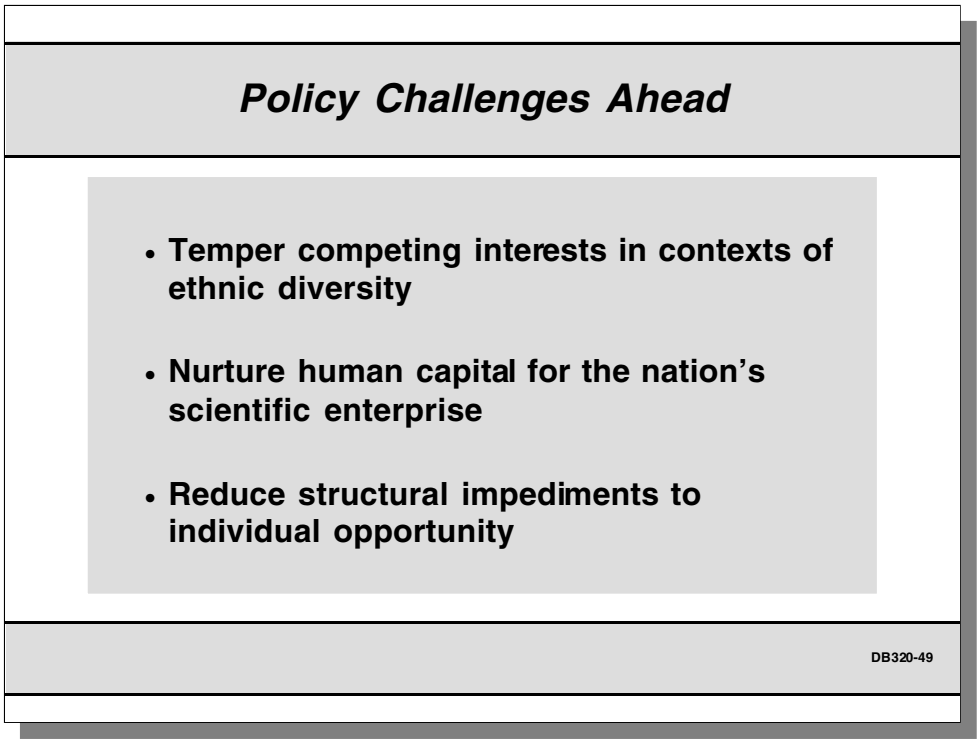
The once-extraordinary ethnic diversity of Fresno will become (as in Lowell and Arlington) a more ordinary feature of local urban landscapes.



A useful barometer of advancing ethnic pluralism at the local scale is the change visible in the names of new home buyers—those realizing the "American dream" for the first time. Typically, they are named Smith, Johnson, Brown, and Jones, with Garcia in seventh place.



In Los Angeles, new home buyers most often are named Garcia, not Smith . . . and Hernandez, not Johnson.



In closing, let me highlight the major policy challenges that national demographic changes will pose over the coming decade.

The first challenge will be to temper the competing interests within ethnically diverse areas. Computer literacy, access to the Internet, and educational opportunity will be central concerns among groups who perceive their children to be at a disadvantage.

The second challenge will be to nurture human capital for the nation's scientific enterprise. That challenge calls for policies to strengthen the educational infrastructure, which produces the scientific skills the nation's economy will demand.

The third challenge will be to address impediments to individual opportunity, including educational disparities and remnants of a "digital divide."

Demographers such as myself can offer knowledge, insights, and data—a chart of the challenges ahead, as sketched here, and perhaps even lessons from past demographic trends. Addressing these challenges will call for the creativity, resolve, and leadership of both scientists and national leaders.